

Wildland Weeds

SPRING 2008



Prst sid
U.S. Postage
PAID
Gainesville, FL
Permit No. 726



Clean Up
The Weeds
Without
Upsetting
The Locals.

Habitat
herbicide

WITH HABITAT® HERBICIDE, YOU CAN RESTORE AQUATIC AREAS WITHOUT HARMING WILDLIFE.

As part of a responsible **Quality Vegetation Management™** program, **Habitat** provides long-term control, eliminating the need for repeat applications. And **Habitat** uses less active ingredient and breaks down quickly, so it's gentle on the environment. Be tough on weeds, not wildlife. Use **Habitat**.

1-800-545-9525 | www.vmanswers.com

 **BASF**

The Chemical Company

Wildland Weeds

SPRING 2008, VOLUME 11, NUMBER 2

Table of Contents

- 4 Confronting Cogongrass Across the South
- 11 Tropical Soda Apple
- 13 Invasive Plant Pest Species of South Carolina SC-EPPC 2008 List Update
- 14 SAMAB Hosts Workshop on the Prevention and Early Detection of Invasive Plants
- 16 Great Air Potato Roundup Great for Gainesville
- 17 North Carolina EPPC Reports
- 20 Solving the Melaleuca Problem
- 21 Internodes

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

An **exotic plant** has been introduced, either purposefully or accidentally, from outside of its natural range. 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 native 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.

Direct all editorial and advertising inquiries to:
Karen Brown, Editor
Wildland Weeds
7922 NW 71st Street
Gainesville, FL 32653
352/392-1799; FAX 352/392-3462
kpbrown@ufl.edu

Editorial Committee:
Jim Cuda Ken Langeland
Alison Fox Michael Meisenburg
Adam Grayson Corrie Pieteron

Please contact your EPPC chapter secretary for mailing address changes –
www.se-eppc.org



On the Cover:

Cogongrass (*Imperata cylindrica*), considered one of the world's ten worst weeds.
Photo by Chris Evans, River to River CWMA, Bugwood.org

FLORIDA EXOTIC PEST PLANT COUNCIL

www.fleppc.org

Officers

Alison Fox, Chair
University of Florida
Agronomy Department
352/392-1811, Ext. 207
amfox@ufl.edu

Dianne Owen, Secretary
Florida Atlantic University
954/236-1085
downen@fau.edu

Ellen Donlan, Treasurer
South Florida Water
Management District
800/432-2045 Ext. 6130
edonlan@sfwmd.gov

Karen Brown, Editor
University of Florida
Center for Aquatic &
Invasive Plants
352/392-1799
kpbrown@ufl.edu

Dan Clark, Chair-Elect
National Park Service
Florida/Caribbean EPMT
305/252-0347
Dan_clark@nps.gov

Directors

Alison Higgins (2nd year)
The Nature Conservancy
Florida Keys
305/745-8402 Ext. 111
ahiggins@tnc.org

William Overholt (2nd year)
University of Florida-IFAS
Indian River Research and
Education Center
772/468-3922 Ext. 143
billover@ufl.edu

Gary Nichols (2nd year)
St. Johns River Water
Management District
321/409-2159
gnichols@sjrwmd.com

Donna Watkins (2nd year)
Florida DEP Bureau of
Natural and Cultural
Resources
850/245-3104
donna.watkins@dep.state.fl.us

LeRoy Rodgers
South Florida Water
Management District
561/682-2773
lrodgers@sfwmd.gov

Jennifer Possley (1st year)
Fairchild Tropical Botanic
Garden Research Center
305/667-1651, ext. 3433
jpossley@fairchildgarden.org

Jonathan Taylor (1st year)
Everglades National Park
305/242-7876
jonathan_e_taylor@nps.gov

Sandra Vardaman (1st year)
Alachua County Environmental
Protection Dept.
352/264-6803
SMVardaman@alachuacounty.us

Committee Chairs

Bylaws
Sandra Vardaman

Control & Evaluations
Michael Meisenburg
UF/IFAS Center for Aquatic
and Invasive Plants
352/392-6894
ecomike@ufl.edu

Editorial

Karen Brown

Education Grants

Jennifer Possley

FNGA/FLEPPC Liaison

Doria Gordon
University of Florida
The Nature Conservancy
352/392-5949
dgordon@tnc.org

Finance

Scott Ditmarsen
Dow AgroSciences
813/866-7090
scditmarsen@dow.com

Legislative

Matthew King
Palm Beach County
561/233-2400
mking@co.palm-beach.fl.us

Merchandise

Tony Pernas

Nominations

Jim Burney

Outreach

Katy Roberts
727/726-1455
kroberts@ij.net

Plant List

Keith Bradley
The Institute for Regional
Conservation
305/247-6547
bradley@
regionalconservation.org

Research Grants

Betsy Von Holle
University of Central Florida
407/823-2141
vonholle@mail.ucf.edu

Symposium Field Trip

Coordinator

Donna Watkins

Symposium Local

Arrangements

Mike Bodle
South Florida Water
Management District
561/682-6132
mbodle@sfwmd.gov

Symposium Program

LeRoy Rodgers

Training

Ken Langeland
University of Florida/IFAS
352/392-9614
kangeland@ufl.edu

SOUTHEAST EXOTIC PEST PLANT COUNCIL

www.se-eppc.org

President

Tony Pernas
National Park Service
Florida/Caribbean Exotic
Plant Management Team
305/252-0347
Tony_Pernas@nps.gov

Vice President

Joyce Bender
Kentucky State Nature
Preserves Commission
502/573-2886
Joyce.Bender@ky.gov

SE-EPPC Chapters and Regional Organizations:

Alabama, Florida, Georgia, Kentucky, Mid-Atlantic,
Mississippi, New England, North Carolina, South Carolina,
Tennessee, USDA-Forest Service

Vendors

Todd Olson
Aquatic Vegetation Control
561/845-5525
tolson@avcaquatic.com

Webmaster

Tony Pernas

Task Force Chairs

Australian Pine

Tony Pernas

Brazilian Pepper

Jim Cuda
University of Florida
Entomology Department
352/392-1901 Ext. 126
Jcuda@ufl.edu

Carrotwood

Chris Lockhart
Habitat Specialists, Inc.
561/738-1179
chris@habitatspecialists.com

Dioscorea

William Overholt

Grasses

Greg MacDonald
University of Florida
Agronomy Department
352/392-1811 Ext. 228
gemac@ufl.edu

Lygodium

Kristina Serbesoff-King
TNC
kserbesoffking@tnc.org
and
LeRoy Rodgers
SFWMD
lrodgers@sfwmd.gov

Skunkvine

Brian Nelson
SFWMD
352/796-7211
Brian.Nelson@sfwmd.
state.fl.us

Chinese Tallow

Drew Leslie
Florida DEP, Bureau of
Invasive Plant Management
850/245-2822
drew.leslie@dep.state.fl.us

Melaleuca

Francois Laroche
South Florida Water
Management District
561/682-6193
flaroche@sfwmd.gov

The Exotic Pest Plant Councils have not tested any of the products advertised or referred to in this publication, nor have they verified any of the statements made in any of the advertisements or articles. The Councils do not warrant, expressly or implied, the fitness of any product advertised or the suitability of any advice or statements contained herein.

Confronting Cogongrass Across the South

Over 350 resource managers and other professionals from forestry, agriculture, natural areas, transportation, research, turf grass and nurseries, recreation, energy, private land ownership, and governmental agencies gathered in Mobile, AL on November 7-8, 2007 for the first workshop of its kind, Confronting Cogongrass Across the South. Two days of presentations by twenty experts were devoted solely to the understanding, management and prevention of cogongrass (*Imperata cylindrica*) in the southern United States.

The meeting location was not far from Grand Bay, AL where, in 1911, this invasive, exotic plant first was established in the US. Since then, human activities and the grass' own biological characteristics continue to facilitate its spread along right-of-way corridors and into disturbed areas, and then out into the natural landscape. Currently, cogongrass can be found from east Texas to South Carolina with Florida, Alabama, and Mississippi having the most widespread infestations.

Active eradication programs are underway in Louisiana and Georgia. Since the rate of spread occurs at thousands of acres per year, it is crucial that North Carolina, Tennessee and Arkansas intercept it at their borders. However, most of the US, except for sites in high altitudes or near the Canadian border, is believed to be susceptible to infestations of cogongrass.

Dr. Jim Miller, US Forest Service, Research & Development, opened the conference by putting the South's cogongrass crisis in context. Speakers presented findings from the most up-to-date cogongrass research, current operational programs, and collaborative efforts. On the second day Miller summarized management and containment strategies before symposium participants headed out to view successful on-the-ground cogongrass management programs in a longleaf pine restoration site and a loblolly pine establishment site.

