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On the Cover:

Participants enjoy a hike to the Stone Door in the Savage Gulf Natural Area of Tennessee during the 35th Annual Natural Areas Conference held jointly with the Inaugural National Association of Exotic Pest Plant Councils Conference. See story page 9.

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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

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

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providing a forum for the exchange of scientific, educational and

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Cogongrass Management in South Carolina

by John Brubaker, President SC-EPPC

er botany student's question, "What's this?" was one that College of Charleston Biology Instructor Dr. Jean Everett was accustomed to. However, the plant brought to her attention during that November, 2006 field trip was not.

It did not fit the keys in her taxonomic references for this area. Persisting, she correctly identified the unknown species as cogongrass (*Imperata cylindrica*). It was not a species anyone was pleased to see added to the Francis Marion National Forest list of vascular flora. In addition to being new to the forest, the record was the first for Charleston County and, alarmingly, extended the known range of the federally-listed noxious weed halfway across the state.

An early sighting of cogongrass in South Carolina was verified by the Department of Plant Industry (DPI) at Clemson University in mid-2003, when a population was reported in Hampton County. Shortly thereafter a coalition of selected agency and utility representatives convened to design a management strategy to eradicate, or at least control the spread of, this notoriously invasive species. There was a directive that cogongrass not be allowed to spread throughout the state. The DPI initiated a management protocol that included surveys, herbicide application to all populations found with landowner permission, and monitoring of all known locations. The Clemson University Department of Forestry and Natural Resources and DPI collaborated on general awareness and educational programs, and discussed establishing a cogongrass task force as an adjunct to the late Dr. Larry Nelson's Census of Invasive Species program. A few relatively small populations found along the state's western border were contained. There may have been uneasiness over cogongrass in some circles, but for three years there were few apparent signs of invasion on an unmanageable scale. However, the robust population discovered in the Francis Marion National Forest shook all complacency. Cogongrass was establishing across South Carolina, and it was unknown how far it had spread or how many acres it had come to dominate.

The Clemson University Department of Forestry and Natural Resources revisited the need for a cogongrass focus organization, and established the South Carolina Cogongrass Task Force, appointing Dr. George Kessler as Task Force Coordinator. Dr. Kessler established a SC cogongrass website, http://www.clemson. edu/for/cogon.html, organized a variety of training programs, distributed educational materials, and networked with agencies



and organizations statewide. No organization supports the task force more ardently than the South Carolina Exotic Pest Plant Council (SC-EPPC), which considers it part of the council. SC-EPPC members have volunteered countless hours to task force activities, and a \$30,000 grant was obtained to support task force operations for the year beginning June 1, 2007.

The most significant Task Force achievement has been the South Carolina cogongrass survey of May 15–18, 2008. Nearly 200 volunteers from agencies, institutions, utilities, and classrooms across the state participated in the survey, logging 13,587 miles of travel and 1,060 hours of work observing 1,383 sites, points, and roads. DPI inspected nearly 100 suspected cogongrass stands. Ten new colonies were confirmed and two additional counties, Greenville and Williamsburg, were added to South Carolina's list of infested counties. The task force is rightfully proud of the success of the 2008 venture, and is soliciting participation for the 2009 survey (see http://www.clemson.edu/for/cogon_surveyform.htm).

Dr. Kessler is credited with designing the 2008 Cogongrass Survey Guide and survey command structure. DPI Invasive Species Coordinator Steven Compton and The Nature Conservancy Ecologist/SC-EPPC Treasurer Colette DeGarady contributed the content of the comprehensive guide.

The survey was designed to cover the southwestern half of the state, some 26 counties, and include three survey subjects (tropical soda apple, cogongrass, and giant salvinia). A state leader staffed the Clemson based command center throughout the survey. The

area was divided into four regions, each with site coordinators available to receive data and answer questions, and region assignment coordinators who directed survey teams to assigned areas. Once surveys were underway, coordinators rotated between teams under their purview. Surveyors with appropriate taxonomic skills were on call to check suspected specimens upon request, and all positive identifications required verification by DPI personnel.

Many hours were devoted to planning and preparations over the months leading up to the survey. Materials were designed and distributed. Survey candidates were identified and contacted. Regional cogongrass identification courses were developed and conducted.

Interestingly, planners were at times the recipients rather than the providers for significant elements of data captured during the process. Dr. John Nelson, Curator of the University of South Carolina Herbarium in Columbia, informed the group of a 1993 journal article which cited a Hampton County, SC, cogongrass collection in 1987. That reference predates the 2003 report to DPI by 10 years, and is now considered the first record for Hampton Co. and for the state.

Williamsburg County is outside the 2008 Cogongrass Survey Area, just northeast of the region considered most probable to be infested. In early May 2008, Laurie Reid, an entomologist with the SC Forestry Commission and member of the SC-EPPC Board of Directors, was contacted by a resident of Williamsburg County concerning cogongrass that was invading his yard. Ms. Reid and Steve Compton visited the site and verified the plant as cogongrass. Its origin was an expanding stand in full flower that began at the highway and completely blanketed a neighbor's field. The field had once been a horse pasture where, according to the owner, the weed was first noticed over a decade earlier. Attempts to control it had been unsuccessful. With the owner's permission, DPI applied herbicide to the entire stand. The neighbor who reported the infestation spreading onto his property happened to be a contractor who worked on highway right-of-ways. He had attended training sessions in Georgia where he learned about the hazards of cogongrass and how to identify it. Even though not officially a part of the 2008 survey, this site information was included in that data set.

Any preconception that the survey would reveal new, more recently introduced populations in the vicinity of those already known has been dispelled. The new data shows that cogongrass has been in South Carolina far longer than previously recognized. New discoveries are as likely to be large and well established as they are to be small and relatively recent. With the addition of Greenville and Williamsburg Counties, the SC occurrence map shows cogongrass more widespread than a band along our Georgia border. The Francis Marion site looks more like the arc of a circle through the center of the state than an isolated outlier. Established populations of cogongrass are now known to thrive well into the interior of the state.

