Wildland Weeds

FALL 2003

New from the Aquatic Prescription Specialists

Renovate® Aquatic Herbicide

Introducing the newest aquatic herbicide development in over 15 years, Renovate aquatic herbicide.

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.

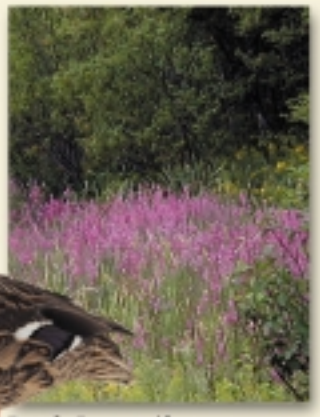
Renovate. We couldn't think of a better name for wetland and lake restoration.

Renovate is a systemic herbicide which controls the entire plant. Renovate rapidly enters plants through leaf and stem uptake, moving throughout plant tissues and downward into the roots disrupting the plant's growth metabolism. Renovate stimulates uncontrolled growth that results in bending and twisting of stems and leaves—"epinasty"—and ultimately results in the collapse of the plant.

Renovate was developed to control submersed, emersed and floating aquatic plants such as:

Eurasian Watermilfoil

Alligator Weed



Purple Loosestrife

Water Hyacinth

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.

And because Renovate is very effective on broadleaf plants, while leaving beneficial native grasses untouched, it accelerates habitat "renovation."

Renovate's selective, systemic chemistry is an outstanding partner in rotation with biological control agents and is an excellent choice for use in Integrated Pest Management (IPM) programs. And Renovate's formulation is compatible with other aquatic herbicides, adjuvants, and surfactants providing greater application flexibility—outperforming comparable application programs.

For more information about Renovate, contact your SePRO Aquatic Specialist, or call us at **1-800-419-7779**. Visit our web site at **www.SePRO.com**.

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SePRO

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Wildland Weeds

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Visit these websites:
Florida EPPC: www.fleppc.org
Southeast EPPC: www.se-eppc.org

Wildland Weeds (ISSN 1524-9786) is a quarterly publication of the Florida Exotic Pest Plant Council (FLEPPC) and the Southeast Exotic Pest Plant Council (SE-EPPC).

Wildland Weeds is published to provide a focus for the issues and concerns regarding exotic pest plant biology, distribution and control. To become a member of FLEPPC or SE-EPPC and receive the Council newsletter and *Wildland Weeds* magazine, contact the respective Treasurer.

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Kathy Craddock Burks
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Tom Fucigna
Ken Langeland

On the Cover:

Ardisia elliptica, Shoebutton ardisia, showing ripe (black) and unripe (red) fruit. A FLEPPC Category I List species. See the new 2003 Plant List in the pullout section. *Photo by Ken Langeland.*

editor's note

Dear Readers,

Please tear up this issue, literally! At the centerfold you will find the **2003 FLEPPC List of Invasive Species**. This issue has been constructed so that you can remove the list along the perforations and have a stand-alone copy for handy reference. On the other side of the centerfold, you will find Ken Langeland's article that provides herbicide advice for homeowners, and Amy Ferriter's article that suggests native alternatives to exotic pest plants. Both of these articles also are removable for stand-alone reference guides. Please use them in your own activities and share them with others.

On another note, I would like to thank the FLEPPC Board of Directors for giving me the *FLEPPC Member of the Year 2003* award at the recent Florida symposium. I deeply appreciate this recognition. Editing **Wildland Weeds** for the past year has been a challenge, but it also has been extremely rewarding and, most definitely, my privilege. *Thank you!*

— Karen Brown, Editor

REQUEST FOR PROPOSALS FOR INVASIVE PLANT RESEARCH

Deadline: February 27, 2004

The Florida Exotic Pest Plant Council (FLEPPC) has available funding for a small number of research grants/scholarships for students conducting studies related to invasive exotic plant management in Florida.

The deadline for proposal submission is February 27, 2004. Written proposals should be no more than three pages in length and should request funding for no more than $2,500. The proposal should include a summary of the research project and its relationship with Florida exotic plant management problems. Particular plant species involved in the study should be one or more of the Category I or Category II exotic pest plant species listed by FLEPPC (see web site: www.fleppc.org). In addition, the applicant should provide complete contact information and a detailed budget, with an explanation of how the funding will be used. Examples include (but are not limited to) travel funds for field work, funds for research equipment or supplies (or temporary use of specialized equipment), stipend for applicant's project work time not otherwise supported, travel funds for presentation of the research, etc. In developing the budget, funds requested are to be used for the direct costs of conducting research on the proposed project and are not to be used for indirect costs incurred by the student's university.

Proposals will be evaluated and ranked on the critical management need for scientific results in the area of study and on the clarity of the submitted request.

Basic eligibility requirements:

To be eligible for funding, applicants must be an undergraduate or graduate student enrolled at an accredited institution of higher learning anywhere within the United States. However, the research must be on a listed Florida invasive plant (http://www.fleppc.org/Plant_list/list.htm). An accompanying letter of recommendation from a faculty advisor is strongly encouraged.

Send proposals by e-mail, fax, or mail to:

John C. Volin, Chair
Research Committee, FLEPPC
Florida Atlantic University
2912 College Ave.
Davie, FL 33314
jvolin@fau.edu
FAX - (954) 236-1099
office - (954) 236-1115

Proposals are due by 5:00 p.m. February 27, 2004.

18th Annual FLEPPC Symposium a Success!

The 18th Annual Symposium of the Florida Exotic Pest Plant Council took place June 5-6 at the beautiful and historic Renaissance Vinoy Resort in St. Petersburg. "Success, What Does It Take?" was the theme and, by all accounts, we found out. Interesting and informative presentations told stories of success including forest restoration in Miami ten years following the Hurricane Andrew disaster, coordination among all stakeholders as a key tool to success in a control program, successful battles against Old World Climbing Fern at the Avon Park Air Force Range and Cogon grass control in the Withlacoochee State Forest. These were followed by a full session of positive presentations on biological control options. Also described was a non-native plant student outreach program culminating in a successful Air Potato Raid. Kathy Burks and Ken Langeland presented an extremely popular invasive plant identification session, followed by a useful session on vegetation control equipment and how to maintain it. Phil Waller followed up with a presentation on planning a control program with herbicides. The final event of the meeting was a morning of Restricted Use Pesticide (RUP) Core training, followed by the RUP licensing tests. The conference was attended by 154 people, with participation from 15 vendors.

The annual business meeting saw the departure of board members JB Miller, Tom Fucigna, Kathy Burks, and Jim Burney, and the installation of new board members Robert Egan, Chris Lockhart, Amy Ferriter, and Matthew King. Dr. Patrick Gleason (see below) of the South Florida Water Management District was awarded "*FLEPPC Advocate of the Year*," and Karen Brown was awarded "*FLEPPC Member of the Year*" for her work as editor of WILDLAND WEEDS. Mr. Jim Burney was elected Chair for the upcoming year. A new public relations committee was formed with Tom Fucigna and Katy Roberts volunteering their time and energy for this important task.

Special thanks to our vendors:

- BASF
- DOW AGROSCIENCES
- DUPONT IVM
- PROSOURCE ONE
- CEREXAGRI
- HELENA CHEMICAL
- SEPRO
- UAP TIMBERLAND LLC
- AQUATIC VEGETATION CONTROL
- BREWER INTERNATIONAL
- CHEMICAL CONTAINERS
- NATURCHEM
- PANDION SYSTEMS
- SYNGENTA
- NATURAL RESOURCE PLANNING SERVICES

Thank You, Dr. Gleason

Dr. Patrick Gleason was named the Florida Exotic Pest Plant Council's "Advocate of the Year," by chair Mike Bodle at the 2003 annual meeting in St. Petersburg. Dr. Gleason has a long history of environmental action in Florida. During the past four years, while serving as a governing board member of the South Florida Water Management District, he fought to keep invasive plant management issues a priority for that agency, as well as other environmental organizations in which he is active. In 2003, Dr. Gleason supported torpedograss management in Lake Okeechobee and he lobbied tirelessly for Old World climbing fern control both in Florida and at the national level. He made numerous presentations on exotic plant issues, with special emphasis on Old World climbing fern, to many groups, including the Everglades Coalition, National Invasive Weeds Awareness Week attendees, and the Greater Everglades Ecosystem Restoration science conference. Dr. Gleason has continually lent his voice to many other forums seeking consistent funding for all aspects of invasive weed problems in South Florida. He spends many hours lobbying in Washington, Tallahassee and behind the scenes, seeking to keep invasive plant management in the spotlight for Florida's environmental planners and policymakers. He is a regular guest on a popular Palm Beach County talk radio station where he articulates the often complex issues and repeats a mantra that environmental restoration cannot happen in Florida without finding solutions to invasive plant infestations.

Dr. Gleason is a Florida native whose undergraduate studies at the University of Notre Dame in Indiana's frozen north convinced him to make his career back in his home state. He was employed at the SFWMD for many years as a senior environmental engineer and is currently a lead environmental engineer at Camp Dresser and McKee, Inc.

Thank you, Dr. Gleason, from the Florida Exotic Pest Plant Council!

Lonicera maackii

Tackled by Nashville's Metro Parks and Recreation Department and Vanderbilt University

by Jill Smith and Steve Baskauf
photos by Dr. Steven J. Baskauf, Vanderbilt University

One professor, two park staff members, seven college classes, fifteen teaching assistants, and nearly 400 students added up to one great team that spent a week removing bush honeysuckle (*Lonicera maackii)* from one of the 100 Metro parks in Nashville, Tennessee. The Warner Parks, a 2,700-acre area listed on the National Register of Historic Places in southwest Nashville, was the project focus for the partnership.

With the promotion of Warner Park staff to get schools out of the classroom and into the Park, and the dedication of one professor to teaching his students in a service-learning environment, the weeklong venture was a great success. Planning began months in advance to prepare for additional tools, site planning, pre-lab assignments, organization, transportation, and in-depth training for the teaching assistants. Students were given a reading assignment that gave a historical account of the introduction of *Lonicera maackii* to the United States. It described the impact of bush honeysuckle on natural areas and the mode of distribution through local garden centers and the Soil Conservation Service. Seven lab classes with 30-60 students per class spent 1½ hours in the Park. They were transported by van to the same location every day where they could see the work already accomplished by their classmates. Park staff gave an introduction that addressed the problem of invasive exotic plants and animals, Warner Parks problem plants and the difficulties faced in removing them, prevention, plant identification and tool safety.