Dr. Nancy J. Loewenstein, Auburn University, Assistant Professor of Forestry and Wildlife Sciences, and Dr. Miller have compiled the presentations into the *Proceedings of the Regional Cogongrass Conference: A Cogongrass Management Guide – Confronting the Cogongrass Crisis Across the South*. Abstracts and PowerPoint presentations are posted at <http://www.cogongrass.org/conference.cfm>. Hard copies of the proceedings can be obtained by contacting Dr. Loewenstein at loewenj@auburn.edu. Recordings of each of the speaker's presentations should soon be available at the website.

Chris Furqueron is the Program Coordinator for the IPM and Exotic Plant Management Teams, National Park Service, Southeast Region. Chris_Furqueron@nps.gov



Following are impressions gathered by Linda Conway Duever ~

Observations from the Cogongrass Conference: Implications for Research, Management and Control

The conference proceedings include a detailed and heavily referenced review of cogongrass biology by Dr. Greg MacDonald (University of Florida), as well as lengthy abstracts for other talks, many including valuable tables, graphics, and weblinks. The following implications emerged from discussions or connections between ideas presented by different speakers:

Averting an Out-Crossing-Generated Invasion Explosion in Florida

Whereas speakers talking about infestations in Alabama, Mississippi, and the western Florida panhandle described extensive reproduction from seed and stressed suppression of seedhead production as a control measure, little evidence of viable seed production was reported from Georgia or from most Florida populations. This has critical implications for geographic control strategy. Researchers suspect that many of the eastern infestations may still represent single clones. Therefore, since outcrossing has been reported to increase cogongrass seed production (Shilling et al. 1997), these stands may begin producing vastly greater quantities of viable seed if/when they come into contact with plants originating from other sources. If this hypothesis proves true, we are facing only a narrow window of opportunity to stop cogongrass from launching into an explosive seed-driven expansion on the eastern half of the Southeastern Coastal Plain.

Unfortunately, we don't know how real this threat is yet—and the most recent research (Capo-chichi et al. in press) is confounding previous hypotheses. That Auburn University study of southern Alabama populations found that cogongrass outliers showed

increased genetic variation at increased distances from the Grand Bay point of introduction and that there was surprisingly great genetic variability within each infestation. The Auburn researchers are preparing a proposal for evaluating cogongrass seed production and viability across the southeast. If funded, that project should provide vital insight into the risk of cogongrass “blow-ups” from outcrossing.

It would nevertheless be prudent to take several immediate emergency actions: 1) stop the sale, distribution, and cultivation of “Red Baron” and other “Japanese bloodgrass” cultivars throughout the southeast; 2) identify and prioritize for control all eastern infestations that show evidence of producing viable seed; and 3) keep populations and patches separated by cogongrass-free control zones. All of these steps would help slow cogongrass invasion even if outcrossing does not turn out to be a critical factor.

My own idea for successfully containing seed-producing cogongrass in Florida—and ultimately controlling cogongrass invasion throughout the United States—is to rapidly develop and implement geographic cogongrass control strategies similar to the one prepared for Marion County (<http://www.mcismc.org/>) at both the local and regional levels. This strategy is based on Robin Lewis' “bull's eye” approach to preventing exotic invasion of restoration sites (Randall et al. 1997) and Steven Dewey's “Attack Your Weeds Like a Wildfire” guidelines (Carpenter and Murray 2000). Lewis speaks of treating critical areas vulnerable to invasion as the center of a bull's eye and maintaining concentric control buffers around them. Dewey explains that, in both fighting wildfires and controlling invasives, you must 1) build a fire line; 2) eliminate spot fires; 3) protect critical areas; and 4) control the main outbreak. I have

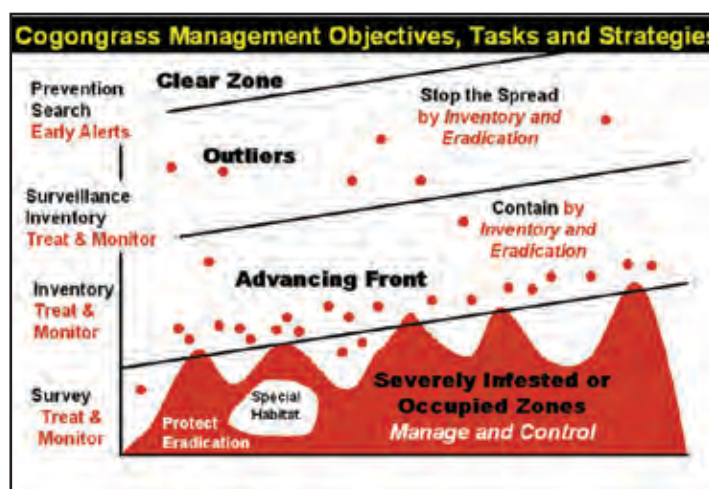
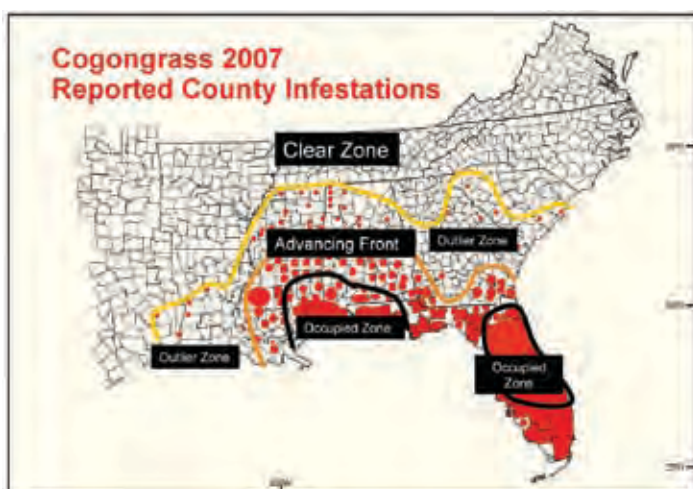


Figure 1. Zone of cogongrass spread and density in 2007. Figure 2. Invasion zones require specific objectives, tasks, and strategies to stop the spread and restore.

By James H. Miller, Ph.D., Research Ecologist Insect, Disease, and Invasive Plant Research, USDA Forest Service, Southern Research Station, Auburn, AL

added two concepts to this analogy: 5) prevent blow-ups; and 6) conduct mop-up operations. The logistic advantage of this control strategy is compelling even where genetic influences on seed production are not a concern.

Managing Cogongrass in Longleaf Pine Ecosystems

Shibu Jose gave a fascinating presentation, *What Research Has Found About Cogongrass Spread and Control in the Longleaf Pine Ecosystem*. He expanded upon implications from Carol Lippincott's 1997 dissertation, pointing out that cogongrass fires kill pines because they burn 15-20 percent hotter than other groundcover fires, not at the surface, but 4-6 feet above ground level.

MacDonald explained that cogongrass is adapted to grow on soils like those of the longleaf pine ecosystem: low in pH, nitrogen, potassium, and organic matter. One of the most troubling things Jose told us was that cogongrass further lowers the pH in longleaf ecosystem soils and thereby causes nutrients to leach beyond the depth where they are accessible to wiregrass (*Aristida stricta*) and many of the ecosystem's other characteristic groundcover species.

The most intriguing part of Jose's talk was his report on mesocosm experiments aimed towards determining what characteristics of longleaf pine groundcover composition were most important in determining the community's resistance to cogongrass invasion.

“Doing something to this plant only once just makes it mad.” — Dave Moorhead

All of the longleaf community species mixtures he used slowed cogongrass invasion, but broomsedge (*Andropogon virginicus*) was the outstanding competitor. Jose told us that broomsedge can “go head-to-head with cogongrass” because it fights on the same turf, using “the same strategy that cogongrass uses in outcompeting other vegetation, but more effectively.” He explained that the obvious weapons cogongrass uses (allelopathy, smothering thatch, super-flammability, root-piercing rhizome tips) are not the ultimate key to its success. The killer strategy is the way cogongrass sucks nitrogen and carbon deep into the ground and ties them up in a huge rhizome mass where other plants can't get at them. Broomsedge jumps in and aggressively installs a similar root mass at the same soil depth.

On the Thursday field trip, we saw closely related bushy bluestem (*A. glomeratus*) persisting in a massive old stand of cogongrass. My guess is that it might be a comparable competitor, especially on sites with relatively high soil moisture.