Chemical management and monitoring of known stands of cogongrass are essential to the control of the federally listed nox-



ious weed. It is critical that DPI continue to promptly spray those stands as they are found. Redoubling cleaning regimes on equipment that may have come in contact with the weed could also be helpful in curtailing its spread in South Carolina.

Ferreting-out existing populations requires that as many people as possible be taught to identify and report cogongrass. The Cogongrass Task Force, in collaboration with Clemson University, South Carolina Forestry Commission, USDA Forest Service, South Carolina Exotic Pest Plant Council, and South Carolina Native Plant Society, is now a proven educator and information resource. The May 2008 Cogongrass Survey in South Carolina was especially successful, and hopefully will be an annual event as long as the threat of cogongrass invasion remains.

*Nelson, John B. 1993. Significant Collections: South Carolina. Castanea 58(1): 59-63.

John Brubaker, brubakerj@tds.net



The Florida Invasive Species Partnership (FISP) Invasive Species Know NO Boundaries – Do We?

by Kristina Serbesoff-King

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Florida Exotic Pest Plant Council *Alison Higgins as liaison*

*joined FISP in 2008

hances are good that if you've been working with invasive non-native species issues in Florida, you've been hearing more and more about partnerships, and perhaps something about a really cool private land incentive matrix and an entity that calls itself "FISP."

The history of FISP – the Florida Invasive Species Partnership – goes back to 2005. FISP started as the Private Lands Incentive subcommittee of the Florida Invasive Species Working Group (ISWG). The ISWG, formed in 2001 by direction of Governor Bush, was

directed to develop a comprehensive plan that would coordinate the responsibilities of the agencies that manage and prevent biological invasions. The plan that resulted identified the need to evaluate incentive programs and funds that were available to private landowners to assist with the control of invasive species. Kathy O'Reilly-Doyle with the US Fish and Wildlife Partners for Fish and Wildlife program was asked to chair this group and she quickly roped in a group of unsuspecting partners with the promise that we would only have to attend three meetings – ever.

More than three years later, the Private Lands Incentive group is still meeting voluntarily with full knowledge that we have long passed our original commitment to Kathy. Based on our strong partnership, subcommittee members decided to become the Florida Invasive Species Partnership (FISP) in early 2008. Our group is composed of individuals who are willing to critically assess the strengths and weaknesses of current programs, including our own, and work together to be more efficient and effective in our approach – realizing that conservation of our natural lands and wildlife habitats are critically important to us all.

A new, sustained commitment has formed, fueled by our desire to foster successful partnership approaches to invasive species prevention



VIP Lynn Scarlett, Deputy Secretary of the Department of the Interior (right) visits the FISP poster and Kathy O'Reilly-Doyle and Debbie DeVore (USFWS) at the Greater Everglades Ecosystem Restoration (GEER) meeting

and management in Florida. We developed the following action plan to focus our efforts on the prevention and control of invasive non-native species.

Action Plan

Goals:

- 1. Think Locally Act Neighborly. Increase effectiveness and decrease costs by working together.
- 2. Provide tools to develop a unified approach and bridge the gap between landowners' and land management agency efforts.
- 3. Encourage development, implementation and sharing of new and innovative approaches.

Objectives:

- 1. Develop a matrix of existing incentive programs that can be used for invasive species control and target the problems on public and private lands.
- 2. Establish the matrix on a single web site, and provide links to specific information to address and resolve the problem. Provide outreach and training to the following audiences: public, private and technical service providers.
- 3. Promote partnerships and collaborative efforts to address invasive species on statewide, regional and local levels

If landowners and land managers in Florida wish to achieve long-term success in combating invasive species, it is critical to collaborate with all stakeholders, focusing on prevention as well as treatment.

(e.g., Cooperative Invasive Species Management Areas (CISMAs), Cooperative Weed Management Areas (CWMAs), Invasive Species Task Forces, Invasive Species Councils, etc.)

4. Provide an information clearinghouse for these efforts.

Target Audiences:

- Public land managers/owners
- Private land managers/owners
- Technical Service Providers (i.e., agencies and organizations that provide funds or technical assistance such as the FFWCC Landowner Incentive Programs, NRCS Farm Bill Programs, UF-IFAS Extension Agents, FFWCC Invasive Plant Management Section, contractors, etc.)
- CISMA organizations

This action plan was developed after the realization that we could not adequately address the invasive species threat to natural lands and wildlife habitats by only working with private landowners or public land managers. Invasive species know no boundaries. The challenges to effective invasive species control on both public and private lands are very similar: lack of resources and funds, limited staff, limited knowledge of problem species, limited knowledge of assistance programs.

However, the solution to these challenges is not as simple as providing money to each group and hoping for success. All the money in the world is not effective if the land you are managing for invasive species is continually being re-infested by a neighboring property. Great benefits can be derived from working side by side with your neighbors; not only can you pool resources, time and funds, but you also build strong partnerships that will continue into the future.

If landowners and land managers in Florida wish to achieve long-term success in combating invasive species, it is critical to collaborate with all stakeholders, focusing on prevention as well as treatment. FISP members have started working towards our goals and objectives through two main actions: 1) enabling private landowners through the creation of a searchable database of private land incentive programs (the "matrix"), and 2) fostering CISMAs to provide a consistent and efficient approach (i.e., not reinventing the wheel). This has been accomplished primarily through the creation of our website, **floridainvasives**. **org**, providing a monthly conference call/ online meeting for individuals involved or interested in Florida CISMAs, and by speaking at multiple conferences, land manager meetings and CISMA start-up meetings.

continued on page 8

Cooperative Weed/Invasive Species Management Area (CWMA/CISMA)

What is a CWMA/CISMA?

A CWMA OR CISMA is a partnership of federal, state, and local government agencies, tribes, individuals, and various interested groups that manage noxious weeds or invasive species in defined area.

While Cooperative Weed Management Area (CWMA) has become the generic term nationally, and this term is widely used in western states, Florida and other eastern states are expanding this approach to address animals as well as plants. In Florida, CWMAs are more often referred to as Cooperative Invasive Species Management Areas (CISMAs) to capture this broader definition.