Students were given gloves, a plant sample, and either a mattock or a weed wrench. They worked in groups of 15 with their teaching assistant to confirm that they only were removing the target plant while leaving native trees and shrubs to flourish. The size of trees, *Lonicera maackii* shrubs were no match for the strength of the college students who stood next to 15' specimens without shying away from the challenge of removing them. The slope of the work site made safety a concern but also contributed to the success of the students. *Lonicera maackii* does not root deeply on slopes with rocky soils, so removing the largest shrubs and their roots was both possible and thorough. Students seemed to enjoy the experience and felt the rewards of their work as they left the site. Instead of walking through a dense forest with no sunlight reaching the earth, they saw *Lonicera maackii* shrubs hanging upside down from trees to dry out, and native plant leaves glistening with sunlight.

Not only did this project help the Parks directly but hopefully it will continue to affect natural areas as these students spread the word about invasive plants and reflect back on a day in 2003 when they saved the Warner Parks from a horrible dominating weed.

For more information, contact Jill Smith at Warner Park Nature Center, (615)352-6299 or Dr. Steve Baskauf at Vanderbilt University, Steve.Baskauf@Vanderbilt.edu

Best Books

Following is a short selection of favorite books for Florida gardening, recommended by various FLEPPC members:

Black, Robert J. & Gilman, Edward F. 1997. *Your Florida Guide to Bedding Plants: Selection, Establishment and Maintenance*. University Press of Florida, Gainesville.

Bodle, Mike, ed. 2003. *WaterWise: South Florida Landscapes*. South Florida Water Management District, West Palm Beach, FL.

Gilman, Edward F. & Black, Robert J. 1999. *Your Florida Guide to Shrubs*. University Press of Florida, Gainesville, FL.

Haehle, Robert & Brookwell, Joan. 1999. *Native Florida Plants: Low Maintenance Landscaping and Gardening*. Gulf Publishing Co., Houston, TX.

Hammer, Roger L. 2002. *Everglades Wildflowers: A Field Guide to the Common Wildflowers of the Historic Everglades, Including Big Cypress, Corkscrew, and Fakahatchee Swamps*. The Globe Pequot Press, Guilford, CT.

Jameson, Michael & Moyroud, Richard, eds.1991. *Xeric Landscaping with Florida Native Plants*. Association of Florida Native Nurseries, 1991.

Nelson, Gil. 1994. *The Trees of Florida*. Pineapple Press, Sarasota, FL.

Nelson, Gil. 1996. *The Shrubs and Woody Vines of Florida*. Pineapple Press, Sarasota, FL.

Nelson, Gil. 2000. *The Ferns of Florida*. Pineapple Press, Sarasota, FL.

Osorio, Rufino. 2001. *A Gardener's Guide to Florida's Native Plants*. University Press of Florida, Gainesville, FL.

Shaefer, Joe & Tanner, George. 1998. *Landscaping for Florida's Wildlife: Re-creating Native Ecosystems in Your Yard*. University Press of Florida, Gainesville, FL.

Suncoast Native Plant Society. 1997. *The Right Plants for Dry Places: Native Plant Landscaping in Central Florida*. Great Outdoors Publishing Company, St. Petersburg, FL.

Taylor, Walter Kingsley. 1998. *Florida Wildflowers in Their Natural Communities*. University Press of Florida, Gainesville, FL.

Wasowski, Sally & Wasowski, Andy. 1994. *Gardening with Native Plants of the South*. Taylor Publishing, Dallas, TX.

Yarlett, Lewis L. 1996. *Common Grasses of Florida and the Southeast*. Florida Native Plant Society, Spring Hill, FL.

Nonnative Invasive Plants of Southern Forests:
A Field Guide for Identification and Control

An excellent new guide for identifying and controlling invasive plants in Southern forests has been published by the USDA Forest Service Southern Research Station (SRS). Written and photographed by Dr. James H. Miller, research ecologist at the SRS Forest Vegetation Management unit in Auburn, AL, "**Nonnative Invasive Plants of Southern Forests**" provides a resource for individuals and agencies trying to identify and control the spread of the worst 33 nonnative plants that are aggressively invading the Southern region.

The identification section of the guide provides complete easy-to-read descriptions of each plant, its ecology, the plants it resembles, history and use. Detailed photographs illustrate how each plant looks in different seasons of the year, including leaves, flowers, fruits, stems, and overall shape. The guide also includes maps showing states where infestations occur. Other invasive plants of major concern also are listed.

The book offers both general and specific prescriptions for effectively controlling the 33 worst invading plants. Illustrated directions are provided for applying herbicides to nonnatives, while avoiding damage to native plants. Other control tools for an integrated management approach also are included.

This publication can be downloaded in pdf format or ordered at the Southern Research Station web site at www.srs.fs.usda.gov. To request a printed copy, call 828-257-4830, or email pubrequest@srs.fs.usda.gov and ask for GTR-SRS-62. Copies can be requested by mail from: Southern Research Station Publications, 200 W.T. Weaver Blvd., P.O. Box 2680, Asheville, NC 28802.

A Complete Listing of All Invasive Plants of Concern in the Southern Region

401 invasive plants of threat or concern to the southern region of the United States have been compiled into a most valuable new spreadsheet available on the Internet.

"**Invasive Plants of Thirteen Southern States**" includes all invasive plants regulated by law in any of the 13 southern states, plus those prohibited by federal agencies pertaining to these states, and those listed by state exotic pest plant councils.

The web-based spreadsheet can be sorted by species, state, growth form or any of the other headers in the table, with a click of the mouse. There also are links to images and added information for most species. It readily reveals the states with noxious weed laws, and invasive plant councils with invasive species lists. This should greatly assist other states that lack laws or lists in constructing their own, and will help all states in making their lists complete. Adjacent states can view what their neighbors are doing to combat invasive plants, and councils and state governments can see

what others judge as threatening species. Links take users to respective web sites with the complete laws and lists for each state. These include laws in Alabama, Arkansas, Florida, North Carolina, and South Carolina; lists in Florida, Georgia, Kentucky, Mississippi, Tennessee and Virginia; and the Federal Noxious Weed List. Also included is the list of invasive plants being monitored by the USDA Forest Service, Southern Region and state forestry agencies as part of the Forest Inventory and Monitoring Survey. The USDA Forest Service's "Regional forester's list and ranking structure of invasive exotic plant species of management concern (2001)" has been included as a "policy" that guides invasive plant management on National Forest lands.

This unique tool was compiled by James H. Miller (jmiller01@fs.fed.us) and Erwin Chambliss, USDA Forest Service, Southern Research Station, and armed for web use by Charles T. Bargeron, The Bugwood Network, University of Georgia. It can be accessed at the Bugwood web site, **http://www.invasive.org/seweeds.cfm** or from the SE-EPPC web site, **www.se-eppc.org**, (see Invasive Plants of Southern States Lists).

Recent Activities in the Southeast EPPC

by Brian Bowen, President SE-EPPC

The Southeast EPPC has seen much activity during the past several months. The Board met this past spring in Lexington, Kentucky prior to the 5th Annual Southeast EPPC Symposium and then met again on July 25th in Columbia, South Carolina. Both meetings were fruitful and provided SE-EPPC impetus to continue growing as an organization to raise awareness about the threat of invasive plants to natural areas.

First and foremost, **Kentucky EPPC** should be congratulated for hosting yet another successful SE-EPPC annual symposium (see page 11). As usual, the agenda was informative and interesting with a wide variety of speakers sharing valuable knowledge on numerous topics. The meeting was also a huge financial success with more than $10,000 in sponsorship support received, and with revenues from registration exceeding symposium expenses. Furthermore, Kentucky held a successful silent auction that was the first of its kind at a SE-EPPC symposium. The KY-EPPC Board deserves much credit for all the hard work in making the symposium a great success.

Some important news emerging during these past few months includes the establishment of the **Alabama Invasive Plant Council** and the **South Carolina EPPC**. The Alabama organization actually began organizing in the spring of 2002 as David Teem, one of its cofounders, attended the SE-EPPC Board meeting in Nashville. Alabama's first organizational meeting was held last fall in Montgomery and then a 1st annual meeting was held in spring 2003 where they elected officers, adopted bylaws, and formally became an organization. Keith Tassin, Director of Stewardship for The Nature Conservancy of Alabama, was elected as Alabama's first president.

In South Carolina, the SC-EPPC was established on June 5 in Greenville at the *Terrestrial Plant Invasions in the Temperate South Conference* (see p. 12). SC had formerly been an affiliate member of SE-EPPC through the SC Native Plant Society. A steering committee was formed which began reviewing bylaws. At the July 25th meeting, the SC Board was elected, and Robin Roecker, botanist for the US Forest Service in South Carolina, was elected president.

The Columbia meeting on July 25 coincided with the summer SE-EPPC Board meeting. The SE-EPPC Board met jointly for half a day with SC-EPPC participants. This type of joint meeting gives newly forming organizations an understanding of how SE-EPPC functions and provides an opportunity for everyone to get acquainted. The SE-EPPC Board met in Birmingham with the Alabama participants the year before and found this beneficial for everyone.

SE-EPPC continues to grow with eight state chapters now in the region. As we grow, ideas are emerging to make us more proactive. The Board has agreed to launch a regional initiative to begin an interaction with Wal-Mart and the other largest chain nursery retailers to raise awareness about invasive plants. It is the intent of SE-EPPC that through a cooperative effort, these major retailers will begin removing the worst invasive species from their retail inventory. This initiative will be regional in scope and will rely on assistance from our state chapters.

A couple of final notes: next year's annual symposium will be held on the Gulf coast (final location and date yet to be determined). While the symposium will have its usual presentations that are regional in scope, it will focus on some of the major threats in the coastal plain section of our region. This is a very broad section of the Southeast extending north along the Mississippi Embayment into west Tennessee and along the east coast into Florida, SC, NC and VA and, of course, the Gulf coast states.

Last but not least, please check out the SE-EPPC web site: **www.seeppc.org**. Several new items will be found there, including comprehensive links with other information sources, the new SE-EPPC Vegetation Management Manual, links to Upcoming Events, as well as a calendar of upcoming events and a composite of all the invasive plant lists in the Southeast. You also will find that the State Chapter sections are becoming very informative. We hope you will use this web site and make suggestions for improvements. The contact information for your state web site coordinator is there for your feedback.

