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Spring 2009, Volume 12, Number 2

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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 Southeast Exotic Pest Plant Council (SE-EPPC) to provide a focus for the issues and for information on exotic pest plant biology, distribution and control.

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On the Cover:

Native strain of common reed (*Phragmites australis*) in Florida. See article, page 7. Photo by Ann Murray, courtesy of University of Florida-IFAS, Center for Aquatic and Invasive Plants.

When is an Acre "Infested"?

Using the FNAI implementation of NAWMA standards to describe invasive plant occurrences

by Frank Price, Florida Natural Areas Inventory

When mapping invasive plants, what counts as an "infestation"? And when should an area be described as "infested"? These questions are the topic of recurring discussions in invasive plant mapping circles so it was no surprise that they recently came up on the Florida Exotic Pest Plant Council (FLEPPC) listserv in mid-February. What was surprising was the excellent multi-agency dialog that the questions stimulated.

The original post phrased the questions:

> ***"Can anyone direct me to a good source for a definition of 'acres infested'?"***
> ***&***
> ***"Is one acre containing one exotic plant considered 'infested'?"***

For the purposes of clarity, and consistency with established mapping standards, the term "infested acres" will be used in place of "acres infested" in this article.

Answering the questions above is essential if estimates of infested acres are to be compared from site to site, from agency to agency or from year to year. A total of 17 answers were received on the FLEPPC list. The respondents represented all levels of government, academic institutions, non-profit organizations and industry and thus offered interesting insight into the current state of invasive plant mapping methods in Florida.

The responses can be roughly classified into three categories. About one third of respondents felt that "infested acres" is an ambiguous term that is defined in many ways, about a third felt that "infested acres" is a useful measure but that a percent cover value must be specified, and the remaining third explicitly stated that they follow North American Weed Management Association (NAWMA) Standards in defining "infested acres." NAWMA Standards have been adopted by numerous state and federal agencies, and invasive plant mapping systems including The Florida Natural Areas Inventory (FNAI) Florida Invasive Plants Geodatabase (FLInv) project, The Nature Conservancy's Weed Information Management System (WIMS), the University of Georgia's Early Detection and Distribution Mapping System (EDDMapS) and, most recently, the cooperative iMapInvasives effort. However, the listserv responses indicate that there is still widespread uncertainty about how the NAWMA Standards can be used to produce repeated, comparable estimates of infested acres.

Many respondents qualified their responses by recognizing that the suitable description of infestations depends on the goal of the user. Site managers often just want to know where invasives are located so they can treat them as efficiently as possible or evaluate how well previous treatments worked. Higher level managers generally want to assess levels of, or changes in, infestation from an agency-wide or statewide perspective. While a census of all invasive plants in the state would meet the needs of all users, it would be too expensive and time consuming. Agency or state level assessments could be served by a systematic statistical sampling design, but this wouldn't give site level managers the information they need to direct or evaluate treatments. For an invasives assessment system to be widely used it must demand a minimum in terms of agency time or resources, it must provide information to land managers on where they need to direct treatment efforts, it must capture the effects of treatments, and it must be able to provide data for large scale evaluations.

The FNAI FLInv Mapping System

The methods developed for the FNAI FLInv project provide an example of how NAWMA standards can be used to estimate infested acres with minimal expense to managing agencies. FNAI has been contracted by the Invasive Plant Management Section of the Florida Fish and Wildlife Conservation Commission to establish a baseline record of invasive plant occurrences on public conservation lands in Florida (the FLInv Geodatabase) and provide a tool for monitoring these occurrences (the FLInv Mapping System). This system can be used by policy makers and land managers to assess the status of invasive plants and set priorities for control efforts. While FNAI conducts invasive plant surveys of public lands where agencies do not have complete data, the goal of the project is to provide a data collection system that managers can use to map invasive plant occurrences themselves. The mapping system consists of a suite of standards, methods and tools designed to facilitate collection and storage of invasive plant data in a standardized format. Land managing agencies often do not have the time or funding available to conduct extensive additional fieldwork so the methods take advantage of existing staff knowledge whenever possible. Depending on the surveyor's goals and technical capabilities, data collection using the FLInv system can range from simple paper maps with large occurrences circled, to detailed surveys in which every patch is mapped using a GPS data logger. At any scale the methods yield information useful at the site level while providing data for statewide or agency-wide evaluations.

Using the FLInv system, users record occurrences of FLEPPC listed Category I and II species using polygons, lines with specified width, or points (for extremely small occurrences) and an associated set of descriptive attributes. Recording occurrences using polygons and lines avoids potential error associated with visually estimating the acreage of large occurrences recorded as points. The descriptive attributes are classified into three tiers. Tier 1 data, the minimum required for a record to be included in the FLInv geodatabase, consists of just a species, a date and a spatial feature which provides location. Tier 2 provides the name of the surveyor who recorded the occurrence and attributes that characterize the spatial characteristics of the occurrence. Tier 3 data includes supplementary but useful information about plant maturity, site access, natural community, disturbance and treatment. The surveying agency and the type and extent of the survey are also recorded.

Defining infested acres following NAWMA standards using the FLInv system

The FLInv data collection system is based on NAWMA standards with a few changes due to the scale of the project and use of GIS. The NAWMA Standards contain two fields describing acreage: Infested Area and Gross Area. They are defined by NAWMA as follows:

GROSS AREA: This field is intended to show general location and population information. Like Infested Area it is the area of land occupied by a weed species. Unlike Infested Area, the area is defined by drawing a line around the general perimeter of the infestation, not the canopy cover of the plants. The gross area may contain significant parcels of land that are not occupied by weeds. Gross area is used in describing large infestations. When a value is entered for gross area, the assumption is that the area within the perimeter of the weed population (area perimeter) is an estimate or the product of calculating the area within a described perimeter. If a value for Gross Area is entered, a value for Infested Area must still be entered. The value for Infested Area is derived by estimating the percentage of land occupied by weed plants.

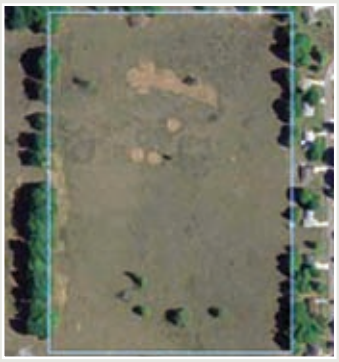
Why is it Useful? It is useful in describing large infestations or discontinuous infestations on the landscape. For larger weed populations it is very time consuming to plot the actual perimeter of the weed population. The increase in accuracy of plotting individual plants may not be enough to compensate for the increase in cost or manpower. An estimate of land area may be sufficient to meet the inventory and treatment requirements.

INFESTED AREA: Area of land containing one weed species. An infested area of land is defined by drawing a line around the actual perimeter of the infestation as defined by the canopy cover of the plants, excluding areas not infested. Areas containing only occasional weed plants per acre do not equal one acre infested.

Why is it Useful? An area of weeds can be defined in many ways and there is little consistency between individuals, counties, states and countries. Is an acre of weeds one weed plant

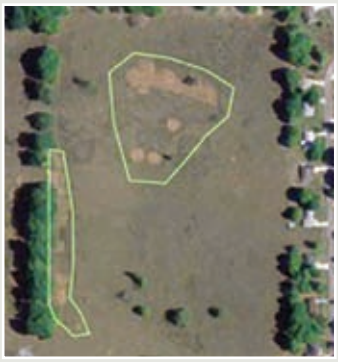
Figure 1. FNAI's implementation of NAWMA guidelines can be used to delineate invasive plant infestations at a variety of scales. The use of Percent Cover classes (equivalent of NAWMA Canopy Cover) allows relatively consistent calculation of infested acres even if Gross Area of an infestation is coarsely delineated.

A field in central Florida with Cogon Grass (*Imperata cylindrica*) near the center and along the southwest edge (2004).



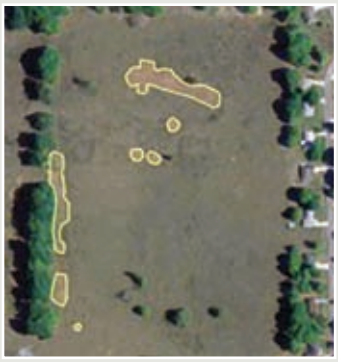
At the lowest level of detail, the infestation can be delineated using one large rectangle (in blue).

Gross Acres *(NAWMA Gross Area)*	24.9
Percent Cover *(NAWMA Canopy Cover)*	5-25%
Infested Acres *(calculated using midpoint of Percent Cover class)*	3.7



At a moderate level of detail, the infestation can be delineated using two separate polygons (in green).

Gross Acres	4.6 total
Percent Cover	26-50%
	51-75%
Infested Acres	2.1



At the highest level of detail, the infestation can be delineated using seven separate polygons (in yellow).

