Wildland Weeds

FALL 2008

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Wildland Weeds

Fall 2008, Volume 11, Number 4

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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

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

On the Cover:

Paul David Blakeley with Kudzilla, which is equipped with special tracks, a 16-foot boom, and a grapple hook to handle even the toughest kudzu infestations. See story on page 5.

Now, The Choice Is Clear.

Aquatic herbicides are not the same. So choose carefully. Luckily, if you want long-term control of floating, emerged and shoreline weed species such as cattail, common salvinia, phragmites and more … with minimal irrigation restrictions … greater application flexibility … and selectivity that won't harm desirables such as cypress, willow, button bush, gum trees and more … the choice is clear: **Clearcast® herbicide.**

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KUDZILLA

THE KUDZU WARRIOR

KUDZILLA MEETS KUDZU

by Dianne Smith Fergusson, Ph.D., Photos by Newt Hardie

Since its formation in 2006, the Kudzu Coalition of Spartanburg County, South Carolina has tried many methods of controlling kudzu infestations in the urban environment. From the most hands-on treatment to the use of plastic sheeting, boiling water, gapping, mowing and burning, the Coalition volunteers have utilized a variety of methods to control kudzu without the use of chemicals.

Each method has been successful in its own way, but one of the most potent weapons in the Coalition's attacks on kudzu is "Kudzilla," a modified skid loader. While he's neither faster than a speeding bullet nor able to leap tall buildings in a single bound, Kudzilla, the newest weapon in the Kudzu Coalition's fight against the "green invader," is indeed a superhero. Equipped with tracks over the tires, a custom six-fork implement, a 20-foot-long boom grapple and a new red, reptilian plywood crest, Kudzilla is both an attention getter and an amazing tool to fight kudzu.

Kudzilla began life as an ordinary New Holland skid loader which Coalition board member and volunteer Paul David Blakely brought from his farm to a kudzu work site in August, 2006. This small vehicle has four wheels, with the left and right side wheels being controlled independently. This gives it great agility and maneuverability and it can quickly rotate around its center. Blakely recalls that on the first outing in August 2006 he was able to make considerable inroads into the mountain of green kudzu just using the skid loader in its original form. The attempt was so successful that efforts began immediately to modify the skid loader to make it even more efficient.

Kudzilla's approach is to remove a mass of kudzu by slipping the fork under the mat of kudzu on the ground and moving it forward a few feet, slightly lifting the mass to pull vines and crowns from the ground. With the original two-pronged fork, the vines sometimes became wrapped around the wheels of the skid loader. "Since then," says Blakely, "we have designed a custom six-fork implement that's wider than the tires to prevent the kudzu vines from becoming entangled in the wheels." And today Kudzilla is anything but an ordinary skid loader.

Using the "kudzu roll" (rolling up the vines as it goes), Kudzilla removes more than half of the kudzu crowns from the ground, thereby killing the plants. This also opens the area for volunteers to get in and kill the vines by destroying the remaining crowns directly. The Coalition's currently favored tools for removing root crowns include a three-tined pronghoe, a pick, and a folding hand pruning saw. Kudzilla is especially impressive on uneven, hilly terrain that is difficult for volunteers to access. Paul Savko, also a Coalition board member and very active volunteer, is a great admirer of the monster machine. "It turns daunting sites, not practical for volunteer entry and attack, into workable sites," he says.

Kudzilla has enabled the volunteers of the Kudzu Coalition to be much more efficient in the urban patches around Spartanburg. "Kudzilla could initially do the work of more than 10 volunteers in an hour," says Newt Hardie, founder and president of Spartanburg, SC's Kudzu Coalition. "My guess now is that with all the modifications, it's even more effective. After adding the double wide fork attachment, it's about equal to 20 volunteers; with tracks, about 40; with boom and grapple hook, at least 50 to 1! Sometimes Kudzilla's appearance

Grapple hook on Kudzilla's 16-foot boom

Young Kudzilla

slows down the work of volunteers because they stop to watch it, but it more than makes up for any lost productivity by the amount of biomass and the number of crowns it can take up in one swoop."

As different modifications were made to the skid loader based on experience in the kudzu patch, its appearance took on a whole new look. The name came about as a result of the addition of the boom and a discussion at a weekly meeting of volunteers. "We thought it looked sort of like a giraffe," says Howard Miller, a retired heavy equipment salesman who helped the Coalition acquire the used tracks that make the machine so sure-footed on uneven terrain. "From that came Godzilla, and then Kudzilla, which seemed more appropriate for our use."

The development of Kudzilla has been an evolutionary process according to Roddy Jeffers, owner of Pressley Machine Works in Spartanburg, who has done many of the modifications. Often working from notes and sketches on napkins developed at Coalition breakfast meetings, Jeffers describes the process as definitely not high tech. Two other companies, Blanchard Machinery Company of Spartanburg and Piedmont Forklift, Inc., of Greenville, also have been helpful in making the skid loader's transformation possible.

"Designing kudzu weapons is an ongoing effort," Blakely says. As experience in the patch suggests new ways of dealing with the vine that can grow a foot in one day, who knows what the next incarnation of Kudzilla will be? But one thing is for sure, Kudzilla the Kudzu Warrior will continue to be a highly effective weapon in the Kudzu Coalition's war.

Visit the Kudzu Coalition's website at www.kokudzu.com.

Contact the author at Dianne_Fergusson@Yahoo.com

Alternative Controls for Kudzu

by Mary Morrison, photos by Newt Hardie

Some of the biggest challenges facing America's wildlands are silent invaders quietly spreading on and onto public lands. National forests, national parks, wildlife refuges, and many state, county, and city forests are at risk from an influx of non-native invasive plants. These exotic invaders displace native plants and reduce diversity that is critical to native wildlife.

As a public land manager on the Enoree Ranger District of the Sumter National Forest in South Carolina, it is a constant challenge to slow the spread of the non-native, invasive plants. One that I have focused on controlling is kudzu (***Pueraria montana***). On the Enoree Ranger District, kudzu is found in large mature patches usually associated with a gully complex.

[top] Healthy kudzu crowns and roots after herbicide treatments; [bottom] These crowns will not be growing back next year.

Based on my observations and knowledge of the past land use history, I believe kudzu was planted on National Forest land in an effort to control erosion. By the 1930s, past agriculture practices had left much of the South Carolina Piedmont barren and highly eroded. Extensive gully systems resulted, often covering several acres and up to 60 feet deep. During the late 1930s, the Civilian Conservation Corps focused on stabilizing actively eroding gullies and planting pine trees. Also during this period, the Soil Conservation Service paid farmers to plant kudzu on their property. While there is no record of it, it seems likely that kudzu would have been planted on National Forest land too.

Those past practices have created older, well-established kudzu patches on steep and uneven terrain on private and National Forest land within the Enoree district boundary. Controlling kudzu is a long-term commitment. Research has indicated that five to ten years of herbicide spraying is needed to control these older, well-established kudzu patches.

To find out if we could reduce that time frame by incorporating manual treatments, I contacted the Kudzu Coalition, a non-profit group based in Spartanburg, South Carolina. Their mission is controlling kudzu without the use of chemicals. Members have researched the growth patterns of kudzu and use that knowledge to control kudzu primarily using hand tools, mechanical equipment, or barriers.

During one of their Kudzu Kollege training sessions, I learned that kudzu spreads primarily through vegetative methods and not from seed sprouting. Farmers that were paid to plant kudzu planted the crown, which functions like the eye of a potato. Unfortunately a kudzu vine has potential crowns approximately every foot and will readily root from the vine where leaves are present. The good news is that the roots are not rhizomous, so it does not spread from the roots. Based on these growth patterns, the Kudzu Coalition realized that you don't have to remove the entire root, just cut out the crown to control kudzu. So they developed the "kudzu chop." Most crowns are marble-sized and occur right below the soil surface. With a little practice you can chop the kudzu crown with one easy "chop," using a hand pronghoe or the hoe end of a mattock.

I approached the Kudzu Coalition about using their manual methods on the Enoree's kudzu patches. Could their methods reduce or eliminate the years of herbicide spraying needed to control a mature kudzu patch? The group had been focusing on small patches, generally less than 1-acre located mostly in urban settings. To get a feel for controlling kudzu on national forest land, the Kudzu Coalition brought several school groups out to the Enoree Ranger District and nearby state parks.