Fifth Annual SE-EPPC Symposium

by Joyce Bender

One hundred participants gathered in Lexington, Kentucky May 15-17 to attend the fifth annual Southeast Exotic Pest Plant Council symposium on invasive plants hosted by the Kentucky Exotic Pest Plant Council. Attendees from as far away as Wyoming and Pennsylvania and everywhere in between enjoyed two days of presentations on a variety of topics including the status of the St. Louis Declaration a year and a half after implementation, the invasion of exotic plants into fire sites in the Great Smoky Mountain National Park, Ohio's efforts to curb invasive plants on their wildlife management areas, herbicide application methods and equipment, new products from Monsanto and BASF, as well as integrated roadside management techniques employed by the Kentucky Transportation cabinet.

The keynote address by Randy Westbrooks, invasive plant coordinator for the USGS, focused on the national early warning and rapid response system that is being developed for invasive plants. The Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) envisions this project as improving our ability to detect, report and identify new plants that are suspected of being invasive. A coordinated framework will enable a quicker assessment of potential threat and assist in a faster response for eradication of the species.

Researchers presented their latest findings on Japanese stiltgrass (*Microstegium vimineum*); how seasonal metabolism affects control of bush honeysuckle (*Lonicera maackii*); how to convert exotic grass infestations to warm season grasses; the best means to control Chinese privet (*Ligustrum sinense*); and predicting plant invasions in forests. Presenters from Florida made us glad we don't have to contend with Old World Climbing Fern (*Lygodium microphyllum*) and gave us hope that an integrated approach to Melaleuca (*Melaleuca quinquenervia*) control will bring success.

Other presentations focused on developing interagency teams and working with private partners to control widespread, large-scale infestations, illustrated by work being done in Illinois on kudzu (*Pueraria montana*) and on Japanese knotweed (*Polygonum cuspidatum*) in southeastern Pennsylvania. A cogongrass (*Imperata cylindrica*) task force is being developed by the Commissioner of the Mississippi Department of Agriculture and Commerce. Let's hope we hear from this task force at a future SE-EPPC symposium.

Rain dampened everyone's enthusiasm for the hikes to natural areas of the state's Bluegrass region, but those in attendance at the Saturday morning herbicide application workshop enjoyed a very informative session given by professors J. D. Green and Bill Witt from the University of Kentucky's School of Agriculture.

Symposium sponsors received a lot of attention from participants who visited their booths for free samples and good advice. Our sponsors helped us keep the costs low and deserve our sincere thanks: BASF, Dow AgroSciences, Inc., Monsanto, Syngenta, The Nature Conservancy, Third Rock Consultants, LLC and the U.S. Forest Service. The Reel World String Band provided entertainment at the Thursday night social where the silent auction brought in over $800. The KY EPPC wishes to thank all of the vendors and organizations that donated items to the auction. The Autumn Olive Wine was especially notable for both the price of the final bid and the fact that the winners offered tastes for a dollar. I think I can speak for everyone who tried it that this vintage won't be turning up at your local wine shop any time soon.

First Regional Workshop held on

Managing Terrestrial Plant Invasions in the Temperate South

Identification and control methods of 33 of the most invasive plants was the focus of the first regional workshop, *Terrestrial Plant Invasions of the Temperate South: The Problem, Consequences, and Taking Control,* held June 4-5 in Greenville, South Carolina. Aimed at arming managers, landowners, and consultants with the latest information, "the rest of the story" also was covered by an expert panel, with presentations on monitoring, restoration, and accessing the developing information networks. The 220 participants included managers, technicians, and researchers from natural areas, forestry, right-of-way, and golf courses; consultants from these areas; horticulturists and arboriculturists; and private landowners.

The co-organizers, Drs. James (Jim) Miller (USDA Forest Service) and Larry Nelson (Clemson University) opened the workshop with the latest data on the extent of occupation by the most invasive plant species: kudzu, Japanese honeysuckle, and Chinese privet. Dr. Randy Westbrooks (USGS) gave a stimulating and informative keynote address that revealed "how we got in this mess," and program developments needed to combat the invasions such as early detection and rapid response. Gordon Brown (USDI, National Invasive Species Council Liaison) described the complex structure the federal government has been organizing over the past 30 years to deal with the invasive species problem and the most recent developments. The roles and responsibilities of the states were summarized by Turner Odell (Environment Law Institute). Dr. Peter White (University of North Carolina) explained developing concepts useful for screening new introductions for invasiveness, and the latest developments on the St. Louis Declaration.

Jim Miller's new book, "Nonnative Invasive Plants of Southern Forests: A Field Guide for Identification and Control," was used to detail the most threatening 33 invasive plant taxa (see pg. 8). Dave Moorhead (University of Georgia) and Miller gave a comprehensive overview of the tools available for integrated management, while Max Williamson (consultant) explained herbicide technology safety and application systems. Specific herbicide prescriptions and applications were covered for each of the invasive species by Miller, Williamson, and Wilson Faircloth (Auburn University).

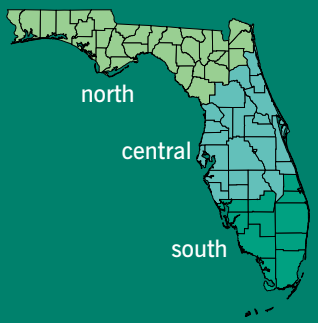
An invaluable primer on methods for monitoring and mapping was provided by John Buck (Civil and Environmental Consultants), while Lee Patrick (Invasive Plant Control, Inc.) taught the audience how to plan and enact a control and reclamation program. Keith Douce and Chuck Bargeron (UGA Bugwood Network) provided an overview of technology tools available. Finally, Miller summarized the region's current status in addressing invasive plants, needed developments in program areas, and organizations where each individual can become connected to developing solutions, like SE-EPPC.

The workshop was followed by a successful formation meeting for a South Carolina EPPC. Facilitated by Robin Roeker (USFS) and Brian Bowen, SE EPPC President, approximately 24 people attended, organized a steering committee, and unanimously voted to establish the SC-EPPC.

The workshop was jointly organized by the USDA Forest Service Southern Research Station and Southern Region, and Clemson University Forestry Extension. Multiple supporting sponsors included SE-EPPC, Southern Appalachian Man and the Biosphere, USDA APHIS and NRCS, University of Georgia Bugwood Network, and USDI Geologic Survey and Fish & Wildlife Service.

Use of the FLEPPC List

FLEPPC encourages use of the Invasive Species List for prioritizing and implementing management efforts in natural areas, for educating lay audiences about environmental issues, and for supporting voluntary invasive plant removal programs. When a non-native plant species is to be restricted in some way by law, FLEPPC encourages use of the List as a first step in identifying species worth considering for particular types of restriction. The Council does not promote regulating species solely because they appear on the List. For more on this policy, see *Wildland Weeds* Summer 2002 issue (Vol. 5, No. 3), pp. 16-17.



Florida Exotic Pest Plant Council's 2003 List of Invasive Species

Purpose of the List: *To focus attention on —*

- the adverse effects of exotic pest plants on Florida's biodiversity and ecosystems,
- the habitat losses from exotic pest plant infestations,
- the impacts on endangered species via habitat loss and alteration,
- the need to prevent habitat losses through pest-plant management,
- the socio-economic impacts of these plants (e.g., increased wildfires in Melaleuca areas),
- changes in the seriousness of different pest plants over time,
- the need to provide information that helps managers set priorities for control programs.

CATEGORY I - Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. *This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.*

Scientific Name	Common Name	EPPC Cat.	Gov. list	Reg.Dist.
Abrus precatorius	rosary pea	I		C, S
Acacia auriculiformis	earleaf acacia	I		S
Albizia julibrissin	mimosa, silk tree	I		N, C
Albizia lebbeck	woman's tongue	I		C, S
Ardisia crenata (= A. *crenulata*)	coral ardisia	I		N, C
Ardisia elliptica (=A. *humilis*)	shoebutton ardisia	I		S
Asparagus densiflorus	asparagus-fern	I		C, S
Bauhinia variegata	orchid tree	I		C, S
Bischofia javanica	bischofia	I		C, S
Calophyllum antillanum (=C. *calaba*; C. *inophyllum* misapplied)	santa maria (names "mast wood," "Alexandrian laurel"used in cultivation)	I		S
Casuarina equisetifolia	Australian pine	I	P	N, C, S
Casuarina glauca	suckering Australian pine	I	P	C, S
Cinnamomum camphora	camphor-tree	I		N, C, S
Colocasia esculenta	wild taro	I		N, C, S
Colubrina asiatica	lather leaf	I		S
Cupaniopsis anacardioides	carrotwood	I	N	C, S
Dioscorea alata	winged yam	I	N	N, C, S
Dioscorea bulbifera	air-potato	I	N	N, C, S
Eichhornia crassipes	water-hyacinth	I	P	N, C, S
Eugenia uniflora	Surinam cherry	I		C, S
Ficus microcarpa (*F. nitida* and *F. retusa* var. *nitida* misapplied)	laurel fig	I		C, S
Hydrilla verticillata	hydrilla	I	P, U	N, C, S
Hygrophila polysperma	green hygro	I	P, U	N, C, S
Hymenachne amplexicaulis	West Indian marsh grass	I		C, S
Imperata cylindrica(*I. brasiliensis* misapplied)	cogon grass	I	N, U	N, C, S
Ipomoea aquatica	waterspinach	I	P, U	C
Jasminum dichotomum	Gold Coast jasmine	I		C, S

