Wildland Weeds

FALL 2002

Wildland Weeds

FALL 2002, Volume 5, Number 4

Table of Contents

Visit these websites:
Florida EPPC's: www.fleppc.org
Southeast EPPC's: www.se-eppc.org
California EPPC's: www.caleppc.org

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

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

For advertising information contact: Outdoor Tech, Inc., 6791 Proctor Rd. Tallahassee, FL 32308, Phone 850 668-2353, Fax 850 668-2664
Debra Tarver

Charter Advertisers: SePRO, Griffin, DowAgrosciences, Riverdale, Invasive Plant Control, Brewer International, Timberland Enterprises, Inc., American Cyanamid, Helena

Direct editorial inquiries to
Karen Brown
Editor, Wildland Weeds
7922 NW 71st Street
Gainesville, FL 32653
kpb@mail.ifas.ufl.edu

Cover: *Ardisia crenata* with Seminole bat, *Lasiurus seminolus*.
Photo by Alison Fox.

Evaluation of Three Glyphosate Products for Controlling Adventitious Sprouting of Melaleuca and Brazilian Pepper Tree Stumps

Ken Langeland
University of Florida, Institute of Food and Agricultural Sciences
Agronomy Department and Center for Aquatic and Invasive Plants
7922 NW 71st Street
Gainesville FL 32653
kal@mail.ifas.ufl.edu

Figure 1. The final cut was made as close to the ground as possible and herbicide was applied to the area just inside the bark with a dropper bottle.

Introduction

The active ingredient glyphosate was reported to have herbicidal activity in 1971 (Baird et al. 1971). Because it is an acid, glyphosate can be formulated as an aqueous solution of one of its salts. Since its introduction by Monsanto Company in 1974, the isopropylamine salt has been the most common formulation used in the United States. Products that contain different concentrations of glyphosate and adjuvants have been marketed over the years. Common products for terrestrial use contain 41.0% glyphosate as the isopropylamine salt, which is equivalent to 3 lb glyphosate acid per gallon, plus added surfactant. Products registered for aquatic use contain 53.8% glyphosate as the isopropylamine salt, which is equivalent to 4 lb glyphosate acid per gallon, and contain no surfactant. Touchdown, a recently developed product by Syngenta, contains 28.3% glyphosate as the diammonium salt of glyphosate, which is equivalent to 3 lb glyphosate acid per gallon, plus added surfactant (Table 1).

The purpose of this study was to evaluate the activity of Touchdown, Roundup Pro (3 lb glyphosate acid per gallon) and Rodeo (4 lb glyphosate acid per gallon) for controlling adventitious sprouting of stumps following felling of melaleuca and Brazilian pepper trees. Arsenal, which contains the active ingredient imazapyr, and Garlon 3A, which contains the active ingredient triclopyr, were included in the study for melaleuca and Brazilian pepper, respectively, because they are commonly used herbicides for treating melaleuca and Brazilian pepper stumps.

Methods and Materials

Five melaleuca stumps each were treated with 100% Touchdown, 50% Touchdown, 100% Roundup Pro, 50% Roundup Pro, 75% Rodeo, or 25% Arsenal on February 20, 2001. Five Brazilian pepper stumps each were treated with 100% Touchdown, 50%

Table 1. Herbicide products that contain the active ingredient glyphosate.

Active ingredient	Products	Application Methods	Comments
Glyphosate (4 lb/gallon[1])	Rodeo, Aquamaster, Aquaneat, Eagre, Aquapro, Glypro, Glyphosate Herbicide, Accord	Cut stump Foliar	Available from agricultural suppliers. May be applied directly to water.
Glyphosate (3.7 lb/gallon)	Roundup Weed & Grass Killer Super Concentrate	Cut stump Foliar	Available from retail garden suppliers. May not be applied directly to water.
Glyphosate (3 lb/gallon)	Roundup Pro, Credit, Glyphos, Glypro Plus, Rattler, Honcho, Glyphosate Herbicide VMF, Touchdown Pro	Cut stump Foliar	Available from agricultural suppliers. May not be applied directly to water.

[1]Based on the acid.

Dow AgroSciences LLC AQUATIC HERBICIDES

Solutions for emerged and submerged aquatic weeds

Rodeo® herbicide

- Cattail
- Water Lilies
- Phragmites

DMA* 4 IVM herbicide

- Eurasian watermilfoil

KEY BENEFITS:

- Proven product performance
- Returnable, refillable containers with dry lock valves
- Experienced sales force

Dow AgroSciences

Rodeo®

Herbicide

Dow AgroSciences

DMA* 4 IVM

Herbicide

V01-000-014 (3/02) cii

Touchdown, 100% Roundup Pro, 50% Roundup Pro, 75% Rodeo, or 50% Garlon 3A on February 21, 2001. All herbicide dilutions were made with water. Melaleuca trees were located on property owned by Lee County on the north side of Corkscrew Road, 3.8 miles east of the Interstate 75 exit. Brazilian pepper trees were located at the north end of the Florida Atlantic University Natural Area Preserve, Boca Raton, Florida. All trees were felled with a chain saw and the final cut was made as close to the soil surface as possible (Figure 1). Within five minutes of cutting, sufficient herbicide solution was applied from a dropper bottle (Figure 1) to thoroughly wet the stump surface just inside the bark (the area of active vascular tissue). The diameter of each stump was measured and recorded. The volumes of herbicide solution applied to melaleuca stumps were recorded, and the amount of herbicide solution applied per stump diameter was estimated by dividing the volume of herbicide solution applied to all replications by the average stump diameter. Melaleuca stumps were evaluated for adventitious sprouting on March 14, May 16, July 26, and September 20, 2001. Brazilian pepper tree stumps were evaluated on March 13, May 3, July 12, and September 20, 2001.

Figure 2. By 84 days after application all herbicide treated melaleuca stumps were exhibiting signs of mortality.

Figure 3. By 84 days after application, untreated melaleuca stumps averaged 10 adventitious stems per stump.