Upon hearing about broomsedge's competitiveness, Rod Grill raised the same question I did: Could we plant broomsedge barriers to enclose cogongrass stands and keep them from expanding? This might be a way to escape the “doughnut effect” when treating an established stand of cogongrass, which releases dormant rhizomes in an 8-10 foot band beyond the visible above-ground grass. If this zone were disked and planted in broomsedge before herbicide application, would that stop a new cogongrass stand from sprouting

from those rhizomes? Could we plant broomsedge on sites where cogongrass has been recently treated? What do we know about its tolerance of glyphosate and imazapyr? Since broomsedge roots occupy a lower soil stratum than wiregrass or most wildflowers, it stands to reason that it could be seeded in a mix with those species. Since broomsedge is an early-succession species less flammable than wiregrass, rather than a pyrogenic climax species like cogongrass, it seems logical that time and fire would then permit wiregrass groundcover to reclaim the site.

There are questions about how easy/difficult broomsedge establishment would be in different situations, however. I have had some broomsedge (and a lot more *A. ternarius*) emerge from seeding a species mix on a red oak woods restoration site, but mixed results are reported from other seeding attempts. Since there is some anecdotal evidence that cogongrass may not grow well under southern red oak (*Quercus falcata*) (McKee 2007 personal communication), my *Andropogon* seeding experience may not be applicable to cogongrass-infested sites.

Addressing the Rhizome Mass

Several speakers pointed out that the luxuriant foliage we see above ground is only the tip of the cogongrass iceberg, since the rhizome mass below ground can be as large as 40 tons per hectare (Terry et al. 1997) and comprise over 60 percent of a stand's biomass. This disproportionate reservoir of belowground energy explains cogongrass' phenomenal ability to rapidly and repeatedly regenerate top growth after burning or cutting. Established stands simply don't have enough leaves to transport sufficient herbicide to kill all the roots at one time. This is why, as Dave Moorhead (Moorhead and Bargeron 2007) put it, “Doing something to this plant only once just makes it mad.”

The take-home lesson reiterated by one speaker after another is that cogongrass must be attacked by a carefully integrated *sequence* of treatments that repeatedly remove carbohydrate-producing top growth and diminish the rhizome base. Various speakers described numerous ways of accomplishing this with herbicides, most involving spring and fall treatments with imazapyr and/or glyphosate. John Byrd (Byrd 2007) reviewed the effects of mechanical treatments and told us that rototilling cogongrass three times in a year will replace it with ordinary weeds and religiously mowing it short *at least weekly* for five or more years will achieve “positive control.” Converting a cogongrass stand into a regularly tilled farm field will get rid of it. Dearl Sanders (Sanders 2007) told us that frequent plowing prevents cogongrass from invading sugarcane fields. Several speakers emphasized the importance of planting something else after treating cogongrass, reporting that drilled-in crimson clover, ryegrass, bahiagrass, bermuda, and soybeans have all worked well.

The bottom line is that successful, cost-effective cogongrass control demands commitment to timely retreatment and replanting. It also calls for longterm monitoring, since surviving rhizomes will sprout months or years after the last sign of green top growth. We know they can lay dormant this way for at least nine months (MacDonald 2007). How much longer?

Critical Needs for Regional Support

Over the course of the conference, the frontline cogongrass warriors identified several key areas where the troops on the ground need more support from Washington. Top-down action is needed to address these critical needs:

- More funding and training for southeastern Cooperative Weed Management Areas (CWMAs) and similar programs that are struggling to adapt advanced invasives control procedures to a new sociopolitical and ecological landscape while most of the money goes to well established western programs. We especially need more funding applicable to private lands because more of the southeastern landscape is privately owned.
- Appropriate refinement and effective enforcement of laws prohibiting site-to-site (not just state-to-state) movement of cogongrass by all mechanisms, including nursery stock, hay, bedding, mulch, pine straw, fill dirt, limerock and contaminated machinery.
- Regional and state-level cooperative agreements and pre-approved agreement documents between major agencies and landowners to facilitate sharing resources across property lines and to circumvent time-consuming red tape for local CWMAs.
- Downloadable documents and boilerplate covering questions that come up repeatedly across the region, especially Best Management Practices (BMPs) for various equipment cleaning and

dirt moving procedures. Chuck Barger is doing a terrific job of sharing information regionally through <http://www.cogongrass.org/>. We need to route more funding and more information to this vital clearinghouse.

Literature Cited

- All literature cited is from the Proceedings of the Regional Cogongrass Conference: A Cogongrass Management Guide, Loewenstein, N. J. and J. H. Miller, editors. November 7-8, 2007, Mobile, AL. Alabama Cooperative Extension System, Auburn University, AL. 77 pp., except for the following publications.
- Capo-chichi, L. J. A., W. H. Faircloth, A. G. Williamson, M. G. Patterson, J. H. Miller, and E. van Santen. 2008. Invasion dynamics and genotypic diversity of cogongrass (*Imperata cylindrica*) at the point of introduction in the southeastern United States. *Invasive Plant Science and Management*, Inaugural issue, in press.
- Carpenter, A. T., and T. A. Murray. 2000. Creating an Integrated Weed Management Plan: A Handbook for Owners and Managers of Lands with Natural Values. Caring for the Land, vol. IV. Colorado Natural Areas Program, Colorado State Parks, Colorado Department of Natural Resources, and Colorado Division of Plant Industry.
- Lippincott, C. L. 1997. Ecological consequences of *Imperata cylindrica* (cogongrass) invasion in Florida sandhill. Dissertation. University of Florida.
- Randall, J. M., R. R. Lewis III, and D. B. Jensen. 1997. Ecological Restoration. Pages 205-219 in D. Simberloff, D. C. Schmitz, and T. C. Brown, editors. *Strangers in Paradise: Impact and Management of Nonindigenous Species in Florida*. Island Press, Washington, DC.
- Shilling, D. J., T. A. Bewick, J. F. Gaffney, S. K. McDonald, C. A. Chase, and E. R. R. L. Johnson. 1997. Ecology, Physiology, and Management of Cogongrass (*Imperata cylindrica*). Final Report. Florida Institute of Phosphate Research, Bartow, FL.
- Terry, P. J., G. Adgers, I. O. Akobundu, A. U. Anoka, M. E. T. Drilling, S., and M. Utomo. 1997. Herbicides and mechanical control of *Imperata cylindrica* as a first step in grassland rehabilitation. *Agroforestry Systems* 36: 151-179.

Linda Conway Duever is President of Conway Conservation LLC and Coordinator, Marion County Invasive Species Management Council, Mockernut Hill Botanical Institute, Micanopy, FL; 352/466-4136, ConwayConservation@conway.com; <http://www.ConwayConservationLLC.com>

Herbicides / Adjuvants / Service FOR Aquatics, Roadside & Utility Rights of Way

U A P

UNITED AGRI PRODUCTS

Paul Mason, Aquatic / VM Specialist
PH 407-718-9154
paul.mason@uap.com

Joe Collins, Government Acct. Coordinator
PH 352-222-0655
joseph.collins@uap.com

Terry Whitecar, Utility Specialist
PH 386-473-3882
terrence.whitecar@uap.com

Dan McMillan, Aquatic / VM Specialist
PH 706-318-3238
daniel.mcmillan@uap.com

Office 863-425-8289, Fax 321-226-0213

A note from Jim Miller:

Most short and long distance spread can be attributed to the movement of seed and rhizomes on contaminated equipment, fill dirt, hay, and possibly pine straw. Equipment used for forestry and right-of-way management have been the culprits and must be cleaned before moving when working in or near cogongrass infestations.

Contaminated recreational off-road vehicles and food plot cultivators from Florida, southern Alabama and Mississippi have been shown to introduce cogongrass onto distant hunting lands. Special programs to educate hunters are underway on private lands and in Georgia and need wider adoption.

A few messages on cogongrass control were repeated throughout the conference. These include:

- Cogongrass control is best achieved through a multifaceted approach including herbicides, mechanical treatment, and the introduction of desirable, competitive plant species.
- Use glyphosate, imazapyr, or a mixture of both, depending on surrounding vegetation.
- Fall applications are necessary, spring applications are good insurance.
- Plan on three years of herbicide application for effective control.
- Mowing or burning and then treatment of new growth can reduce the amount of herbicide required.
- Application of glyphosate is effective for seed prevention.

Wilson Faircloth, USDA Agricultural Research Service

Managing Cogongrass on Rights-of-Way

- Apply a mixture of glyphosate (≥ 3 lb ai/acre) and imazapyr (0.38lb ai/acre) in the fall. Follow with a treatment of glyphosate on the new growth in the spring.
- Repeat applications for three years.
- Apply at least 15 gal/acre herbicide solution to ensure adequate coverage
- Mechanical treatments such as disking improve cogongrass control when used in combination with herbicides.
- Revegetation with a desirable grass such as bermuda- or bahiagrass should occur immediately after herbicide treatments. In fall/winter, use of clovers or annual ryegrass can offer suppression and serve as a bridge to rehabilitation with more desirable species.
- An accurate, up-to-date survey and proper training of row employees/managers can do more for prevention and containment than any herbicide program.