Gross Acres	—
Percent Cover	>75% for all
Infested Acres *(actual)*	3.0

in an acre, an acre covered with weeds or all the lands threatened with invasion from an existing infestation? This definition provides a consistent and common method of describing weed populations. This is the data field that will be used to sum and report weed acres across all ownerships.

Infested Area is a required field in the NAWMA Standards while Gross Area is an optional field. Gross Area can also be thought of as the "area to be worked for treatment" and Infested Area as the "area to be treated." The NAWMA Standards also require the associated field, Canopy Cover, described below.

CANOPY COVER: Canopy cover will be estimated as a percent of the ground covered by foliage of a particular weed species. Cover will be recorded as a numeric value. If inventory procedures include the use of cover classes, such as Daubenmire codes, then the midpoint of the cover class will be entered as the cover value.

Why is it Useful? Canopy cover is a way to estimate the amount or severity of a weed infestation. Area tells you the extent of the population across the landscape. Canopy cover tells how that weed dominates the vegetation within that area. The greater the canopy cover, the more weeds there are.

FNAI incorporates these NAWMA definitions into the FLInv system in the following way:

- Gross Area is stored as acres in a FLInv database field called GrossAcres.
- Canopy Cover is referred to as Percent Cover and is recorded as one of five cover classes in a FLInv database field called PctCover.
- Infested Area can be calculated as the product of Gross Acres and the midpoint of the Percent Cover class.

Figure 1 provides an example of how area delineations at three different levels of detail still provide comparable estimates of infested acres. The accuracy of the infested acres is dependent upon an accurate choice of percent cover. In this example, in comparison with the finest level of assessment, the coarsest level slightly overestimates infested acres and the moderate level underestimates it. However, these differences are likely relatively small from a management perspective compared to the size of the area surveyed.

The FLInv system of delineating infested acreage also offers other benefits. In describing occurrences using Percent Cover, the system simplifies the evaluation of treatment efforts which do not appreciably change the Gross Acres of the occurrence, but do change the Infested Acres. When it is not possible to completely eradicate a species, agencies can assign a Percent Cover range that constitutes maintenance level control. The system also eliminates the need for use of a separation distance to separate areas of occurrence into discrete units that can be tracked over time. Rather than delineating and evaluating change in individual occurrences, managers can evaluate change in an entire area of interest even if occurrences are defined at different times using different levels of detail. When managers are not interested in the area infested with a particular species, but instead with the area containing any listed invasive species, data can be aggregated using GIS to provide this type of estimate. Together, these capabilities allow users of the FLInv system to quickly assess the status of invasive plants in an area and produce estimates of infested acres that suit the needs of a wide array of users at minimal expense.

For more detail on FNAI's implementation of the NAWMA standards please see our invasives webpage at: http://www.fnai.org/invasivespecies.cfm

Please Note: FNAI shares invasive plant data with the Florida Exotic Pest Plant Council (FLEPPC) EDDMapS; if you send data to FNAI, you need not send it to FLEPPC and vice versa. FNAI is available to train staff in invasive plant identification and FLInv data collection methods and to assist with invasive plant surveys on public conservation lands where no invasives data has been collected.

Comments, questions and suggestions are welcome. Please contact FNAI invasives project manager, Frank Price at fprice@fnai.org or (850) 224-8207 ext 210.

Funding for FNAI's FLInv geodatabase project is provided by the Invasive Plant Management Section of the Florida Fish and Wildlife Conservation Commission.

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Phragmites australis (Common Reed), A Looming Threat to Florida Wetlands

by Daniel B. Ward and Colette C. Jacono

The giant grass, *Phragmites australis*, is represented by two native strains in North America — one northern, one along the Gulf Coast. A foreign strain has become well established in northeastern states and is moving southward, with the potential of occupying and severely altering Florida wetlands. A description and history of these native and non-native strains is here provided.

Phragmites australis (Gramineae), or Common Reed, is a large grass of marshlands found in many regions of the United States. It is native to Florida, for it was known to J. K. Small in 1923 (J. NY. Bot. Gard. 29: 189. 1928) in the "wilderness east of Lake Okeechobee" and even earlier by A. W. Chapman (Flora of the Southern United States, ed. 1. 1860) from "deep river marshes near the coast," perhaps from near his Apalachicola home in the central panhandle. It is found in tidal marshes, estuaries, and along canals and streambanks. Though locally it forms dense clones, rarely in the past has the plant been considered a threat to other wetland species in Florida.

In the northeastern states a foreign strain of *Phragmites australis* has become the dominant variant. Its behavior is quite unlike the native plant, forming a monoculture that displaces not only other wetland species but even the native *Phragmites*. But its physical appearance is so similar that only careful observation will disclose which variant is involved. The introduced plant is now appearing in mid- to west-continent and onto the lower Atlantic and Gulf Coast plains. Though the invasive strain seems not yet to be in Florida, for early detection and conservation management it is useful to have an understanding of the present distribution of these grasses, the correct names by which they are known, and the features by which they may be distinguished.

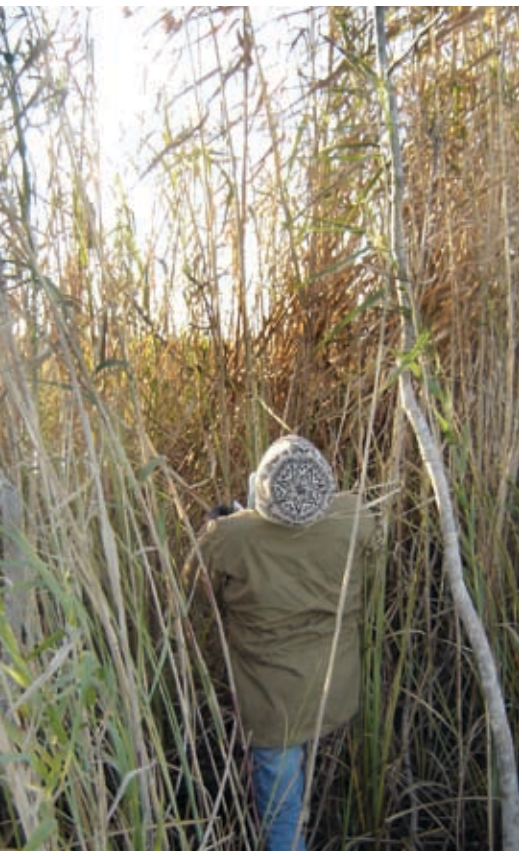
In Florida, *Phagmites* is unevenly distributed within the state. It is a familiar species of fresh to brackish wetlands and coastal bays of the western and central panhandle. Eastward it becomes less frequent, absent from many areas. It is established along canal banks of the lower Suwannee River (Dixie and Levy counties) and in the Matanzas Inlet region of northeastern Florida. In the northern peninsula it occurs along Juniper Run (Marion County), where it grows alongside the giant fern, *Acrostichum danaeifolium*, another salt-tolerant species. Southward, it is found in marshes along the Gulf and on waterfront roadbanks in the upper St. Johns River drainage. In southern Florida it becomes almost common, lining the Okeechobee dikes, Janes Drive in the Fakahatchee Strand, Anhinga Trail in the Everglades, and elsewhere.

Introduced strain of Phragmites *in roadside ditch, Hampton, Virginia. The non-native, invasive strain has slender stems and erect inflorescences. With Forrest S. Ward, November 2008.*

Plants identical to those in Florida extend westward along the Gulf Coast to Texas, along irrigation canals of Arizona, into California, and presumably deep into coastal Mexico. In states immediately to the north, *Phragmites* is largely absent. In Georgia, only a single station has been known, from the southeastern corner. Historically, no *Phragmites* occurred in northern Georgia or the Carolinas, and just a few stations were known in eastern Virginia; only in the marshes of the middle and northern Atlantic states was the plant common. Thus the northern and southern US populations were separated by many miles of seemingly suitable but unoccupied wetlands.

By the 1980s it had become widely recognized that along the northern and middle Atlantic coasts the familiar *Phragmites* had changed its behavior and had become invasive (G. C. Tucker, J. Arnold Arbor. 71: 156-163. 1990). Expanding populations were decreasing the biodiversity of wetlands and creating management problems. But visible morphological features by which the invasive plants could be distinguished were poorly understood. Thus investigators were uncertain whether the observed changes in plant habit and distribution were a function of anthropogenic

Erect, compact inflorescence of introduced, weedy Phragmites. *Hampton, Virginia, November 2008.*



Native Phragmites australis ssp. berlandieri *grows with stunted pumpkin ash* (Fraxinus profunda) *on elevated spoil islands in the lower tidal regions of East Pass, Lower Suwannee River, Florida. November 2008.*

impact (alteration of hydrologic cycles, nutrient loading, or mechanical disturbance in tidal wetlands), or whether they were caused by introduction of a foreign genotype (R. M. Chambers et al., Aquat. Bot. 64: 261-273. 1999).