Results and Discussion

Melaleuca stumps ranged from 9cm to 35cm (average=22cm), a good representation of stump sizes that would typically be treated. None of the herbicide treated melaleuca stumps sprouted adventitious stems at any of the evaluation periods, the longest being over 7 months (September 20), while all untreated stumps vigorously sprouted (Table 2). By 84 days after application (May 16) all herbicide treated stumps were exhibiting signs of mortality (desiccation and separation of the bark from the wood, Figure 2), while untreated stumps averaged 10 adventitious stems per stump (Figure 3).

Brazilian pepper stumps ranged from 6cm to 30cm in diameter (average=13cm). Sprouting of Brazilian pepper stumps was not observed until 70 days after application (May 3) and then only from untreated stumps (Table 3). At this time, four of five untreated stumps had three to nine sprouts (Figure 4). All untreated stumps were sprouting 140 days after application (July 12). All herbicide treated stumps were exhibiting signs of mortality (Figure 5) 140 days after application, with only one sprout observed on one replication of a stump treated with 75% Rodeo. This sprout was stunted compared to sprouts on untreated stumps and displayed glyphosate symptoms (stunting and chlorosis). Herbicide treated stumps had not sprouted 210 days after application (September 20), other than the one sprout observed on the Rodeo treated stump, which still exhibited glyphosate symptoms.

In this study, where herbicide was applied only to the cut surface just inside the bark, the average volume of herbicide solution applied to melaleuca stumps was 1.5 ml/cm of stump diameter. In another study (unpublished data), where the herbicide solution was applied to the entire cut surface, 6.5ml/cm herbicide solution was applied. This suggests that substantial reduction in herbicide use can be achieved by applying herbicide solution only to the area of active vascular tissue. This will, however, depend on the total amount of active ingredient applied, which will depend on the concentration of active ingredient in the herbicide solution. Laroche et al. used only 1ml/inch (0.39 ml/cm) diameter breast height of undiluted Garlon 3A or Rodeo, which resulted in killing of 85% of treated stumps.

Table 2. Adventitious sprouting (% of 5 replications) of melaleuca stumps treated with herbicide February 20, 2001.

Herbicide	March 14	May 16	June 26	September 20
Touchdown 100%	0	0	0	0
Touchdown 50%	0	0	0	0
Roundup Pro 100%	0	0	0	0
Roundup Pro 50%	0	0	0	0
Rodeo 75%	0	0	0	0
Arsenal 25%	0	0	0	0
Untreated	0	100	100	100

Table 3. Adventitious sprouting (% of 5 replications) of Brazilian pepper tree stumps treated with herbicide February 21, 2001.

Herbicide	March 13	May 3	June 12	September 20
Touchdown 100%	0	0	0	0
Touchdown 50%	0	0	0	0
Roundup Pro 100%	0	0	0	0
Roundup Pro 50%	0	0	0	0
Rodeo 75%	0	0	20	20
Garlon 3A 50%	0	0	0	0
Untreated	0	80	100	100

The results of this study suggest that all three formulations of glyphosate are effective for controlling adventitious sprouting of melaleuca and Brazilian pepper tree stumps, and as effective as Arsenal for melaleuca and Garlon 3A for Brazilian pepper. These results are consistent with those of Laroche et al. for melaleuca. Pernas et al. reported that glyphosate alone does not provide the same level of control of melaleuca stumps as imazapyr and suggested mixing 10% Arsenal with 25% to 50 % Rodeo. Differences in the effectiveness of herbicides may be due to factors such as soil moisture, tree size, season of application, or the volume of herbicide solution applied. Additional studies are needed to evaluate factors that can influence the effectiveness of herbicides for controlling adventitious sprouting of the stumps of felled trees.

Figure 4. By 70 days after application, four of five untreated Brazilian pepper stumps had three to nine sprouts.

Figure 5. By 70 days after application, herbicide treated Brazilian pepper tree stumps were exhibiting signs of mortality.

Acknowledgements

Appreciation is expressed to Roger Clark, Lee County Parks and Recreation for his assistance in locating a site for treatment of melaleuca trees and to Dan Austin for assisting with access to the FAU Preserve. This study was funded in part by a grant from Syngenta Crop Protection, Inc. The herbicides used in this study were provided by Syngenta Inc., Monsanto Co., BASF Inc., and Dow AgroSciences. Published with the approval of the Florida Agricultural Experiment Station as Journal Series No. N-02179.

Literature Cited

Baird, D. D., R. P. Upchurch, W. B. Homesley, and J. E. Franz. 1971. Introduction of a new broadspectrum postemergence herbicide class with utility for herbaceous perennial weed control. Proc. North Cent. Weed Control Conf. 26:64-68.

Laroche, F. B., D. D. Thayer, and M. J. Bodle. 1992. Melaleuca response to various herbicides and methods of application. Aquatics 14(2):14-19.

Pernas, Tony, Bo Burns, and Jorge Cuarezma. 1994. How low can you go? Florida EPPC [newsletter] 4(4):1-3.

NEW Florida Legislation

Matthew King
Chair, FLEPPC
Legislative Committee
3323 Belvedere Road, Bldg. 502
West Palm Beach, FL 33406
Mking@co.palm-beach.fl.us

On March 13, 2002, Florida State Representative Richard A. Machek (D-District 78), and the Florida Nurserymen & Growers Association (FNGA), introduced an amendment to a House Bill (HB 1681) concerning general administrative issues with the Florida Department of Agriculture and Consumer Services (FDACS). The purpose of the amendment is to limit the authority of local governments when regulating invasive non-native plant species. The proposed amendment read as follows:

> *A water management district when identifying by rule pursuant to s. 373.185, or a local government when identifying by ordinance a list of noxious weeds, invasive plants, or plants deemed to be a public nuisance or threat shall utilize the list developed under this chapter or rules adopted thereunder.*

When the existence of the amendment became known, several Florida counties diligently worked with Representative Machek to clarify the amendment and to add some exemptions. The final version of the amendment, approved May 30, 2002 is as follows:

> *"The department [FDACS], in conjunction with the Institute of Food and Agricultural Sciences at the University of Florida, shall biennially review the official state lists of noxious weeds and invasive plants as provided for under this chapter and department rules. The plants listed in section 369.251 shall be incorporated into the department lists as provided for under this chapter. A water management district when identifying by rule pursuant to section 373.185, or a local government when identifying by ordinance or regulation adopted on or after March 1, 2002, a list of noxious weeds, invasive plants, or plants deemed to be a public nuisance or threat, shall only adopt the lists developed under this chapter or rules adopted thereunder. All local government ordinances or regulations adopted prior to March 1, 2002, that list noxious weeds or invasive plants shall remain in effect. All local ordinances or regulations requiring the removal of invasive plants or noxious weeds from publicly or privately owned conservation areas or preserves shall be exempt from the limitations in this subsection."*

So, what does it all mean? Simply, it means that when a water management district is developing xeriscape standards, or when a local government attempts to regulate invasive plants, they are limited to the plant species listed on the FDACS and Florida Department of Environmental Protection (FDEP) lists. The only exception is that the districts and local governments are allowed to develop lists and require removal of invasive plant species in designated public and private conservation areas.