What are the five basic characteristics of a CWMA/CISMA? (from www.weedcenter.org)

- 1. Definition of the geographical area distinguished by a common geography, invasive species problem, community, climate, political boundary, or land use.
- 2. Involvement or representation of the majority of landowners and natural resource managers in the defined area.
- 3. Establishment of a steering committee.
- 4. Commitment to cooperation.
- 5. Development of a comprehensive plan that addresses the management or prevention of one or more invasive species.



Private landowners at cogongrass demonstration meeting hosted by Osceola CWMA.



Cooperative Invasive Species Management Areas (CISMAs) in Florida

The FISP website will serve as a clearinghouse for invasive species partnership information in Florida. The searchable matrix of private land incentive programs will be hosted at this site and updated on a quarterly basis. Other information will include maps of CISMAs in Florida, a calendar of FISP events, CISMA and other important meetings, and links to other websites for additional information on identification and control of invasive species. The intent is to link private landowners and public managers to existing resources such as the plant list at www.fleppc.org or the invasive plant control information at plants.ifas.ufl.edu. In fall of 2008, FISP was able to secure additional funding that will allow us to provide individual websites to CISMAs in Florida. These sites will be similar to the Everglades CISMA site (evergladescisma.org) and will provide an online resource for each CISMA to exchange ideas, post materials, keep a calendar and collect data.

FISP began hosting monthly conference calls/online meetings for CISMAs in May 2008. This idea was borrowed from similar meetings held in New York for their Partnerships for Regional Invasive Species Management (PRISMs). The idea is to allow participants of CISMAs (or folks interested in creating or joining a CISMA) a monthly forum to exchange ideas, share successes and lament about challenges. Besides allowing each CISMA to provide updates, we have also used this call for specific presentations on topics such as Exotic Animals in Florida, Setting Objectives, Florida Rights-of-Ways (presented by the Florida Department of Transportaion (FDOT)), and Early Detection/ Rapid Response to Pythons in the Florida Keys. Contact Kristina Serbesoff-King (kserbesoffking@tnc.org) if you are interested in being placed on the e-mail list for these calls.

Members of FISP presented information at over 40 different venues in Florida during 2008. Locally, we have spoken at the formation meetings for the Central Florida Invasive Species Working Group and the Southwest Florida CISMA. Regionally, we have spoken at the District 3 FDOT meeting, multiple forest health workshops, as well as at Bureau of Invasive Plant Management annual regional working group meetings. Statewide, we have spoken at the statewide FDOT district engineers meeting, coordinated a workshop at the Florida Exotic Pest Plant Council (FLEPPC) conference and presented posters at the Greater Everglades Ecosystem Restoration meeting (GEER) and Organization of Wildlife Lands and Realty Specialists meeting (OWLS). Nationally, we presented at the first national CWMA Conference and helped coordinate a symposia session at the national meeting of The Wildlife Society. The purpose of these presentations has been to raise awareness of the benefits of using partnerships to combat the threat of invasive species at all levels of land ownership, management and involvement.

The sums of FISP successes are too many to list, however, none of them can be attributed to an individual effort. Our strength is truly in the partnership, camaraderie and conservation ethic that is shared by our members. This is the approach and success that we wish to develop in Florida through engaging private landowners and fostering CISMAs. The threat of invasive non-native species is great, but it can be effectively and efficiently addressed through coordinated, collective effort. One of our founding members, Chuck McKelvy with FFWCC, always reminded us that this isn't rocket science, but that there were some necessary ingredients for long-term success:

- Multiple agencies and organizations in partnership;
- Involve private landowners and interests;
- Recognize and respect differences and commonalities in missions;
- Conservation leverage, i.e. using each other's programs and assistance to strengthen and support conservation work.

For information on FISP or any of the ideas, programs or solutions discussed in this article, please contact the current FISP co-chairs, Kristina Serbesoff-King at kserbesoffking@tnc.org or Erin Myers at erin.p.myers@fl.usda.gov.

FISP has no formal authority and does not exert any control over the work of any individual or institution; it exists to help improve the efficiency and effectiveness of partnership approaches to preventing and controlling invasives species through increased communication, coordination and shared resources.

Inaugural Conference of the National Association of Exotic Pest Plant Councils and the 35th Annual Natural Areas Conference

by Lisa Smith and Brian Bowen, Natural Areas Conference Program Chairs, Natural Areas Association Board Members

The National Association of Exotic Pest Plant Councils (NAEPPC) held its first national conference as part of the 35th Annual Natural Areas Conference on October 14-17th, 2008 in Nashville, Tennessee. The Natural Areas Association (NAA) is a long-time partner of NAEPPC.

The conference attracted 450 participants from fifty states and six countries and was hosted by the Tennessee Department of Environment and Conservation (TDEC). The conference theme was "*Natural Areas Revival in Music City; Tuning In To A Changing Climate and Biological Invasion.*"

Pre-conference activites included two multi-day field trips at special natural areas. The most popular trip was to Savage Gulf State Natural Area on the Cumberland Plateau, where old-growth, mixed mesosphytic forests once described by Lucy Braun are still found. The second field trip was to Mammonth Cave where participants explored one of the world's most important cave ecosystems.

Pre-conference workshops and roundtables began Tuesday morning with Land Managment for Land Trusts, NatureServe's Weed Risk Assessment, NatureServe's LandScope America, and State and Federal Natural Areas Roundtables. Workshops and training opportunities continued each day throughout the conference, led by many partner organizations, agencies, and experts including the Exotic Pest Plant Councils (EPPC), Land Trust Alliance (LTA), NatureServe, and Invasive Plant Control, Inc. One session of note was an NAEPPC Forum held on Friday afternoon where participants explored programmatic directions that the organization should take.

The conference opened with the plenary session held at one of Nashville's historic landmarks, the War Memorial Auditorium. It began with *a cappella* revival music by the McCrary Sisters. Nashville Mayor Karl Dean welcomed everyone and spoke briefly about his administration's "green intiative,"



(left to right) Doria Gordon (Program Committee), Richard Mack (plenary speaker), Dan Simberloff (plenary speaker), Brian Bowen (Conference Chair), Lisa Smith (Program Chair), Kim Herman (NAA President)

which complemented the efforts by conference organizers to keep the event carbon neutral and to recycle and minimize waste. Carbon credits were purchased from the Conservation Fund, which will have trees planted on NAA's behalf in the Louisiana Red River National Wildlife Refuge.