There were some challenges, such as digging around, through, and under tree roots to get to the crowns. Other challenges included the size of the patches, the uneven terrain, and the well-established root systems of trees and kudzu plants. Due to the intensive manual labor needed and safety concerns, we felt that the "kudzu chop" alone was not practical, but that a combination of spraying herbicides and manual treatments would be needed.

After some review, we picked a kudzu patch that had been sprayed three times:

Year 1 (2004) - kudzu foliage sprayed with 2% Garlon 3A;

Year 2 (2005) - 0.5% solution of Transline;

Year 3 (2006) - 0.5% solution of Transline.

After the three herbicide applications, many of the kudzu vines had spindly, deformed leaves and we knew that the treatments had been very effective in knocking back the kudzu, but not eradicating it. The test site was 23 acres on flat, level ground located adjacent to the Sedalia primitive camping site, so we called the test site the Sedalia Kudzu Patch.

While we did not know the age of the patch, we were convinced it was an older, mature stand. It was present when I started working on the Enoree Ranger District approximately 16 years ago in 1992 and it had slowly crept into the understory. Aerial photographs from the 1940's show that the Sedalia Kudzu Patch was an open field with terraces. Farming on National Forest land was common at that time and it is possible that the area was farmed and later

planted in kudzu to control erosion. Today, there is still some visible terracing. The remaining kudzu was concentrated in the upper portion of the terraced area that has scattered tree cover.

The Kudzu Coalition agreed to use the "kudzu chop" along with pulling vines and digging up larger crowns for $100 per acre on the 23-acre site. An herbicide treatment with backpack sprayers probably would have cost $140 to $150 per acre. Even with careful research prior to the actual work, we did not foreseee all the obstacles. Most of the area was forested, making it difficult to see the scattered and spindly kudzu vines. Also, we had assumed that because the leaves were very spindly and undersized, the roots and crowns would be spindly and undersized as well. Not so!

In October 2007, we chopped or dug up crowns and pulled vines over a period of 4 days. As we chopped and dug, we hung the crowns in the nearby trees to keep them from sprouting (see bottom photo pg. 7). While some roots and crowns were black and rotten, others showed little effect from the previous herbicide treatments. Based on the condition of the roots and crowns, I became convinced that several more herbicide sprayings would have been needed to kill the underground portion of the kudzu. At the same time, we realized that a contractor could not carry out the "kudzu chop" and manual treatments at a cost of $100 per acre.

In June 2008, we checked on the 23-acre kudzu patch for sprouting. We saw no sprouting from the roots left in the ground. However, we will wait until late summer or fall to follow-up with additional manual treatments.

This experiment has strengthened my resolve to incorporate the "kudzu chop" along with other manual treatments into our invasive plant control program on the Enoree Ranger District. Eventually, I want to work with local contractors to apply manual methods on a larger scale in some previously sprayed kudzu patches.

I hope at some point to incorporate mechanical methods too. With the help of the Kudzu Coalition, I want to try using their "Weapons of Mass Destruction – (Biomass, that is)." One of these "weapons" is a grapple hook to pull kudzu vines that drape over streams. This method also pulls out smaller crowns and we hope will reduce the number of herbicide applications needed for control.

If you wish to follow our kudzu control efforts in the Sedalia Kudzu Patch or to learn about other non-chemical kudzu control methods, go to the Kudzu Coalition website at www.kokudzu.com. The "kudzu chop" is described at http://kokudzu.com/KudzuChop.html Their informative website not only has information about controlling kudzu, but also has suggestions for working with school groups and volunteers.

Contact the author at mwmorrison@fs.fed.us

5th International Weed Science Congress – Vancouver, BC, Canada: Its Relevance to Natural Areas

by Jeffrey T. Hutchinson, University of Florida-IFAS

"Local problems, global challenges" was the theme of the Fifth International Weed Science Congress in Vancouver, BC, Canada June 23-27, 2008. While the meeting focused primarily on weeds in agriculture, there were some very informative talks on global weeds, herbicide resistance and biofuels that were pertinent to natural areas.

Of most interest to me were the "Spotlight on Global Weeds" sessions that focused on invasive plants of natural areas. One prevailing theme was the need to limit introductions, and increase monitoring and containment of non-native plants into new areas. It was prevalent throughout the sessions that invasive plant scientists in other areas of the world are experiencing the same problems we experience in Florida and elsewhere in the U.S. Scientists from various nations presented talks or posters on invasive plants such as ***Solanum elaeagnifolium*** (Morocco), ***Parthenium*** spp. and ***Prosopis juliflora*** (India), ***Ambrosia artemisiifolia*** (Switzerland), ***Spathodea campanulata*** (Italy), ***Ulex europaeus*** (Chile), ***Solidago canadensis*** (China), ***Polygonum cuspidatum*** and ***Buddleja davidii*** (U.S.A.). Several speakers emphasized the need to list certain potential or known invasive non-native plants as prohibited prior to introduction into a new area, or to stop the sale of these plants by commercial nurseries.

One prevailing theme was the need to limit introductions, and increase monitoring and containment of non-native plants into new areas.

Dr. Ian Heap (WeedSmart LLC, Corvallis, Oregon) discussed herbicide resistant weeds as a world-wide problem with economic consequences in agriculture. Dr. Heap stated that ALS inhibitor and ACCase inhibitor-resistant weeds are the most widespread globally. Currently, there are 316 herbicide resistant weed biotypes throughout the world. Dr. Heap suggested that companies need to develop new herbicides with different modes of action in the near future or the economic consequences may be dire for agriculture. For natural area managers in Florida, the results presented by Dr. Heap may have impacts in the future as ALS inhibitors such as metsulfuron methyl and imazapyr are currently being used in Florida's natural areas. Other ALS herbicides being tested on natural area weeds in Florida include imazapic, imazamox and quinclorac.

Dr. Chris Somerville (University of California, Berkeley) discussed the potential of cellulose biofuels. Dr. Somerville stated that crops used for biofuels will need to produce ca. 10 tons of biomass / acre. The most promising biofuel species include sugarcane (***Saccharum*** spp.), elephant grass (***Pennisetum purpureum***, a FLEPPC Category 1 species) switchgrass (***Panicum virgatum***) and giant miscanthus (***Miscanthus*** x ***giganteus***). He suggested that the demand for fuel production will exceed supply and that corn and sugar will be replaced by cellulosic biomass. He stated that the eastern U.S. will be the hub for biofuel production in the U.S. due to greater rainfall than the western U.S.

Of most interest to me was the talk by Dr. Marcel Rejmanek (University of California, Davis) entitled "Are there any general patterns of plant invasions?" Dr. Rejmanek stated that the flora of many islands would not exist if not for occasional long-distance dispersal events of plant seeds or vegetative parts that establish. But the rate of human-assisted plant invasions is several orders of magnitude higher than at any other time in history. He suggested that in spite of the exponentially growing number of publications, there are still many gaps in our understanding of invasive plants. Dr. Rejmanek suggested that plant invasions are often just symptoms of human-created changes in our environment rather than causes of those changes. Again the general theme suggested by speakers who work with weeds of natural areas was the need for screening and limiting new plant introductions.

On Wednesday, there were four separate excursions into the countryside of Vancouver to visit various agricultural sites, a research forest, and the University of British Columbia Botanical Gardens. All excursions included a stop at a local winery.

Overall the 5th International Weed Science Congress was very informative and most enjoyable. My only minor complaint is that there were too many concurrent sessions and I missed some excellent speakers. Vancouver is a wonderful city with an active lifestyle and temperatures during the congress were around 70-75 F during the day and 50-55 F at night, a nice relief from the heat and humidity of Florida.

Abstracts from the 5th International Weed Science Congress will be available online at: http://iws.ucdavis.edu/5intlweedcong.htm

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Jeffrey T. Hutchinson, University of Florida, Center for Aquatic and Invasive Plants, jthutch@ufl.edu

Deerfield Beach Goes Native!

by Nicole Langlois, City of Deerfield Beach

After the 2004 and 2005 hurricane seasons, the City of Deerfield Beach was recovering from multiple hurricanes and tropical storms. Many of the invasive non-native plants used in the past had suffered the greatest storm impacts. These circumstances led the city to undertake an environmental, horticultural, and arboricultural education program with the overall goal of informing residents about the environmental benefits of choosing native plants over non-native invasive ones.