David J. Moorhead, University of Georgia
Cogongrass Distribution and Spread Prevention

- Seeds and rhizomes can hitch-hike on equipment and in mulch and fill.
- Equipment sanitation is necessary, including cleaning radiators, screens and any equipment parts that collect seed or come into contact with the soil and rhizomes.
- Inspect sources of off-site material for invasive species.
- Establish a central staging area where equipment and off-site material can be inspected and monitored for invasives.
- Utilize databases such as the Early Detection and Distribution Mapping System (EDDMapS) to record/share infestation and treatment data.



WILSON H. FAIRCLOTH, USDA/ARS

Gregory E. MacDonald, University of Florida, IFAS

Cogongrass: The Plant's Biology, Distribution, and Impacts in the Southeastern US

Reproduction

- Spreads both clonally through rhizomes and by seed.
- Produces extensive rhizomes (can comprise over 60% of total plant biomass, fresh weights as high as 40 tons per hectare).
- Most rhizomes are found 6-10 inches below ground, but can be found as deep as 4 feet.
- Rhizomes are allelopathic, and also interfere with the growth of other plants by penetrating roots, bulbs and tubers.
- Not self-compatible, and must out-cross to produce viable seed (populations originating from rhizomes only spread clonally until they reach close proximity to a genetically different population).
- Produces over 3000 seeds per plant.
- Flowering generally occurs in the late winter/early spring, but disturbance can stimulate flowering year-round.
- Seeds are wind disseminated, and though they can travel long distances, generally move ~15 m.

- There is a rapid decline in seed viability over time, and a complete loss of viability after one year.
- Seed is able to invade and grow in established native plant communities. Seed establishment is facilitated by tillage and burning.

Habitat

- Infests diverse habitats.
- Adapted to poor soils and drought conditions, and appears to grow best in soils with acidic pH, low fertility and low organic matter.
- Extremely efficient in nutrient uptake, and is a better competitor for phosphorus than native pine-savanna species.
- Best adapted to full sun, but can thrive under moderate shade and survive as an understory species.
- Thrives in fire-based ecosystems.
- Fires from cogongrass are hot and intense (15 to 20% hotter than fires in pine systems in the Southern U.S.) allowing little above-ground vegetation to survive. This limits natural secondary succession and causes mortality of normally fire tolerant species, such as long-leaf pine.
- Serrated margins of cogongrass leaves accumulate silicates, which deters grazing.

James H. Miller, U.S. Forest Service

What Research has Found about Establishing Loblolly Pine in Cogongrass Infestations

- Study showed that burning cogongrass, followed by disking the next day then split treatments of imazapyr at 44 and 90 days after burning, provided greater than 90% control.
- Also effective to replace 2nd imazapyr application with a 2nd disking.
- Both imazapyr and glyphosate are most effective when applied September through November or December in South Florida.
- Imazapyr has been shown to be a more effective active ingredient than glyphosate, but a mixture of imazapyr and glyphosate is more cost-effective than either herbicide alone.

Shibu Jose, University of Florida

What Research has Found about Cogongrass Spread and Control in the Longleaf Pine Ecosystem

- There does not appear to be a significant relationship between the rate of cogongrass spread and native plant species richness, functional richness, or cover of the invaded community.
- The presence of broomsedge (*Andropogon virginicus*), a particularly competitive native species, substantially reduced cogongrass establishment and spread.
- Wiregrass (*Aristida beyrichiana*), partridge pea (*Chamaecrista fasciculata*), narrowleaf silkgrass (*Pityopsis graminifolia*), and gallberry (*Ilex glabra*) were not effective in resisting cogongrass invasion.
- Cogongrass can significantly reduce native understory species cover in longleaf pine forests.
- Fire can more than double the rate of spread of cogongrass if control measures are not used.
- Cogongrass infestation can increase fire related mortality of longleaf pine seedlings and saplings.
- Revegetation with a desirable grass such as bermuda- or bahiagrass should occur immediately after herbicide treatments. In fall/winter, use of clovers or annual ryegrass can offer suppression and serve as a bridge to rehabilitation with more desirable species.
- An accurate, up-to-date survey and proper training of row employees/managers can do more for prevention and containment than any herbicide program.

John D. Byrd, Mississippi State University

What Works on Cogongrass and What Does Not:

A Summary of Nearly 10 Years of Cogongrass Research in Mississippi

- Studies found both glyphosate (2% mixture of Roundup Pro 4L) and imazapyr (0.375 lb ai/acre) consistently control cogongrass.
- Both herbicides achieved control levels of 80% or greater when repeatedly applied in the fall (last week of September) or in both the spring (last week of April or first week of May) and the fall, over three growing seasons.
- Rope-wick applicators proved less effective in controlling cogongrass than conventional hydraulic nozzles, but were effective in selectively applying herbicides to avoid harming longleaf pine.
- The surfactant Dyne A Pak, when added to imazapyr at 1% spray volume, enhanced cogongrass control compared to a nonionic surfactant.
- When applied during dormant growth stage, glyphosate and imazapyr reduced the number of viable seeds produced.
- Foliage removal by mowing or burning prior to application of glyphosate or imazapyr resulted in improved visual control and reduced rhizome biomass (rhizome biomass was not significantly altered by burning and application of glyphosate).
- Rotary tillage prior to herbicide application reduced stem weights 74-92% and rhizome biomass 88-98% after two years. Discing prior to herbicide application reduced stem weights 61-80% and rhizome biomass 47-80% after two years.
- Use a combination of tactics to control cogongrass: herbicide, mechanical, burning and, if possible, plant competitive plant species.

Tropical Soda Apple

Since it was first spotted in south Florida in the late 1980s, Tropical Soda Apple (*Solanum viarum* Dunal) has steadily moved across Florida and now is making inroads into Georgia, the Carolinas, Alabama, Texas and most other southeastern states. Its highly invasive nature earned it a spot on the Federal Noxious Weed List in 1995, and in just two decades, has resulted in the plant inhabiting all counties throughout the entire state of Florida. Infestations affect cattle ranchers, hay producers and grass seed harvesters. Tropical Soda Apple also serves as a host plant for foreign plant viruses that can destroy vegetable crops such as tomatoes.

Tropical Soda Apple grows up to six feet tall, has thick foliage and is armed with thorny spikes, which together create an imposing, impenetrable barrier. Seeds are dispersed when cattle and other animals feed on its fruit.

“Tropical Soda Apple leaves behind millions of dollars of damage in lost forage production, hay or sod production, and just one Tropical Soda Apple seed found among harvested grass seed condemns the entire crop,” says Weed Science Society of America member Jeffrey Mullahey, who is Professor and Director of the West Florida Research and Education Center at the University of Florida. “And cattle ranchers must hold cattle for at least six days before transporting them out of state to prevent the spread of Tropical Soda Apple seeds.”

From January 8, 2008, *Weed Science Society of America, Invasive Plant Spotlight.*



PHOTOS BY JEFFREY T. HUTCHINSON

Top – plant, showing fruit & leaves with spines; left – leaf close up, showing spines; right – ripe fruit

We'll go the distance to kill exotics, even the Virgin Islands!



EarthBalance®

888-536-2855



www.earthbalance.com



EarthBalance® in the U.S. Virgin Islands providing exotic removal services to the National Park Service

Southeast Exotic Pest Plant Council 10th Annual Symposium
hosted by the Mississippi Exotic Pest Plant Council

“Managing Invasive Plants in Disturbed Landscapes”

May 20-22, 2008

Imperial Palace Casinos — Biloxi, Mississippi

PURPOSE

The 10th Annual SE-EPPC symposium will offer a timely forum for considering how best to manage invasive plants in disturbed landscapes. Ecological disturbances, such as Hurricane Katrina in 2005 and the 2007 wildfires in southern Georgia and northern Florida, have raised awareness of these events in the southeastern United States. Two important issues arise from these disturbances:

understanding the responses of invasive plants to natural disturbances
and the associated recovery and salvage efforts;

coordinating ecological restoration of disturbance regimes with the management of invasive plants.

PROGRAM

Conference plenary and oral presentation sessions will occur on May 20 and May 21.

Field trips are planned for May 22.

REGISTRATION

Registration is available on the SE-EPPC Website: www.se-eppc.org

CONFERENCE HOTEL

All sessions will be held at the Imperial Palace Casino, Resort, and Spa in Biloxi, MS, which will also serve as the official conference hotel. Single occupancy room rates will be \$94 per night for Monday, May 19, 2008 to Friday, May 23, 2008 (Attendees should enter the following code S08620).