Following the Mayor's presentation, TDEC's Commissioner Jim Fyke spoke on some of the state's efforts to conserve Tennessee's natural heritage. Ed Clebsch, a retired botanist from the University of Tennessee at Knoxville (UTK), presented a lively overview of the natural history of Tennessee. He was followed by two leaders in the field of invasive species biology, Dick Mack of Washington State University and Dan Simberloff of the University of Tennessee. Dick Mack talked about the complexity of effects that global climate change has, and will have, on biological invasions, while Dan Simberloff explored the controversial issue of using introduced biofuels to replace our dwindling petroleum supplies. The final plenary speaker was Larry Schweiger, President and CEO of the National Wildlife Federation, who shared more recent evidence of the negative impacts of global climate change on ecosystem function. He encouraged the conservation community to play an active role in supporting pending climate change legislation.

The plenary session set the tone for the quality of presentations on Wednesday and Friday. Each day, seven concurrent sessions offered approximately 160 presentations, of which 110 were invited speakers.

In addition to the concurrent sessions that were held on Wednesday and Friday, the conference also provided opportunities for formal and informal meetings of various groups. The National Park Service Exotic Plant Management Teams, Tennessee Land Trusts Network, Tennessee Forestry Commission, NAEPPC, and the NAA Board of Directors met in conjunction with the conference. NAEPPC hosted a membership luncheon where participating EPPC's and Invasive Plant Councils gave updates on their organization's activities. The PowerPoint[™] presentations can be viewed at http://www.naeppc.org/presentations/. NAA hosted a "World Cafe" luncheon for its membership to identify ways in which the organization can more effectively meet members' needs.

On Thursday, conference participants had opportunities for more "on-the-ground" learning experiences through participation in one of twenty-four field trips to Middle Tennessee natural areas extending to the Cumberland Plateau and into Kentucky.



Ruark Cleary (Florida Fish & Wildlife Conservation Commission) slays a Paulownia sucker under the watchful eyes of a park ranger on the Stone Door trail.

Field trips included visits to caves, waterfalls, cedar glades, barrens, old growth forests, urban natural areas, and canoe floats. In addition, there was a tour of an area land trust holding, a birding trip in Nashville, a native nursery tour, a native grass and an invasive plant identification workshop, a GPS workshop, and an invasive pest plant site management planning workshop.

Following the field trips on Thursday, participants headed to the historic Ryman Auditorium, "the mother church of country music" and "the official birthplace of bluegrass," for a natural areas "revival" and a celebration and recognition of individuals who have tirelessly dedicated their lives to the conservation of important places. Elsie Quarterman, retired botanist from Vanderbilt University, and Hal DeSelm, retired botanist from the Univesrity of Tennessee-Knoxville, were recognized by the Natural Areas Association and presented the George B. Fell Lifetime Achievement Award on the Ryman stage. Gary Milano received the Carl N. Becker Stewardship Award, and the Florida EPPC was presented with the first ever NAEPPC Award for Excellence. The banquet, "A Night at the Opry," was a celebration with food, drink, bluegrass music and the silent and live auction, culminating in the "prairie fire kit" auction, an NAA tradition, which ended as a tie between the NAEPPC coalition and the mid-western NAA coalition (the long-standing winner of the prairie fire kit at the NAA Banquet). Bidders involved in the prairie fire kit auction enjoyed their hard-won shots of tequila as Mike Farris (winner of the Americana Music Association's 2008 New and Emerging Artist of the Year award) and the Roseland Rhythm Revue took to the stage for a one hour set of rocking gospel and rhythm and blues music to close the banquet. The party continued afterwards in the honky tonks on Lower Broadway.

The 35th Annual NAA Conference and 1st NAEPPC Conference provided training and networking opportunties, and brought together some of the foremost experts who shared their knowledge at the plenary and concurrent sessions. Audio and Power-Point[™] presentatons are accessable on the NAA (www.naturalarea.org) and NAEPPC (www.naeppc.org) websites. The plenary session was videotaped and can be viewed, as well.

Contact Lisa Smith at wildflower@ligonierweb.com





he National Association of Exotic Pest Plant Councils (NAEPPC) is honored to be able to have our first national conference here in Nashville jointly with the Natural Areas Association. We would like to express our appreciation to the conference committees and sponsors for making this event possible.

Both of our organizations are distinct in that our primary focus is the protection and management of natural areas. Even though this is the National Association of Exotic Pest Plant Councils' first national conference, exotic pest plant councils have been playing a valuable role for many years in bringing together people from across the country that are concerned with invasive plants and their effects on natural areas.

Prior to creation of the first Exotic Pest Plant Council (EPPC) in 1982, there was no organized effort to address exotic pest plant problems in natural areas. There was little, if any, communication or coordination among land managers, a definite lack of recognition of the problem, and practically no funding for any control efforts.

In Florida in the early 1980's, invasive plants were rampant throughout the state, infesting both aquatic and terrestrial ecosystems. Despite the extent of the terrestrial invasive plant problem, there were no organized efforts in addressing them. The Florida Department of Natural Resources had efforts directed at aquatic plants but none for terrestrial plants. In South Florida, land managers and biologists were becoming increasingly frustrated as they saw Brazilian pepper, Melaleuca, Australian pine and a host of other invasive plants rapidly expanding across the Everglades.

South Florida land managers and biologists saw a need for people involved in invasive plant management to meet and exchange ideas in order to begin to address the burgeoning invasive plant problem. Individuals at first came together in small informal meetings. These ad-hoc meetings eventually led to a series of exotic woody plant workshops. The interest in these meetings was so strong that it was decided the group should formalize and the Exotic Pest Plant Council was born. The newly created EPPC was different from existing weed and vegetation management societies in that the focus was on exotic plants in natural areas and not on agricultural weeds.