In 2006 the City of Deerfield Beach received a Kathy Craddock Burks Education and Outreach Grant from the Florida Exotic Pest Plant Council (FLEPPC). The FLEPPC grant was used to reproduce the Citizens for a Better South Florida's bilingual guidebook, *"Go Native!: a pocket guide to choosing Florida natives over commonly found exotics."* The guidebook employs a fun and colorful layout to highlight 29 plant species and two landscape scenarios in a contrasting "Plant this… instead of this…" format, facilitating the often-difficult task of distinguishing between similar native and exotic species. The guidebook targets the following Category I plants: *Albizia lebbeck*, *Bauhinia variegata*, *Eugenia uniflora*, *Lantana camara*, *Nephrolepis cordifolia*, *Schinus terebinthifolius*, and *Tradescantia spathacea*. Category II plants include: *Terminalia catappa*, and *Washingtonia robusta*. Additional targets are overused non-native species that provide little benefit to wildlife: *Ficus benjamina*, *Araucaria heterophylla*, *Ixora coccinea*, *Liriope muscari*, and *Zamia furfuracea*.

The *Go Native!* guidebooks were distributed at all City of Deerfield Beach sponsored events, monthly environmental education seminars (held at the City's International Fishing Pier), and at the Public Works and Environmental Services building. The guidebook complements Broward County's NatureScape program, which encourages the use of native plants in landscaping. One of the primary goals of the NatureScape program is to reduce water usage and improve water quality. Properly located, native plants generally require little supplemental watering once established, conserving water while maintaining a healthy landscape.

Distributed at random with the *Go Native!* guidebook was a brief survey requesting the individual's opinion of the guidebook, their gardening practices, and various other information pertaining to native and non-native invasive plants. Although return rates were very low, survey results were as follows:

- 100% of survey participants found the *Go Native!* guidebook helpful.
- 79% of participants changed their landscaping practices due to the guidebook.
- 14% of participants had 4-6 native plant species included in their landscaping.
- 71% of participants stated they would add Florida native plants to their current landscaping due to the guidebook.
- 100% of participants found the pruning information included in the guidebook helpful.
- 86% of participants wanted more information on tree care.
- 100% of participants stated they would recommend the guidebook to others.

Based on survey results, the *Go Native!* guidebook was effective in educating some residents about the benefits of native landscaping. Recipients were informed of the benefits of selecting environmentally-friendly, native plant species over exotics such as: providing shelter and food for animals, conserving water and saving money, reducing the use of pesticides and fertilizers, establishing a more hurricane-resistant landscape and preserving our sense of place by utilizing plant species that are unique to our region. Many residents are eager to receive more information regarding tree care. Feedback from the surveys showed residents are interested in information on: pruning trees, why topping hurts trees, recognizing tree hazards, and hiring an arborist. The City of Deerfield Beach plans to implement additional educational measures utilizing the information received from the survey results.

Residents were not the only beneficiaries from this grant. The City has built a successful partnership with the Citizens for a Better South Florida, the bilingual *Go Native!* guidebook has helped to establish relationships with the community that the City hopes to expand upon, and the guidebook and survey results have paved the way for ongoing educational programs through seminars and brochures.

The City of Deerfield Beach would like to thank FLEPPC for the opportunity to establish successful relations with the Citizens for a Better South Florida and to reconnect with the residents of Deerfield Beach. Through the funding provided by FLEPPC, the City of Deerfield Beach was able to continue in our commitment to provide environmental education, city-wide beautification, and tree planting and preservation programs.

For more information on the programs mentioned in this report, visit these sites: http://www.abettersouthflorida.org/GoNative/index.htm and http://www.broward.org/naturescape/

Contact the author at Nlanglois@deerfield-beach.com

Significant Pest Bulletin and Federal Import Quarantine Order issued on *Lygodium microphyllum* and *Lygodium flexuosum*

Effective immediately, the United States Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) has issued a Federal Import Quarantine Order (May 30, 2008) to prevent the importation of ***Lygodium microphyllum*** (Old World climbing fern) and ***Lygodium flexuosum*** (maidenhair creeper). The restrictions apply to any parts capable of propagation, including spores and leaves (fronds) of these climbing fern species.

For additional information regarding this Federal Order, contact Ms. Polly Lehtonen at (301) 734-4394 or polly.p.lehtonen@aphis.usda.gov. The Pest Bulletin and Federal Order may be downloaded at: http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/federalorder-lygodiums.pdf

FEDERAL IMPORT QUARANTINE ORDER (in part):
Lygodium microphyllum and
Lygodium flexuosum
May 30, 2008

The purpose and goal of this Federal Order is to prevent the entry from all foreign countries into the United States of two harmful noxious weeds, *Lygodium microphyllum* (Cav.) *R. Br.* (Old World climbing fern) and *Lygodium flexuosum* (L.) *Sw.* (maidenhair creeper). This Federal Order is issued pursuant to Section 412(a) of the Plant Protection Act of June 20, 2000, as amended, 7 U.S.C. 7712(a), which authorizes the Secretary of Agriculture to prohibit or restrict the importation or entry of any plant, plant part, noxious weed or article if the Secretary determines that the prohibition or restriction is necessary to prevent the entry of a plant pest or noxious weed into the United States.

Request for Samples of *Lygodium microphyllum*

The Department of Environmental Studies at Florida International University has initiated studies on Old World climbing fern (*Lygodium microphyllum*) with naturally occurring disease symptoms in South Florida natural areas. We are particularly interested in plants showing severe and extensive disease symptoms rather than diseased leaflets from old and decaying rachis branches or herbicide treated plants. Our major goal is to isolate native fungal and bacterial pathogens of lygodium and evaluate their potential as biological control agents.

General guidelines for sample collection and shipment:

1. Select samples that exhibit early symptom development with portions of the plant still green.
2. Avoid taking old or decaying leaflets (pinnules) and samples treated with herbicide.
3. Try to collect several samples from each plant representing a range of symptoms.
4. Please do not wet the sample.
5. Keep samples refrigerated until shipping; avoid storing under excessive heat.
6. Keep samples collected from different areas separate.
7. Samples that arrive from sites within Florida that require two days or less mailing time can be sealed in plastic bags for shipping.
8. Samples that arrive from distances greater than 2 days mailing time should be packed tightly in a box with dry paper. Do not seal in plastic and do not moisten.
9. Take pictures if possible.
10. Collect at least 12 leaves with disease symptoms for the minimum sample size.
11. Collect as much information concerning the sample as possible (habitat, GPS coordinates, etc.)

Care should be taken with plants showing general yellowing, browning, wilting, stunting etc., which might be due to drought, flooding, changes in nutrient levels, etc. In such cases, pinpointing the pathogen is difficult.

Symptoms such as wilting, chlorosis (yellowing), leaf drop, dieback (death or necrosis of growing tip), and decline are often the result of root damage or root disease. In these situations, if the individual lygodium plant showing symptoms can be separated, the entire plant is needed for processing. Please collect or send whole plants that show a range of symptoms with roots and adjacent soil intact. If this is not possible, please let us know and we will make a trip to collect the entire sample along with the root materials.

Leaf spot disease on Old World climbing fern. Pinnules on the rachis show various stages of disease development - small spots, chlorosis and tissue necrosis.

Close-up of disease symptoms on fertile fronds of Old World climbing fern.

Please mail samples to the following address:
Dr. "Jay" Jayachandran, Associate Professor of Microbiology, ECS-337,
Dept. of Environmental Studies, Florida International University,
11200 SW 8th St., Miami, FL 33199
Phone: 305-348-6553, Fax: 305-348-6137, Email: jayachan@fiu.edu

NEW PRESIDENT OF SE-EPPC

Chuck Bargeron was recently elected to replace outgoing Southeast Exotic Pest Plant Council president Tony Pernas, who is currently serving as president of the National Association of Exotic Pest Plant Councils (NAEPPC). Chuck has contributed greatly to the organization as coordinator of the EDDMapS project and as webmaster for the SE-EPPC, NAEPPC and numerous EPPC chapters and affiliates. Chuck is the Information Technology Director for the Center for Invasive Species and Ecosystem Health (formerly the Bugwood Network) at the University of Georgia in Tifton. In this capacity for the last 13 years, he has worked on projects with the USDA Forest Service, USDA APHIS PPQ, USDA CSREES, the National Park Service and others to develop web-based invasive species, forest health and agriculture resources. He has a B.S. and M.S. in Computer Science.