…Category I continued

Jasminum fluminense	Brazilian jasmine	I		C, S
Lantana camara	lantana, shrub verbena	I		N, C, S
Ligustrum lucidum	glossy privet	I		N, C
Ligustrum sinense	Chinese privet, hedge privet	I		N, C, S
Lonicera japonica	Japanese honeysuckle	I		N, C, S
Lygodium japonicum	Japanese climbing fern	I	N	N, C, S
Lygodium microphyllum	Old World climbing fern	I	N	C, S
Macfadyena unguis-cati	cat's claw vine	I		N, C, S
Manilkara zapota	sapodilla	I		S
Melaleuca quinquenervia	melaleuca, paper bark	I	P, N, U	C, S
Melia azedarach	Chinaberry	I		N, C, S
Mimosa pigra	catclaw mimosa	I	P, N, U	C, S
Nandina domestica	nandina, heavenly bamboo	I		N
Nephrolepis cordifolia	sword fern	I		N, C, S
Nephrolepis multiflora	Asian sword fern	I		C, S
Neyraudia reynaudiana	Burma reed; cane grass	I	N	S
Paederia cruddasiana	sewer vine, onion vine	I	N	S
Paederia foetida	skunk vine	I	N	N, C, S
Panicum repens	torpedo grass	I		N, C, S
Pennisetum purpureum	Napier grass	I		C, S
Pistia stratiotes	waterlettuce	I	P	N, C, S
Psidium cattleianum (=*P. littorale*)	strawberry guava	I		C, S
Psidium guajava	guava	I		C, S
Pueraria montana (=*P. lobata*)	kudzu	I	N, U	N, C, S
Rhodomyrtus tomentosa	downy rose-myrtle	I	N	C, S
Rhoeo spathacea (see *Tradescantia spathacea*)				
Ruellia brittoniana (may also be referred to as *R. tweediana*)	Mexican petunia	I		N, C, S
Sapium sebiferum	popcorn tree, Chinese tallow tree	I	N	N, C, S
Scaevola sericea (=*Scaevola taccada* var. *sericea, S. frutescens*)	scaevola, half-flower, beach naupaka	I		C, S
Schefflera actinophylla (=*Brassaia actinophylla*)	schefflera, Queensland umbrella tree	I		C, S
Schinus terebinthifolius	Brazilian pepper	I	P, N	N, C, S
Senna pendula (=*Cassia coluteoides*)	climbing cassia, Christmas cassia, Christmas senna	I		C, S
Solanum tampicense (=*S. houstonii*)	wetland night shade, aquatic soda apple	I	N, U	C, S
Solanum viarum	tropical soda apple	I	N, U	N, C, S
Syngonium podophyllum	arrowhead vine	I		C, S
Syzygium cumini	jambolan, Java plum	I		C, S
Tectaria incisa	incised halberd fern	I		S
Thespesia populnea	seaside mahoe	I		C, S
Tradescantia fluminensis	white-flowered wandering jew	I		N, C
Tradescantia spathacea (= *Rhoeo spathacea, Rhoeo discolor*)	oyster plant	I		S
Urochloa mutica (=*Brachiaria mutica*)	Pará grass	I		C, S

FLEPPC-FDEP Database

The Exotic Pest Plant sight-record database, developed by FLEPPC members and maintained in collaboration with the Florida Department of Environmental Protection's Bureau of Invasive Plant Management, contains over 5,000 occurrence records of Category I and II species in Florida conservation areas. It can be searched at the FLEPPC website (www.fleppc.org/database/data_intro.htm). New and updated observations can be submitted online (look for the "field reporting form"). Eventually the records will be tied to GIS-based mapping, so please fill in latitude/longitude whenever possible when contributing a record. This database, along with other plant-data resources such as the University of South Florida Atlas of Florida Vascular Plants (www.plantatlas.usf.edu) and the Institute for Regional Conservation (IRC), Floristic Inventory of South Florida database (www.regionalconservation.org), provides important and basic supporting information for the FLEPPC List of Invasive Species.
–K. C. Burks

FREQUENTLY ASKED QUESTIONS

Q: Are the Category I and II species all exotic, or are some exotic and some native but all invasive?

A: All the species on both the Category I and Category II list are exotic. That is, they are not native to Florida. If you check at the end of the lists, you will find definitions used in producing the list and categorizing the species listed.

A few species native to Florida often are considered a nuisance when they spread in their environment in response to human-induced activities, such as changes in water levels and nutrient input. However, because they are native, these species still have natural limits on their spread (insects, diseases, etc. that coexist in Florida). Repairing the habitat disturbances usually solves the problem.

On the other hand, exotic species that spread aggressively (invasive exotics or exotic pest plants) were introduced from other geographic regions and don't have the natural enemies they had in their home range. That frees them to spread easily into our native plant communities where they can displace native plants, change the natural structure of the habitat, and/or interfere

continued...

Florida Exotic Pest Plant Council's 2003 List of Invasive Species

CATEGORY II - Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. *These species may become ranked Category I, if ecological damage is demonstrated.*

Scientific Name	Common Name	EPPC Cat.	Gov. list	Reg.Dist.
Adenanthera pavonina	red sandalwood	II		S
Agave sisalana	sisal hemp	II		C, S
Aleurites fordii (= *Vernicia fordii*)	tung oil tree	II		N, C
Alstonia macrophylla	devil-tree	II		S
Alternanthera philoxeroides	alligator weed	II	P	N, C, S
Antigonon leptopus	coral vine	II		N, C, S
Aristolochia littoralis	calico flower	II		N, C
Asystasia gangetica	Ganges primrose	II		C, S
Begonia cucullata	wax begonia	II		N, C
Broussonetia papyrifera	paper mulberry	II		N, C
Callisia fragrans	inch plant, spironema	II		C, S
Casuarina cunninghamiana	Australian pine	II	P	C, S
Cecropia palmata	trumpet tree	II		S
Cestrum diurnum	day jessamine	II		C, S
Chamaedorea seifrizii	bamboo palm	II		S
Cryptostegia madagascariensis	rubber vine	II		C, S
Cyperus involucratus (*C. alternifolius* misapplied)	umbrella plant	II		C, S
Cyperus prolifer	dwarf papyrus	II		C
Dalbergia sissoo	Indian rosewood, sissoo	II		C, S
Elaeagnus pungens	thorny eleagnus	II		N, C
Epipremnum pinnatum cv. Aureum	pothos	II		C, S
Ficus altissima	false banyan, council tree	II		S
Flacourtia indica	governor's plum	II		S
Hemarthria altissima	limpo grass	II		C, S
Hibiscus tiliaceus	mahoe, sea hibiscus	II		C, S
Ipomoea fistulosa (= *I. carnea* ssp. *fistulosa*)	shrub morning-glory	II	P	C, S
Jasminum sambac	Arabian jasmine	II		S
Kalanchoe pinnata	life plant	II		C, S
Koelreuteria elegans	flamegold tree	II		C, S
Leucaena leucocephala	lead tree	II		N, C, S
Limnophila sessiliflora	Asian marshweed	II	P	N, C, S
Livistona chinensis	Chinese fan palm	II		C, S
Merremia tuberosa	wood-rose	II		S
Murraya paniculata	orange-jessamine	II		S
Myriophyllum spicatum	Eurasian water-milfoil	II	P	N, C, S
Nymphoides cristata	snowflake	II		C, S
Panicum maximum	Guinea grass	II		C, S
Passiflora biflora	twin-flowered passion vine	II		S
Pennisetum setaceum	green fountain grass	II		S
Phoenix reclinata	Senegal date palm	II		C, S
Phyllostachys aurea	golden bamboo	II		N, C
Pteris vittata	Chinese brake fern	II		N, C, S

…Category II continued

Ptychosperma elegans	solitary palm	II		S
Rhynchelytrum repens	Natal grass	II		N, C, S
Ricinus communis	castor bean	II		N, C, S
Sansevieria hyacinthoides	bowstring hemp	II		C, S
Sesbania punicea	purple sesban, rattlebox	II		N, C, S
Solanum diphyllum	twinleaf nightshade	II		N, C, S
Solanum jamaicense	Jamaica nightshade	II		C
Solanum torvum	susumber, turkey berry	II	N, U	N, C, S
Syagrus romanzoffiana (= *Arecastrum romanzoffianum*)	queen palm	II		C, S
Syzygium jambos	rose-apple	II		C, S
Terminalia catappa	tropical almond	II		C, S
Terminalia muelleri	Australian almond	II		C, S
Tribulus cistoides	puncture vine, bur-nut	II		N, C, S
Urena lobata	Caesar's weed	II		N, C, S
Wedelia trilobata	wedelia	II		N, C, S
Wisteria sinensis	Chinese wisteria	II		N, C
Xanthosoma sagittifolium	malanga, elephant ear	II		N, C, S

DEFINITIONS: *Exotic*—a species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida. *Native*—a species whose natural range included Florida at the time of European contact (1500 AD). *Naturalized exotic*—an exotic that sustains itself outside cultivation (it is still exotic; it has not "become" native). *Invasive exotic*—an exotic that not only has naturalized but is expanding on its own in Florida plant communities.

ABBREVIATIONS:
for "Gov. list": **P** = Prohibited by Florida Department of Environmental Protection, **N** = Noxious weed listed by Florida Department of Agriculture & Consumer Services, **U** = Noxious weed listed by U.S. Department of Agriculture.
for "Regional Distribution": **N** = north, **C** = central, **S** = south, referring to each species' current distribution in general regions of Florida (not its potential range in the state). Please refer to the map.

For additional information on distributions of particular species by county, visit the University of South Florida's Atlas of Florida Vascular Plants web site, *www.plantatlas.usf.edu.* Many of those species entries also have habit and close-up pictures of the species. Another site for south Florida plant distributions is the Institute for Regional Conservation, *www.regionalconservation.org*

Additional images for some species may be found at the "Introduced Species" page on the University of Florida Herbarium website *www.flmnh.ufl.edu/herbarium/cat/digitalimagingprojects.htm,* at Fairchild Tropical Garden's Virtual Herbarium *www.virtualherbarium.org/vhportal.html,* and at the University of Florida's Center for Aquatic and Invasive Plants, *http://plants.ifas.ufl.edu*

For additional information on plants included in this list, see related links and pages at *www.fleppc.org.*

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with ecological functions of the system. They present far greater problems for natural resource conservation than any nuisance native species.

It's also important to remember that not all exotic plants brought into Florida become pest plants in natural areas. The FLEPPC List of pest plants in natural areas represents only about 11% of the nearly 1,200 exotic species that have been introduced into Florida and that have become established outside of cultivation. Most escaped exotics usually present only minor problems in highly disturbed areas (such as roadsides). And there are other exotics cultivated in Florida that are "well-behaved," that is, they don't escape cultivation at all.

—K. C. Burks, Chair, FLEPPC Plant List Committee

www.fleppc.org

Explore your Alter*Natives*

A PLANT SUBSTITUTION GUIDE FOR SOUTH FLORIDA

by Amy Ferriter

Peruse a Florida gardening book published before 1980, and you will find plenty of familiar plant species. Unfortunately, many of them are exotic species that now are widespread in Florida's roadsides and natural areas. Some plant recommendations from the past – melaleuca, schefflera and Australian pine, for example - are no longer considered environmentally sound. Removing these plants from your private property can eliminate a major source of invasion, either by seeds or vegetative spread, into natural areas.