The creation of the first EPPC was not easy - not because members could not agree on goals, but because they could not agree on a name. It took a few years, there was arguing about whether it should be an association or a society, or whether they should be called non-indigenous plants, alien plants or exotic plants. Ultimately the group decided to call the organization the Exotic Pest Plant Council. Many of you are probably asking why not "invasive plant council?" Interestingly enough, the word "invasive," which is so common today, would not even come into vogue until the late 1980s, when it was first coined by Don Schmitz, a well-respected Florida biologist.

The new EPPC was extremely successful and by 1990, the group had a significant membership and was distributing newsletters chock-full of invasive plant management information. In the following years, a few members left Florida and relocated to other parts of the United States. These members began to spread the word about the EPPC and what like-minded individuals united in a common cause could accomplish. Through their efforts, the California Invasive Plant Council (IPC) and the Pacific Northwest IPC were created.

The EPPC movement was beginning to spread as folks saw the value of organization. In Tennessee, Brian Bowen was instrumental in forming the Tennessee EPPC. TN-EPPC began hosting a series of symposiums that brought individuals together from across the state who were interested in the invasive plant issue.

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In 1995, the four EPPCs that had been formed came together and established the National Association of EPPCs. NAEPPC was established because the EPPCs recognized the value of cooperation through a national association of like organizations that share common goals. The preamble of the Memorandum of Understanding that established National EPPC states that there is power in organization, strength in numbers, and that some problems are national in scope and are most appropriately addressed by a national organization.

By 1999, news of the TN-EPPC symposiums had spread and they were being attended by individuals from throughout the southeastern states who were hungry for information on invasive plants. Members of the TN-EPPC saw a regional need and, through their efforts, the Southeast Exotic Pest Plant Council (SE-EPPC) was created. In the years that followed, SE-EPPC would help foster the creation of state EPPCs including North Carolina, Georgia, Kentucky, Mississippi, Alabama and South Carolina.

In the Mid-Atlantic states, a Mid-Atlantic EPPC was formed that would include Delaware, Maryland, New Jersey, West Virginia, Virginia, Pennsylvania and the District of Columbia.

In the northeast, New York IPC was formed as well as the Invasive Plant Atlas of New England (IPANE).

Further west, the Ohio IPC, Michigan EPPC, Invasive Plant Association of Wisconsin, the Midwest Invasive Plant Network, which includes Iowa, Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin, the Texas IPPC, Oklahoma IPC and the Rocky Mountain IPC, which includes Idaho, Wyoming, Colorado and parts of Canada were formed.

NAEPPC represents all of these organizations at the national level on issues of national importance. The National Association of EPPCs is open to the participation of all non-profit organizations whose primary mission addresses issues of invasive exotic pest plants in natural areas and wildlands, regardless of the name of the organization. These organizations throughout the country perform many functions such as:

- assessing the impacts of invasive plants through the creation of state or regional invasive plant lists;
- providing group and individual training on invasive plants through symposiums, workshops, online courses and reference materials;
- the development of species specific management plans that can serve as a framework for those managing or seeking to protect natural areas;
- improving invasive plant policy;
- working with nurseries and gardeners to address the ornamental introduction of invasive plants;
- enhancing dialogue between researchers and land managers on invasive plant biology, ecology and management, including climate models;
- the development of weed risk assessments;
- the advancement of invasive plant biological control programs;
- the early detection and rapid response to new plant infestations such as SE-EPPC's online Early Detection and Distribution Mapping System (EDDMapS)

EPPCs have become a powerful network of researchers and land managers working together on one of this nation's greatest threats to biological integrity. This

FLEPPC Receives Outstanding Achievement Award

The outstanding achievement award is given to the EPPC chapter that embodies the NAEPPC's mission of national heightened awareness of invasive plant species that results in positive changes throughout the United States.

Through its own mission of supporting the management of invasive exotic plants in natural areas by providing a forum for the exchange of scientific, educational and technical information, this chapter has truly facilitated the national mission and goals. The award this year goes to the Florida Exotic Pest Plant Council for Extraordinary Service in Furthering the Goals of the National Association of Exotic Pest Plant Councils.

week's joint conference will undoubtedly contribute to the exchange of ideas that will continue to lead to effective solutions for invasive plant management.

Tony's presentation, and others at the NAA/ NA-EPPC plenary session, are available as audio/visual files at: http://www.naeppc. org/08conference/



This brochure lists the exotic plants to avoid and the attractive native alternatives that will work just as well. The list features those invasive plants often considered for home gardens and landscaping, their state ranking as a pest, and their qualities typically considered ornamental or useful. Adjacent to each is one or more suggested native plant alternatives along with their desirable aesthetic or practical characteristics as a suitable replacement, the availability of cultivars, and their wildlife value.

Native Plant Sources Please support local nurseries carrying nursery-propagated native plants—stock supplied through seed, division or tissue culture of existing nursery plants and not collected from the wild.

Tennessee Exotic Pest Plant Council

The exotic invasive plants in this brochure came from a larger list compiled by the Tennessee Exotic Pest Plant Council, a group of scientists and public land managers who monitor plant communities in the state. TNEPPC ranks each plant according to its degree of invasiveness as follows:

RANK 1 SEVERE THREAT: spreads easily into native plant communities and displaces native vegetation

RANK 2 SIGNIFICANT THREAT: not presently considered to spread as easily into native plant communities as Rank 1 species

RANK 3 LESSER THREAT: spread in or near disturbed areas and are not presently considered a threat to native plant communities

WATCH [W]: plants that naturalize and may become a problem or are severe problems in surrounding states but have not yet been reported in Tennessee

TENNESSEE NOXIOUS WEED [N]: any plant legally designated by the State as injurious to public health, agriculture, recreation, wildlife or property

TN-EPPC's website www.tneppc.org features the complete list of invasive pest plants in the state, control recommendations for certain species, and detailed native plant landscaping information tailored to East, Middle and West Tennessee

Tennessee's Native Plant Alternatives to Exotic Invasives *A Garden & Landscape Guide*

on-native plants that readily spread in natural areas, either vegetatively or via seed, pose a significant threat to the health and welfare of Tennessee's rich biological diversity. !ese plants are considered exotic invasive pests.