NEW CHAIR OF FLEPPC

Scott Ditmarsen was recently elected as Chair of the Florida Exotic Pest Plant Council to complete the current term being vacated by Dan Clark. Dan has accepted a new position with the US Fish and Wildlife Service as the Invasive Species Branch Program Lead for the Pacific Islands Fish and Wildlife Office headquartered in Honolulu, Hawaii. Dan now holds the record for serving the shortest term as Chair in the history of FLEPPC. Scott already has served FLEPPC in numerous capacities. He was elected to the Board of Directors during the 2005/2006 term, has served as Chair of the Finance Committee, and was Chair of the Vendors committee from Spring 2003 through Fall 2005. He has also been an active member of several Weed Science Society chapters and the Florida Vegetation Management Association. Scott is a Senior Sales Specialist in Industrial Vegetation Management for Dow AgroSciences. He has a Master's degree in Forestry and an MBA in Finance. The FLEPPC board welcomes Scott and greatly appreciates his stepping up to the plate on such short notice. We also wish Dan great success in his new endeavors.

COMMENDATION

THE MISSISSIPPI EXOTIC PEST PLANT COUNCIL
PRESENTS
THE INVASIVE SPECIES LEADERSHIP AWARD TO
DR. LESTER SPELL, JR., D.V.M.
COMMISSIONER, MISSISSIPPI DEPARTMENT OF
AGRICULTURE AND COMMERCE
IN RECOGNITION OF OUTSTANDING LEADERSHIP
TOWARDS MANAGEMENT OF
INVASIVE EXOTIC PLANTS IN MISSISSIPPI.
MAY 20, 2008

MS-EPPC President Steve Brewer (left) presents the award to Dr. Spell, who is serving his fourth term as Mississippi's Commissioner of Agriculture and Commerce.

Dr. Spell's significant contributions include:

- Passage of the Mississippi Noxious Weed Law, which regulates the transfer of ten of the most noxious weeds to agriculture and wildlands within the state;
- Establishment of the Mississippi Cogongrass Task Force, which has been instrumental in coordinating the efforts of federal, state, and local governments, nongovernment organizations, private landowners, and concerned individuals in the fight against this new noxious weed. The Mississippi Cogongrass Task Force is an example to neighboring states of how to successfully organize an effort against invasive weeds;
- Passage of legislation enabling a Mississippi Cooperative Weed Management Area, the first of its kind in the southeast;
- Leadership in the ongoing Tropical Soda Apple Spray Program in cooperation with USDA APHIS PPQ, which is successfully preventing the spread of this invasive weed in Mississippi;
- Adoption of a Tropical Spiderwort Quarantine and cooperative program among farmers, which will be instrumental in controlling another invasive noxious weed, this time a threat to row crop agriculture;
- The vigorous and ongoing response of the Department of Agriculture and Commerce in the Giant Salvinia Eradication Program in cooperation with USDA APHIS PPQ and other state agencies; and
- Participation in the Mississippi Kudzu Coalition, which has breathed new life into the efforts to control an invasive plant that has become far too accepted as part of life in the southeast.

For these outstanding efforts and exemplary leadership, the Mississippi Exotic Pest Plant Council is proud to present you with our leadership award and pleased to be able to invite you to speak to the Southeast Exotic Pest Plant Council annual symposium hosted in Mississippi.

Presented this 20th Day of May, 2008,
J. Stephen Brewer, President, Mississippi Exotic Pest Plant Council

Updates on the Cogongrass Front

The Georgia Department of Agriculture issued a statewide ban on the sale of cogongrass, a non-native and aggressively invasive species of grass. Cogongrass *(Imperata cylindrica)* is already listed as a noxious weed by the United States Department of Agriculture and is therefore illegal to transport across state lines. The new action makes the growing, cultivation or sale of the plant a violation within the state of Georgia.

Cultivars are sold under the names Japanese blood grass and "Red Baron" grass. There is a reddish tint to the leaves which accounts for the name and sole ornamental quality. Cultivars such as "Red Baron" are thought to be sterile (producing no viable seed), but long-term behavior of the plant is unknown. Cultivars of the grass have demonstrated aggressive spreading by roots. They will also sometimes revert to green.

"Think of kudzu as a grass," said Commissioner of Agriculture Tommy Irvin. "Georgia garden centers and nurseries are stocked with plenty of other ornamental grasses or other plants that will substitute for these grasses. Everyone agrees this is a wise precautionary measure."

This ban is part of an ongoing effort among the nursery industry, USDA Forest Service, University of Georgia Center for Invasive Species and Ecosystem Health, Georgia Department of Agriculture and the Georgia Forestry Commission to prevent further introductions of cogongrass into the environment. The Georgia Department of Agriculture has 24 inspectors that will enforce the ban and help educate nurseries and garden centers about this new regulation.

GEORGIA — On May 8, a Memorandum of Understanding (MOU) was signed by more than 20 cooperators/shareholders creating a statewide Georgia Cooperative Weed Management Area (CWMA) focused on cogongrass. A ceremony was hosted by the Joseph W. Jones Ecological Research Center in Baker County, Georgia. The MOU establishes a mutually agreeable framework for cooperatively addressing the short and long term negative effects of cogongrass within the State of Georgia. All parties to the MOU agree that it is to their mutual interest and benefit to work cooperatively in education, detection, inventorying, monitoring, controlling, and preventing the spread of cogongrass. For more information, see www.cogongrass.org.

NORTH CAROLINA — The North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Plant Industry Division is implementing a policy change that will prohibit the propagation, nursery cultivation, sale and distribution of cogongrass, *(Imperata cylindrica)*, along with all cultivars including "Red Baron" or Japanese blood grass. This action is intended to prevent further introduction and secondary spread of cogongrass into and within North Carolina. Additionally, this policy change is needed to ensure North Carolina's regulatory actions are in harmony with those of surrounding states. Cogongrass has been detected and is a major concern in the states of Texas, Louisiana, Mississippi, Alabama, Georgia, Florida and South Carolina. It was recently detected and confirmed in Tennessee. State and federal agencies have been working together for four years to detect all known cogongrass infestations and to eradicate them.

Effective immediately, the NCDA&CS, Plant Industry Division will deny permits for the interstate movement of Cogongrass, including cultivars referred to as "Red Baron" or Japanese blood grass, and will enforce regulatory restrictions on all nursery propagation, nursery cultivation and sale/distribution of cogongrass, including cultivars, after October 31,2008. Existing inventories of cogongrass must be sold or removed from nurseries or nursery dealers by October 31, 2008.

For more information, contact your local NCDA&CS Plant Pest Specialist or Rick Iverson, Weed Specialist, NCDA&CS at 1-800-206-9333, 919-733-6932, or ***Rick.Iverson@ncmail.net***.

Compiled by Carey Minteer and Dave Moorhead, Ph.D., Center for Invasive Species & Ecosystem Health, 229-386-3298, moorhead@uga.edu

Multistate Cogongrass Project Supported by USDA – Forest Service

State and Private Forestry, USDA Forest Service, has initiated a Competetive Resource Allocation program designed to focus an increasing percentage of S&PF funding on issues and landscapes of national importance. The southern states selected a proposal focused on cogongrass and sponsored by Georgia, Florida, South Carolina and Alabama.

PROJECT DESCRIPTION AND BENEFITS: This project will include three phases over a three-year period targeted to the needs of each partner state within the larger regional goal of reducing the further spread of cogongrass in the Southeast, and preventing further invasion of Georgia and South Carolina. Emphasis areas will include: **detection and mapping**, **direct control** (on-the-ground treatment) of priority infestations, and **education/outreach**. There are many partners from state, federal and private organizations working on this effort. The project will receive $1,100,000 in federal funds over three years, to be matched by the receiving states with an additional $1,100,000 in non-federal funds, resulting in $2,200,000 dedicated to the cogongrass issue.

John W. Taylor, Jr. Integrated Pest Management Specialist, Forest Health Protection, State and Private Forestry, Southern Region, USDA Forest Service, jwtaylor@fs.fed.us

JOIN US! 35th Annual Natural Areas Conference

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

October 14-17, 2008 • Doubletree Hotel Nashville, Tennessee

The 2008 Natural Areas Conference opens on Tuesday afternoon, October 14, opening with the plenary session at the historic War Memorial Auditorium. Wednesday and Friday will provide a diverse program with 52 sessions and over 110 invited speakers, training opportunities, and forums. The focus will be on ecological management themes with an emphasis on invasive exotic species issues and the effects of climate change, with the NAEPPC bringing its invasive species expertise. Thursday features field trips and workshops to natural areas in Middle Tennessee and the Cumberland Plateau. On Thursday night, an awards banquet will be held at the Ryman Auditorium, also known as the Grand Ole Opry and the official birthplace of bluegrass music.