There are invasive plants that serve a function in the landscape – who can deny the shade provided by carrotwood or the fall color display of Chinese tallow? Removal of these plants may seem like a sacrifice for the homeowner, but it can be a short-term problem with long-term benefits to Florida's natural areas.

So how do you remove the showy Brazilian pepper that shades the popular neighborhood tree fort? The first step is to consider the value of the tree in your landscape. What does it do in the landscape - does it provide shade or privacy? Has it been some time since you really looked at that old tree? Is it scraping the roof of the house? Does the fruit stain the driveway? Is it really that valuable?

The following guidelines explain how to control invasive species on your property and offers suitable substitutes that closely resemble some invasive plants commonly used in landscapes. In choosing plant substitutes, consider height, growth rate, hardiness, salt tolerance, foliage texture, flowering characteristics, light and nutritional requirements.

Please check with your local government and/or homeowner association for specific tree removal regulations. Many require permits or permission to remove and/or alter vegetation in your landscape. On the other hand, some local governments now require the removal of certain invasive exotic plants.

Exotic Plant Replacement Techniques

The following recommendations are not absolute and may vary due to your particular situation. If you have specific questions, contact a local certified arborist to do an onsite consultation.

Alternative 1: Remove it. Call a certified arborist to cut down the tree and have the stump ground. This procedure is recommended for trees that present immediate hazards to safety or structures.

Alternative 2: Treat the plant with a herbicide. Trees can be controlled by applying herbicides in many different ways. Techniques include: girdling, cut stump, foliar and basal bark treatments. For detailed descriptions of herbicides and application techniques, see Herbicide Advice for Homeowners on the reverse side.

Alternative 3: Phase the plant out of your landscape. When dealing with trees, this procedure could require a minimum of 5 years to complete. First, judge the landscape effect and value of the plant. If it is a tree, what is it providing - shade, privacy, specimen? Then choose an appropriate replacement. A variety of native replacement options has been provided for you here.

To phase a pest tree out of your landscape, place the new tree 10-15 ft away from the existing tree. Remember that it will take 6-12 months for most trees to become fully established. Thin the existing pest plant by 25% within the next 30 days. Repeat this procedure annually for the next 4 years. Remove remaining pest tree and grind stump in year 5. You should now have an established AlterNative tree that will gradually fulfill similar requirements as the tree that was removed.

Alternative 4: Remove existing tree and replace with containerized or balled & burlapped tree of similar size. In most cases professional assistance will be required to install large replacement trees. Beware of sunburn. When removing or thinning a large tree, the understory is acclimated to shaded conditions. With the removal of an entire or even partial canopy, increased light can sunburn desirable species – such as grasses and shrubs - below. This can include temporary leaf/stem burn, defoliation or even death of the plants. The safest technique is gradual removal.

Note: when replacing trees, watch for underground and overhead utilities. In all circumstances, trees with mature height in excess of 15 ft should not be planted within 15 ft of overhead power lines.

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Plant	Height	Form	Texture	Flower	Fruit	Comments
Java plum *(Syzigium cumini)*	80'	Large, rounded canopy	Coarse	Insignificant	Purplish, red shiny berries	EXOTIC
Strangler fig *(Ficus aurea)*	50'	Large rounded canopy	Coarse	Insignificant	Black	This native ficus is a good replacement for Java plum, but it must be given lots of room!
Florida Soapberry *(Sapindus saponaria)*	40'	Round, densely branched canopy	Medium to Coarse	Insignificant	Capsules	Soapberry is a great, fast growing shade tree that will not get quite as tall as a Java plum.
Mastic *(Sideroxylon foetidissimum)*	45'	Large, round canopy	Medium to Coarse	Yellow, fragrant	Yellow, gummy fruit	Mastic is a suitable replacement for Java plum if you need a large shade tree. Like java plum, it drops a lot of messy fruit.
Laurel fig *(Ficus microcarpa)*	50'	Rounded, dense crown	Medium	Insignificant	Dark red berries	EXOTIC
Strangler fig *(Ficus aurea)*	50'	Large rounded canopy	Coarse	Insignificant	Black	Replace an exotic ficus with a native ficus like strangler fig if you are looking for a large, spreading shade tree.
Mastic *(Sideroxylon foetidissimum)*	45'	Large, round canopy	Medium to Coarse	Yellow, fragrant	Yellow, gummy fruit	Mastics are large, shady fast-growing trees.
Live oak *(Quercus virginiana)*	60'	Large, spreading canopy	Fine	Yellowish catkins	Acorns	Oaks are a classic shade tree. Use live oaks to replace a shady Laurel fig. Oaks are stable in strong winds and many animals, including deer, squirrels and blue jays, eat the acorns.
Australian pine *(Casuarina* spp.*)*	150'	Open, irregular canopy	Fine	Insignificant	In woody, cone-like clusters	EXOTIC
Red cedar	45'	Upright, compact	Fine	Small, cone-like	Round, powdery blue berries	This is a great choice especially when you are replacing an Australian pine hedge. The texture is almost identical and it responds well to shearing.
Slash pine *(Pinus elliottii)*	100'	Open, irregular canopy	Fine	Insignificant	Cones with spiny scales	Although they look like pines, Australian pines are not really pine trees. If you like the look of pine needles, try one of South Florida's native pines in a dry area of your yard.
Sand pine *(Pinus clausa)*	40'	Open, irregular canopy	Fine	Insignificant	Cones with spiny scales	Another native Florida pine. More compact than the slash pine, and may be more suited in scale for small, urban yards.
Carrotwood *(Cupaniopsis anacardioides)*	30'	Single trunk, compact	Medium	Small, greenish white	3-lobed orange capsules, 3 seeds	EXOTIC
Paradise Tree *(Simarouba glauca)*	50'	Single trunk, rounded crown	Medium	Small, cream to yellow peach-colored new	Clustered, red to purple to black drupe	This is one of South Florida's most beautiful native trees. The growth of this large shade tree is a nice contrast in the landscape. Considerably larger than a carrotwood.
Pigeon Plum *(Coccoloba diversifolia)*	25'	Single trunk, compact	Medium to Coarse with dense foliage	Small, white	Blackberry-like	This Florida native resembles carrotwood, although it is slightly more narrow and compact. The medium sized tree can be used as an attractive accent, and the fruit attracts wildlife.
Florida Cupania *(Cupania glabra)*	30'	Single trunk, compact	Medium	Small, white	3-lobed capsules containing 3 round, black seeds	Almost identical to carrotwood, the biggest challenge for using this species is finding it in a nursery. Tolerates well-drained, poor soil conditions.
Paperbark tree *(Melaleuca quinquenervia)*	75'	Upright with slender crown	Fine	Creamy, white showy "bottle brush" spikes	In round woody capsules that are in clusters around stems	EXOTIC
Southern Magnolia *(Magnolia grandiflora)*	80'	Upright shade tree	Coarse	White, fragrant, very showy	Red cones	Good choice if you are looking for something fairly tall to

Florida Soapberry - *(Sapindus saponaria)*

Live oak - *(Quercus virginiana)*

Paradise Tree - *Simarouba glauca)*


Myrsine - *(Rapanea punctata)*


Jamaican caper - (*Capparis cynophallophora)*


Dune sunflower - *(Helianthus debilis)*


Blanket flower - *(Gallardia pulchella)*


Marlberry - (*Ardisia escallonioides*)