Invasive plants exhibit certain traits.

- Adaptation to local climate
- Rapid growth
- Mature quickly to flower and set seed
- · Produce copious amounts of seed
- Effective seed dispersal
- Rampant vegetative spread
- No major pest or disease problems



These traits can give exotic invasive plants undue advantage in wild habitats like forests, wetlands, cedar glades, and grasslands. Exotic species can overwhelm native plants by depriving them of nutrients, water, light, and space and may totally displace native species, replacing a diverse ecosystem with a near sterile monoculture. Exotic invasive plants threaten the health and stability of Tennessee's beautiful natural heritage.

Some exotic invasives are agricultural pests—forage grasses and noxious weeds. Some were brought in for erosion control—kudzu (*Pueraria montana*) and crown vetch (*Coronilla varia*)—or medicinal/culinary uses—common mullein (*Verbascum thapsus*), coltsfoot (*Tussilago farfara*), mugwort (*Artemisia vulgaris*), spearmint and peppermint (*Mentha spicata, M. x piperita*). Some hitched rides on boats or got dumped out of home aquariums—hydrilla, water thyme (*Hydrilla verticillata*), Parrot's feather, water milfoil (*Myriophyllum aquaticum*) and Brazilian water-weed (*Egeria densa*). Many are horticultural. Unfortunately some of the invasive traits listed above can increase a plant's horticultural desirability.

Native plants evolved through geologic time in this geographic location, developing a strong connection to the land, each other and the wildlife. Landscaping with native plants taps into that connection providing a beautiful garden biologically adapted to Tennessee's climate, soils, wildlife, and plant communities. Native plants aren't limited to "wild" or "woodland" gardens and can just as easily adorn a mailbox, blend with traditional garden favorites in perennial borders, or anchor a commercial landscape. Choosing native plants is just one of the simple steps Tennesseans can take to slow the spread of exotic invasive plants. All plants listed are native to Tennessee or the southeast and grow well in Tennessee. Many of the native plants listed are substitutes for one exotic invasive may also be successful alternatives for others. A few of the suggested natives, particularly vines, may display aggressive tendencies in a managed garden. Before choosing any native plant, it is wise to become familiar with its growth habit and preferred growing conditions.

	Exotic Pest Plant		Native Plant Alternative(s)				
	SCIENTIFIC NAME	COMMON NAME (ORIGIN)	SCIENTIFIC NAME	COMMON NAME	CULTIVAR	WILDLIFE VALUE	
	GRASSES						
3	Arundo donax	Giant Reed, Reed Grass (India): tall bamboo grass	Arundinaria gigantea Saccharum (Erianthus) giganteum Andropogon gerardii Sorghastrum nutans	River Cane: tall bamboo grass Sugarcane Plumegrass: tall grass, fluffy seedheads Big Bluestem: tall grass, colorful foliage Indian Grass: tall grass, colorful flowers	yes	butterflies birds birds	
Ν	Imperata cylindrica	Cogon Grass, Japanese Bloodgrass: short ornamental grass, red foliage	Panicum virgatum Bouteloua curtipendula	'Rotstrahlbusch', 'Hanse Herms', 'Shenandoah', 'Squaw', 'Rehbraun' - Red Switch Grass: red fall foliage, short grass Sideoats Grama: red flowers, seed stalks, short grass	yes		
2	Miscanthus sinensis	Zebra or Eulalia Grass, Chinese Silvergrass (Asia): ornamental grass	Saccharum (Erianthus) giganteum Schizachyrium scoparium Sorghastrum nutans Panicum virgatum Andropogon glomeratus Andropogon ternarius Muhlenbergia capillaris	Sugarcane Plumegrass: fluffy seedheads, tall, wet - dry soil Little Bluestem: colorful foliage, seedheads, short grass Indian Grass: colorful flowers, regular soil moisture Switchgrass: colorful foliage, upright habit, seedheads Bushy Bluestem: fluffy seedheads, wet - moist soil Splitbeard Bluestem: unique seedheads, dry soil, short grass Pink Muhly Grass: colorful flowers, wiry foliage, short grass	yes yes yes	birds, butterflies birds birds birds birds birds birds birds	