However, there's more to it than that.

First, the amendment requires that a process be established that would conduct periodic, scientific reviews of the FDACS Noxious Weeds List to ensure that new invasive plant species are evaluated and added when necessary. The University of Florida Institute of Food and Agricultural Sciences (IFAS) is identified to assist FDACS with this review.

Second, local ordinances in effect prior to March 1, 2002 that regulate invasive plant species are "grandfathered in" and still apply, even if they list species not on the FDACS and FDEP lists. Numerous local governments have invasive plant regulations that have been in existence for years, and contain plant species that are problematic in their respective region, but are not on any state list. This "grandfathering" of existing local ordinances continues the more regional approach to invasive species regulations that is absent at the state level. An often used and effective approach for the management of invasive plant species at the local level is the requirement of the removal of certain invasive species at the time of property development. This addition to the amendment ensures that local governments will continue to have that ability, where regulations were already in place prior to March, 2002.

Note from FNGA/FLEPPC Liaison Doria Gordon:

"While FLEPPC is opposed to this degradation of local authority on a problem that is often regionally defined, we will work to provide current information and locational data to FDACS so that the Noxious Weeds list reflects the best data on non-native species in natural areas."

Invasive Weeds

spread to an estimated 4,000 acres each day on public lands managed by the Bureau of Land Management (BLM) and the Forest Service.

– Bureau of Land Management Environmental Education Homepage, www.blm.gov/education/weed/intro.html

The Solution:

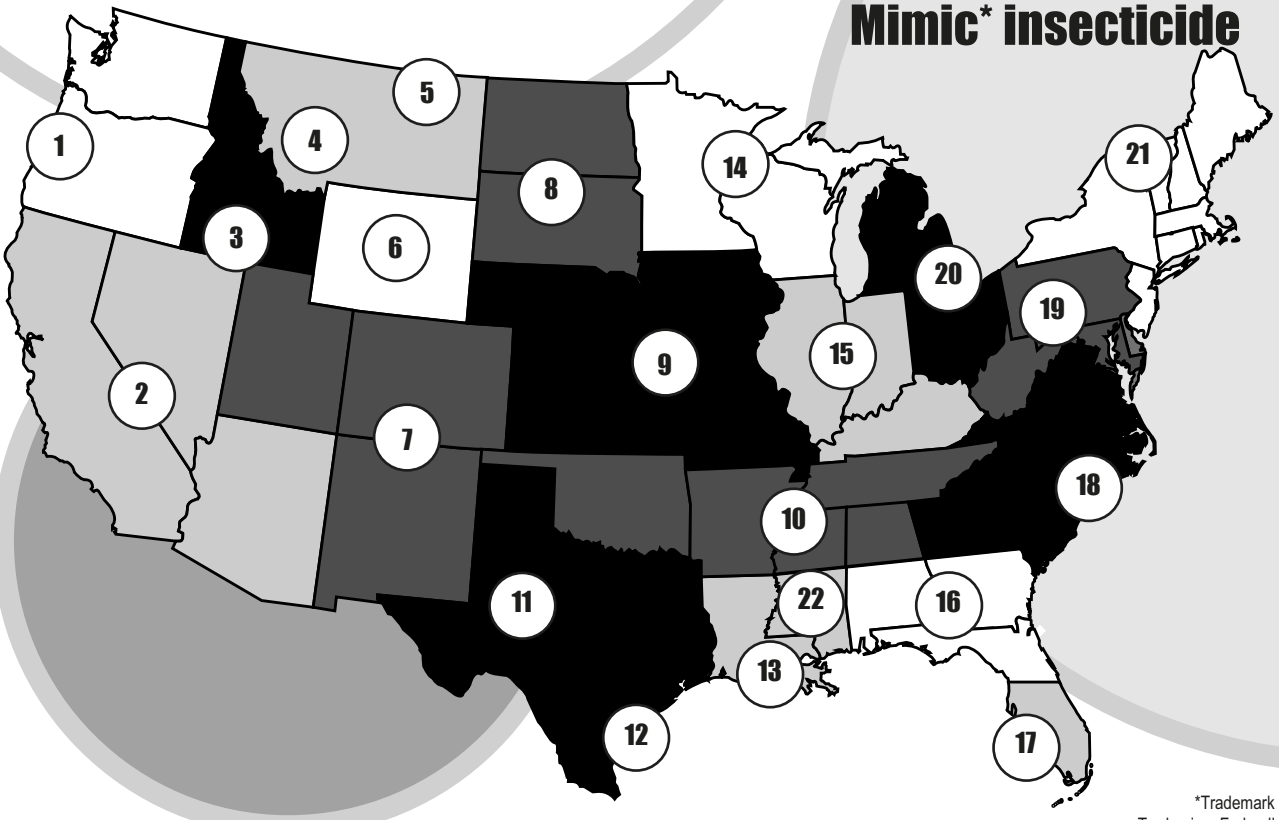
Dow AgroSciences LLC – the leading supplier of selective and non-selective invasive control products:

Dow AgroSciences™

Key Benefits:

- *Knowledgeable local sales force*
- Returnable, Refillable Containers

Garlon* herbicides
Tordon* herbicides
Pathfinder* II herbicide
Pathway* herbicide
Vista* herbicide
Transline* herbicide
Rodeo® herbicide
Mimic* insecticide