Mahogany - *(Swietenia mahagoni)*

Lignum Vitae	15'	Small	Fine	Blue, star-shaped.	Yellowish fruits	This is a slow growing small tree that can be used to replace melaleuca if you like a tree with rough white bark.
Silver buttonwood *(Conocarpus erectus* var. *sericeus)*	25'	Spreading vase-shaped crown	Medium	Insignificant	Round, wood brown cones	This small to medium tree (it is often trimmed into a hedge) is upright and compact. Although melaleuca has white, peeling bark, silver buttonwoods have gnarled bark and fuzzy silvery-gray foliage that also will give you contrast in the landscape.
Ligustrum *(Ligustrum sinense)*	12'	Multi-stemmed spreading shrub	Fine	White, small, unpleasantly fragrant	Dark blue to bluish black drupes	EXOTIC
Florida Privet *(Forestiera segregata)*	to 10' 4-6' hedge	Multi-stem, spreading shrub	Fine	Small, white	Small, purple	Almost identical in texture; can easily be sheared into a formal hedge. Full sun to partial shade. Well-drained to moist soils.
Wax Myrtle *(Myrica cerifera)*	to 15' 4-6' hedge	Multi-stem, spreading shrub	Fine	Small, yellowish green	1/8" waxy, bluish clusters	Fine-textured. Can be used as a specimen shrub or a formal hedge. Full sun. Well-drained to moist soils.
Rusty lyonia *(Lyonia ferruginea)*	10'-15'	Multi-stem upright shrub	Fine	Small, urn-shaped, pinkish white, fragrant	Round brown capsule	Great low maintenance native for full to partial sun. Prefers acidic soil, but will tolerate both damp and well-drained conditions.
Strawberry guava *(Psidium littorale)*	to 25'	Semi-upright shrub to small tree	Medium	Small, White, powderpuff	1.5" red fruit	EXOTIC
Simpson stopper *(Myrcianthes fragrans)*	to 25'	Upright shrub to small tree	Fine	Small, white	1/2" red berry	When limbed up, this small tree is almost identical to Strawberry guava with attractive red, peeling bark. Full sun to partial shade.
Myrsine *(Rapanea punctata)*	to 25'	Dense, vertical-growing shrub to small tree	Medium	Insignificant	1/2" black berry	Attractive mottled bark that can be highlighted with careful pruning. Full sun to deep shade. Dry to moist soils. Can be used as an accent tree when strong vertical growth is pruned.
Jamaican caper *(Capparis cynophallophora)*	to 20'	Upright shrub to small tree	Medium	Medium, showy white to purple	Cylindrical pods 3-8" long	Attractive small tree; a great replacement for specimen Strawberry guava. Full sun to deep shade. Well-drained soils. Pruning encourages vertical growth.
Asparagus fern *(Asparagus densiflorus)*	2'	Spreading	Fine	Small, white	1/4" red berry	EXOTIC
Beach creeper *(Ernodea littoralis)*	2'	Spreading	Fine	Small, pink to white	1/4" yellow	Full sun. Well-drained soil. Glossy, fleshy leaves form mounds that look similar to the growth form of Asparagus fern.
Seaside Heliotrope *(Heliotropium curassavicum)*	1'	Spreading	Fine	Small, white, clustered	Small, white	Full sun. Well-drained to moist soils. Lush, blue-green foliage offers contrast in the landscape.
Sword fern *(Nephroleptis exaltata)*	2'	Upright, spreading	Fine	None	Spores	A good choice for replacing mass-plantings of Asparagus fern. Full sun to deep shade. Well-drained to moist soils
Oyster plant *(Rheo spathacea)*	1'	Clump	Medium	Insignificant	Insignificant	EXOTIC
Spider lily *(Hymenocallis latifolia)*	2'	Clump	Coarse	White cluster	2" oval	Similar form; can be used as a mass planting in full sun. Tolerates poor, well-drained soil.
Peperomia *(Peperomia obtusifolia)*	8"	Spreading	Coarse	Small spike	Insignificant	Great replacement as a ground-cover in partial to full shade.
Dwarf Fakahatchee *(Tripsicum dactyloides)*	2'	Clump	Fine	Linear rust-colored spike	Spike of grains	Versatile groundcover for full sun, this plant can be used to cover large areas attractively.
Wedelia *(Wedelia trilobata)*	6"-10"	Spreading	Medium	Medium, yellow	Insignificant	EXOTIC
Lantana *(Lantana camara)*	8"-10"	Spreading	Medium	Medium, yellow	Purple drupes	EXOTIC
Dune sunflower *(Helianthus debilis)*	1'-2'	Spreading	Medium	Medium, yellow	Insignificant	This species is virtually indestructible in dry, harsh conditions. The cheerful yellow flowers are a good replacement for both *Wedelia* and *Lantana camara*.
Blanket flower *(Gallardia pulchella)*	1'-2'	Spreading, clump	Medium	Medium, Red and Yellow	Insignificant	This colorful, clumping native wildflower likes full sun and well-drained soils.
Beach verbena *(Glandularia maritima)*	1'	Spreading, clump	Medium	Medium, purple	Insignificant	Beach verbena does best in full sun. It will form a spreading, colorful clump.
Scaevola *(Scaevola sericea)*	15'	Sprawling, bushy shrub	Coarse	Small, white, fanlike	Fleshy, white	EXOTIC
Inkberry *(Scaevola plumieri)*	3'-5'	Sprawling, bushy shrub	Medium to Coarse	Small, white, fanlike	Glossy, black	This native *Scaevola* performs well in full sun and well-drained soils. Excellent salt tolerance for coastal situations.
Seven-year apple *(Genipa clusifolia)*	8'	Single or multi-stem compact shrub	Medium to Coarse	Showy, fragrant white		Similar to *Scaevola* in texture, this species also thrives in full sun and well-drained, poor soils. Salt tolerant.
Necklace pod *(Sophora tomentosa)*	6'-8'	Multi-stem sprawling shrub	Fine to Medium	Showy, yellow	Bean shaped seed pods	This silvery-leaved species requires full sun but tolerates poor soils. It can be used in coastal situations.
Shoebutton ardisia *(Ardisia elliptica)*	15'	Multi-stemmed upright shrub	Medium	Light purple, clusters	Round, black fruit	EXOTIC
Coral ardisia *(Ardisia crenata)*	6'	Multi-stemmed upright shrub	Medium	White to pink clusters	Bright red fruit	EXOTIC
Marlberry (*Ardisia escallonioides*)	10'-20'	Single to multi-stemmed compact shrub	Coarse	Showy, whites fragrant cluster	Black clusters	This native *Ardisia* is a perfect replacement for the exotic species. It is very similar in form and texture in the landscape.
Wild coffee *(Psychotria nervosa)*	5'	Multi-stemmed upright shrub	Medium	Small, white	Attractive, bright red berries	Great choice for replacing exotic *Ardisia* in shady areas.
Myrsine *(Rapanea punctata)*	10-20'	Multi-stemmed upright shrub	Medium	Insignificant	Small black berries	A versatile shrub that can replace exotic *Ardisia* in almost any landscape situation.
Brazilian pepper *(Schinus terebinthifolius)*	30'	Multi-stemmed spreading shrub	Medium	Small, white	Small, bright red drupe	EXOTIC
Varnish leaf *(Dodonaea viscosa)*	6'	Single or multi-stemmed upright shrub	Fine	Insignificant	Showy, winged fruit	A shiny-leaved shrub; good substitute for a Brazilian pepper hedge.
Elderberry *(Sambucus canadensis)*	10'-15'	Multi-stemmed, spreading	Fine	Showy, white clusters	Black, edible berries	Like Brazilian pepper, this species can be used as a shrub or a small tree. Its texture and form offer a great alternative for screening large areas.
Seagrape *(Coccoloba uvifera)*	30'	Multi-trunked, rounded canopy	Coarse	Insignificant	Clusters of green fruit	This broad, spreading multi-stemmed tree is a great replacement for Brazilian pepper when trying to screen views from your house or yard. It also can be used as a hedge.
Earleaf acacia *(Acacia auriculiformis)*	50'	Open, spreading canopy	Medium	Loose, yellow orange spikes	Flat, oblong pod	EXOTIC
Mastic *(Masichodendron foetidissimum)*	45'	Single trunk, rounded crown	Medium to coarse	Fragrant, yellow	Gummy, messy fruit	Very large, shady tree that is a good choice for quick shade.
Mahogany *(Swietenia mahagoni)*	50'	Single trunk, spreading canopy	Fine	Insignificant	Brown, cone-shaped pod	Great choice for a spreading shade tree in South Florida.
Florida Soapberry *(Sapindus saponaria)*	40'	Round, densely branched canopy	Medium to Coarse	Insignificant	Capsules	An excellent replacement for Earleaf acacia. Fast growing, very drought tolerant, with attractive foliage.

Herbicide Advice for Homeowners

by Ken Langeland

A number of plant species that are invasive in natural areas of public lands also occur on private property. These may have been planted intentionally or introduced as seeds from other areas or they may have spread vegetatively across lot lines. Because invasive plants on private property can serve as a source of infestation to natural areas, property owners are encouraged to remove invasive plant species (county ordinances sometimes require their removal).

Control methods that can be used by homeowners are similar to those used in natural areas by professional land managers. However, the scale can be very different, ranging from the removal of a single tree to several acres of woody or herbaceous species. Homeowners with several acres of invasive plants may use similar methods and herbicides as professional land managers, while those with small areas or a small number of trees can use simpler methods. The principle difference in herbicides used by professional land managers is packaging, where they can be purchased, and sometimes, concentration. This article discusses methods and herbicides that can be readily used by homeowners for removal of invasive plants, and is intended for general information. **Directions for use on the manufacturer's label of specific herbicides must be followed.** Also note that many cities and counties require permits for removing trees. Always check with your local government to determine if a permit is required before removing unwanted trees.

Fig. 1 KAL

Fig. 2 KAL

Fig. 3 F. Laroche

Herbicides

Herbicide products contain an active ingredient, a diluent (to dilute the product), and sometimes other additives that enhance the performance of the herbicide (such as surfactants). The active ingredient may be either oil soluble (diluted in oil) or water soluble (diluted in water). Active ingredients contained in the majority of herbicide products used by professional land managers are triclopyr amine (water soluble), triclopyr ester (oil soluble), glyphosate (water soluble), and imazapyr (water and oil soluble) (Table 1). Herbicide products that contain imazapyr are not recommended for use in home landscapes because of the potential for imazapyr to be taken up by the roots of desirable plants that could be injured or killed.

Triclopyr amine - Commonly used herbicide products that contain triclopyr amine are Garlon 3A, Brush-B-Gon, and Brush Killer (Table 1). Garlon 3A is a concentrated product (3 lb triclopyr per gal), packaged only in large volume (2.5 gal or larger), and available only at farm supply stores. Brush-B-Gon and Brush Killer are more dilute than Garlon 3A, are packaged in small quantities (quart containers), and can be purchased at retail garden supplies. They are readily available and convenient for the small property owner to use.

Triclopyr ester - Commonly used herbicide products that contain triclopyr ester are Garlon 4 and Pathfinder II. Garlon 4 is a concentrated product that is diluted in water or oil before use. Pathfinder II is pre-diluted in oil and ready to use. Both Garlon 4 and Pathfinder II are packaged in no smaller than 2.5 gal containers and available from farm supply stores. Vine-x is a new product that contains triclopyr ester ready-mixed in oil and sold in small applicator containers. It can be ordered on the Internet at *www.vine-x.com.*

Glyphosate - Roundup Super Concentrate is similar to the glyphosate-containing products used by professional land managers. Roundup Super Concentrate can be purchased in small containers from retail garden supply stores. Products that are more dilute than Roundup Super Concentrate also are available (not discussed in this article).

Methods for Removing Invasive Plants

Hand-pulling - Herbaceous plants, such as tuberous sword fern, can be hand-pulled, but use of some foliar applied herbicide can make the job easier for large numbers of plants. Newly emerged seedlings of woody plants, such as Chinese tallow and carrotwood, frequently appear in home landscapes. Homeowners should be vigilant for these; when discovered early enough, they can be removed by hand pulling.

Stump grinding - When trees are cut down, the stumps are often ground below the soil surface with a stump-grinding machine. This serves to remove the stump from view for aesthetic purposes but adds additional cost to the tree removal. Sprouting of various invasive tree species following stump grinding has not been tested, and certain species may regrow from the ground stump. If root sprouts occur, they can be controlled using one of the herbicide application methods listed below.

Foliar herbicide applications - Foliar application refers to applying herbicide to the leaves (foliage) of unwanted plants. Seedling trees and shrubs and herbaceous plants can be controlled in this way with Brush-B-Gon, Brush Killer, or Roundup Super Concentrate. All are diluted in water before application. **The herbicide solution should be applied so that it contacts only the unwanted plants because it will kill most plants that it comes in contact with.**

Cut stump herbicide application - Stumps of invasive woody plants will resprout after cutting if not treated with a herbicide. Resprouts can be continually cut off as they appear, but applying herbicide to the stump will kill it and prevent resprouting. Stumps should be cut as close to the ground and as level as possible so that applied herbicide does not run off (Fig. 1). On large stumps, the herbicide should be concentrated just inside the bark (Fig. 2). This is where the living tissue of the trunk is that will carry herbicide into the roots. Products that contain triclopyr amine, triclopyr ester, or glyphosate are effective for controlling regrowth of stumps of many invasive plant species. Homeowners with only one or a few stumps to treat can use Brush-B-Gon, Brush Killer, or Roundup Super Concentrate. All three products can be applied undiluted.