	Exotic Pes	st Plant	Native Plant Alternative(s)			
l	SCIENTIFIC NAME	COMMON NAME (ORIGIN)	SCIENTIFIC NAME	COMMON NAME	CULTIVAR	WILDLIFE VALUE
	TREES					
1	Ailanthus altissima	Tree-of-heaven (China): fast growth, compound foliage, showy seed	Robinia pseudoacacia	Black Locust: fast growth, compound foliage, showy fragrant flower clusters, poor soil	yes	bees, butterflies
		clusters, poor soil	Juglans nigra	Black Walnut: compound foliage, nuts, poor soil	yes	mammals, birds, butterflies/moths
			<i>kilu</i> s spp.	showy fruit clusters, poor soil	yes	bees, birds, butternies
			Ptelea trifoliata Fraxinus americana & F. quadrangulata	Hoptree, Wafer Ash: compound foliage, seed clusters White Ash & Blue Ash: compound foliage, seed clusters, fall color, seedless white ash cultivar 'Autumn Purple'	yes yes	birds, butterflies birds, butterflies
1	Albizia julibrissin	Mimosa (Asia, Mid East): fast growth,	Robinia hispida	Rose-acacia Locust: compound foliage, shrubby habit,	yes	bees, butterflies
		compound rollage, tragrant pink flower clusters, umbrella shape	Cercis canadensis Amorpha fruticosa	pink nower clusters, poor soll Redbud: fast growth, showy pink flowers, umbrella shape Indigo Bush, Leadplant: shrub, compound foliage,	yes yes	bees, butterflies birds, bees, butterflies
			Cornus florida	showy flowers, poor soil 'Appalachian Spring' - Flowering Dogwood: showy flowers, fruit. fall color. form. anthracnose resistant	yes	birds, bees, butterflies
			Chionanthus virginicus Crataeaus phaenopvrum	Fringe Tree: showy fragrant flowers, fruit (female) Washington Hawthorn: showy flowers, fruit, umbrella shape	ves	birds bees, birds
W	Alnus glutinosa	European Alder: small tree,	Alnus serrulata	Tag Alder: large shrub, wet soil, poor sites)	birds, butterflies
		wet sites, poor soil	Betula nigra Amelanchier canadensis Carpinus caroliniana	'Heritage' - River Birch: wet soil, exfoliating bark Shadblow: small tree/shrub, wet soil, white flowers Hornbeam: small tree, wet soil, fruit clusters	yes	birds, butterflies/moths birds, mammals birds, butterflies
3	Broussonetia papyrifera	Paper Mulberry (Asia): poor soil,	Morus rubra	Red Mulberry: edible fruit (female)		birds, butterflies
		bark, fast growth, fruit (female)	Ostrya virginiana Nyssa sylvatica Sassafras albidum	Hophornbeam: bark, strong branching, seed clusters Blackgum: fall color, fruit (female) Sassafras: poor soil, fall color, fruit (female)		birds birds birds
W	Frangula alnus (Rhamnus frangula)	Alder or Glossy Buckthorn (Eurasia):	Sambucus nigra ssp. canadensis Photinia (Aronia) melanocarna	Elderberry: showy fragrant flower clusters, black fruit	yes	bees, birds, butterflies bees, birds
3	Melia azedarach	Chinaberry (China): compound	Aralia spinosa	Devils Walkingstick: compound foliage, showy flowers & fruit	yes	bees, birds, butterflies
1	Paulownia tomentosa	Tollage, nard truit Princess Tree (China): showy flowers,	Catalpa speciosa	Cigar Tree, Northern Catalpa: showy flowers, seedpods,		butterflies
		fast growth	Aesculus pavia	fast growth, adaptable sites Red Buckeye: showy flowers	yes	hummingbirds, mammals
	Donulus alba	White Deplay (Euracia), lobed larger	Magnolia virginiana Tilia amaricana yar bataran bulla	Sweetbay Magnolia: showy fragrant flowers, fast growth	yes	haar huttarflige
2	Populus alba	white Poplar (Eurasia): lobed leaves with white undersides	lilla americana val. neterophylla Liquidambar styraciflua Platanus occidentalis	white Basswood: white lear undersides Sweetgum: lobed leaves, fall color Sycamore: lobed leaves, showy exfoliating bark	yes yes	bees, butterflies birds, butterflies birds, mammals
W	Pyrus calleryana	Bradford Pear, Callery Pear (China): white flowers, fall color.	Amelanchier arborea & A. laevis	Downy & Allegheny Serviceberry: white flowers, edible fruit, fall color, cultivar 'Spowcloud' has upright form	yes	bees, birds, butterflies, mammals
		upright form	Crataegus spp.	Hawthorn: white flowers, fruit	yes	bees, birds, butterflies
			Prunus angustifolia	Chickasaw Plum: shrub, white flowers, fruit		bees, birds, mammals
			Viburnum rufidulum Cercis canadensis	Rusty Blackhaw: white flowers, fruit, fall color 'Roval White' - Redbud: white flowers, seedpods, fall color	ves	bees, birds, mammals bees, butterflies
	N <i>d d</i>	r bld l l	Cornus florida	Flowering Dogwood: showy white flowers, red fruit, fall color	yes	bees, birds, mammals
W	Rhamnus cathartica Triadica sebifera	European Buckthorn: glossy leaves, black fruit Chinese Tallowtree: summer flowers.	Frangula (Khamnus) caroliniana Oxydendrum arboreum	Carolina Buckthorn: pink to black fruit, fail color, drought tolerant		bees, birds, butterflies
	(Sapium sebiferum)	fall color, white fruit				
	SHRUBS					
2	Berberis thunbergii	Japanese Barberry: foliage color, winter fruit, dense habit	Physocarpus opulifolius	'Diablo' - Ninebark: showy flowers, fruit, extoliating bark, maroon-tinged foliage	yes	bees, birds, butterflies
			Fothergilla gardenii Ilex verticillata	Dwarf Witch Alder: showy fragrant flowers, fall color, compact 'Red Sprite' - Winterberry: winter fruit, compact habit	yes ves	birds, mammals bees, birds
			Morella (Myrica) cerifera	Waxmyrtle: dense habit, whitish winter fruit, fragrant	yes	birds
			kosa carolina & R. palustris Viburnum obovatum	Kose: dense nabit, trowers, red nips, rail tollage 'Densa' - Small-leaf Arrowwood: evergreen, spring flowers, dense habit	yes yes	birds bees, birds
W	Buddleja davidii	Butterfly Bush (Asia): summer flower	Cephalanthus occidentalis Ceanothus americanus	Buttonbush: summer flower clusters		bees, butterflies bees, butterflies
		spikes, attracts butternies	Aesculus parviflora	Bottlebrush Buckeye: summer flower spikes	yes	bees, butterflies
			Clethra alnifolia Amorpha fruticosa	Summersweet: summer fragrant flower spikes, bark Indigo Bush: summer flower spikes, poor soil	yes ves	bees, butterflies bees, birds, butterflies
	51		Hibiscus spp.	Rosemallow: tall herb, large summer flowers	yes	butterflies
3	Elaeagnus angustifolia	Kussian Ulive (Eurasia): silvery leaves, yellow fruit, poor soil, fragrant flowers	croton alabamensis Lindera benzoin	AIADAMA Croton: SUVERY fragrant leaves, poor soil, fall color Spicebush: red fruit, fall color, early spring flowers, aromatic twigs	yes	bees, birds, butterflies
1	Elaeagnus umbellata	Autumn Olive (Asia): silvery leaves, red fruit, poor soil, fragrant flowers	Hypericum frondosum & H. prolificum	Golden & Shrubby St. John's-wort: showy yellow flowers, exfoliating bark, site adaptable	yes	birds
2	Euonymus alata	Burning Bush (Asia): fall color, fruit	Euonymus americanus Itea virainica	Hearts-a-bustin': fruit, fall color, shade-loving Virginia Sweetsnice: chowy fragrant flowers fall color	Ves	bees, birds
			Fothergilla gardenii	Dwarf Witch Alder: showy fragrant flowers, fall color	yes	birds, mammals
			Vaccinium corymbosum Rhus aromatica	Highbush Blueberry: showy flowers, edible fruit, fall color Fragrant Sumac: summer red fruit, fall color, dry/poor soil	yes ves	bees, birds bees, birds
			Rhus copallinum(a) var. latifolia	'Morton' - Prairie Flame Shining or Winged Sumac: showy flowers,	yes	bees
W	Hibiscus syriacus	Rose-of-sharon (China): large mallow flowers	Hibiscus moscheutos & H. laevis	Swamp & Halberd-leaved Rose-mallow: large summer flowers, tall/wide herb	yes	butterflies
K E Y	1 Severe Threat: spread nto native plant communitie displaces native vegetation	Is easily 2 Significant Threat: not presen s and considered to spread as easily into nati plant communities as Rank 1 species	tly 3 Lesser Threat: spread in areas and are not presently con a threat to native plant commu	n or near disturbed W Watch: Plants that naturalize and may becom nsidered a problem or are severe problems in surrounding state unities but have not yet been reported in Tennessee	e N TN N es designated agriculture	loxious Weed: Any plant legally by the State as injurious to public health , recreation, wildlife or property