Stay tuned to the NAA website **www.naturalarea.org** for details, and join us in Nashville for an informative and rewarding experience. For more information contact Seresa Morgan at 615-532-0431 or Seresa.Morgan@state.tn.us

Early registration deadline is September 15th

www.naturalarea.org/08/conference/

THANK YOU

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

In Memory

THOMAS "TIM" MCCLURE

Thomas "Tim" McClure passed away unexpectedly on May 10, 2008. Tim was the treasurer for the Kentucky Exotic Pest Plant Council at the time of his death. He had only recently taken on the position, but had been a KY EPPC board member for several years.

Tim was the Forest Health Specialist for the Kentucky Division of Forestry and was instrumental in the detection and treatment of hemlock woolly adelgid. Tim took great strides in making sure that all partners (public and private) were aware of the threat that adelgids are to Kentucky's hemlocks. He provided training to local officials and legislators in southeastern and eastern Kentucky, public agencies (parks, fish and wildlife, nature preserves, forestry, US Forest Service, etc.), and recruited "spotters" from local boy scout troops, ATV clubs, hiking clubs and mountain biking clubs. Tim was part of the group that founded "Save Kentucky's Hemlocks," a coalition of individuals and organizations that had just received more than $100,000 in funds to help eradicate the adelgids threatening our hemlocks.

Tim not only battled hemlock woolly adelgid, he monitored for the incoming emerald ash borer, sudden oak death pathogen, beech bark disease, exotic bark beetles, and invasive exotic plants. He was an active member of the professional organization, the Southern Group of State Forester's Forest Health Task Force, and the in-state working group, the Kentucky Forest Health Task Force. He also provided training to Division of Forestry foresters and ranger technicians on insect/disease and invasive plant threats.

Tim's delightful sense of humor and his respectful, professional integrity made him a truly valuable employee and an honored coworker. The loss of Tim has turned our world on its side. He is greatly missed by his coworkers and those who knew him.

— Diana Olszowy, Kentucky Division of Forestry

Memorial Created to Kathy Craddock Burks (1946 – 2006)

On Friday, June 13, 2008, a memorial to Kathy Craddock Burks was placed on the campus of Florida State University, close to the R. K. Godfrey Herbarium. Kathy passed away in 2006. Kathy received a Master of Science degree in Biological Science from FSU in 1992. She was always a devoted advocate for the herbarium, bringing positive attention and critically needed financial resources to this important educational and research resource.

Kathy served FLEPPC as Chair of the Invasive Species List Committee for many years, and was active in FLEPPC outreach activities. During her career, she also served as Chair of the Science Committee for the Florida Wildflower Advisory Council, and as a member of the Florida Endangered Plants Advisory Council. She was known as one of the state's foremost experts on invasive plant species and provided expert plant identification services for biologists and public land managers throughout the state. Whether invasive plants, rare plants, or roadside wildflowers, Kathy was involved with helping to bring good science to decisions regarding all of these important conservation issues.

FLEPPC's Kathy Craddock Burks Education Grant

REQUEST FOR PROPOSALS – FY2009

FLEPPC is soliciting grant proposals for non-native invasive plant education and outreach projects in Florida. Proposals will be accepted from individuals, public or private nonprofit organizations, and academic institutions.

Award preference will be given to proposals that:

- Involve a plant or plants listed on the FLEPPC 2007 List of Invasive Plant Species (found on www.fleppc.org);
- Heighten community awareness about non-native invasive plant identification, management, prevention, environmental and/or economic impacts;
- Are from first time applicants and involve new projects, although repeat applicants will be considered.

Application instructions and further information may be found on the FLEPPC website (www.fleppc.org).

The deadline for proposal submission is February 2, 2009. Winners will be announced in April 2009 at FLEPPC's annual conference.

For further information, contact:
Jennifer Possley
Email: jpossley@fairchildgarden.org
Ph: 305-667-1651, ext. 3433
Fax: 305-665-8032

Weeds Across Borders Conference IV in Banff, Alberta

by Bonnie Harper-Lore, Restoration Ecologist, Federal Highway Administration, USDOT

Much of the trip was unexpected: rainy and cool temperatures, unfrozen lakes, $125 Park Pass to drive to Banff from airport, fire alarm evacuation from hotel on first night, poor exchange rate, $5/gal gas, and minimal wildlife sightings. The rest of the unexpected was all positive!

I had no idea that the Canadian Rockies would be SO spectacular! The views were stunning. The people were so friendly. The food was always yummy. And no, this was *not* my vacation, rather the conference experience at the Banff Park Lodge. A group from the United States volunteered to host the WAB 2010 in the eastern U.S. The standard for conference agenda, networking, and context will be difficult to match.

As in previous Weeds Across Borders Conferences in Tucson, Minneapolis, and Hermosillo, the agenda showcased weed research, BMPs, early detection, rapid response, partnerships, new issues including climate change, and national status reports from Mexico, Canada, and the United States. The scientists, practitioners, and policy-makers were encouraged to share information and to network. The conference concept continues to make sense. During the week the group agreed to an *ad hoc* idea, The Banff Accord (see below), a signed agreement to continue to reach across jurisdictional borders to cooperatively prevent and control the spread of invasive plants.

As for conference content, I will try to share the many papers and my notes in bullet format. Please contact me if you need to connect with the author. I have that information to share until the conference proceedings are published.

STATUS REPORTS

Claire Wilson, Canadian Food Inspection Agency: developing a pre-import screening tool and creating black and white plant lists for intentional introductions. Unheard of!

George Beck, Invasive Species Advisory Council/USA: ISAC has written a white paper on invasive species – all taxa – and suggests a disconnect between government and ground.

Francisco Espinosa-Garcia, Instituto de Ecologia: In Mexico, awareness lacking at state and local levels. No weed control coordination. Government is reactionary only.

Ian McDonnell, North American Plant Protection Organization: Will deal with risk species at country of origin. Coming, an alert system & "Plants for planting" to be certified.

COOPERATION AND PARTNERSHIPS

Anna Lyon – Okanogan County, WA working with Ferry County BC to share inventories and treatments with State and Provincial transportation support. Billboards in progress.

Merci Hillis, Gitxsan First Nation is partnering with BC Ministry of Forests. First Nations can now manage many infested acres through a single agency delivery model.

Hilary Oles, TNC works with NYSDOT and other agencies on demonstration control projects of all species taxa, not just invasive plants.

Nelroy Jackson (NIWAW Chair) reported on the annual National Invasive Weeds Awareness Week that has evolved over nine years and has increased awareness at the federal level.

APPLIED RESEARCH

Lisa Surber, Montana Sheep Institute: Targeted grazing results vary with type of animal, intensity of event, and timing. Success shown on leafy spurge, knapweed and toadflax.

Raj Prasad, Pacific Forestry Centre: BC top problems include Scotch broom, gorse, Daphne (spurge laurel), English ivy and Himalayan blackberry. 15 years of research and conclusions.

Mara Johnson, Center for Invasive Plant Management: Flowering rush now in both countries and threat to Columbia River system. Flathead Lake partnership research.

Anne Legare, Agri-Food Canada: Weed Science Society of America is developing issue papers to increase awareness. Ex.) fire management costs ($1.3B/year) increased by cheatgrass!

NEW ISSUES

Sylvan Kaufman, Adkins Arboretum: Showed invasion of Callery pear on Route 50. Promoted "Enhancing Delaware Highways" effort. Promotes native alternative plants.

Judy F. Shearer, USACOE: Explained new version of the Aquatic Plant Identification System (APIS). It runs on PDAs and smartphones. Useful for aquatic weeds ID!

Richard Old (Univeristy of Idaho ret.): Demonstrated identification tool using few characteristics, easy enough for children. Can do county level identification work!