1. Robert Stewart
2. Tim Baldwin
3. Dean Gaiser
4. Steve Saunders
5. Lee Ohlinger
6. Abe Smith
7. Lee Frudden
8. Sam Law
9. Jack Noble
10. David Rich
11. Rich Hendler
12. Ken Frankum
13. Ron Neal
14. Louanne Brooks
15. David Jay
16. Jimmie Cobb
17. Brad Cochran
18. Darrell Russell
    Tom Wharton
19. Sam Quattrocchi
20. Carl Pryor
21. Bill Sherksnas
22. Jay Golz

The 3rd Annual Great Air Potato Roundup

By Ellen Stern and
Anna DiMarco,
Nature Operations Division,
City of Gainesville
Station 66, P.O. Box 490
Gainesville, FL 32602
(352) 334-2227

Now in its third year, the Great Air Potato Roundup is a continued success. The Roundup again focused awareness on the problem of invasive non-native plants at the community level through education and direct stewardship activities within Gainesville's natural areas. Modeled after popular litter cleanups, volunteers pick up air potato tubers instead of trash. The Third Annual Great Air Potato Roundup took place on February 2, 2002 when over eight hundred volunteers gathered approximately six tons of air potato tubers from twenty-one nature parks and privately owned sites that have connections to local creeks. In addition to picking up air potato tubers, the event expanded this year to include collection of coral ardisia (*Ardisia crenata*), wandering jew (*Tradescantia fluminensis*), English ivy (*Hedera helix*) and other invasive plants as they were encountered. Trash was also collected from the designated sites. Site leaders and local organizations, such as the University of Florida Center for Aquatic and Invasive Plants and the Florida Exotic Pest Plant Council (FLEPPC), provided educational materials and information in the form of brochures, informational displays, and hands-on experience with invasive non-native plant removal.

Partnerships & Sponsors

The City of Gainesville Nature Operations Division again organized the event, providing staff assistance, project planning, flyer advertising, and a portion of the funding. Media coverage also contributed to the event's success, including newspaper articles, local television advertisements and radio announcements of the event. Local businesses generously provided advertising, which allowed awareness of the problem of invasive plants to reach a wide audience. In addition twenty-one businesses donated prizes to be included in a drawing at the Celebration festival. Contributed prizes, food, services, volunteer labor, and donations totaled more than $20,000 and included a FLEPPC Education and Outreach grant.

Volunteers

Recruitment of volunteers was extremely successful, increasing 16% from the first event in 2000. Just over eight hundred volunteers donated their time, in addition to thirty-two site leaders and several AmeriCorps members. The volunteers included Girl and Boy Scout troops, University of Florida and Santa Fe Community College students and community service groups, and families and individuals willing to donate their time and learn about invasive non-native plants. In just one morning of collection, over six tons of air potato tubers were collected, as well as 250 fifty-gallon bags of English ivy, coral ardesia, and wandering jew. The accumulated trash filled two 20-yard dumpsters!

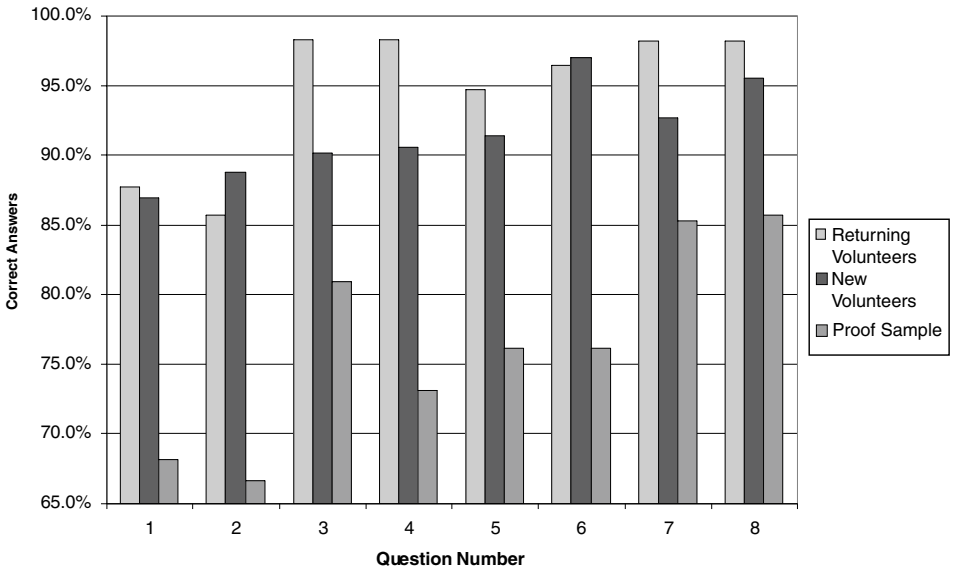
Implementation

The Great Air Potato Roundup was designed as a hands-on experiential approach to learning. Education began

Table 1: Evaluative Survey Quiz Questions, Third Annual Great Air Potato Roundup, 2002

1	**Invasive non-native plants:** A) are often the single greatest threat to natural areas B) are plants that have dispersed outside their natural range C) have self-sustaining populations within native plant communities D) all of the above
2	**All non-native plants are invasive.** True/False?
3	**Invasive non-native plants are dispersed by:** A) creeks & waterways B) birds & animals C) wind D) people E) all of the above
4	**Invasive non-native plants disrupt natural communities by:** A) altering ecological processes such as fire and water regimes B) Competing with native plants for resources such as sunlight, water, & nutrients C) Displacing native plants that wildlife depend on D) all of the above
5	**Invasive non-native plants have an advantage over native plants because of the absence of predators and pests from their native region.** True/False?
6	**Homeowners' landscaping decisions affect Florida's ecosystems.** True/False?
7	**Invasive non-native plants are brought into the country by:** A) Horticulture B) Agriculture C) Tourists D) Accident E) All of the above
8	**New non-native plants are constantly being brought into Florida and have the potential to become invasive plants.** True/False?