In 2002 Kristin Saltonstall, completing her graduate studies at Yale University, published on the "cryptic invasion" of a non-native strain of *Phragmites australis* (Proc. Natl. Acad. Sci. 99: 2445-2449. 2002). Based on chloroplast DNA, she identified 27 different haplotypes (identifiably distinct sequences) within 283 modern samples worldwide and 62 herbarium specimens collected in the Northeast before 1910 (the date of the earliest paper mentioning expansion of *Phragmites* populations). In North America, the haplotypes fell into three recognizable groups: 1) a native strain that extended from New England, across the Midwest, to the Pacific Coast; 2) a second native strain thinly spread along the Gulf Coast, including Florida; and 3) a non-native strain dominant in New England and extending southward to South Carolina and disjunct to Louisiana. The non-native North American plant shared many haplotype matches with specimens from Europe, half as many with Asia/Australia, few with North America prior to 1910 or Africa, and none with South America. The Gulf Coast plant had close haplotype affinities with South America, weaker ties with Asia/Australia, and none with Europe or Africa.

Phragmites australis (Cav.) Trin. ex Steud. (*P. communis* Trin., until a nomenclatural revision in the 1960s) has been a familiar species in the northeastern United States and eastern Canada since pioneer days -- and even before, as a staple used by Native Americans for arrow shafts, basketry, cordage, even edible rootstocks and seeds. Most botanists of the Northeast assumed the plant they knew in their local marshes was the same as the southeastern plant known to Small and Chapman. Only a few astute observers suspected the plant of the northeastern marshes differed in some way from the plant native to Europe. In 1930 M. L. Fernald of Harvard visited England, spending a day on the fenlands where *Phragmites* was being harvested for thatch, and became convinced the American plant merited nomenclatural recognition. On his return, Fernald searched for any name given to American plants. He found that in 1877 a French botanist, E. P. Fournier, had named a *Phragmites* from Texas as *Phragmites Berlandieri*. Fernald, apparently without realizing there was a geographic gap in the distribution of the species and that the Texas (and Florida) plant may differ from the northern plant, made the new combination, *P. communis* var. *berlandieri* (Fourn.) Fern., and applied it to his Massachusetts plants (Rhodora 34: 211-212. 1932). This new combination was nearly universally disregarded; almost the only place where it appeared in print was Fernald's own *Gray's Manual, 8th edition* (1950). But Fernald's judgment was correct that the European and the American plants were not the same.

Saltonstall's molecular data strongly support a genetic distinction between *Phragmites* native to northeastern America and the *Phragmites* native along the Gulf Coast. They show a closer similarity between the northern native and the northern introduction. They demonstrate the native Gulf Coast plant to be of South American origin. And they indicate the invasive North American plant was probably of European origin. Saltonstall's logical supposition (2002) was that European *Phragmites* had been early introduced at Atlantic seaports, perhaps with ships' ballast, where it persisted for several decades at low densities, unnoticed because of its similarity to the native strain, before exhibiting the aggressive pattern of spread seen over the past century.

Names have now been proposed to represent the three identified groups: *Phragmites australis* ssp. *americanus* Saltonstall, Peterson & Soreng became the northern native population; ssp. *berlandieri* (Fourn.) Saltonstall & Hauber, the native Gulf Coast population; and ssp. *australis*, the non-native population (K. Saltonstall, P. M. Peterson & R. J. Soreng, Sida 21: 683-692. 2004; K. Saltonstall & D. Hauber, J. Bot. Res. Inst. Texas 1: 385-388. 2007). With a broader perspective, Saltonstall's nomenclature is not certain to remain without challenge. Future study of haplotype diversity elsewhere in the world, and inclusion of the three other taxa presently given specific rank (*P. karka*, *P. mauritianus*, *P. japonicus*), has the potential of significantly reordering the nomenclature of the genus.

Native Phragmites *on bank of canal, Suwannee, Florida. December 2008.*

Culms of native Phragmites*, showing leaf sheaths closely enveloping stem, with blades dehisced.*

Saltonstall's data (2002) are convincing evidence that two native populations exist in North America. Herbarium records demonstrate that these native populations are disjunct, separated by wide geographic gaps. But the non-native strain, in addition to forming monocultures where the native strain once grew with other plant species, has shown the ability to expand into regions never occupied by the native plants. This potential justifies close attention to the present distribution of the introduced strain and the faint morphological markers that permit it to be distinguished from the native Gulf Coast strain.

Saltonstall's keys (2004, 2007) separate ssp. *berlandieri* from ssp. *australis* on a single vegetative character, an observation of the culm: smooth and shiny in ssp. *berlandieri*, or ridged and not shiny in ssp. *australis*. Examination of materials from Florida of the native variant and from the mid-Atlantic region of the non-native variant confirms this distinction. However these materials also suggest that panicle size and form, characters of the leaves, and season of flowering also differ.

A simple key may be used to distinguish these two haplotype strains:

Panicle diffuse and partially drooping; leaf blades of lower stem abscising from leaf sheath by mid-season, lightly scabrous on lower surface; culm smooth and glossy; fall-winter flowering. Native.

…….. *Phragmites australis* ssp. *berlandieri.*

Panicle erect and relatively compact; leaf blades not abscising from sheath, not scabrous; culm minutely ridged and dull; late summer-fall flowering. Introduced.

…….. *Phragmites australis* ssp. *australis.*

Saltonstall's distribution maps (2004, 2007) indicated by shading that ssp. *americanus* extended from the eastern United States and Canada, to the Pacific; ssp. *berlandieri* was mapped as throughout Florida, along the Gulf Coast, and throughout Mexico; and ssp. *australis* presumably occured throughout the entire United States. No rebuke is found with the distribution given for ssp. *americanus* nor ssp. *berlandieri*. But Saltonstall's map of ssp. *australis* does not agree with available data. The geographic gap still persists between the northern native ssp. *americanus* and the Gulf Coast native ssp. *berlandieri*, though it has been narrowed by movement of ssp. *australis* into coastal Virginia, eastern North Carolina, and locally in South Carolina (R. Stalter, Rhodora 77: 159. 1975); ssp. *australis* is also present in quantity in southern Louisiana (D. P. Hauber et al., Plant Syst. Evol. 178: 1-8. 1991).

Saltonstall (pers. comm., Jan 2004) has generously provided the data of her Florida stations. She obtained haplotype determinations from 5 mostly early herbarium specimens, extending the length of the state from Pensacola, Escambia County, to Miami, Dade County; also from 7 modern samples of which 6 were from different locations in Brevard County. She identified all 12 samples as the Gulf Coast haplotype, ssp. *berlandieri*. None of Saltonstall's Florida collections were of ssp. *australis*.

The nearest confirmed approach to Florida of the non-native *Phragmites australis* ssp. *australis* is in the estuaries of the Waccamaw and Santee rivers, eastern South Carolina, and in the marshes of the Mississippi River delta, south of New Orleans, Louisiana. No further records were obtained of its presence in Georgia. And field observation in the present study has failed to find any Florida population that could be assigned to the non-native variant.

The question remains: Does *Phragmites australis* ssp. *australis* occur in Florida, or if not, how close has it come and is it continuing to expand its range southward (or eastward from Louisiana)? The presence of a plant in a given area may be confirmed by observation. But its absence, with anything less than perfect knowledge, is always an assumption. Yet the essentially total obliteration of the native biota from many eastern marshlands where ssp. *australis* has become established makes early detection of the presence of the invasive plant in Florida a critical necessity. It is hoped these observations will alert viewers to closer examination of *Phragmites* whenever it is encountered, and to prompt removal of this non-native strain as an unwanted member of the Florida flora.

The authors wish to thank those persons who have assisted by providing specimens of *Phragmites* or information of its distribution: Forrest S. Ward of Virginia, Robert. L. Wilbur and Alan Weakley of North Carolina, John Nelson of South Carolina, Wendy Zomlefer of Georgia, Keith Clancy of New York, James Burkhalter, Gil Nelson and Angus Gholson of the Florida panhandle, and John Beckner, Keith Bradley, David Hall, Roger Hammer and Vernon V. Vandiver of the central and south peninsula. We also thank Kristin Saltonstall for data supporting her sampling of Florida plants.

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SE-EPPC Strategic Planning Meeting Held

The Board of Directors of the Southeast Exotic Pest Plant Council (SE-EPPC) met for a strategic planning meeting January 13th-14th at the Elachee Nature Science Center in Gainesville, GA. In attendance were SE-EPPC President Chuck Bargeron, Vice President Joyce Bender, Treasurer Lee Patrick, Secretary Kristen Allen, and SE-EPPC Coordinator Brian Bowen. State chapters were represented by: Steve Brewer – Mississippi, Nancy Loewenstein – Alabama, Nancy Fraley – Tennessee, Karen Brown – Florida, Connie Gray and David Moorhead – Georgia, and John Brubaker and Robin Mackie – South Carolina. Representatives from North Carolina were not able to attend. Alix Cleveland, USDA Forest Service and Chris Furqueron, National Park Service attended as agency liaisons.