FIELD TOUR on second day: During the day, opportunities for three presenters were given. Adrianne Peterson of Sublette County, WY, explained gravel pit certification. Bob Parson of the Park County Weed and Pest Control District in Wyoming later explained how Weed Management Areas began in the

The Banff Accord

Purpose: The economic and ecological threat of weeds (invasive plants and noxious weeds) continues to increase without respect to jurisdictional borders. The scientists, practitioners, and policy makers in attendance view cooperation, collaboration, and communication as part of a North American strategy to address this issue of continental concern. In order to prevent and control the spread of weeds, we agree to share information including but not limited to: technical transfer, training tools, status assessments, public awareness, best management practices, and research results. By pulling together, Canada, Mexico, and the United States will save time and resources far into the future. Signed May 30, 2008

U.S. Dawn LaFleur of Glacier National park reported on her park in the U.S. working with their Canadian counterpart, Waterton Lakes National Park. They focus on prevention, control and native plant restoration. We visited a gravel staging site, a coal mine reclamation, and a parkland restoration. Invasive plants plague disturbance sites, but successes were obvious throughout the Banff National Park. Park Specialists briefed us throughout.

EVENING BANQUET: "13 Ways to Juggle Our Conception of Invasive Species" by Brendon Larson. A thought-provoking treatise with actual juggling to make his points! The networking continued.

EARLY DETECTION AND RAPID RESPONSE (EDRR)

Cory Lindgren, University of Manitoba: Described predictive and spatial modeling of invasive species.

Randy Westbrooks/Leslie Mehrhoff on Early Detection: EDRR in progress. Eradication difficult. California has eradicated 14 species in 100 years. Partnerships critical! Invasive Plant Atlas of New England founded a 6-state partnership in 2001. Kudzu is now found in northeast Massachusetts! In the IPANE system, anyone can report!!!

Al Tasker, USDA–APHIS Weeds Unit: The Federal Incident Command System might have application to weed detection. Seven new weeds under consideration for Federal Noxious Weed list. A Federal Import Quarantine Order on Old World Climbing Fern just released!

Crystal Klym, Invasive Plant Council of BC: 200 agencies involved. They use spotters and specialists for EDRR and are developing a Provincial Invasive Plant List.

BEST MANAGEMENT TOOLS AND PRACTICES

Scott Millar, Alberta Sustainable Resource Development: Alberta is developing a North American plant classification system for industry. This parallels the ranking work already accomplished by the U.S. NatureServe effort.

Kim Mackenzie, AMEC Earth & Environmental: Working for the oil and gas industries, they created a web-based tracking tool that allows evaluation of control work! Their weed management plans are considered living documents. Cost isno issue. Need more land managers to do the work! Any DOT have a standard for spray reporting?????

Val Miller, Ministry of Forests and Range, BC: "Google" invasive alien plant program. There are 14 bioregions in BC alone. Maps of inventory displays for anyone to use.

Heike Vibrans, Professor, University of Mexico-Toluca: She manages, single-handedly, a Weeds of Mexico website with 850 species. Distribution maps to be added shortly. Weeds on the move in Mexico include buffel grass, water hyacinth, and mustards.

ECONOMIC AND ECOLOGICAL IMPACTS

Lewis Ziska, Agricultural Research Service, USDA: Lew used a Jurassic Park quote to underscore the importance of climate change and increased weed spread. He reported that the existing 8M acres of kudzu, 60M acres of cheatgrass, and 8 M acres of star thistle will expand as CO^2 increases. See www.climate and farming.org.

Bruce Bennett, Yukon Dept. of the Environment: Since WWII, rivers, pipelines and highways have been vectors for weed spread in the far North. Sweet clover has been spreading since 1935. Roadside grading appears to exacerbate weed spread in the Yukon.

Jenny Ericson, US Fish and Wildlife Service, National Wildlife Refuges: She described their volunteer training system. They use predictive modeling to place volunteers in hot-spots. Of their 96.2 M acres, 2.4M are already infested with weeds. Canada thistle and feral pigs are worst problems.

PUBLIC POLICY AND AWARENESS

Polly Knowlton Crockett, University of Calgary: see www.natureground.org/ An excellent example of community and student education. Terrific signage!

Ana Carolina Coehlho Maran & Kat Shrier, Colorado State: An educational approach to water-consuming weeds like tamarisk & their threat to water supplies.

Indira Singh, USDA/APHIS/PPQ: The number one goal of APHIS is exclusion. They monitor pathways: food & spice, Asian medicines, handicrafts, hitchhikers, and the aquarium trade. But since 2003 border inspections are done by Homeland Security.

Make plans now for the 2010 WAB V Conference to be held somewhere in the eastern United States!

Welcome, TIPPC

Texas has joined more than 25 states with organizations established specifically to protect native species from invasive plants and pests. The Texas Invasive Plant and Pest Council (TIPPC) has 96 charter members, including representatives of state and federal agencies, local governments, higher education, landowners, conservation organizations and the green industry. The Council was born at the second statewide Invasive Plant Conference held last November and approved its bylaws and appointed a steering committee earlier this year.

Texas is under attack on every front by a host of plants and pests from exotic places: Tamarisk, giant salvinia, hydrilla, emerald ash borer, channeled applesnail and many others threaten the health of Texas' native ecosystems by decreasing biodiversity, threatening the survival of native plants and animals, and interfering with ecosystem functions like fire, nutrient flow, and flooding.

The objectives of TIPPC are to promote understanding and awareness of invasive plant and pest impacts in Texas, provide a forum for the exchange of scientific, educational and technical information, and support research and restoration activities that reduce the impacts of invasive plants and pests in Texas.

According to acting Board President, Damon Waitt, Senior Botanist at the Lady Bird Johnson Wildflower Center, "Forming the Texas Council will not only help Texas pull together, it will also foster national cooperation to address a threat that knows no geopolitical boundaries."

www.texasinvasives.org

SAVE THE DATES!

May 13-15, 2009

South Carolina EPPC (SC-EPPC) will be hosting the 11th Annual Southeast Exotic Pest Plant Council Symposium at the Quality Inn Conference Center in Historic Georgetown, South Carolina from May 13-15, 2009. Georgetown is located near Myrtle Beach, with easy access to the Myrtle Beach airport.

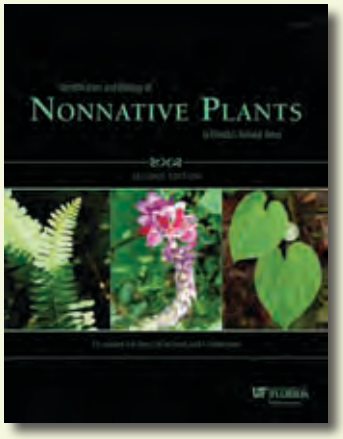
Be sure to mark these dates in your calendar and plan to attend this instructive and cooperative meeting where the highlight will be on early detection and rapid response partnerships. Field trips are planned throughout the ecologically rich Winyah Bay coastal ecosystem. Visit the SE-EPPC website for upcoming information: www.se-sppc.org

SOUTHEAST SE-EPPC EXOTIC PEST PLANT COUNCIL

SOUTH CAROLINA SC-EPPC EXOTIC PEST PLANT COUNCIL

Identification and Biology of Nonnative Plants in Florida's Natural Areas

by K. A. Langeland, H. M. Cherry, C. M. McCormick, and K. A. Craddock Burks



Second Edition — This field guide, designed to assist natural area managers in recognizing nonnative and invasive plant species on lands that they manage, will be of use to naturalists, horticulturists, landscapers, and gardeners. The authors identify 117 nonnative plant species that occur in natural areas and provide an extensive literature review of each species. Complemented by over 300 photographs, the descriptions provide plant identification characteristics, plus details on their ecological significance, distribution, and life history. The second edition of *Identification and Biology of Nonnative Plants in Florida's Natural Areas* combines information from the Florida Exotic Pest Plant Council (FLEPPC) List of Invasive Species, and the University of Florida Institute of Food and Agricultural Sciences Invasive Plants Working Group's Assessment of Nonnative Plants in Florida's Natural Areas. 210 pp. SP 257, $30. REVISED!

Call 1-800-226-1764.

Natural Microsponge Trial on Hydrilla

by Janet Beall and Rick Swift, Pinellas County, Clearwater, Florida and Rick Lowe and Lucia Marshall, TAPT, Saint Charles, Missouri

Hydrilla (*Hydrilla verticillata)* is an invasive submersed aquatic weed that is known to grow 2-3 inches per day and can clog waterways affecting navigation, fishing, recreation, hydroelectric plants, and irrigation. It is the most abundant aquatic plant in Florida public waters. It is estimated that there are over 100,000 acres of hydrilla in waterways and reservoirs in the southeastern U.S.* Managers need as many tools as possible in their continuing efforts to contain hydrilla in Florida waters and elsewhere in the U.S.