Sawdust, which can absorb herbicide and prevent it from moving into the stump, should be removed. Apply the herbicide to the stump as quickly as possible after cutting.

Basal bark herbicide application - Woody plants can be killed without cutting the tree down by applying oil soluble herbicides to the bark. This is only recommended for trees or shrubs with stem diameters of six inches or less. This method is faster than cutting vegetation down and treating the stumps. It is useful for homeowners with larger numbers of woody plants to kill where it is acceptable to leave dying and dead vegetation standing. An oil soluble herbicide must be used for basal bark applications to facilitate movement of the herbicide through waxy substances in the bark. Garlon 4 must be diluted in a penetrating oil that can be recommended where the herbicide is purchased. Pathfinder II is pre-diluted in oil and ready to use. Vine-x can be used for application to small stems (up to 3/4 inch in diameter).

Frill or girdle herbicide application – Basal bark application will not be effective on trees with bark that is too thick for herbicide to penetrate. In this case, some bark must be removed before application of herbicide. A sharp implement such as a machete or hatchet is used to make cuts through the bark and herbicide is applied into these cuts (Fig. 3). Cuts 3-4 inches apart (frill) are sufficient for some species, while a continuous cut completely around the trunk (girdle) is necessary for hard to control species such as melaleuca. Either water soluble or oil soluble herbicide may be used.

Licenses and Training

Anyone who performs pest control on Florida lawns and ornamentals as a business, or anyone who applies pesticides to their own business property or employees who apply pesticides to their employer's business property, or any government employee who applies pesticides to lawns and ornamental plants, must be licensed according to provisions in Chapter 482 of the Florida Statutes. Additional information on pesticide licensing can be obtained from Cooperative Extension offices or from the IFAS public information web site at *www.edis.ifas.ufl.edu* (keyword: pesticide license).

A license is not required to purchase or apply on your own (non-business) property any of the herbicides discussed in this article. A yard maintenance person who applies a pesticide to the lawn or ornamental plants of an individual residential property is exempted from licensing and certification requirements if the pesticides are owned and supplied by the individual property owner. Unlicensed yard maintenance people cannot advertise for, or solicit, pest control business and can not represent themselves to the public as being engaged in pest control. Unlicensed yard maintenance people cannot supply their own pesticide application equipment, use pesticide application power equipment or use any equipment other than a handheld container when applying pesticide.

It is essential and required by law for anyone using a herbicide (or any pesticide) to follow the "Directions for Use" on the manufacturer's label. Training in pesticide application is recommended for anyone who applies their own pesticides and is provided at Cooperative Extension offices in each county. Training manuals for self study of pesticide application are available through the IFAS Extension Book Store (352/392-1764 or http://ifasbooks.ufl.edu.)

Control of Specific Invasive Plants

The manufacturer will recommend on the herbicide label those species for which it has sufficient control data. Herbicide products with the active ingredients triclopyr and glyphosate are effective for controlling invasive plant species that are not always listed on the labels, using the methods described in this article. It is legal to apply a herbicide to control a plant species that is not listed on the manufacturer's label as long as the herbicide is applied to a site approved on the label. Although the herbicides that are more readily available to homeowners, such as Brush-B-Gon, Brush Killer, and Roundup Super Concentrate, have not been tested on all invasive species in Florida, products with the same active ingredients have been tested and used by professional land managers in Florida. These methods can be found in IFAS publication SP242, "Control of Non-native Plants in Natural Areas of Florida," available from the IFAS public information web site ($2.00). Brush-B-Gon, Brush Killer, and Roundup Super Concentrate have been found effective for controlling Brazilian pepper, carrotwood, Chinese tallow, and melaleuca (results may vary in response to various factors). Additional information specific to these and other invasive plant species can be obtained from the IFAS public information web site or by calling the Cooperative Extension office in your county.

Table 1. Herbicides used for control of invasive plant species.

Active Ingredient[1]	Products	Availability
Glyphosate 3 lb/gal	Roundup Pro, Glyphos, Glypro Plus, Touchdown Pro	Farm supply stores. Containers 2-1/2 gal and up.
Glyphosate 3.7 lb/gal	Roundup Super Concentrate	Retail garden supply stores.Containers small as 1-qt.
Triclopyr amine 3 lb/gal	Garlon 3A	Farm supply stores. Containers 2-1/2 gal and up.
Triclopyr amine 0.59 lb/gal	Brush Killer	Retail garden supply stores. Containers small as 1-qt.
Triclopyr amine 0.54 lb/gal	Brush-B-Gon	Retail garden supply stores. Containers small as 1-qt.
Triclopyr ester	Garlon 4	Farm supply stores. Containers 2-1/2 gal and up.
Triclopyr ester 0.75 lb/gal	Pathfinder II	Farm supply stores. Containers 2-1/2 gal and up.
Triclopyr ester 0.75 lb/gal	Vine-x	Internet. Pint and 12 oz containers.

[1]Active ingredient is reported as acid equivalent.

Summary

Homeowners can play an important role in the fight against invasive species by removing them from their private properties. Appropriate use of herbicide products that are readily available in small quantities at garden supply stores can facilitate removal and prevent regrowth. Professional land managers should encourage the removal of invasives by homeowners and assist by providing information on methods and herbicide availability.

Ken Langeland is a professor at the University of Florida, IFAS Agronomy Department; kal@ifas.ufl.edu

Q&A

Question:

Lesley Goodhew of Australia wrote:

We have many casuarina trees on our land, and as we have a slow combustion oven, would like to know if the tree is burnable in this application, and the properties of the timber as a fuel.

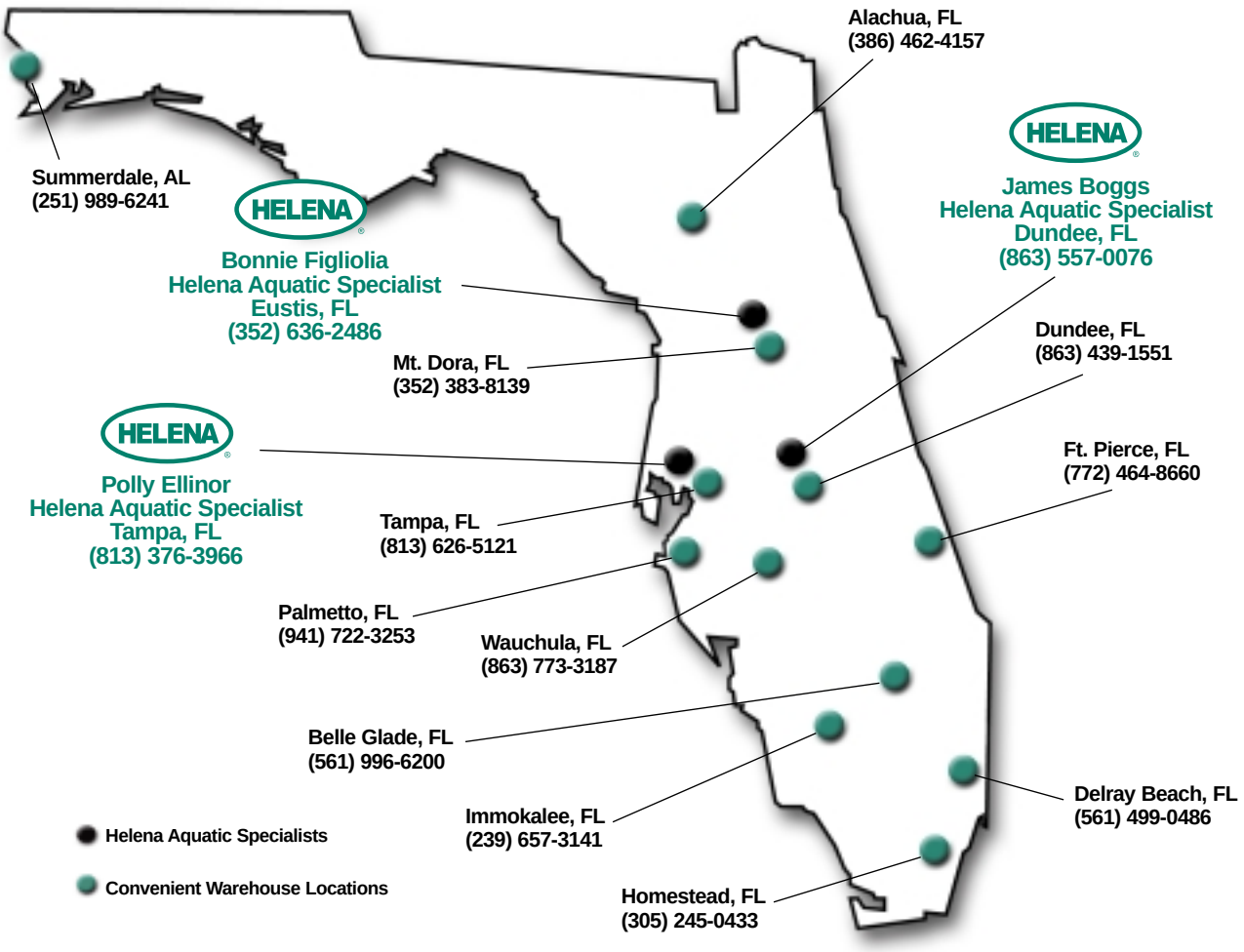
Photo by Tony Pernas

Answer:

Dear Lesley,

According to S.C. Wang, et al in "Qualitative evaluation of fuelwood in Florida - A Summary Report," Economic Botany 36(4): 381-388 (1982), "According to the early Australia literature (Swain, 1928), C. equisetifolia is primarily a fuelwood. The wood is heavy and dense, burns well, and gives great heat. . . One outstanding feature . . . is the very high value for wood density which is comparable with those of some heavier woods such as oaks." A table included with this article gives the heat of combustion (based on dry weight) as 18.620 kj/kg, moisture content at 85%, and density (based on dry weight and green volume) at 0.63 g/cm3.