ADDITIONAL INFORMATION

For additional conference information, visit the SE-EPPC Website: www.se-eppc.org, or contact John Madsen, jmadsen@gri.msstate.edu or Lisa Yager, lyager@tnc.org



The Southeast Exotic Pest Plant Council is a regional 501(c)3 organization dedicated to controlling invasive plants and restoring natural ecosystems. SE-EPPC welcomes participation by all land management agencies, organizations, industries, and individuals working together to forge a solution.

Invasive Plant Pest Species of South Carolina | SC-EPPC 2008 List Update

New observations, increasing threats, and distribution changes of invasive exotic plant species in South Carolina over the past four years prompted an update of the South Carolina Exotic Pest Plant Council (SC-EPPC) species list. All species on the 2004 list were checked against the South Carolina Plant Atlas, the Southeast Exotic Pest Plant Council's Early Detection & Distribution Mapping System (EDDMapS), and the USDA Plants Database for distribution and nomenclature changes. Several queries for information were sent out to a panel of professional and amateur botanists, field ecologists, land managers, SC-EPPC members, and others experienced with South Carolina natural communities and exotic plant species. Information requested and received included comments on distributions and characteristics of previously listed species, additional species to list, and suggestions for threat category designations.

Categories were expanded to include several species that are not known to be in South Carolina at present, but pose severe threats to natural communities in adjacent and nearby states. This category (Watch B) includes species that are targeted for Early Detection and Rapid Response (EDRR) efforts. The panel of plant list reviewers consisted of Joel Gramling (The Citadel), Doug Rayner



(Wofford College), Jan Haldeman (Erskine College), John Nelson (Curator, USC Herbarium), Chick Gaddy (Private Consultant), Steve Compton (Clemson Dept. Plant Industry), Bert Pittman (Botanist, SC DNR), Jean Everett (The College of Charleston), Jim Miller (USFS), Robin Mackie (USFS), Randy Westbrook (USGS), Johnny Stowe (SC DNR), John Brubaker (SC Native Plant Society and SC-EPPC), Colette DeGarady (SC TNC and SC-EPPC), Sudie Daves (NRCS), David Bourgeois (MeadWestvaco), Bill Hulslander (NPS), and Elyse Benson (NRCS).

The SC-EPPC List brochure also was recently updated with the new list and additional species profiles with photographs. Clemson University's Jeanne Campbell and Pat Layton are credited with this update and subsequent printing of the new SC-EPPC List brochure. Funds for printing were provided by Clemson University.

For copies of the Species List and/or brochure please check the SC-EPPC website at: <http://www.se-eppc.org/>, or contact Colette DeGarady at The Nature Conservancy, 960 Morrison Drive, Suite 100, Charleston, SC 29464; 843-937-8807 x-15; cdegarady@TNC.ORG.

For additional information, contact SC-EPPC president John Brubaker, brubakerj@tds.net; 843-928-4001.

**For the plants you
love to hate...**

**Pandion
Systems, Inc.**



**Invasive Exotic Plant
Management**

**Ecologists and land
managers...**

Specializing in complex control and research projects requiring a high degree of ecological proficiency and experience.

Gainesville, Florida
352-372-4747

www.pandionsystems.com
exotics@pandionsystems.com



**"Over 20 Years...
Leading the way
in effective, efficient
and economical
Aquatic & Natural Area
Exotic Pest Plant Management"**

P.O. Box 1469
Eagle Lake, FL 33839
1-800-408-8882
www.applieaquaticmgmt.com

**AQUATIC
VEGETATION
CONTROL, INC.**

ENVIRONMENTAL SERVICES

**"Sound,
value-oriented
environmental
stewardship"**

6753 Garden Road, Suite 109
Riviera Beach, FL 33404

(561) 845-5525

(800) 327-8745

Fax: (561) 845-5374

email: L1J2@aol.com

www.avcaquatic.com



SAMAB Hosts Workshop on the Prevention and Early Detection of Invasive Plants

by Susan Schexnayder

Land and water managers have learned that managing an invasive plant once it is established in an area is an expensive and time consuming effort, and often success is uncertain. Success with invasive species is most likely if we prevent their introduction or identify them early enough that populations do not become established. With this recognition, SAMAB (Southern Appalachian Man and the Biosphere Program) hosted a workshop on October 23rd and 24th in Johnson City, TN to help land and water managers in the Southern Appalachian region learn what practices they could incorporate into their existing management strategies to prevent, or at least minimize, the possibility of invasive plant introductions on their managed property. "Success at limiting new introductions to the southern Appalachians will require the collective efforts of all of us who have responsibility for land and water resource management," said Nancy Fraley, a key organizer of the workshop and leader of the National Park Service's Southeast Exotic Plant Management Team. Fraley noted that a wide variety of people—transportation maintenance crews, park managers, and private landowners, just to name a few—have important roles to play in preventing the spread of invasive plants. Participants in the workshop included private land managers, foresters, representatives from several National Forest and National Park units, and other land management staffs.

Among the presenters were Alix Cleveland, Invasives Activities Leader for the US Forest Service Region 8; Rita Beard, Invasive Plants Coordinator for the National Park Service; and Richard Schwab, leader of the interagency Burned Area Emergency Response Program. They each emphasized cooperation, pre-project planning, and the importance of having an invasives specialist, or, minimally, a botanist, involved in project planning and implementation for activities ranging from road construction to stream restoration. Bonnie Harper-Lore, with the Federal Highway Administration, made clear the highway transportation sector's role in invasives, reminding participants that the

Federal Highway Administration manages 12 million acres of roadside green space.

Professor Dave Moorhead of the University of Georgia discussed a range of best management practices for all types of soil disturbing activities, and emphasized the importance of knowing what is growing next to your managed area. To help build this knowledge, Moorhead and Chuck Barger, also of the University of Georgia, have collaborated on the Early Detection and Distributions Mapping System (www.EDDMapS.org) that will serve as a central source of information on invasive plant occurrences and allows new sightings to be reported and verified.

To help extend the focus on the prevention and early detection of invasives in the Southern Appalachian region, SAMAB is collecting and will post on its website examples of site-specific early detection and

rapid response plans, as well as examples of contracts that include specifications that minimize the possibility of invasive plant introductions. To submit examples, contact Susan Schexnayder, SAMAB's program manager, at schexnayder@utk.edu or 865-974-5912. Copies of the workshop presentations will soon be available at the SAMAB website, www.samab.org.

The Southern Appalachian Man and the Biosphere (SAMAB) Program is a public/private partnership whose vision is to foster a harmonious relationship between people and the Southern Appalachian environment. It promotes the environmental health and stewardship of natural, economic, and cultural resources through cooperation among partners, information gathering and sharing, integrated assessments, and demonstration projects. www.samab.org

HELENA

Alachua, FL 386-462-4157	Dundee, FL 863-439-1551	Mt. Dora, FL 352-383-8139
Belle Glade, FL 561-996-6200	Ft. Pierce, FL 772-464-8660	Palmetto, FL 941-722-3253
Dade City, FL 352-567-5622	Homestead, FL 305-248-3012	Plant City, FL 813-759-1111
Delray Beach, FL 561-499-0486	Immokalee, FL 239-657-3141	Wauchula, FL 863-773-3187

Bonnie Figliolia 407-256-2342	James Boggs 863-557-0076	Polly Ellinor 813-376-3966
---	------------------------------------	--------------------------------------

People...Products...Knowledge... is a registered trademark of Helena Holding Company. Always read and follow label directions. ©2007 Helena Holding Company.

HELENA People...Products...Knowledge... www.helenachemical.com

Helena Chemical Company • 2405 N. 71st St. • Tampa, FL 33619 • 813-626-5121



TopFilm™ makes
algae stick to algae

TopFilm™

*Sticker for Rainfastness
and Weatherability*

**Maximizes Treatments
by Minimizing Wash-off**

Locate Your Distributors:

www.biosorb-inc.com



Herbicide Treatment with **TopFilm™**

“Natural Products from the Grain-Belt of the USA”

For more information: L. Marshall, Ph.D., 636-936-1400
Biosorb, Inc., St.Charles, Missouri, USA



Biocar®
(Natural Microsponges)

Florida Books from the Great Outdoors



Visit our website for books on
Florida plants and animals,
outdoor recreation, history,
kids' books and more!

www.floridabooks.com

10% discount to EPPC members;
Enter coupon code FLEPPC

Great Outdoors Publishing Co., St. Petersburg, Florida



**We promote greater
public awareness of
Florida's precious
water resources...**

6900 SW 21st Court, Building 9
Davie, Florida 33317
(954) 382-9766 • FAX (954) 382-9770
www.allstatemanagement.com
waterweed@aol.com

- Weed and Algae Control
- Environmental Services
 - Fish Stocking
 - Wetland Planting
- Fountains & Aeration



**CIVIL ENGINEERING | LANDSCAPE ARCHITECTURE
PLANNING | ENVIRONMENTAL SERVICES**

1840 S Airpark Road | Edgewater, FL 32132

PH (386) 424-8285 | www.zevcohen.com

Great Air Potato Roundup Great for Gainesville

by Ludovica Weaver, Morningside Nature Center

“Invasive exotic air potatoes can’t stay! We’ll round them all up and help G’ville that way!”

was the mantra on this year’s Great Air Potato Roundup tee-shirts that volunteers received at the post-roundup celebration. Indeed, despite cold and rainy weather on January 26th, 1,171 volunteers joined the crusade at 34 different natural areas throughout Gainesville to gather 15,740 pounds of air potatoes, 450 pounds of other invasive, exotic plants, and a 20 yard dumpster of trash. The pursuit of potatoes began at 9:00 am throughout Gainesville and lasted until 11:00 am, when potato gatherers gathered together at Morningside Nature Center for a celebration with music, food, tee-shirts and prizes.