Figure 1: Comparison of General Invasive Non-Native Plant Knowledge, Great Air Potato Roundup, 2002



with the site leaders giving short informational talks before the collection began to inform the volunteers about invasive non-native plants. Educational materials provided to site leaders included maps, fact sheets, pressed plant samples, and photographs. Site leaders were volunteers that are involved in the management, stewardship, or study of North Florida ecology to varying degrees, either professionally, as a student, or through organizational membership.

After two hours of gathering invasive non-native plants, air potato tubers and trash, a celebration was launched at a local community park where volunteers were given the opportunity to view informational displays, received free food, drink and a t-shirt. Two hundred volunteers also completed an evaluation survey that was designed to measure volunteers knowledge of invasive plants as well as provide feedback about the event.

Evaluation Methods & Outcomes

A knowledge-based quiz consisting of eight true-false and multiple choice questions attempted to test the volunteers' comprehension and understanding of invasive non-native plants (Table 1). Fifty randomly selected individuals not involved in the Roundup also completed the survey, making up the proof sample. To ensure that a diverse sample was obtained, surveys were taken at the local mall, various parts of the University of Florida campus, and a local neighborhood park. To safeguard against bias in the proof sample, previous participants of the Great Air Potato Roundup were excluded.

Typically, returning volunteers scored higher on the quiz portion

than new volunteers and individuals included in the proof sample (Figure 1). This corresponded to an average of 95% correct answers across all eight questions by returning volunteers, 92% by new volunteers, and 77% by the proof sample. The questions in the survey were purposely leading in order to enforce the educational message of the event. This may have contributed to the high success rate, even within the proof sample. However the correctly answered questions were significantly higher amongst volunteers than the proof sample, suggesting that volunteers are in fact gaining knowledge on invasive plant issues (ANOVA, $P < .05$).

The most commonly missed question (13.1% incorrect answers) involved differentiating between invasive non-native plants and non-invasive non-native plants (Question 2, Table 1). The question may have been perplexing for some people because the terms *non-native* and *invasive* are often perceived to be synonymous.

Perception of one's own knowledge is crucial to becoming more educated in any subject. The survey included a question asking volunteers to state whether or not they feel knowledgeable about invasive non-native plants. Comparing that answer with the number of questions the individual missed on the quiz portion of the survey, the difference between perceived and actual knowledge is apparent. Less than half of the volunteers who scored high (>75%) on the quiz thought they were knowledgeable about invasive non-native plants whereas their quiz scored indicated otherwise. In contrast, approximately one-quarter of volunteers with lower scores (<75%) perceived themselves to be knowledgeable on the subject (Table 2).

Table 2: Comparison of Missed Questions and Perceived Knowledge of Invasive Non-Native Plants, Third Annual Great Air Potato Roundup, 2002

Number of Questions Missed	Knowledgeable	Not Knowledgeable
0	47.7%	52.3%
1	35.9%	64.1%
2	26.7%	73.3%
3	25.0%	75.0%
4+	28.6%	71.4%

The survey results demonstrated that individuals who have previously participated in the Great Air Potato Roundup are more educated regarding invasive non-native plants than new volunteers and the general population that is represented by the proof sample. Of all volunteers surveyed, 94.8% stated the Roundup was an educational experience. Considering that 73% of surveyed volunteers had not previously participated in the event, it is clear the educational objectives about invasive non-native plants are being conveyed to community members.

Challenges for the Future

An issue that needs to be addressed is providing public education by delivering factual information and ensuring it is properly understood. The survey results indicate that a significant portion of people had either no knowledge of invasive non-native plants or had a false impression of their own knowledge. Public education is a major goal of the Great Air Potato Roundup, and measures need to be taken to connect with the community and provide information that is exciting and valuable. By achieving this, a more complete understanding of the importance of invasive non-native plant control is attainable for community members. Increasing the number of volunteers at the event by focusing on advertising methods and target audiences is a means to achieve this goal. According to the survey results, television and radio advertisements were the least effective in attracting new volunteers (4.1% and 3.2%, respectively). However, there is no method to measure what portion of the general population was made aware of the problem of invasive non-native plants but did not participate in the event. Promoting community involvement in the removal of invasive plants, both within public and private lands, and spreading a message of land conservation and stewardship is the ultimate goal. Efforts should be made in the future to develop a more diverse advertising campaign that will reach a larger segment of the population.

Creative Project Combination Extends Grant Value

The Bay Area Resource Council (BARC) is a group of elected officials in the Pensacola, FL area, committed to building environmental awareness in the two counties and three cities within the jurisdiction. BARC was awarded a $550 grant from FLEPPC to provide education on exotic invasive plants, and used an existing project to springboard in a different but related direction to get the most "bang for the buck." "There is a lot of wonderful information available on the web, and we didn't want to reinvent the wheel," stated Eleanor Godwin, Project Coordinator.

"Help Stop Pointless Pollution" is the theme of a year-long project for the BARC and a grassroots organization, the Bayou Texar Foundation, funded by a Florida Coastal Management Program grant. Programs, workshops, booth displays, and literature focused on what the individual can do to help keep stormwater runoff cleaner. Landscaping tips included use of Florida native plants and removal of exotic plants. To supplement the initial project literature, FLEPPC funds paid for flyers that featured information on the characteristics of exotics and reasons why they should be removed. The flyers also included several good websites with color photos and listed common exotics in this area of the state.

The "Help Stop Pointless Pollution" booth was used at many local events such as a Waterfront Living workshop, Earth Day, "Picnic in the Plaza" in downtown Pensacola, an Open House at a local public community center on Bayou Texar, and a "State of the Bay" symposium sponsored by the BARC. A second booth was created for the invasive plant project, using the photomural available from the University of Florida Center for Aquatic and Invasive Plants. Information in the two booths complemented one another at the above events.

In addition, a scout troop distributed the flyers to members and volunteers engaged in the removal of Chinese privet on the University of West Florida Campus. A local Florida Native plant nursery took a large stack of the material to distribute to customers. This vendor keeps a display of desirable natives and exotic invasive plants at his nursery to educate his customers. (Photo below.)

Earth Day 2002, Pensacola, Fl, joint display with Florida Native Plant Society and the Echo Center, a Florida native plant nursery, that educates the customers with a display of desirable vs. invasive native plants.