K. Brown, UF Center for Aquatic & Invasive Plants,
APIRS database, http://plants.ifas.ufl.edu



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A PLANT SUBSTITUTION GUIDE FOR SOUTH FLORIDA - SEE SPECIAL PULL-OUT SECTION

Florida Soapberry - *(Sapindus saponaria)*

Marlberry - (*Ardisia escallonioides*)

Live oak - *(Quercus virginiana)*

Jamaican caper - (*Capparis cynophallophora)*

Dune sunflower - *(Helianthus debilis)*

Paradise Tree - *(Simarouba glauca)*

Blanket flower - *(Gallardia pulchella)*

Myrsine - *(Rapanea punctata)*

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Internodes

Mark Your Calendar

- *Invasive Plants Conference,* **August 6-7, 2003,** University of Pennsylvania, Philadelphia. **Contact**: The Morris Arboretum, 100 Northwestern Avenue, Philadelphia, PA 19118, 215-247-5777 x159, mabxeduc@pobox.upenn.edu; www.upenn.edu/paflora
- *New England Invasive Plant Summit,* **September 19-20, 2003,** Framingham, MA. Convened by the Invasive Plant Atlas of New England (IPANE) and the New England Invasive Plant Group (NIPGro). **Contact:** Cynthia_Boettner@fws.gov or http://invasives.eeb.uconn.edu/ipane
- The 30th Natural Areas Conference, *Defining a Natural Areas Land Ethic*, **September 24-27, 2003,** Madison, WI. Co-hosted by the Natural Areas Association and the Wisconsin Department of Natural Resources' Endangered Resources Program. The last day of the conference, September 27th, will feature a one-day symposium on *Invasive Plants in the Upper Midwest* (see next listing). **Contact**: www.naturalarea.org
- The *2003 Symposium on Invasive Plants in the Upper Midwest*, part of the 30th Natural Areas Conference (see above listing), **September 27, 2003,** Madison, WI. Participants may register for the entire Natural Areas Conference, or just the one-day symposium sponsored by the Invasive Plants Association of Wisconsin. **Contact**: www.ipaw.org -or- Kelly.Kearns@dnr.state.wi.us
- The *27th Annual Florida Aquatic Plant Management Society (FAPMS) Training Conference*, October 14-16, 2003, Daytona Beach, FL. **Contact:** David Farr, FAPMS Treasurer, dfarr@co.volusia.fl.us or 386/424-2920 -or- www.homestead.com/fapms/main.html
- The 30th Annual Conference on *Ecosystems Restoration and Creation*, **October 30-31, 2003,** Tampa, Florida. **Contact**: fwebb@hccfl.edu -or- pcannizzaro@hccfl.edu; www.hccfl.edu/depts/detp/eco-conf.html
- *Invasive Plants in Natural and Managed Systems: Linking Science and Management,* **November 3-7, 2003**, Fort Lauderdale, FL. A joint conference and workshop, co-hosted by the Ecological Society of America and the Weed Science Society of America in conjunction with the 7th International Conference on Ecology and Management of Alien Plant Invasions. **Contact**: www.esa.org/ipinams-emapi7/

Publications

- A colorful and informative poster on **Tropical Soda Apple** (TSA) has been produced by the Florida Department of Agriculture & Consumer Services, Division of Plant Industry. The 11" x 17" poster contains color photographs, TSA facts, and best management practices. A limited quantity is available but FDACS is anxious to get the word out. To receive one or more copies, contact Mary Stewart at 372-3505, Ext. 101.
- *"Challenges of Reaching Consensus on Assessing Which Non-native Plants Are Invasive in Natural Areas,"* by A.M. Fox, D.R. Gordon, R.K. Stocker, HortScience 38(1):11-13 (2003).
- **Tree Islands of the Everglades**, edited by F.H. Sklar and A. van der Valk. 2003. Kluwer Academic Publishers, www.wkap.nl/ Presents the proceedings of the first symposium on the subject held in July 1998.
- **Invasive Aquatic Species of Europe - Distribution, Impacts and Management**, edited by E. Leppakoski, S. Gollasch and S. Olenin. 2002. Kluwer Academic Publishers, www.wkap.nl/ The "first attempt to provide an overall picture of aquatic species invasions in Europe."
- **Herbicide Handbook - Eighth Edition**, 2002, edited by W.K. Vencill. 2002. Weed Science Society of America, www.wssa.net/ This book of technical information about herbicides in production covers 140 chemicals, and is meant especially for research, teaching and extension personnel, as well as for industry and government.
- **So You Want to Start a Nursery**, by T. Avent. 2003. Timber Press, http://www.timberpress.com/ What it takes to succeed in the ornamental plant nursery business.

FLEPPC Members in **Exotic Places**

FLEPPC member Dan Clark, currently living in St. Thomas, U.S. Virgin Islands, modeled his FLEPPC camp shirt in the Grand Etang National Forest in Grenada, West Indies. "I thought it was cool that not only was there a boutique, but there was a bar. You gotta love those West Indians!"

Editor's Note: Send us a photo if you spot or wear a FLEPPC shirt in an exotic locale.

Web Sites

- **EPIDEMIE – Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems** at www.ceh.ac.uk/epidemie "aims to raise awareness and advance existing understanding of the problems posed by invasive species in the Mediterranean and develop management strategies which aid the conservation of native habitats and species." Supported by the European Commission. Familiar species include *Ailanthus altissima, Arundo donax, Ricinus communis*, and others.
- **Jamaica's National Database on Alien Invasive Species** was launched by the Natural History Division of the Institute of Jamaica, the result of a regional project involving 13 countries in Latin America and the Caribbean. www.jamaicachm.org.jm/inv_I3N_JA.htm
- Go to http://invasivespecies.blogspot.com/ and check out the **Invasive Species Weblog** put together by Jennifer Forman. This is a fun web site that includes lots of quick information on invasive species, with links to more detailed reporting. It also has a shopping section that includes Japanese Knotweed and Garlic Mustard coffee mugs, Invasive Woody Plants coasters, an Invasive Plants wall clock, Phragmites postcards, and more. (*Bookmark it for the holidays!*)
- Find a list of intriguing sounding **Tools of the Trade**, such as the EZJect Lance, KlipKleen Shears, Root Talons and Vapor Torches, at The Nature Conservancy's Wildland Invasive Species Team web site: http://tncweeds.ucdavis.edu/tools.html

FLEPPC Research Grant Recipients

- Ms. Jean Burns, Department of Biological Sciences, Florida State University: "Character states associated with the success of invasive species in the Commelinaceae." ($2,500.)
- Ms. Caronia Wallace, Department of Biology, University of Miami: "Investigations on the geographic origin of Florida populations of air potato, *Dioscorea bulbifera* L., using chloroplast DNA." ($2,000.)
- See RFP for 2004 on page 4.

Handy Tips

- To remove clothing stains from the secretions of larval Melaleuca snout beetles (*Oxyops vitiosa*), wash garments with Ajax Dish Soap as soon as possible, repeating if necessary. For persistent stains, use Spot Shot stain remover. From Ken Gioeli and Diane Franzen, UF-IFAS Extension, St. Lucie County.

notes from the disturbed edge - chapter 9

"Ahhh." It was a strange telephone greeting, but she recognized the fish tank noises and knew it was him. She kept it simple, "What do you have to report?" After a few exasperated huffs and puffs, he set in.

"Remember that crazy lady - oh excuse me, I mean, concerned citizen, we met last week? Well, somehow," (dramatic pause, accompanied by accusatory insinuation) "she got my home number. Seems she is convinced that I am destined to serve as her personal link to Big Brother, the media, the establishment, and the man. Seems she is convinced that I know what the heck I'm talking about, I am connected, and I can provide all the answers. She was going off the wall about some newspaper article that, Heaven's to Betsy, recommended planting some exotic plant that gets invasive because, get this, it's hard to kill and it actually grows, but don't you think you ought to do something about this..." He stopped to take a breath and she interjected, "Hmm. Did you tell her to write a letter to the editor at the paper? Did you tell her that's a great way to reach some folks?"

"Well," he retorted, "I sure tried to, but she just kept talking... 'and who do you intend to contact and I can send you a copy of the article' - wanted my address too, no way - 'and, well gee willikers, you ought to talk to our congressman about this, because well, this is our earth and there are laws, aren't there and, well, aren't there?'" Again, she piped up, "Did you tell her to just look in the government pages of her phone book and make a call herself? Did you tell her how easy it is?"

"Oh yeah, but she whimped out. Overwhelmed by the concept of bureaucracy and the void between the representatives and the represented. 'Oh, it all just seems too humongous. I can deal with things plant by plant, but this big picture stuff seems to have no tangible horizon.' I actually liked that one. Said she just wouldn't know where to start."

"So did you tell her?" she asked "Did you confess?" He paused for a moment, then responded. "Yes ma'am. Exposed my whole sordid past as a clueless constituent. I told her the other stuff, the supposedly Real Stuff, was easy. Identify this, hack a cut into the trunk here, squirt some herbicide there, pull this, burn that. Machinery, machetes, mixtures were no problem, but the other world, the real real world, confounded me. Told her sure, I knew all that seventh grade social studies theory about government by the people, for the people, and four score and seven years ago, and political agendas and constituencies, but beyond that, I had no freaking idea. Didn't even know what half those buzz words even meant, although I was pretty sure a score was ten years. Couldn't tell a representative from a senator, and darned if I could figure out how to actually "contact" one of them, like they were dog-gone aliens or something, to express an opinion or appeal for funding and yadiyadiyada. Told her it took time to figure it out. Told her she can't just call somebody else and expect them to do everything for her. Told her consensus opinions count. Told her it takes work and it takes a while to get to the point where things actually happen. Told her it's worth it though, if she really wants to make a difference. I told her she should start local, not bite off more than she can chew. Told her to pick something 'tangible' in her little world. Told her to write to the paper, contact the reporter who wrote that article - promote a story from the other side. Told her to send a copy of that article to her phone book governmental dudes with a brief and polite letter expressing her concern, and told her to write three weeks later with some useful information, and then just keep the momentum rolling. Gave her the whole recipe." He stopped talking.

"And did it work? Do you think she'll actually DO anything?" She had to know. "Don't know," he replied. "When I got done ranting, she was gone. I don't even know if she listened through to the part where I provided her with a reliable local phone contact."

And then he signed off. Report complete. She sat for a moment, enjoying the silence, but was jolted back to reality by the ominous sound of a ringing phone.

-J.A.

An excerpt from "The Adventures of Hack Garlon and his buxom sidekick Squirt"

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