Wonderful weather welcomed volunteers the weekend after the Great Air Potato Roundup for a mini-roundup where 67 volunteers worked at Loblolly Nature Park and a 24-acre natural area to remove another nine five-gallon buckets of air potatoes and several truckloads of trash.

The City of Gainesville’s Nature Operations Division wishes to thank the volunteers who participated in this year’s event and those who dedicate their time and efforts throughout the year to make a positive difference in Gainesville’s natural areas. Many sponsors, such as the Florida Exotic Pest Plant Council, also make the Great Air Potato Roundup possible. If you or your organization would like to take part in sponsoring this event, please contact Ludovica Weaver at City of Gainesville, Nature Operations Division, weaverl@cityofgainesville.org.



PHOTO BY JOE RICHARD / SEFAFAVORTIES.COM

OTHER PHOTOS BY ROB HORSBURGH, UNIVERSITY OF FLORIDA/IFAS, CENTER FOR AQUATIC AND INVASIVE PLANTS

North Carolina EPPC Reports

by Johnny Randall

Our very successful 2007 NC-EPPC annual meeting (with nearly 80 attendees) at the North Carolina Botanical Garden concluded with a changing of the guard—of the 12-member board, 8 new individuals were elected. Note that the NC-EPPC board is designed to provide seats for an array of stakeholders within the invasive plant arena.

Current board members and their affiliations include: President, Charles Yelton (NC Museum of Natural Sciences), Vice-President, Gary Marshall (Mecklenburg County Parks and Recreation), Secretary Kristen Sinclair (NC Natural Heritage Program), Treasurer, Cheri Smith (NC Department of Transportation), and board members representing Public Gardens, Johnny Randall (NC Botanical Garden), Conservation Organization, Margaret Fields (The Nature Conservancy), Allied Industry, Steve Manning (Invasive Plant Control, Inc.), Nursery Industry, Doug Chapman (Plantworks Nursery and NC Nursery and Landscape Association), Landscape Industry, David McDowell (Bland Nurseries and NCNLA), Academic Organization, Rob Richardson (NC State Univ., Dept. of Horticultural Science), Government, Rick Iverson (NC Dept. of Agriculture), and Citizen, George Morris (RiverWorks, Inc.).

The annual meeting was opened with a presentation by NC Department of Agriculture weed specialist, Rick Iverson, who

led us through the state noxious weed listing process. Presentations followed by George Morris, Nancy Fraley, Marek Smith, and Charles Yelton on restoration and management activities. Outgoing NC-EPPC VP, Joe Neal, gave the final presentation on the NC Nursery and Landscape Association risk assessment initiative (the subject of a graduate student program at NC State University).

Our action agenda for the coming year is to help form a state early detection and rapid response (EDRR) committee with Randy Westbrook (USGS) at the helm, participate in the NC Invasive Species Advisory Committee, join the Coalition for Eastern Invasive Plant Species Control (CEIPSC), and engage our legislators in DC during the National Invasive Weed Awareness Week (NIWAW9). We also plan to educate our congressmen and senators on invasive plant issues during the summer when they are in North Carolina, provide posters and materials to environmental educators about invasive plants, hold community service projects, and propose an invasive plant Boy Scout/Girl Scout badge.

We are very excited about the coming year and the energy infused by a number of new board members. There is much work to do, so wish us success!

Johnny Randall is the Immediate Past President of NC-EPPC and current board member representing Public Gardens.



35th
NATURAL AREAS
CONFERENCE

Call for Papers & Posters

35th Annual Natural Areas Conference
October 14-17, 2008
Nashville, Tennessee

**Natural Areas Revival In Music City:
Tuning Into A Changing Climate And
Biological Invasion**

Abstracts must be received no later than **April 22, 2008**.
Visit www.naturalarea.org for conference information and updates related to accepted abstracts.

A joint conference of the Natural Areas Association (NAA) and the National Association of Exotic Pest Plant Councils (NAEPPC).



"The Selectivity Specialists"

One of the leading private entities for controlling invasive plants nationwide, from the Everglades National Park in Florida to the northern state of Michigan.

(615) 385-4319

www.invasiveplantcontrol.com

(visit our website for employment opportunities)

Aquatic Plant Management, Inc.

Coastal & Inland Revegetation
Wetland Mitigation
Selective Herbicide Applications
Horticultural & Landscape Services
Environmental Site Assessments
Freshwater & Coastal Habitat Restoration

APM is dedicated to the reclamation and restoration of Florida's native habitats. A full-service habitat restoration firm ready to deliver trained professional technicians in the identification and eradication of invasive, non-native, exotic plants.

Centrally located in Glades County with subsidiary offices in Broward, Palm Beach and Indian River Counties.

(954) 444-1379

aquaticplantmanagement@hotmail.com

Al Suarez, Horticulturist / President

South Florida Aquatic Plant Management Society (SFAPMS)



~ to provide a forum for the exchange of ideas, news and information on plants that grow in and around water in South Florida. Anyone with an interest in aquatic plant management, growth of aquatic plants, or restoration of wetlands is invited to join and receive the quarterly magazine, *The Hydrophyte*, plus other member benefits.

www.sfapms.org • Ph: 954-382-9766 • Fax: 954-382-9770
Email: info@sfapms.org • Membership: \$25 • Students: \$5



applied biochemists
Quality Products For Water Quality

a division of Advantis Technologies, Inc.

Navigate



Your best defense for Eurasian Watermilfoil Control

Navigate

- Selective control of invasive Eurasian Watermilfoil, Water Chestnut, and other troublesome aquatic dicots.
- Systemic action for complete kill.
- Granular formulation for targeted application

1-800-558-5106

www.appliedbiochemists.com

FLEPPC Hosts 23rd Annual Symposium in Jacksonville, Florida

Flora non grata

The Florida Exotic Pest Plant Council 23rd Annual Symposium

Monday, April 21st – Thursday, April 24th 2008

Crowne Plaza Hotel • Jacksonville-Riverfront, Jacksonville, Florida

Keynote speaker: Dr. Bernd Blossey

Associate Professor of Biology and Director of the Invasive Plants Program, Cornell University

A Symposium preview:

- An array of presentations on the latest technology in invasive species control
 - Workshops on plant ID, technology, and natural areas weed management
 - Updates on biological control research for Florida invasive plant species
 - Local field trips to evaluate invasive plant management programs at Julington-Durbin Preserve and Kingsley Plantation, as well as a tour of the Jacksonville Arboretum
 - Exploring the intersections between invasive flora and fauna
 - Pesticide applicator CEUs will be offered
 - Information on new worrisome weeds to watch out for
 - The latest on Cooperative Weed Management Areas (CWMAs) throughout Florida
- ...and much more!

Please visit the Florida EPPC website for up-to-date information on symposium schedules, field trips, workshops, and registration at: <http://www.fleppc.org> or contact LeRoy Rodgers at lrodgers@sfwmd.gov.

Hotel Information:

A limited block of rooms has been reserved for the conference, so register now for the best rates!

Crowne Plaza Hotel, Jacksonville-Riverfront, 1201 Riverplace Blvd., Jacksonville, FL 32207

Reservations 904-398-8800 or 800-496-7621



www.fleppc.org

New DVD Release!

Solving the Melaleuca Problem

Working together, diverse government agencies have provided a long-term integrated management solution for melaleuca in Florida. *Solving the Melaleuca Problem* is a DVD produced by the Agronomy Department, the Center for Aquatic and Invasive Plants, and the Martin County Cooperative Extension Service, all part of the University of Florida-IFAS, as a product of the TAME Melaleuca project. Funded by the USDA Agriculture Research Service, the hour-long program is organized into four segments – The Invasion; In Our Environment; Containment and Control; and Melaleuca Mulch. The target audience is the general public and, more specifically, homeowners in southern Florida with melaleuca trees on their property. The segments are rich in detail and practical information, yet not so technical that the interested homeowner or concerned citizen cannot understand them.