TopFilm™ adjuvant uses cereal grain derived microsponges and is currently employed as a spray tank additive in the ornamental horticulture industry. The product was recently used in a hydrilla control trial in Pinellas County, Florida. The trial was to help determine if the microsponges absorb herbicide and help it stick to the submersed leaves and stems of hydrilla, providing greater contact between the herbicide and the targeted weed. To test whether the microsponge technology had a positive effect on the herbicide's efficacy in controlling hydrilla, the herbicide and microsponge additive were applied in a standard irrigation/drainage canal by applicators in Pinellas County, Florida.

Three aquatic zones of the drainage ditch were separated into buffer areas. The treatment ditch measured 22' wide and 2' deep, as shown below.

First, a 20 foot buffer was set next to a pipe opening in the ditch. Right next to the buffer area, a 75 foot area (Zone #1) was treated with 26 oz of Aquathol K (endothall) with 0.64 oz of TopFilm™ adjuvant. This rate translates to 4 ppm Aquathol K with 16 oz of TopFilm™ per acre.

Second, beside the herbicide/microsponge treatment area, another 25 foot buffer zone was set, followed by a 75 foot section (Zone #2) which was treated with 26 oz of Aquathol K alone (no microsponges). This rate translates to 4 ppm Aquathol K (alone).

Third, another 25 foot buffer zone was set up, which was followed by a 75 foot untreated control area (Zone #3).

The entire treatment area had equal morning shade from trees to the east, equal afternoon sun allowed by an open field to the west, and was uniformly full of Hydrilla (Figure 1). The ditch had minimal flow, but did move from the control section to the Aquathol only section and finally through the Aquathol and Topfilm™ section.

RESULTS

- Six days after treatment (6 DAT), there were no significant differences between Zones #1, #2, and #3.
- Two weeks after treatment (2 WAT), herbicide activity was beginning to show hydrilla control.
- Four weeks after treatment (4 WAT), there were significant differences: Zone #3 (the control with no herbicide) was full of hydrilla or 0% hydrilla control; Zone #2 (herbicide alone with no microsponge) showed 50 - 60% hydrilla control; and Zone #1 (herbicide with microsponge) had no hydrilla, or 90 – 100% hydrilla control.
- Six weeks after treatment (6 WAT), the results showed: Zone #3 was still packed with Hydrilla (0% Hydrilla Control); Zone #2 - hydrilla remained at 50 - 60% hydrilla control; and Zone #1 had no hydrilla present (100% hydrilla control). As shown in the picture in Figure 3, there remained a patch of hygrophila (*Hygrophila polysperma*), which is not controlled with the rate of 4 ppm Aquathol K.
- A few days later, further checking reported a clear and significant difference between #1, #2, and #3 with almost no regrowth in Zone #1, definite regrowth in Zone #2, and packed with hydrilla in Zone #3.

This trial, plus another done at a wider, deeper site with moderate flow, suggests that the microsponge technology improves the efficacy of endothall used to control underwater weeds. Aquathol and TopFilm™ continue to be used in Pinellas County hydrilla control activities with good results. The small scale and lack of replication in this trial means that further study is needed by academic researchers to determine if the product stands up to repeated trials. Different rates and ratios of herbicide and adjuvant also need to be evaluated in order to make conclusive statements.

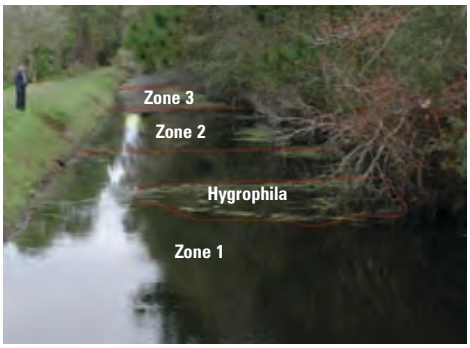


Fig. 1: Rick Swift measuring acre-foot of drainage ditch for user rate determination.
Fig. 2: Hydrilla check (untreated) zone #3
Fig. 3: Summary picture six weeks after treatment (6 WAT) showing the treatment zones and the Hygrophila *patch.*

*http://nas.er.usgs.gov/taxgroup/plants/docs/hy_verti.html

Contact the author at jbeall@co.pinellas.fl.us

Internodes

Mark Your Calendar

- GA-EPPC Annual Meeting and Invasive Plant Control Workshop, Elachee Nature Science Center, Gainesville, GA. September 19-20, 2008. www.gaeppc.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 (NAEPPC), Nashville, TN. October 14 - 17, 2008, www.naturalarea.org
- 32nd Annual Training Conference, Florida Aquatic Plant Management Society, Daytona, FL. Oct 13-16, 2008. www.fapms.org
- First statewide Minnesota Invasive Species Conference 2008 – *Acting Locally to Protect our Legendary Lands and Waters*, Duluth, MN. October 26-28, 2008. http://www. minnesotaswcs.org/Invasives.htm
- 16th Annual Public Land Acquisition & Management Partnership Conference, Jacksonville, FL. Organized by the Florida Department of Environmental Protection. December 3-5, 2008. www.ces.fau.edu/plam2008
- Weed Science Society of America (WSSA) and Southern Weed Science Society joint annual meeting, Orlando, FL. February 9-12, 2009. www.wssa.net
- Association of Southeastern Biologists, Birmingham, AL. April 1-4, 2009. www.asb.appstate.edu
- Florida Vegetation Management Association meeting, Daytona, FL. April 14-17, 2009. http://www.fvma.info
- 24th Annual Florida Exotic Pest Plant Council Symposium, Palm Beach County. April 20-23, 2009. www.fleppc.org
- UF/IFAS Aquatic Weed Control Short Course, Coral Springs, FL. May 4-7, 2009. Aquatic, upland and invasive weed control; aquatic plant identification. http://conference.ifas.ufl.edu/
- 11th Annual Southeast Exotic Pest Plant Council (SE-EPPC) Symposium hosted by the South Carolina EPPC (SC-EPPC) in Georgetown, South Carolina. May 13-15, 2009. www.se-eppc.org
- 29th Florida Native Plant Society meeting, *Wake Up and Plant the Natives: Planting Today to Preserve Florida's Tomorrow,* May 21-24, 2009, West Palm Beach, FL. May 21-24, 2009. www.fnps.org
- 10th International Conference on the Ecology and Management of Alien Plant Invasions (EMAPI), Stellenbosch, South Africa. 23-27 August, 2009. http://www.invasivespeciesinfo.gov/news/calendar.php

Web Sites

The Florida Yards & Neighborhoods website has great resources, including a plant selector. If you are a developer or landscaping professional, get the facts about Florida-friendly landscaping and learn how others are responding to consumer demand for low-impact yards. Homeowners and others can use the Florida-friendly Plant Database to find Florida plants for their landscape and garden, including native plants that require little irrigation or fertilizer, are low maintenance and attract wildlife. Check it out and share it with others: http://www.floridayards.org/

Maps of occupation and tabular coverage estimates are accessible for 33 recognized nonnative plants invading forests of the 13 southern states using the U.S. Forest Service's Southern Research Station Forest Inventory and Analysis (SRS FIA) data. James H. Miller, Research Invasive Ecologist and Erwin B. Chambliss, Research Associate, USDA Forest Service Southern Research Station, Auburn, Alabama. http://www.invasive.org/fiamaps/

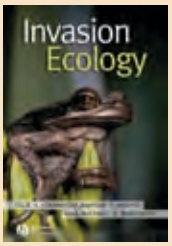
Publications

"Exotic plant species of Cumberland Island, Georgia," by T. Hunt and K. Langeland (2008). Natural Areas Journal 28(3):299-306. "Of sixty-six exotic plant species identified, twenty-three are recognized as invasive or potentially invasive by either the Georgia or Florida Exotic Pest Plant Councils (GAEPPC, FLEPPC), and 11 species occurred in natural areas of Cumberland Island National Seashore."

"Nonnative species and bioenergy: are we cultivating the next invader?" by J.N. Barney and J.M. DiTomaso (2008). BioScience 58(1):64-70 (doi: 10.1641/B580111) "We used a weed risk-assessment protocol, which categorizes the risk of becoming invasive on the basis of biogeography, history, biology, and ecology, to qualify the potential invasiveness of three leading biofuel candidate crops—switchgrass, giant reed, and miscanthus (a sterile hybrid)—under various assumptions."