BARC staff explains information on exotic invasive plants to attendees at the Picnic in the Plaza event in Plaza Ferdinand, Pensacola, FL.

Bones Wrapped in *Lygodium microphyllum* Rachis Suggest a Potential Problem for Wildlife

Camille Darby
Environmental Sciences Program,
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431
acdarby@yahoo.com
and
Liz R. McKercher
University of Florida, Fort Lauderdale
Research and Education Center,
3205 College Avenue
Davie, FL 33314

A very interesting and slightly grisly discovery was made while conducting vegetation surveys for my graduate research project. My project compares the ant diversity on tree islands with and without *Lygodium microphyllum* and is taking place in the Arthur R. Marshall Loxahatchee National Wildlife Refuge. On 1 March 2002, we were sampling vegetation on island L5 (N 26° 35.172, W 80° 20.357), which has a heavy *Lygodium* infestation, when we discovered a partial skeleton wrapped in *Lygodium* rachis. The ball of rachis and bones was located on the southern edge of the island and appeared to include a major joint, such as a ball and socket joint, of a mammal. We cut the ball of bones and rachis out of the surrounding rachis and brought it back to the office to take pictures and to identify the animal. The entire ball is approximately 38cm long and 18cm wide.

Dr. Jon Moore, a professor of Biology at Florida Atlantic University in Jupiter, Florida, tentatively identified the bones as the humerus, ulna, radius, and some carpal bones of an adult white-tailed deer. He also noted that the bones were broken apart and had small tooth marks on them, suggesting that they were scavenged after death.

Although we will never know exactly what happened to this deer, we have heard several theories from various biologists and would like to comment on these theories and present some of our own. The bones are tightly rolled up in the rachis, which suggests that the animal was caught in the rachis, not that the rachis grew around the bones after death. We believe the deer became entangled in the rachis and either rolled itself up in its struggle to get free, or was rolled up in the rachis by a predator. One person theorized that an alligator caught the deer and went into a death roll, which is a possibility considering the location of the bones at the edge of the island and within grasp of an alligator. The shoulder and leg of the animal were probably left behind because they were thoroughly entangled in the *Lygodium* and were later scavenged by an animal more adept at pulling the bones from the *Lygodium*. The tooth marks noted by Dr. Moore are small, probably belonging to a raccoon or similar sized scavenger.

According to our theories on how these white-tailed deer bones became entangled, the presence of heavy *Lygodium* infestations may be a hazard to wildlife. Thick layers of *Lygodium* forming "curtains" and "mats" in typically open vegetation impede the movement of people and most certainly of wildlife as well. Our discovery of white-tailed deer bones encircled by *Lygodium* suggests that the climbing vine played a role in the death of the animal, and that it is a threat to wildlife.

PLAN TO ATTEND!

the
FL EPPC 2002 ANNUAL SYMPOSIUM
SEBRING, FL - KENILWORTH LODGE
17 THROUGH 19 SEPTEMBER 2002

Built in 1916 and listed on the National Register of Historic Places, the beautiful Kenilworth Lodge is situated on the shores of Lake Jackson in Sebring, Florida. Contact the Kenilworth Lodge at 836 Lakeview Drive, Sebring, FL 33870, 863-385-0111, E-mail: madgekwl@strato.net WWW: http://www.kenlodge.com/

Join us at this informative symposium for:

- Natural Area Weed Management certification training/testing
- Presentations of the latest research on exotic pest plants
- Posters and Exhibits
- Field Trips to Bok Tower Gardens; Highlands Hammock State Park; Archbold Biological Station; Kissimmee Prairie State Preserve
- Reception and Banquet (*live music!*)

For program information, contact
Randall Stocker, UF – Center for Aquatic & Invasive Plants, 7922 NW 71st Street, Gainesville, FL 32606, 352-392-9613, aqplants@mail.ifas.ufl.edu

For information on local arrangements, contact
Phillip Waller, 6651 Englelake Drive, Lakeland, FL 33813, 863-619-6255, wallerp@basf.com

For vendor information, contact
Brad Cochran, 1612 Parker Point Blvd., Odessa, FL 33556, 813-926-4967, bdcochran@dowagro.com

Check the FLEPPC web site for the latest information:
www.fleppc.org

Hope to see you there!

Best Wishes Nancy Coile

Nancy Craft Coile will be retiring from the Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS) on July 31st, after eleven years of service to the citizens (and flora) of Florida. Nancy's career in botany has been diverse, and dedicated to the flora of the southeastern United States.

After getting her daughter and son into school, Nancy began working as a technician at the University of Georgia Herbarium in 1973. While at the University, Nancy completed both a Master's degree and a Ph.D. in botany. Nancy has held the positions of Curator of the University of Georgia Herbarium, and faculty member of the Biology Department at North Georgia College (NGC) in Dahlonega, GA. At NGC, Nancy realized that she missed working with plants and left for a position with the FDACS.

For the past eleven years, Nancy has served as Botanical Administrator with the FDACS Division of Plant Industry. Her duties have included working with endangered plant species and noxious weeds, providing nomenclatural support for DPI nursery inspectors, conducting biodiversity studies, and a range of other projects having to do with the green plants that she so enjoys. Nancy has been a member of the FLEPPC Plant List Committee for the past six years and has served the council in a variety of roles, including serving as a source of invasive plant identification assistance both within and outside of the FDACS. Nancy has also served as both an Executive Committee Member and Association Secretary with the Association of Southeastern Biologists; Editorial Board member of CASTANEA; and President of the Southern Appalachian Botanical Society.

Nancy's interests include plant taxonomy, entomology, conservation and education, and most importantly, her four brilliant and beautiful granddaughters and her outstanding and handsome grandson. In addition to spending more time with her grandchildren, Nancy's retirement plans include gardening, knitting (for her grandkids of course), becoming a quilting wanna-be, and working on the background information for a book project she is considering. Nancy and her husband, Robert Coile, plan to be "modified snowbirds," maintaining their home in Florida, and enjoying the "glorious" spring seasons at their home in Athens, GA. Please join us in wishing Nancy the best that life can offer as she embarks upon the much-envied adventure of retirement.