The DVD begins with “The Invasion,” an informative overview and history of *Melaleuca quinquenervia* in South Florida.

“In Our Environment” is an in-the-field interview with Dr. Ken Langeland, a University of Florida-IFAS Professor with the Center for Aquatic and Invasive Plants. It defines the issues and problems surrounding melaleuca in the Everglades, other parks and in citizen backyards.



“Containment and Control” illustrates various government agencies’ roles in melaleuca research and Integrated Pest Management (IPM) in natural and urban areas, the options for homeowners, and descriptions of step-by-step tree removal from private property, through interviews with Ken Langeland and Dr. Paul Pratt, a USDA/ARS Research Scientist. IPM, including biological controls, herbicides, and mechanical methods, is presented as a long-term containment tool.

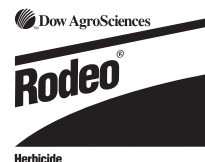
“Melaleuca Mulch,” the final segment, describes how the trees are converted into sanitized and environmentally-safe landscape mulch.

The DVD may be obtained from Mr. Fred Burkey of the UF-IFAS Extension Service, fburkey@ufl.edu, 772-288-5654. 60 minutes. 2007.

Effective Vegetation Management Solutions

- Quality products and service
- Proven performance
- Selective weed control options

Contact Scott Ditmarsen at
813-866-7090 or scditmarsen@dow.com
or visit www.vegetationmgmt.com



Intelligent Solutions.
Dedicated Service.

®™Trademark of Dow AgroSciences LLC Always read and follow label directions.

Internodes

Mark Your Calendar

- “*Ecological Dimensions of Biofuels*,” the Ecological Society of America, March 10, 2008, Washington, DC. <http://esa.org/biofuels>
- Invasive Plant Management Symposium, “*Prevention Strategies for Invasive Species*,” March 18, 2007, U.S. National Arboretum, Washington, DC. <http://www.usna.usda.gov/Education/events>
- Field Techniques for Invasive Plant Management Course, April 7–11, 2008, National Conservation Training Center, Shepherdstown, WV. <https://doilearn.doi.gov> (Course Code: WLD2139)
- “People-Powered Projects: The National Cooperative Weed Management Area (CWMA) Conference,” April 15–17, 2008, Reno, NV. Representatives from all 50 states will focus on CWMA funding and logistics, working with volunteers, EDRR, awareness and outreach, and state and national initiatives. http://www.weedcenter.org/CWMAconf/cwma_conf.htm
- Florida Vegetation Management Association Conference, April 16–18, 2008, Daytona Beach, FL. www.fvma.info
- 23rd Annual Florida Exotic Pest Plant Council (FLEPPC) Symposium, Jacksonville, FL. April 21–24, 2008. www.fleppc.org
- University of Florida/IFAS Aquatic Weed Control Short Course, May 5–8, 2008. Coral Springs, Florida. conference.ifas.ufl.edu/aw
- 28th Annual Conference of the Florida Native Plant Society, May 15–18, 2008, Palmetto, FL. www.fnps.org
- 10th Annual Southeast Exotic Pest Plant Council Symposium, hosted by the Mississippi Exotic Pest Plant Council, “Managing Invasive Plants in Disturbed Landscapes,” Biloxi, MS. May 20–22, 2008. www.se-eppc.org
- The International Union of Forest Research Organizations (IUFRO) Work Group will hold a meeting at the National Conservation Training Center May 26–30, 2008, Shepherdstown, WV. “*All Alien Invasive Species and International Trade*” will focus on assessing and interrupting pathways for movement of alien invasive species. http://www.fs.fed.us/ne/morgantown/4557/iufro_wv/index.htm
- 4th Biennial Weeds Across Borders Conference, May 27–30, 2008, Banff,

Alberta, Canada. Details at the Alberta Invasive Plants Council web site: <http://www.invasiveplants.ab.ca/>

- The National Conference on Urban Ecosystems, May 28–30, 2008, Orlando, FL. <http://www.americanforests.org/conference/>
- 48th Annual Meeting, Aquatic Plant Management Society, Charleston, SC. July 13–16, 2008. www.apms.org
- 35th Natural Areas Conference, “Tuning In to a Changing Climate and Biological Invasion,” in partnership with the National Association of Exotic Pest Plant Councils (NA-EPPC). October 14–17, 2008, Nashville, TN. www.naturalarea.org

Web Sites

Volunteers and Invasive Plants – Learning and Lending a Hand

The U.S. Fish and Wildlife Service and the Center for Invasive Plant Management announce a new website aimed at engaging volunteers and the public in invasive plant issues and management. Designed for National Wildlife Refuge volunteers and Friends groups, the website provides science-based, introductory information that is suitable for anyone interested in learning about invasive plants. Includes five self-study modules, competitive grant information, additional web-based resources, and training in how to map invasive plant infestations using hand-held computers and GPS devices. www.fws.gov/invasives/volunteersTrainingModule

The USGS has developed a new fact sheet on Asian bittersweet (*Celastrus orbiculatus*) that provides a very useful key for distinguishing it from American bittersweet (*Celastrus scandens*). They have a companion paper coming out soon in the Journal of the Torrey Botanical Club. http://www.glsc.usgs.gov/_files/factsheets/2007-2%20Identifying%20Bittersweet.pdf

Have you seen the new Candidate Conservation web page? Working in partnership with public and private landowners, the Candidate Conservation Program assesses species, and develops and facilitates the use of voluntary conservation tools for species potentially at risk and their habitat. The goal is to identify and conserve these species *before* they require protection by the Endangered Species Act. See <http://www.fws.gov/endangered/candidates/index.html>

If there's a question about pesticides, very likely the U.S. National Pesticide Information

Center (NPIC) can provide an answer, even if the question is in any of more than 170 languages. A new feature of NPIC, an ongoing cooperative program between the U.S. Environmental Protection Agency and Oregon State University, is around-the-clock, over-the-phone interpretation service provided by a specialized contractor. The Center was established to provide free “objective, science-based information about pesticides and pesticide-related topics to enable people to make informed decisions about pesticides and their use.” NPIC staff fields questions ranging from the technical (toxicology and active ingredient factsheets) to the more general, such as pesticide safety (including the signs and symptoms of pesticide intoxication), pesticide labels, food and pesticides, pesticide risks, and pets, wildlife and pesticides. The NPIC website leads to a variety of categories, gateways, and other key sources of pesticide-related information. <http://npic.orst.edu/index.html>

Other News

In September 2006, Arizona's first reported population of kudzu was discovered in Huachuca City, Cochise County. Treatments consisted of Milestone VM applied at a rate of 7 oz. per acre, with retreatments in March and June 2007. Visual estimates in August 2007 indicated >97% biomass reduction. Even though the infestation appears to be controlled, treatments are planned for 2008 to complete eradication and will continue until new shoots cease to emerge.

UPDATE: In December 2007, the red palm mite (*Raiioella indica*) was found in Palm Beach County, Florida. The mite has been present on Caribbean islands since at least 2003. The red palm mite is native to Old World tropical and subtropical regions and is known to attack 32 species of palms as well as banana, heliconia, and ginger. Native palms in Florida are at risk.

Some of the invasive plants currently under consideration for biofuel production are jatropha, (*Jatropha* spp.), reed canary grass (*Phalaris arundinacea*), giant reed (*Arundo donax*), and Chinese tallow tree (*Sapium sebiferum*). Jodie Holt, University of California-Riverside recently coauthored the Weed Science Society of America white paper, “Biofuels and Invasive Plant Species,” which outlines the risks associated with cultivating invasive plants for biofuel crops. The impact of invasive plants on the nation's agriculture, water quality, wildlife and recreation already costs the U.S. an estimated \$34.7 billion

annually, according to a recent Cornell University report. Says Holt, "Seeds can easily be dispersed by the wind, humans or animals at various points of crop production, such as during planting, harvesting and transport." See the Weed Science Society of America white paper at www.wssa.net under the Invasive Plants tab.

Formerly known only from North Carolina, feathered mosquitofern (*Azolla pinnata*) was found in a canal near Jupiter, FL in June 2007. Feathered mosquitofern is a federally-listed noxious weed and is native to Asia, Africa, and Australia. More recently, a type of watergrass (*Luziola subintegra*, or Bodle grass) was found in Lake Okeechobee. Unusual among grasses, this plant bears separate male and female panicles. Contact Mike Bodle at mbodle@swfmd.gov

Florida Statute 720.3075(c)(4) states that "Homeowners' association documents, including declarations of covenants, articles of incorporation or bylaws, entered after October 1, 2001, may not prohibit any property owner from implementing Xeriscape or Florida-friendly landscape, as defined in s.373.185(1), on his or her land."