Representatives from each state summarized their recent activities and upcoming events. Past accomplishments and goals of SE-EPPC, including the Strategic Plan developed in 2005, were reviewed and the strategic planning meeting format and objectives were outlined. Bill Hubbard, the Southern Regional Extension Forester, facilitated the meeting. After four hours of creative brainstorming, the participants created a list of strategic objectives. Objectives were ranked by importance, the rankings pooled, and a priority list was finalized. The group discussed the top issues to determine what courses of action were needed for each objective. The final objectives, listed in order of importance, follow:

SE-EPPC 2009 Strategic Objectives

1. Synthesize and share state EPPC plant listing processes and protocols
2. Identify regional legislative and policy issues
3. Foster development of CWMAs
4. Facilitate interaction and collaboration with other organizations
5. Increase outreach and communication
6. Develop list of potential liaisons to serve on board of directors
7. Foster more interaction with "green industry" (commercial growers)

SE-EPPC Committees

SE-EPPC Plant List Committee: A high priority identified at the January retreat is the need to synthesize and share information about State Invasive Plant Lists. A committee, to be composed of a representative from each state, is being formed to gather information regarding which species are listed, the listing process, listing protocols and how lists are maintained over time. The primary goal of the committee is to make this information readily available to allow for the exchange of information and ideas. A second goal is to determine if some baseline level of criteria for SE-EPPC plant lists should be developed. The intent would not be to standardize lists, as States have different listing objectives and stakeholders, but to assure that certain standards are met. If you have any comments or would like to serve on the committee, please contact Nancy Loewenstein at loewenj@auburn.edu.

The SE-EPPC Coordinator position, held by Brian Bowen, was dissolved for the time being. It was determined that SE-EPPC needs a representative to the National Exotic Pest Plant Council (NAEPPC) and Brian agreed to take up this post. The by-laws were amended to create a SE-EPPC representative to NAEPPC as a voting board member position with a two-year term.

To increase the transparency of decision-making, the Executive Committee was dissolved and all future decisions will be made by a quorum of the board of directors or as directed in the by-laws. Terms for the Secretary and Vice President positions have expired and nominations are needed for the elections at the annual meeting in May. Thanks to Joyce Bender and Kristen Allen for fulfilling these duties.

Overall this was a long and arduous but very worthwhile and productive meeting. Thanks to Cynthia Taylor and the Elachee Nature Science Center staff for hosting the meeting, to Lee Patrick of Invasive Plant Control, Inc. for providing dinner the night of the meeting, to Kristen Allen for recording sixteen pages of minutes, and to all of the attendees.

SE-EPPC Major Activities

- Early Detection & Distribution Mapping System (EDDMapS)
- Annual symposium (co-hosted each year with a different state chapter)
- *Wildland Weeds* magazine
- Regional and state chapter websites
- Representation on National EPPC board
- Representation at annual National Invasive Weed Awareness Week (NIWAW) in Washington, DC
- List serve
- Clearinghouse for publications
- Workshops

We need you!

Committees listed in the 2009 Strategic Objectives are being researched and formed. These include EDRR/EDDMapS, Green Industry Liaison, Outreach and Communication, CWMA Development, Legislative, and Related Organizations Liaison. With all chapters combined, there are almost 900 members in SE-EPPC. ***SE-EPPC is seeking more participation from the membership to serve on, or to chair, committees.*** If you are willing to assist on a committee and would like more information, please contact President Chuck Bargeron at cbargero@uga.edu

www.se-eppc.org

11TH ANNUAL SOUTHEAST EXOTIC PEST PLANT COUNCIL SYMPOSIUM

Creating Sustainable Landscapes for the Future

May 13-15, 2009 Georgetown, South Carolina

The South Carolina Exotic Pest Plant Council will host the 11th Annual SE-EPPC Symposium in coastal Georgetown, South Carolina – May 13-15, 2009. The council has planned two days of compelling speakers, workshops and field trip opportunities.

Continuing Education Units will be offered.

Plenary speakers

Kathy O'Reilly-Doyle, Partners for Fish and Wildlife Program, US Fish and Wildlife Service will discuss how to increase effectiveness and decrease costs by developing partnerships, recruiting motivated people and pooling time, talent and resources with your neighbors in the fight against invasive species.

Jack Whetstone, Belle Baruch, Clemson University, will share how the great ecological diversity in the Georgetown area has led to an influx of visitors, including unwanted exotic invasive plant species ranging from terrestrial to aquatic invaders. Cooperation with multiple public-private funding programs including federal, state, local and private sources combined is necessary to target the control of several exotic plant species on a landscape basis.

Kari Whitley, Scout Horticultural Consulting will talk about plants currently being offered in the nursery industry that are potentially invasive. In addition, Kari will look at the exciting new selection of native plants that are becoming more available in the nursery industry and ways to educate growers, reach legislators, and encourage consumers to plant wisely.

Vendor and Sponsorship Contact:
Brenda Davis brenda-davis@sc.rr.com
General Information:
Robin Mackie rmackie@fs.fed.us
Hotel:
QUALITY INN and SUITES 210 Church Street
Georgetown, SC 29440, 843-546-5656

Four field trip opportunities will be offered to surrounding historic and unique sites.

Hobcaw House

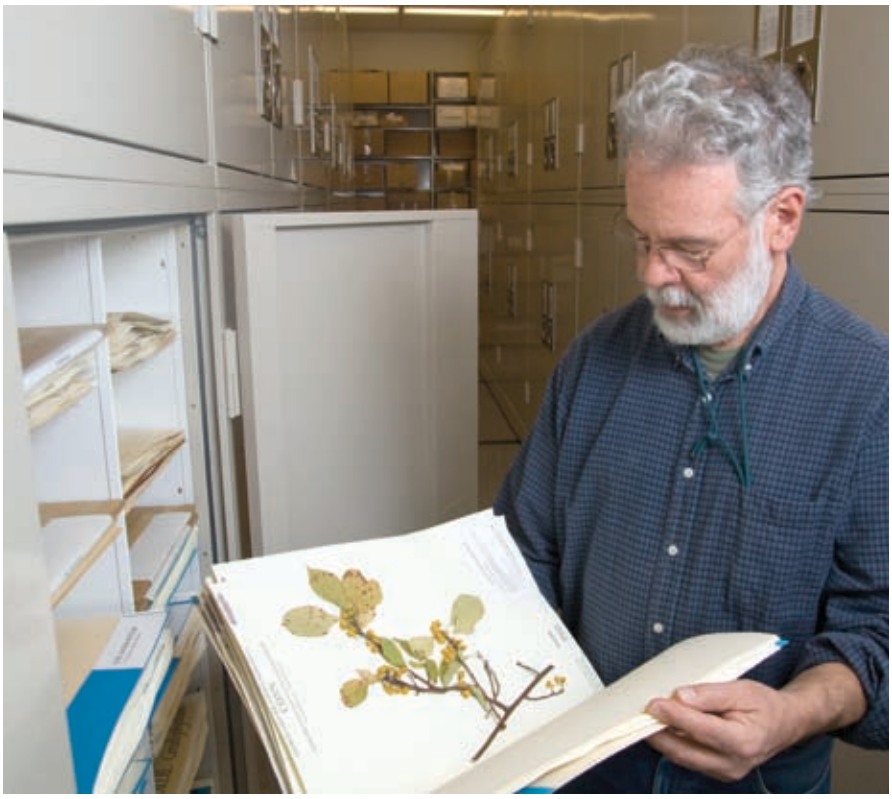
- Belle Baruch and Hobcaw Barony is a 17,500 research reserve and one of the few undeveloped tracts on the Waccamaw Neck, bordering the Waccamaw River, Winyah Bay, and the Atlantic Ocean. Control treatments and strategies will be demonstrated on historic rice field plantations.
- Within the Francis Marion National Forest, visit longleaf pine savannas in addition to hardwood swamps as we traverse habitat for one of the largest populations of the federally endangered red-cockaded woodpecker. Learn about efforts to selectively control Japanese climbing fern and cogongrass.
- Both Hampton Plantation and Mepkin Abbey found their economic glory as rice plantations and today Hampton Plantation is a National Historic Landmark and Mepkin Abbey is a peaceful monastery in the care of Trappist monks. Observe results of treatments to control parasol tree, Chinese wisteria, privet, and native grass restoration efforts at Mepkin Abbey.
- Established in 1932 as a migratory bird refuge, Cape Romain National Wildlife Refuge encompasses a 22-mile segment of the southeast Atlantic coast. The refuge consists of 66,267 acres including a fascinating expanse of barrier islands, salt marshes, long, sandy beaches and maritime forest. Review results of aerial applications to control Chinese tallow.

The symposium will be rounded out by several workshops and concurrent sessions on a variety of issues of importance in the exotic pest plant field. A social and silent auction will take place on Wednesday night and a Lowcountry Boil with live music will take place at Hobcaw House on Thursday evening at Belle Baruch plantation, providing a taste of lowcountry living to complete your visit to historic Georgetown.