Nancy Craft Coile

- Andrea Van Loan

Request For Proposals

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

The deadline for proposal submission is September 2, 2002. Written proposals should be no more than three pages in length and should request funding for no more than $1,500. The proposal should include a summary of the research project and its relationship with Florida exotic plant management problems. Particular plant species involved in the study should be one or more of the Category I or Category II exotic pest species listed by FLEPPC (see web site: www.fleppc.org). In addition, the applicant should provide complete contact information and budget -- with an explanation of how the funding will be used. Examples include (but are not limited to) travel funds for field work, funds for research equipment or supplies (or temporary use of specialized equipment), stipend for applicant's project work time not otherwise supported, travel funds for presentation of the research, etc. In developing the budget, funds requested are to be used for the direct costs of conducting research on the proposed project and are not to be used for indirect costs incurred by the student's university.

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

Basic eligibility requirements:

To be eligible for funding, applicants must be an undergraduate or graduate student enrolled at an accredited institution of higher learning anywhere within the United States. However, the research must be conducted within Florida. An accompanying letter of recommendation from a faculty advisor is strongly encouraged.

Proposal are due by 5:00 p.m. 9/2/02. Send proposals by e-mail, fax, or mail to:

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

Southeast EPPC Update

Brian Bowen
SE-EPPC President
Brian.Bowen@state.tn.us

Some fairly significant changes resulted from the 2002 Spring Board meeting in Nashville. Perhaps most important was the elimination of the SE-EPPC coordinator position and the election of new officers. In terminating the coordinator position, my role shifted from serving as coordinator to becoming the newly elected president. Since SE-EPPC's inception in 1998, the coordinator's role was to develop the organization's structure and respond to administrative needs. We have moved forward on various fronts since then, including gaining recognition by the IRS as a group exempt non-profit organization, developing our website and newsletter, establishing new state chapters in Kentucky, North Carolina, Georgia, and Mississippi, and hosting annual symposia in Oak Ridge, Chapel Hill, Athens, and Nashville. We are now in a position to operate on a trial basis without the support of this part time position. As my role changes from coordinator to president, I hope to provide the leadership to make SE-EPPC a better and stronger organization. Here are some of the organization changes:

Newsletter

After some debate and much deliberation, the Board agreed to cease publication of its quarterly newsletter, *Southeast EPPC News*. Instead SE-EPPC will utilize *Wildland Weeds* to submit pertinent information, articles, and updates of interest to its members. It was decided that our resources could not support dual publications and that as an organization, we want to maximize our efforts and avoid duplication. This decision also will eliminate the FL EPPC annual contribution of $5\member to SE-EPPC for printing and mailing newsletters. The same membership fee from other SE-EPPC state chapters and individuals, however, will be maintained and directed to offset expenses associated with the printing and mailing of *Wildland Weeds* to non-Florida EPPC members. In this transition, it is hoped that *Wildland Weeds* will evolve to be more of a regional publication.

Electronic updates

I will propose at our next Board meeting that we establish and maintain a membership email database that would enable us to provide electronic SE-EPPC news updates on a regular basis. This would serve as a quasi-electronic newsletter but be limited to a "word" document format. Our membership committee chair, Carrie Miller, has indicated a willingness to try to maintain this database with the assistance of state chapters. If approved by the Board, you should receive a mailing soliciting your email address.

Webpage improvements

As a regional organization we hope to rely more heavily on our website at www.se-eppc.org. Improvements to the webpage should keep members current and provide links and access to information sources. If you haven't visited the webpage, please do so. You will find that each state chapter has its own site on the webpage. The hope and expectation is that each state chapter will soon have someone responsible for their site. We have developed a standard format for state chapter sites. A goal is to make each site as interactive and easy to update as possible. Webpage maintenance has largely been the job of the SE-EPPC coordinator working with Chuck Bargeron, our webmaster.

State Chapters

This is an important focus that will receive more attention at our summer Board meeting. There is interest in developing new state chapters in Alabama and Virginia. Our next Board meeting is July 19 at the Birmingham Botanical Gardens. The meeting will include a morning session focusing on establishing state chapters with key people from Alabama attending. We also will be looking at requirements for participation in SE-EPPC and how SE-EPPC will be structured to make sure those requirements are being met, both in mission and to meet IRS obligations.

Virginia is also demonstrating interest in developing a state chapter. This is especially interesting because we have Virginia representation on the SE-EPPC Board and a number of individuals from Virginia belong to SE-EPPC. Virginia already participates in the Mid-Atlantic EPPC that is structured as a regional organization without state chapters. In talking with Virginia folks it appears that a state chapter might provide cohesion at the state level where statewide initiatives might be tackled. An idea that seems appealing is to develop a state chapter that would be affiliated under SE-EPPC and have joint representation with Mid-Atlantic-EPPC

Individuals are members

Individuals are members and it doesn't matter if you live in a state with or without a state chapter. When you pay your annual membership dues to either SE-EPPC or to your state chapter, you become a SE-EPPC member. SE-EPPC has a membership base of over 600 members, with 571 members living where there are state chapters. The idea is that new membership growth in states without state chapters will reach a threshold to create enough energy and commitment to begin the process of establishing a state chapter. SE-EPPC should be the engine that fosters that development. Something that we have learned, however, is that there has to be a strong interest and a willingness by a core group of people in the state to make it work. We will ask the SE-EPPC BOD and current members to assist in helping new chapters get established and provide assistance to fledgling state chapters.

Focusing on our mission

We have undergone some growing pains and are ready to improve our structure and develop sound goals. We have reconfigured the Board structure

and made changes to our bylaws to improve how we conduct business. For continued growth, it is essential that state chapters satisfy their bylaw requirements and meet their IRS non-profit obligations. This will be required to be recognized as a SE-EPPC non-profit organization. In addition, it is important to see SE-EPPC establish tangible goals that can be translated into actions that ultimately help stop the continued introduction of invasive exotic pest plants and facilitates controlling invasive exotic pest plants in natural areas.

Notes from the symposium

So many thanks go out to the TN-EPPC for successfully hosting an excellent symposium (see *Wildland Weeds*, Summer 2002). While the books have not been closed, I can happily report that it was financially a successful event with sponsorship revenues reaching over $10,000. The total revenue over expenses for the symposium is well in excess of this amount. Next year's conference will be hosted by KY-EPPC and will be held in Lexington. We hope to see many of you there.