"Biofuel Crops and Non-native species: mitigating the risk of invasion," Global Invasive Species Programme (GISP). "... promoting the cultivation of some popular species for biofuel production will increase two of the major causes of biodiversity loss on the planet: clearing and conversion of yet more natural areas for monocultures, and invasion by non-native species." http://www.gisp.org

"Japanese stiltgrass *(Microstegium vimineum)* management for restoration of native plant communities," by C.A. Judge, J.C. Neal and T.H. Shear (2008). Invasive Plant Sci. Manag. 1(2):111-119.



Invasion Ecology by J. Lockwood, M. Hoopes and M. Marchetti (2006). Blackwell Publishing. "... provides an overview of the invasion process from transportation patterns and causes of establishment success to ecological impacts, invader management, and post-invasion evolution." 312 pp. **ISBN:** 9781405114189.

"Using fire and herbicide to control *Lygodium microphyllum* and effects on a pine flatwoods plant community in south Florida," by R.K. Stocker, R.E. Miller, D.W. Black, A.P. Ferriter, et al (2008). Nat. Areas J. 28(2):144-154.

"Can Weeds Help Solve the Climate Crisis?" by Tom Christopher, New York Times, June 29, 2008. "Not only did the weeds grow much larger in hotter, CO2-enriched plots — a weed called lambs-quarters, or *Chenopodium album*, grew to an impressive 6 to 8 feet on the farm but to a frightening 10 to 12 feet in the city — but the urban, futuristic weeds also produced more pollen." An in-depth review of weeds and global warming research.

"Northeast Florida home gardener's guide to invasive plants and their alterNatives," by the Florida Native Plant Society, Inc. (2008). A full color, four-page brochure utilizing photographs to illustrate both non-native invasive plant species and multiple alternative species to use instead. Information is provided on growth habit, light and water requirements, and wildlife use. Contact the Ixia Chapter for copies at www.jaxnativeplants.org.

"Invasive plants: Inventories, strategies and action." Topics in Canadian Weed Science, Volume 5. Clements, D. R. and S. J. Darbyshire, eds. (2007). Sainte Anne de Bellevue, Québec: Canadian Weed Science Society – Société canadienne de malherbologie. 165 pp. ISBN 978-0-9688970-5-8. www.cwss-scm.ca/invasives.htm

From the other side

Weeds and Biofuels - Despite all the attention to the biofuels trend in the media lately, the capacity of plants used for biofuel to spawn weed problems is largely going unnoticed. The Invasive Species Council in Australia has been raising awareness about this issue. See a revised edition of their report, "The Weedy Truth about Biofuels" at http://www.invasives.org.au/issues/biofuels.html

Search buffelgrass invasion on YouTube for an excellent video presentation on the topic of buffelgrass *(Pennisetum ciliare)* in Arizona: http://www.youtube.com Many of the themes apply to all invasive species issues.

Hello Again -

Just wanted to share some really exciting news from Alaska!! We are about to kick off our Invasive Weeds Awareness Week here in Alaska. Our Anchorage Cooperative Weed Management Area is going to have its official ribbon-cutting (logo unveiling) at a Weeds Fair tomorrow night. We got great news last week that Governor Palin is coming to our Weeds Fair to sign HB330 into legislation (creating a position for a statewide weed coordinator)! Hooray! She will do the honors of the "ribbon-cutting" and read the proclamation!!

This is wonderful and hopefully will give our movement some rocket fuel up here in Alaska!! Again, Troy and I are amazed by what can be accomplished by citizens with a little energy and a lot of conviction! This has been a wild ride and we're having a grand time!!

— Lori and Troy Zaumseil, Citizens Against Noxious Weeds Invading the North, akcanwin@aol.com

Grants

The **BASF Invasive Vegetation Management 2009 Matching Grant Program** has been officially announced. The Professional Vegetation Management group of BASF (ProVM) will provide grants of up to $20,000 as non-federal matching funds for on-the-ground programs that include herbicide use for control of terrestrial and aquatic invasive plants. Funding is for labor associated with operational invasive plant control herbicide programs. See www.vmanswers.com Proposals should be submitted to jennifer.vollmer@basf.com / Fax 307-742-9932 no later than 5:00pm, September 29, 2008.

The **Florida Exotic Pest Plant Council** is soliciting proposals for the FLEPPC Kathy Craddock Burks Education Grant. The grants are for non-native invasive plant education and outreach projects in Florida. The intent is to provide funding to organizations or individuals who wish to educate the public about non-native invasive plants and their effects on the environment and economy of Florida. Proposals will be accepted from individuals, public or private nonprofit organizations, and academic institutions. For information, visit the FLEPPC website at: www.fleppc.org

Q&A

We are a non-profit stream restoration and water quality organization that needs info to pass out to land-owners about the problem of invasives and how serious they are. Some people have heard of them, but may not know what say oriental bittersweet or some other invasive looks like, so pictures would help. Thanks very much!!

— Tony, Restoration Coordinator, Hiwassee River Watershed Coalition, Murphy, North Carolina

Hi Tony,
There are several invasive species guides specific to North Carolina. A few include:

- *Invasive Plant Pocket Guide* – available from NC Cooperative Extension or at www.dfr.state.nc.us
- *Controlling Invasive Plants* – available from the NC Botanical Garden www.ncbg.unc.edu (search the site for "invasive")
- *Going Native, Urban Landscaping for Wildlife with Native Plants* (web site) www.ncsu.edu/goingnative/
- NC Department of Transportation is in the process of publishing a field manual to invasive species as well; it should be available soon.

I hope this helps,
Charles Yelton, North Carolina Museum of Natural Sciences; Charles.Yelton@ncmail.net

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To: FLEPPC@LISTSERV.UGA.EDU
Subject: "Green" Herbicides

We are trying to find out if there are herbicides out there that would be considered "Green" with less impact on the environment and just as effective as our standard group of herbicides. We would be using them on our conservation lands, passive parks and trails. Thanks!

Park Ranger, Seminole County Florida

Reply:

Dear Park Ranger,

Three of our products come to mind:

- **Garlon 4 Ultra:** Replaced Garlon 4 January 1, 2008. It is still a 4 lb ae/gal triclopyr ester product, but the petroleum-based (primarily kerosene) solvent system in Garlon 4 was replaced with a patented, plant-derived, methylated seed oil system in Garlon 4 Ultra...better for the applicator and better for the environment. Garlon 4 Ultra also contains less volatile organic compounds (VOCs...but the volatility of the triclopyr ester molecule remains the same and can still volatilize under high temperature conditions) and is lower odor than Garlon 4. It has the same "Caution" signalword, labeled sites, application methods, use rates, etc. as Garlon 4 but is definitely a "greener" formulation.
- **Milestone VM:** Launched in 2006, Milestone VM contains a new active ingredient, aminopyralid, a selective (safe on grasses, except St. Augustine) foliar broadleaf herbicide with moderate soil residual activity. It is broad spectrum but especially active on members of the legume, nightshade, and Compositae families, with up to 6+ months of soil residual control of susceptible herbaceous broadleaf weeds (the need to apply less often can be a big advantage). It is formulated as a nonvolatile liquid amine. It is also classified as a Reduced Risk Pesticide by EPA. We have seen excellent results on key herbaceous broadleaf weeds and some important invasive species, such as tropical soda apple, rosary pea, skunkvine, Caesar's weed, mimosa, kudzu, wedelia, and castor bean.
- **Milestone VM Plus:** Launched in 2008, this is a premix of aminopyralid (Milestone VM) and triclopyr amine (Garlon 3A) for broader spectrum broadleaf weed and woody plant control, with safety to grasses (except St. Augustine). Formulated as a nonvolatile liquid amine, it is labeled for foliar and cut stump applications. A big advantage is its "Caution" signalword (versus "Danger" for Garlon 3A). Also, no mixing is required for cut stump treatments.

All three of these products are labeled for use on the usual non-crop/natural area/industrial/rights-of-way terrestrial sites. They are **not** labeled for aquatic use but can be applied to non-irrigation ditchbanks, seasonally dry wetland areas, transition areas between upland and wetland sites, etc. Please consult product labels (www.vegetationmgmt.com) for additional information and let me know if you have any questions; I think they may offer the "greener" alternative you are looking for.

Thanks,
Scott Ditmarsen, Dow AgroSciences, Tampa, FL

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