Register online at: www.se-eppc.org/2009/

UConn Efforts Help Curb Spread of Invasive Plants in State

by Elizabeth Omara-Otunnu - February 23, 2009



FRANK DAHLMEYER

Leslie Mehrhoff examines invasive plant specimens in the biology collections facility.

You see them in the parking lots of retail chain stores and fast food outlets – neat shrubs with glowing scarlet leaves in fall and bright crimson berries in winter.

Burning bush is beautiful but, as many people now know, it's one of a growing number of invasive plant species that are threatening indigenous ecological systems. In Connecticut, that public awareness owes much to the efforts of UConn's Les Mehrhoff and Donna Ellis.

"Euonymus – burning bush – is planted everywhere," says Mehrhoff, director of the Invasive Plant Atlas of New England (IPANE) in the Ecology and Evolutionary Biology Department. "There's not a McDonald's or Burger King without them. The plant's a money maker – it's easily grown, resists pests, and it's beautiful."

The problem is that birds love the fruits, which are high in energy and fats. They fly off and spread the seeds, and now the plant is growing in numerous unmanaged habitats.

GREG TORMEY

Donna Ellis, senior extension educator.

Mehrhoff says he became aware of invasives in the 1990s, while working on endangered species. "I started seeing a lot of habitats being encroached by invasive species," he says.

In 1997, he and Ellis, a senior extension educator in the Plant Science Department, established an advocacy group to focus on the issue. The Connecticut Invasive Plant Working Group (CIPWG) began with about 30 members, including faculty from UConn and other colleges, and representatives of The Nature Conservancy, the Connecticut Agricultural Experiment Station, municipalities, state and federal agencies, and garden clubs. It now has a listserv of more than 500.

UConn is also represented on a state-mandated council, the Invasive Plants Council, a nine-member group that is currently chaired by Professor Mary Musgrave, head of the Plant Science Department.

"There are a lot of people in the state who care," says Mehrhoff.

During the past 10 years, Mehrhoff and Ellis have played a leading role working with these two groups to identify invasive plants, and take action to address the problem.

An official list has been compiled of 96 non-native plants considered invasive or potentially invasive in Connecticut, 81 of which are now banned by law from being sold, purchased, transplanted, or cultivated in the state. These include Japanese barberry, Asiatic bittersweet, purple loosestrife, and other, less showy plants, such as garlic mustard and mile-a-minute vine, newly recognized as invasive.

The work is sometimes controversial. Not everyone agrees on all the species that are invasive, Mehrhoff says. In addition to ecological considerations, there are economic issues at stake. "Some are big money plants for the nursery industry or the aquatic trade," he says. "Some aquatic species are sold in every pet store."

One of the primary reasons efforts in Connecticut have succeeded, according to Mehrhoff, has been the involvement of UConn faculty and staff. "The imprimatur of professionalism and

academics that comes from this work being conducted at the University has been key to its success," he says.

Plant science professor Mark Brand, Ecology and Evolutionary Biology professor John Silander, and others have worked to establish the criteria for labeling a plant as invasive, based on its biology, and to document its occurrence in the state. "If growers see something on the list, they know it's there for a good reason," Mehrhoff says. "There's science behind it."

Although efforts have focused on Connecticut, their scope goes beyond state boundaries. In 2002, Mehrhoff launched the Invasive Plant Atlas of New England, a USDA-funded initiative to track the distribution and spread of more than 100 invasive plant species throughout the region. The Atlas is now part of a virtual network of invasive species programs nationwide.

UConn people are also coordinating efforts to eradicate invasive species, offer alternatives, and spread the word to the public. "We're working with the nursery industry and the public to educate them about the plants on the list," says Ellis.

The Connecticut Invasive Plant Working Group web site (http://www.hort.uconn.edu/CIPWG) includes lists of invasive plants in the state, criteria for identifying them, photographs, legislative information, invasive plant alerts, and information about who to contact with questions. There is also a list of publications, including a management guide to the different types of control appropriate for each species.

In addition, Ellis and Brand are now developing a campus walking tour – both real and virtual – that identifies invasive plant species along the way.

For those species used in horticulture, Ellis helps spread the word about alternatives. "Native plants are becoming more important in the landscape because of their links to wildlife," she says. "Another gardening option is using non-native plants that are not invasive."

UConn researchers Brand and another plant science professor, Yi Li, are developing alternatives to Japanese barberry, cultivars that have similar aesthetic properties but are not invasive.

Mehrhoff and Ellis say it's important to find invasive plants early. "With early detection and rapid response – like in the medical industry – the prognosis becomes much better," says Mehrhoff.

"Even small-scale actions can make a difference," adds Ellis. "At least you're cutting down on the future supply of seeds that can start new plants in other areas."

Mehrhoff says invasive species control can be costly, but the cost of not taking action may be higher. "You can't easily put a monetary value on the loss of native species that are outcompeted by invasive species," he says. "Native biodiversity is our natural heritage. Invasives are changing the integrity of the whole system. We are trying to slow that process and where possible, put a stop to it."

Reprinted from the University of Connecticut Advance — www.advance.uconn.edu

the Florida Exotic Pest Plant Council's 24th Annual Symposium

Weeds of Wrath

May 26-29th, 2009, Delray Beach, Florida

PROGRAM AT A GLANCE

TUESDAY, MAY 26TH

Symposium Early Registration

WEDNESDAY, MAY 27TH

Symposium Registration

Vendor Expo

Keynote Address:
Dr. Joe DiTomaso, University of California, Davis

Session I: Invasive Plants & Biofuels: Taking Root in Florida

Session II: Florida's Invaded Landscape: Updates on mapping and data tracking programs

Session III: Invasive Plant Management Programs

Workshops:

- Creating Invasive Plant Management Plans: Getting Started with Essential Information - Chris Matson, The Nature Coservancy
- Herbicide Resistance in Invasive Plant Management – Dr. Greg MacDonald, University of Florida/IFAS
- Natural Areas Weed Management Preparation Class – Ken Gioeli, University of Florida/IFAS

Poster Session & Evening Social

THURSDAY, MAY 28TH

Vendor Expo

Track 1
Session IV: Cropping up in Florida: Cooperative Invasive Species Management Areas and the Florida Invasive Species Partnership

Session V: Control Strategies for Invasive Plants

Track 2
Session VI & VII: Biological Control Updates

Field Trips

- Loxahatchee National Wildlife Refuge & South Florida Water Management District Herbicide Demonstration Plots
- Delray Oaks Natural Area: A working field trip using GPS
- City of Boca Raton Beachside Parks/Gumbo Limbo Nature Center
- Pondhawk and Yamato Natural Areas

Symposium Banquet

FRIDAY, MAY 29TH

Session VIII: Trials and Tribulations: The Latest on Herbicide Evaluations

FLEPPC Business Meeting

Session IX: Research on Biological Invasions

Natural Area Weed Management Examination

CEUs WILL BE AVAILABLE! REGISTER ONLINE

www.FLEPPC.org

Chemicals and Invasive Weed Control Methods

by Jimmie Cobb, Dow AgroSciences

A recent article in ***Wildland Weeds*** featured efforts to control kudzu without chemicals. ***"Pest control without chemicals"*** is a popular topic in many areas, including organic food production and land management. I think I know what people mean when they use this wording, but in actuality, most pest control methods involve some use of chemicals. Both herbicidal and non-herbicidal control of invasive weeds have their place, and people utilizing either method need to fully understand the impact of the method they decide to use. In this article I want to compare some of these methods, and suggest that all methods be carefully compared before choosing one or more.

MECHANICAL METHODS

Mowers, trimmers, and other mechanical equipment all utilize fuels of some type. All fuels have some environmental impact, and all are toxic chemicals. Manual and mechanical clearing operations typically take more work days to complete, and the extra crew travel can also lead to higher use of fuels (chemicals) for travel to and from the site. Projections for controlling kudzu on relatively open level terrain are as follows: A five- person ground herbicide crew can treat 10 to 15 acres per day, at a labor cost of $60 to $100 an acre; a three-person aerial helicopter crew can treat up to 300 acres in a day if the kudzu is in large blocks in a centrally located place, with an application cost of $40 to $60 an acre. Herbicide costs would be an additional $25 to $85 an acre, depending on the site. Data provided by the Kudzu Coalition (www.kokudzu.com) show that a skid steer loader can clear one acre in twelve hours, at a cost of $1,200 per acre, if volunteer labor and equipment is not available. Hand clearing is ten times slower than a skid steer. The necessity for retreatment of regrowth should be factored into costs in all control methods.

Mechanical equipment from chainsaws to bulldozers uses many chemicals, including gasoline, diesel, hydraulic fluids, and lubricating oils. Reading an MSDS for chainsaw bar oil reveals it contains potentially carcinogenic compounds; environmental or toxicological data is usually not provided. The toxicity of gasoline is many times higher than many herbicides recommended for kudzu. More gas will be used per acre to mechanically clear kudzu than will be used to spray with herbicides. Compared to gasoline, diesel is less acutely toxic, more in the range of common herbicides. Potential greenhouse gas impacts are another consideration when using fuel.