North Carolina EPPC Really Exists

Dick Bir
NC-EPPC President
Dick_Bir@ncsu.edu

While folks from North Carolina have attended Exotic Pest Plant Council meetings in other states, an official NC-EPPC had just been in the formative stages for the past few years. We gathered information from other EPPCs and have been taking steps such as writing by laws and establishing our purposes under the leadership of Gene Cross from the NC Department of Agriculture. One of our objectives from the outset was to encourage participation by the diversity of interests impacted by invasive plants. We wanted the many points of view on the subject of invasive exotic plants considered for the benefit of all North Carolinians.

On March 21, 2002 the North Carolina Chapter of the Exotic Pest Plant Council officially came into existence. In general, the purposes of the Council are to:

- Provide a focus for issues and concerns regarding exotic pest plants in North Carolina
- Facilitate communication and the exchange of information regarding all aspects of exotic pest plant control and management
- Provide a forum where all interested parties may participate in meetings and share in the benefits from the information generated by the Council
- Promote public understanding regarding exotic pest plants and their control
- Serve as an advisory council regarding funding, research, management, and control of exotic pest plants
- Facilitate action campaigns to monitor and control exotic pest plants in North Carolina
- Review incipient and potential pest plant management problems and activities and provide relevant information to interested parties

The board consists of:

Arboreta – **Alison Arnold**, The North Carolina Arboretum
Citizen – **Jeff Birk**
Conservation – **Kim Douglas**, Triangle Land Conservancy
Government – **Jame Amoroso**, NC Natural Heritage Program
Nursery Industry – **Rick Crowder**, Hawksridge Farms
Landscape Industry – **Tom Suddreth**, UNC – Chapel Hill

Officers are:

President – **Dick Bir**, NC State University
Vice President – **Johnny Randall**, NC Botanical Garden
Secretary – **Ann Gill**, Mecklenburg County
Treasurer – **Steve Manning**, Invasive Plant Control, Inc.

Internodes

Publications:

Native Plants Journal, http://nativeplants.for.uidaho.edu/

"Native Plants Journal is a cooperative effort of the USDA Forest Service and the University of Idaho, with assistance from the USDA Agricultural Research Service and the Natural Resources Conservation Service. Our goal is to provide technical and practical information on the growing and planting of North American (Canada, US, and Mexico) native plants for restoration, conservation, reforestation, landscaping, roadsides, and so on. Our first issue was printed in January 2000.

We need contributions from scientists, academics, field personnel, nursery managers, and others concerning all aspects of growing and planting native plants. Papers are published either refereed or general technical. Please contact Kas Dumroese (kdumroese@fs.fed.us) if you have a contribution."

Graduating Students:

Congratulations to the following students who recently completed their graduate studies on exotic pest plants:

Hillary Cherry, 2002, Master's Degree, University of Florida, Botany, "Ecophysiology and control of *Nandina domestica* Thunb." Major Professor: Stephen Mulkey.

***Dan Clark**, 2002, Master's Degree, University of Florida, Agronomy, "The effect of old world climbing fern (*Lygodium microphyllum* (Cav.) R. Brown) on south Florida cypress (*Taxodium distichum* (L.) Rich.) swamp plant and insect community structure." Major Professor: Randall Stocker.

Gretchen Lindstrom, 2002, Master's Degree, University of Florida, Agronomy, "Life history characteristics of *Ardisia crenata* growing in natural areas in north Florida." Major Professor: Alison Fox.

Jennifer Possley, 2001, Master's Degree, University of Florida, Agronomy, "Ecology of an invasive Florida shrub: *Rhodomyrtus tomentosa* (Ait.) Hassk." Major Professor: Randall Stocker.

***Joy Stewart**, 2002, Master's Degree, Florida Atlantic University, Environmental Sciences, "The distribution of the non-indigenous invasive old world climbing fern, *Lygodium microphyllum*, in southern Florida: the relationship to abiotic and biotic variables." Major Professor: John Volin.

*Recipients of FLEPPC Research Grants/Scholarships. See RFP on page 14.

For fans of **Notes from the Disturbed Edge**, Chapter 6 will appear in the Winter issue. *Ed.*

MARK YOUR CALENDAR

FLEPPC Annual Symposium, **September 17-19, 2002**. Kenilworth Lodge, Sebring, FL. Contact: Randall Stocker (for program information), aqplants@mail.ifas.ufl.edu, 352-392-9613; Phil Waller (local arrangements information), wallerp@basf.com, 863-619-6255: Brad Cochran (vendor information), bdcochran@dowagro.com.

29th Annual Natural Areas Association Conference, **October 2-5, 2002**. "The Power of Nature – The Empowerment of Natural Areas" at the Renaissance Asheville, NC. Contact: Doreen DiCarlo, ddicarlo@ces.fau.edu, www.naturalarea.org/, 561-691-8553.

The Weevil Slam! Peril In Our Treetops, **November 1, 2002**. Dagger Wing Nature Center, Boca Raton, FL. Designed to educate land managers, plant enthusiasts and concerned citizens about the invasive exotic weevil, *Metamasius callizona*, that is wreaking havoc on Florida's native bromeliads. Contact: FLScrubJ@aol.com, floridalove.nposite.org/

16th Annual Meeting, Florida Aquatic Plant Management Society, **November 13-15, 2002**. Adam's Mark Resort, Daytona Beach, FL. Contact: John Rodgers, john.Rodgers@dep.state.fl.us, 813-744-6163.

Detecting & Assessing Invasive Exotic Plants: Approaches for the Florida Landscape, A Conference and Workshop, February 12-14, 2003. Florida International University, Koven's Conference Center, Miami, FL. Contact: R. Monchek, rmonchek@sfrestore.org, www.sfrestore.org/issueteams/exotic/iepda/IEPDAindex.htm

NIWAW IV, the National Invasive Weeds Awareness Week in Washington, DC, will take place **February 24 – 28, 2003**. Information will be posted on the North American Weed Management Association (NAWMA) web site at www.nawma.org/index.html