Federated Farmers (of New Zealand) is calling for a tax on tourists to meet the climbing cost of control efforts on unwanted species brought into New Zealand, such as the invasive algae

didymo (*Didymosphenia geminata*). The bill for didymo alone has reached \$12 million in just three years. According to Federated Farmers President Charlie Pedersen, "It is usually unthinking tourists who bring such pests into the country and it is not unreasonable they should pay."

In more didymo news, the invasive algae was recently found in Vermont, New York, New Hampshire and Pennsylvania, bringing to 19 the number of states in the US with didymo infestations (the southern-most being Arkansas and North Carolina). This algae is the only freshwater diatom to exhibit large scale invasive behavior. Its large blooms form thick mats of cottony material on stream and river bottoms that suffocate aquatic plants, obliterate fish habitat, and harm populations of aquatic insects. The microscopic algae cling unseen to waders, boots, boats, lures, hooks, sinkers, fishing line and other fishing gear, and remain viable for several weeks under even slightly moist conditions. Absorbent items, such as the felt-soled waders and wading boots commonly used by stream anglers, are especially suspected of causing the spread. Anglers, kayakers and canoeists, boaters and jet skiers can all unknowingly spread didymo. There are currently no known methods for controlling or eradicating didymo once it infests a water body. To learn more about this species, Google *Didymosphenia geminata*

From the other side –

Four Western governors hope to beat cheatgrass

Last year, wildfires fueled by non-native cheatgrass (*Bromus tectorum*) in Idaho, Nevada, and Utah burned thousands of square miles, including giant fires on the Idaho-Nevada border that torched an area as large as Rhode Island. Four western governors want a pilot project that will prevent cheatgrass from gaining a greater foothold. Their program includes planting other grasses in the charred landscape but officials say there aren't enough grass seeds to go around. Some federal lands where seeds are collected also have burned. In the last decade, surveys by U.S. Forest Service scientists show that 2.5 million pounds of grass seed were needed annually for restoration projects—but that only 765,000 pounds were available. That leaves more ground vulnerable to fast spreading cheatgrass.

from Oregon – Reporters, photojournalists, editors and interns conducted interviews, compiled information, recorded damage, and wrote stories about different invasive species for the Statesman Journal in Salem, OR. The series' Web site, www.InvasiveSpeciesofOregon.com, has a monthly focus on different types of invasive species and their impacts, that began in September

From *Missoulian.com News Online (Montana)* A year after the 2006 Fourth of July fire on Mount Jumbo, a long green line of cheatgrass, one of the most flammable invasive weeds in the West, is visible where fire retardant was dropped. The photo was taken on April 13th, 2007. The fire burned approximately 320 acres and fire retardant was dropped on about 12 acres of Mount Jumbo, where noxious weeds have become widespread over the past 20 years. According to preliminary results of a two-year study by Levi Besaw, a Salish Kootenai College student and Giles Thelan, a research specialist at the University of Montana's plant ecology laboratory, the retardant's fertilizer-like nutrients significantly increased the growth of cheatgrass and tumbleweed mustard, both exotic annual species, at the expense of native perennial grasses on the mountainside. The invaders benefit from the jolt of nitrogen and phosphorous in the retardant slurry, which native and exotic perennials largely ignore because they are accustomed to nutrient-poor soils. Cheatgrass and tumbleweed mustard didn't spread where the fire burned alone, but they exploded in areas that were burned and hit with retardant, the study found. Photo by Jed Little, Senior GIS Specialist, Missoula County Weed District. From *Researchers analyze retardant use*, by John Cramer of the Missoulian, www.missoulian.com



and runs through June. New information being added includes a comprehensive invasive species database, monthly companion educational materials for teachers and parents, and other online extras such as videos and photo galleries.

Publications

The 9th edition of the *Herbicide Handbook* may be purchased from the Weed Science Society of America for \$95.00 at www.wssa.net. Includes trade names and manufacturers, and herbicides from all over the world.

Interactive Encyclopedia of North American Weeds, V. 3.0. DVD-ROM includes 447 weed species with descriptions and maps, interactive ID key, interactive educational lessons, quizzes and games on plant ID principles, illustrated glossary of 565 botanical terms, and more. \$59.95. More information and a demo are available at <http://www.thundersnow.com/weedid.htm>

Invasive Plant Science and Management a new Weed Science Society of America peer-reviewed journal, will focus on fundamental and applied research on invasive plant biology, ecology, management, and restoration of invaded non-crop areas, as well as on educational, sociopolitical, and technological aspects of invasive plant management. Visit <http://www.wssa.net/WSSA/Pubs/IPSM.htm>

Preventing establishment: an inventory of introduced plants in Puerto Villamil, Isabela Island, Galapagos, by A. Guezou, P. Pozo, and C. Buddenhagen. *PLoS ONE*, October 2007, 2(10):e1042. "On the basis of the invasiveness study, we recommend five species for eradication (*Abutilon dianthum*, *Datura innoxia*, *D. metel*, *Senna alata* and *Solanum capsicoides*), one species for hybridization studies (*Opuntia ficus-indica*) and three species for control (*Furcraea hexapetala*, *Leucaena leucocephala* and *Paspalum vaginatum*)." <http://www.plosone.org/doi/pone.0001042>.

If you are not familiar with this sedge, its spread and distribution (Coastal Plain – GA & FL to TX), you may want to read this paper – *The Recent Spread of Cyperus entrianus in the Southeastern United States and its Invasive Potential in Bottomland Hardwood Forests*, by D.J. Rosen, R. Carter, and C. Bryson. 2006. *Southeastern Naturalist* 5(2):333-344.

Globalization and Invasive Species Issues in Hawaii: Role-Playing Some Local Perspectives, by A.M. Fox and L.L. Loope. *J. Natural Resources & Life Sciences Education* 36:147-157. 2007. A tool to help teach "...how local business and conservation interests can influence, and be influenced by, changes in global trade and transportation."

Biofuel Feedstocks: The Risk of Future Invasions, by J.M. DiTomaso, J.N. Barney and A.M. Fox. 2007. *CAST Commentary* QTA2007-1 November. "Biofuel crops are being selected, bred, and engineered to exhibit desirable agronomic traits, many of which also typify much of the nonnative flora invading native ecosystems."

Potential impacts of climate change on the distribution of North American trees, by D.W. McKenney, J.H. Pedlar, K. Lawrence, K. Campbell, and M.F. Hutchinson. *BioScience* (Dec. 2007) 57(11):939-948. "In this article, we report on the potential impacts of climate change on the climatic ranges of 130 species of North American trees..."

The Beginning of a New Invasive Plant: A History of the Ornamental Callery Pear in the United States, by T.M. Culley and N.A. Hardiman. *BioScience*, December 2007 / Vol. 57(11):956-964. "An introduced species that is in the early stages of spread in the United States is *Pyrus calleryana* Dcne. (Rosales: Rosaceae), an ornamental tree frequently planted in urban residential and commercial areas. Wild populations of *P. calleryana* can now be found throughout the United States in disturbed sites with high light, including transportation corridors, park boundaries, and restored wetland prairies. The latitudinal range of wild individuals in the United States corresponds to the range of the species in China. In this article we (a) review the horticultural history of *P. calleryana* to understand how it has affected the species' present distribution, (b) examine the biological traits promoting its invasiveness, and (c) document the current invasive status of the Callery pear."

Optimal detection and control strategies for invasive species management, by S.V. Mehta, R.G. Haight, F.R. Homans, S. Polasky, R.C. Venette. *Ecological Economics* 61(2007): 237-245. "This paper presents a model... incorporating a detection stage in which the agency managers choose search effort prior to the post-detection control stage."

THANK YOU

to the following sponsors for supporting this issue of *WILDLAND WEEDS*:

Allstate Resource Management.....	p. 15
Applied Aquatic Management	p. 13
Applied Biochemists	p. 18
Aquatic Plant Management.....	p. 18
Aquatic Vegetation Control	p. 13
BASF	p. 2
Biosorb	p. 15
Dow AgroSciences	p. 20
Earth Balance.....	p. 11
Great Outdoors Publishing Co.	p. 15
Helena Chemical Co.....	p. 14
Invasive Plant Control.....	p. 18
Pandion Systems	p. 13
Syngenta Professional Products.....	p. 24
UAP Timberland.....	p. 7
ZevCohen & Associates	p. 15

Help protect your natural areas from exotic pest plants – join an Exotic Pest Plant Council in your state!

www.se-eppc.org



Lose the weeds. Make everyone happy.

Quickly restore lakes and ponds while keeping the animal life that lives there. With Reward® Landscape and Aquatic Herbicide you can control a broad spectrum of submersed, marginal, and floating aquatic weeds and see results within hours of application. Reward: the no-wait, no-worry management tool for aquatic systems.