A study by the Swedish Board of Occupational Safety and Health[(1)] showed that workers and the environment are exposed to carcinogenic and poisonous gases from an average of 14 liters of fuel per hectare. They found mechanical clearing operations deposited an average of 7 liters/ha of minimally tested fuels and lubricants unburned through the exhaust. They also found that chainsaw bar oil remains in the soil for up to ten years.

While many mechanical methods can remove kudzu with minimal soil disturbance, some can expose and disturb the soil. Using data from agricultural fields as a comparison, plowed fields can erode over 12 tons of soil per acre per year, where reduced tillage fields with 93% vegetative cover lose 0.3 tons per acre per year. The soil loss from high soil disturbance methods and the pollution they cause make them environmentally unacceptable and not sustainable.

PLASTIC SHEETING

Polyethylene sheeting is a weed control method employed to kill kudzu and other weeds, and is often recommended by organic growers for general weed control. Polyethylene is not organic; it is a chemical derived from oil or natural gas, it is not biodegradable, and there is no positive data available on environmental or toxicological effects. Its use will raise soil temperatures by 10 degrees C or more, resulting in potentially negative effects to desirable soil flora and fauna. The MSDS for polyethylene states: "Degrades very slowly and may become a nuisance."

To cover one acre of kudzu or others weeds with 6 mil polyethylene sheeting would take 1,329 pounds of plastic costing more than $2,000 dollars for the material alone. Many kudzu patches can be controlled with five pounds of herbicide active ingredient per acre; weeds can be controlled in mulch beds with less than a pound of herbicide per year. Also, the herbicides' toxicological and environmental effects have been well studied, while much less is known about the environmental impact of polyethylene sheeting. Re-using the plastic and not leaving it on site would reduce its environmental impact.

GRAZING

Another kudzu control method is grazing with goats and sheep. As soon as the animals are removed, take off your shoes and go for a stroll in the grazed area. What's that between your toes, and what is that smell burning your nostrils? Will what you see and smell get into a creek? Is the soil trampled and compacted; has any desirable vegetation been eaten?

WEED BURNERS

Propane weed burners have been tried by workers in specialized areas, and are often recommended widely by the organic community. I think most readers can visualize the many potential hazards and drawbacks from this method. Propane is a chemical not produced by "organic" methods. It contains radioactive elements including radon, lead, polonium, and bismuth. Spot or broadcast burning kudzu or other weeds is often effective in a control program, but burning contributes to pollution and releases many chemicals into the environment that may be either beneficial or harmful.

continued on page 20

Cogongrass Awareness in Georgia

by Dave Moorhead, Center for Invasive Species & Ecosystem Health, University of Georgia

This spring, partners in Georgia's statewide Cogongrass Cooperative Weed Management Area will begin highlighting the impacts and threats that cogongrass (*Imperata cylindrica*) poses in the state. Spearheaded by the Georgia Forestry Commission, the Cogongrass CWMA was formed in May of 2008 and is comprised of 22 state, federal and NGO partners in Georgia. Utilizing the spring bloom period as a means to identify infestations, training programs and public service announcements will be used throughout the state to help identify new populations and inform residents on ways to prevent introductions and spread. Building public awareness and finding infestations when they are small is critical as the Georgia Forestry Commission is treating all cogongrass infestations at no charge to the landowner. This innovative program is helping to stem the spread of this invasive grass.

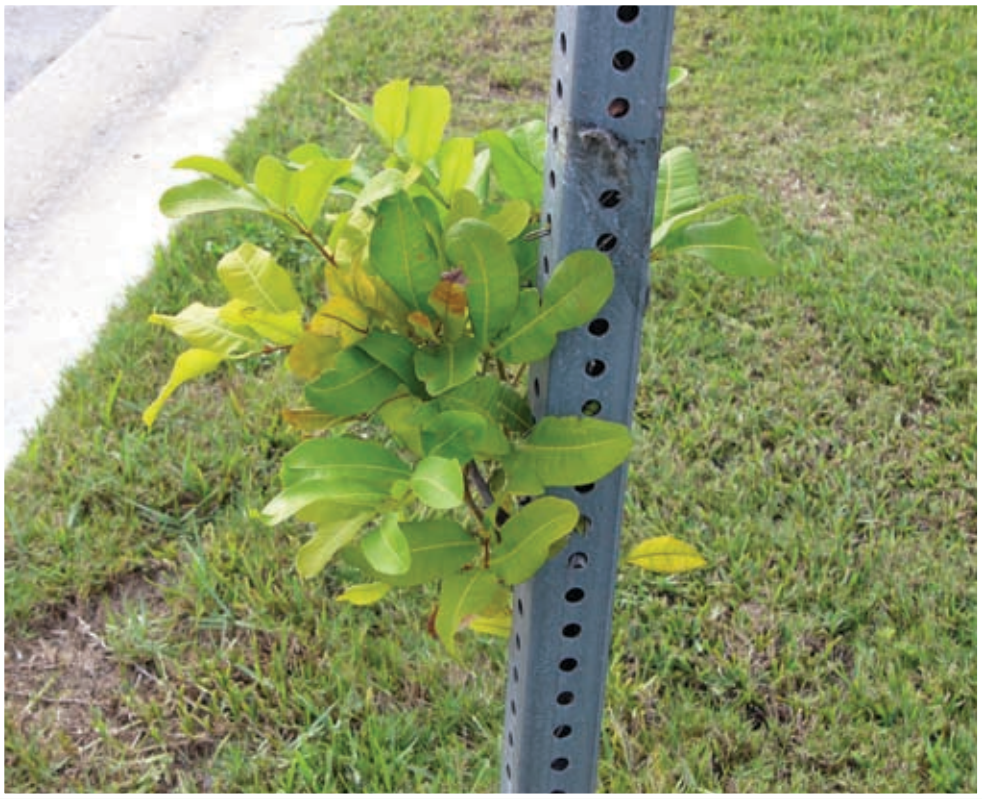
Spread along highways and rights-of-way has been shown to be a factor in the movement of cogongrass. In past years, the Georgia Forestry Commission (GFC) along with the Center for Invasive Species and Ecosystem Health at the University of Georgia (Center) have provided training to state highway crews as part of an early detection program and to establish protocols to prevent spread from mowing, grading and other routine maintenance activities along the state's major highways. County road crews also are receiving this training. With 159 counties in the state, this can be a time-consuming task. Working with County Extension Agents and county GFC Rangers, the Center will be conducting county training sessions again this spring. Many of the counties in the southwestern portion of Georgia, where cogongrass pressure is greatest, received road crew training last spring. Resources including a narrated presentation and a PowerPoint™ presentation are available on www.cogongrass.org for Agents and Rangers to conduct the program in their counties as well. This program is supported in part by Stripling Inc. from Camilla, GA.

Building public awareness and finding infestations when they are small is critical as the Georgia Forestry Commission is treating all cogongrass infestations at no charge to the landowner.

Another important development in Georgia is the explicit ban by the Georgia Department of Agriculture on importing any *Imperata* varieties that were being sold in the ornamental market. The new regulations are specified in the update of the National Plant Board www.nationalplantboard.org/docs/georgia.doc. Now all plants listed on the Federal Noxious Weed List are prohibited from sale or distribution in Georgia. This includes varieties of *Imperata cylindrica* (e.g. 'Japanese Bloodgrass,' 'Red Baron').

For more details on Georgia's cogongrass efforts visit www.cogongrass.org.

Dave Moorhead, Ph.D., Professor – Silviculture, Co-Director, Center for Invasive Species & Ecosystem Health, Warnell School of Forestry & Natural Resources, University of Georgia, Tifton, GA 31793, (229)386-3298, moorhead@uga.edu



Carrotwood!

Carrotwood (*Cupaniopsis anacardioides*) is shown here sprouting from a road sign in Sarasota, Florida. Carrotwood is a FLEPPC Category I species occurring in central and south Florida. It is listed as a noxious weed by the Florida Department of Agriculture and Consumer Services. Photo by Tim O'Neill, Cheltec, Inc., Sarasota, FL.

A land manager should consider all available options for efficacy in achieving the desired result: worker safety, environmental safety, non-target impacts, and finally, the cost of the method.

WORKER SAFETY

Aside from environmental impacts, another important area to consider is the safety of workers using herbicidal vs. non-herbicidal control methods. A study in Ontario[2] found that manual weed control had an accident rate 24 times that of ground herbicide application, with 60 times more work days lost. Workmen's compensation rates in the US for manual or mechanical brush clearing are many times higher than herbicide applicators, with rate differentials of eight times or more[3]. Many other studies conducted in the US and Canada point to higher injury rates in mechanical and manual brush and weed control.

VOLUNTEER LABOR

Some land managers may control weeds using volunteer labor. Training all volunteers to use herbicides instead of manual methods would not be practical, but core volunteers who have the knowledge and skills could be trained to safely use herbicides in one day. Volunteers using the proper herbicide and backpack sprayers can treat a lot more acres than those using manual methods.

Unless there is an overriding reason to rule out a particular invasive weed control method, it is worth taking the time to consider the total economic and environmental costs of the different treatment methods available, including herbicides. A land manager should carefully weigh efficacy with worker safety, environmental safety, non-target impacts, and finally, the cost of the method. Due to economic and environmental concerns, the amount of fuel needed per acre for each treatment method should be considered. Ruling out herbicides without examining all these issues might be a necessary philosophical or political decision in some cases. Managers must be aware of public opinion and communicate to the public the costs, risks, and benefits of different treatment types.

I hope this discussion has raised some points of interest. When looking at ways to control weeds, be sure to consider all the options.

(1) Taylor, L. "Environmental and Economic Implications of Vegetation Management." A presentation made to the Canadian Pulp and Paper Association Annual Forum, Alberta, Canada, April 6, 1994.

(2) Howard, C. 1992. Field worker injury in vegetation management programs. Can. For. Serv., Sault Ste Marie, Ont., For. Pest Mgmt. Inst. Newsletter 10(1).

(3) State of Missouri Table of Workmen's Compensation Rates.

Jimmie Cobb, Forestry & IVM Sales Specialist, Dow AgroSciences, 334-887-2803, www.vegetationmgmt.com

Internodes

Mark Your Calendar

- 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
- 16th International Conference on Aquatic Invasive Species (ICAIS), April 19-23, 2009. Montreal, Canada. www.icais.org
- NY Biological Invasions Conference, New York Invasive Species Research Institute, Odum Conference 2009, Rensselaerville, NY. April 30-May 1, 2009. http://nyisri.org/Odum.aspx
- University of Florida-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/
- 7th Annual Alabama Invasive Plant Council (ALIPC) Conference, *Invasive Plant Impacts on Sustainability*, Birmingham Botanical Gardens, Birmingham, AL. May 5, 2009. http://www.se-eppc.org/alabama/
- 11th Annual Southeast Exotic Pest Plant Council (SE-EPPC) Symposium hosted by the South Carolina EPPC (SC-EPPC), *Creating Sustainable Landscapes for the Future,* Georgetown, SC. 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,* West Palm Beach, FL. May 21-24, 2009. www.fnps.org
- 24th Annual Symposium, Florida Exotic Pest Plant Council, *The Weeds of Wrath*, Delray Beach, FL. May 26-29, 2009. http://www.fleppc.org/Symposium/2009/
- Aquatic Plant Management Society Conference, Milwaukee, WI. The APMS has a strong ethic of student support and qualified attendees will be provided room accommodations and waiver of registration fees. July 12-15, 2009. www.apms.org
- Mid-Atlantic Exotic Pest Plant Council in cooperation with the Morris Arboretum of the University of Pennsylvania, *Complicating Factors in Invasive Plant Management – Circumstances Beyond Our Control?* University of Pittsburgh-Johnstown Campus, PA. August 11-12, 2009. www.ma-eppc.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
- 19th Conference of the Society for Ecological Restoration International, *"Making Change in a Changing World."* Perth, Australia. August 23-27, 2009. http://www.ser.org/
- 12th European Weed Research Society (EWRS) International Symposium on Aquatic Weeds. Jyväskylä, Finland. August 24-28, 2009. invasive-plants@ewrs.org or http://www.ewrs.org/ewrs-iw.htm
- 2009 ICOET International Conference on Ecology & Transportation, *Adapting to Change*, September 13-17, 2009, Duluth, MN. "The 2009 ICOET conference needs to hear more about the vegetation (native and/or invasives), pollinators, migratory birds, and climate change research that is being done on, OR applies to, highway corridors." www.icoet.net
- 36th Natural Areas Conference, *Living on the Edge: Why Natural Areas Matter*, Vancouver, WA. September 15-18, 2009. www.naturalarea.org
- 2009 North American Weed Management Association (NAWMA) Conference, *Response to the Riparian Invasion*. Kearney, NE. September 21-24, 2009. www.nawma.org.
- International Congress on Biological Invasions, *Managing Biological Invasions Under Global Change*, Fuzhou, China. November 2-6, 2009. http://61.154.14.15/icbi2009/default.htm

Websites

Managing Invasive Plants: Concepts, Principles, and Practices. The Center for Invasive Plant Management (CIPM) announced the second of two learning websites developed for the US Fish and Wildlife Service National Wildlife Refuge System and other natural resource managers. The website provides an overview of invasive plant management supported by case studies, quizzes, scientific literature, and web-based resources. http://www.fws.gov/invasives/staffTrainingModule/index.html

Snail Busters!
The Snail Busters Blog was created to facilitate communication between aquatic resource managers who are fighting the spread of invasive South American apple snails, specifically *Pomacea insularum* and *P. canaliculata*, in the U.S. http://snailbusters.wordpress.com/

The mission of the *Center for Invasive Species and Ecosystem Health (CISEH)* at the University of Georgia is to serve a lead role in the development, consolidation and dissemination of information and programs focused on invasive species, forest health, and natural resource and agricultural management. Their mission is being accomplished using technology development, program implementation, training, applied research and public awareness at the state, regional, national and international levels. This is a broad mission but the CISEH folks have it covered as evidenced by their newly refurbished and well-populated website (already well-known as The Bugwood Network), which features literally thousands of photographs and extensive information on plants, trees, insects, pathogens, and other species. They are also now hosting *The Nature Conservancy Global Invasive Species Team* website since that program recently lost support. In addition, there is information on EDDMapS, EDRR, CISMAs and CWMAs. If you don't know what these things are, check them all out at http://www.invasive.org/

Publications

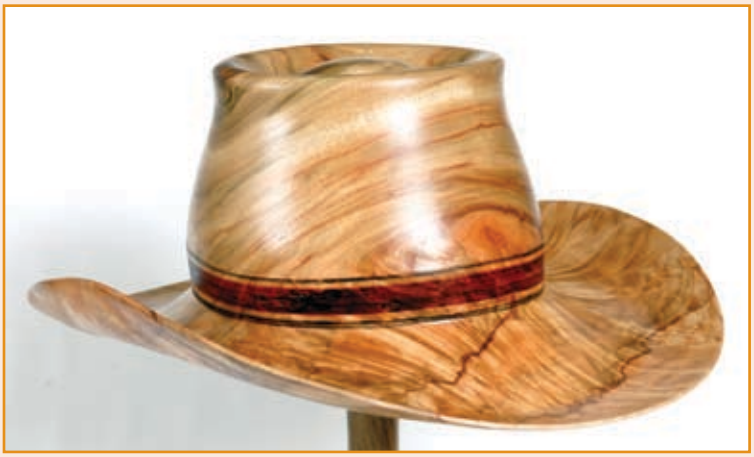
Solitary invasive orchid bee outperforms co-occurring native bees to promote fruit set of an invasive Solanum, by H. Liu and R.W. Pemberton. 2009. Oecologia 159:515-525. "Two new invasive bees in southern Florida, both more specialized than honey bees, are the only pollinators of some invasive weeds and ornamental plants, which they may help naturalize."

Idaho's Official Noxious Weeds, compiled by S. Cox, D. Stafford, S. Rhinger, T. Huttanus. 2008. Idaho State Dept. Agriculture, Boise, 115 pp. Spiral-bound field guide with photographs of seedlings, rosettes, flowers and distribution maps.

Perspectives on the 'alien' versus 'native' species debate: a critique of concepts, language and

Creating a Camphor Cowboy Hat
(from a FLEPPC Category 1 Species)

by Richard Morris



Cowboy hat made from one piece of camphor wood (Cinnamomum camphora) *by Richard Morris, Crystal River, Florida*

Making a wooden cowboy hat starts with a section of tree trunk at least 20" in diameter and 20" long. The wood needs to be fresh cut within a couple of months. The log is cut in half with the grain, from ground to limbs. Each half will make a blank for a hat. From the halves a blank is cut that is 16" in diameter and 8" thick. The reason for the log needing to be oversize is to get away from the heart of the tree which is susceptible to splitting and cracking.

A face plate is screwed onto the blank to allow it to be attached to a lathe. The lathe will spin the wood up to 1200 rpm. The outside of the hat is shaped using hand held lathe chisels while the lathe spins the wood. After the outside is shaped, it is time to turn the inside. A lamp with a 100 watt bulb is placed next to the outside of the brim of the hat. The inside is cut thin by using the light. As the hat gets thinner, light will show through the wood. The light will get brighter and change colors, from red to yellow, as the wood gets thinner. The hats are turned to a thickness of 3/32" wall thickness.

Once the hat is shaped it needs to be sanded to make it smooth. Preliminary sanding is completed before removing the hat from the lathe. The sanding is aided by the lathe spinning the hat. The band color is also added before removing the hat from the lathe. The color is not a dye or stain; it is a piece of wood of different color such as ebony. The ebony is burnished onto the band by pressing the ebony against the hat while spinning at 1200 rpm.

When the hat comes off the lathe, it is round from being turned on the lathe. It needs to be shaped to fit an oval head. The wood is green which allows the hat to be shaped until dry. The hat is placed into a bender and squeezed at the band to force the wood to move into an oval shape. Rubber bands are also applied over the brim to force the sides to roll up. During the next 3 or 4 days the hat will move, bend, and dry. After drying, the hat will not move any more or lose any of its shape. Now the final sanding is done by hand with 400 grit sandpaper. After sanding, a lacquer finish is applied with hand buffing between each coat.

Total processing time is 5 to 6 days. As part of this time is drying time, only about 3 days of work are involved in the process.

See more of Richard's creations at Richard Morris Art: www.richardmorrisart.com

practice, by C.R. Warren. 2007. Progress in Human Geography 31(4):427-446. "... this review suggests that the justification for controlling and eliminating invasive species should not be their time, mode and place of origin but their potential for causing damage."

Invasive Plants Field and Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands, by C.D. Huebner, C. Olson, H.C. Smith. 2007. USDA Forest Service, NA-TP-05-04. Supplements are periodically available, making the organization somewhat awkward. Waterproof paper held together with removable rings. Text includes citations to the scientific literature for each species.

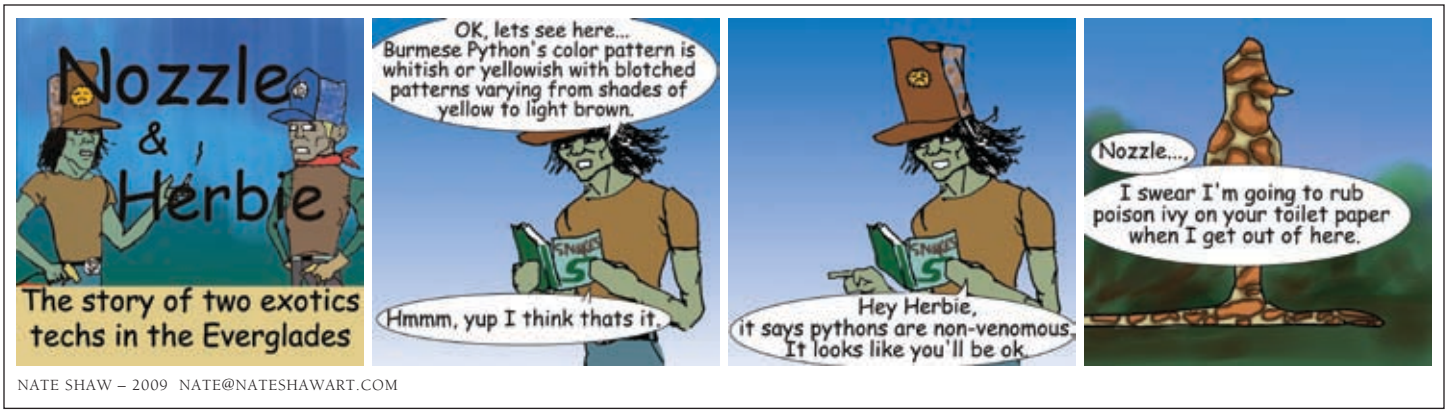
Plant Invasions: Human Perception, Ecological Impacts and Management, edited by B. Tokarska-Guzik, J.H. Brock, G. Brundu, L. Child, C.C. Daehler, and P. Pysek. 2008. Backhuys Publishers, Leiden. 428 pp. www.backhuys.com

Successful range-expanding plants experience less above-ground and below-ground enemy impact, by T. Engelkes, E.Morriën, K.J. F. Verhoeven, T. Martijn Bezemer, et al. 2008. "Here we show that range-expanding plant species from a riverine area were better defended against shoot and root enemies than were related native plant species growing in the same area."

Invasiveness Ranking System for Non-Native Plants of Alaska, by M.L. Carlson, I.V. Lapina, M. Shephard, *et al.* 2008. USDA Forest Service Alaska Region Publ. No. R10-TP-143, 220 pp. Species are ranked based on ecological impacts, biological attributes, distribution, and feasibility of control. http://www.pnw-ipc.org/docs/invasivenessrankingreport.pdf

Maine Field Guide to Invasive Aquatic Plants and their Common Native Look Alikes, by R. Hill and S. Williams. 2007. Maine Center for Invasive Aquatic Plants and the Maine Volunteer Lake Monitoring Program, 146 pp. http://www.mainevolunteerlakemonitors.org. Spiral-bound and printed on waterproof paper, this handy field guide is dedicated to Maine's volunteer lake monitors, the longest standing citizen lake monitoring program in the U.S., and the largest provider of scientific lake data in the State of Maine. http://www.MaineVolunteerLakeMonitors.org/publications/FieldGuide

Model Weed Law Provisions for Management of New Invaders, Rapid Response, And Cost-Effective Allocation of Public Resources: Tiering Noxious Weed Lists to Invasion Stage by P. Rice, University of Montana. 2008.



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"…noxious weed lists tiered to invasion stage can guide allocation of scarce public resources to the management of prioritized noxious weeds, including those species that require a rapid response. www.weedcenter.org/Newsletter/08_12RiceP_final_report(9_08).pdf

The Florida Fish and Wildlife Conservation Commission (FWC) Invasive Plant Management Section's Research Program has established a newsletter to keep resource managers in Florida informed about current FWC contracted research in invasive plant management. It will be published twice a year and disseminated through email as a PDF document. Contact Don Schmitz to receive this newsletter: Don.Schmitz@MyFWC.com

Sustainable Biofuels Redux – Science-based policy is essential for guiding an environmentally sustainable approach to cellulosic biofuels, by G.P. Robertson, V.H. Dale, O.C. Doering, et al. Science magazine, October 3, 2008. www.sciencemag.org

Defending Favorite Places – How Hunters and Anglers Can Stop the Spread of Invasive Species (DVD) — America's hunters and anglers represent an essential stakeholder group in combating invasive species that threaten native fish and wildlife populations and their habitats. This DVD features a 27 minute full length program, a 15 minute short version, a trailer and more. Produced by the USDA Forest Service Invasive Species Program in partnership with many organizations and individuals. For free copies, visit www.fs.fed.us/invasivespecies/

Notes

The AC Moore Herbarium at the University of South Carolina has added a Conservation Status to their plant search database that identifies invasive species in their collection: http://129.252.87.104:8080/ACMoore Herbarium/

The North Carolina Department of Agriculture has officially listed Beach Vitex as a Class B State Noxious Weed! www.beachvitex.org

PowerPoint presentations with audio are available from EDRR programs highlighted at the "People-Powered Projects" national Cooperative Weed Management Area (CWMA) conference held in 2008:

- Comprehensive EDRR methodology used in Oregon's *Spartina* response program (Bonnie Rasmussen, Oregon Dept. of Agriculture).
- Regional working groups within Florida and the state's control efforts for several invasive plant species (Tony Pernas, National Park Service).
- Weed risk assessment project combining plant survey data and climate modeling used to support early detection of invasive plants in California. (Doug Johnson, California Invasive Plant Council).

Go to: http://www.weedcenter.org/CWMAconf/CWMA_presentations.html

Grants

The Alabama Invasive Plant Council is soliciting grant proposals for non-native invasive plant education and outreach projects in Alabama. The intent is to provide funding to organizations or individuals to educate the public about non-native invasive plants and their effects on the environment, economy, and quality of life in Alabama. Proposals accepted from individuals, public or private nonprofit organizations, and academic institutions until March 31st, 2009. www.se-eppc.org/alabama

From the Other Side

CALIFORNIA STATE INVASIVE SPECIES COUNCIL ANNOUNCED
Secretary A.G. Kawamura of the California Department of Food and Agriculture is to chair this new council. A California Invasive Species Advisory Committee (CISAC) will be appointed and tasked with making recommendations to prioritize an invasive species rapid response plan. The committee will take input from local government, tribal governments and federal agencies, as well as environmental organizations, academic and science institutions, affected industry sectors and impacted landowners. Doug Johnson (Cal-IPC) states, "Some twenty other states have such councils, including our neighbors in Oregon, Washington, Idaho, Arizona and Hawaii, and it is an essential step in the coordination needed to be effective at the landscape scale."

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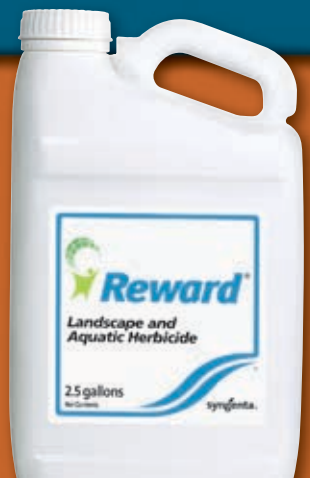

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