	Exotic Pes	t Plant	Native Plant Alternative(s)			
	SCIENTIFIC NAME	COMMON NAME (ORIGIN)	SCIENTIFIC NAME	COMMON NAME	CULTIVAR	WILDLIFE VALUE
	SHRUBS continu	ed				
2	Ligustrum japonicum	Japanese Privet: evergreen, hedges, black	llex glabra Kalmia latifolia	Inkberry: evergreen, shiny leaves, hedges, black fruit	yes ves	bees, birds bees, butterflies
1	Ligustrum sinense	Chinese Privet: evergreen, hedges, black fruit, fragrant flowers	Osmanthus americanus	Devilwood: evergreen, shiny foliage, fragrant flowers, dark blue winter fruit	yes	birds, butterflies
1	Ligustrum vulgare	Common Privet (Europe): hedges, black fruit, fragrant flowers, shiny leaves	Viburnum bracteatum Morella (Myrica) cerifera Viburnum nudum	'Emerald Luster' - Limerock Arrowwood: showy flowers, blue-black fruit Southern Waxmyrtle: evergreen, shiny leaves, fragrant, waxy gray fruit Possumbaw Viburnum: shiny leaves, showy flowers, black fruit	yes yes	bees, birds, butterflies birds bass birds butterflies
1	Lonicera fragrantissima	January Jasmine (China): white/yellow	Lindera benzoin	Spicebush: yellow flowers, red fruit, aromatic twigs	yes	bees, birds, butterflies
	lanicara maaduii	flowers, fragrant, red fruit	Chionanthus virginicus	Fringe Tree: white fragrant flowers, blue fruit (female)	yes	birds
		same as above, tough constitution	Hamamelis virginiana Hamamelis vernalis	Ozark Witch Hazel: venous range fragrant flowers in fail		birds birds
	Lonicera morrowii	same as above, tough constitution	Diervilla sessillolla	yellow/orange flowers	yes	bees, butternies
		flowers, red fruit	& P. (A.) melanocarpa	winter fruit, fall color	yes	bees, birds
	Lonicera x bena	above (hybrid of Lonicera morrowii & Lonicera tatarica)	nex vertatilata Calicarpa americana Viburnum acerifolium & V. rufdulum Rhododendron calendulaceum & R. arborescens	American Beautyberry: pink flowers, bright purple fruit Mapleleaf Viburnum & Rusty Blackhaw Viburnum: white flowers, fruit, fall color Flame & Sweet Azaleas: showy fragrant flowers, fall color	yes yes yes	bees, birds bees, birds bees, birds, butterflies butterflies
2	Mahonia bealei	Leatherleaf Mahonia (China): evergreen, blue fruit, form, shade	Viburnum nudum Cornus amomum Clethra acuminata Euonymus americanus Callicarpa americana Ilex opaca Viburnum bracteatum	Possumhaw Viburnum: showy flowers, blue fruit, fall color Silky Dogwood: showy flowers, blue fruit, fall color Cinnamon Clethra: white flowers, exfoliating bark Hearts-a-bustin': fruit, fall color, shade-loving American Beautyberry: bright purple fruit American Holly: tree, evergreen, red fruit (female) 'Emerald Luster' - Limerock Viburnum: showy flowers, blue-black fruit	yes yes yes yes	bees, birds, butterflies bees, birds bees, butterflies bees, birds bees, birds bees, birds, butterflies bees, birds, butterflies
2	Nandina domestica	Sacred Bamboo, Heavenly Bamboo (Asia): evergreen, colorful foliage, fruit, tough constitution	Leucothoe axillaris & L. fontanesiana Xanthorhiza simplicissima Agarista populifolia Hynericum frandosum &	Coastal Leucothoe & Doghobble: showy flowers, evergreen, colorful foliage Yellowroot: foliage texture, spring flowers, fall color 'Leprechaun' - Florida Hobblebush: evergreen, colorful foliage, fragrant flowers, compact habit Golden & Shrubhy St. John's wort: showy flowers	yes yes	birds bees, butterflies bees, birds
			H. prolificum	exfoliating bark, site adaptable, tough constitution	jes	
1	Rosa multiflora	Multiflora Rose (Asia): showy flowers, hips, living fence	Rosa palustris Rosa setigera Rosa carolina Rubus spp. Rubus odoratus	Swamp Rose: showy flowers, hips, living fence Prairie Rose: showy flowers, hips, spreader Carolina Rose: showy flowers, hips, smaller shrub Blackberries: showy flowers, fruit Purple Flowering Raspberry: showy flowers	yes yes	bees, birds bees, birds bees, birds bees, birds bees, birds
1	Spiraea japonica	Japanese Spiraea: showy flowers, foliage, mounded form	Physocarpus opulifolius Viburnum dentatum Spiraea tomentosa Neviusia alabamensis Clethra alnifolia Rhododendron canescens & R. periclymenoides	Ninebark: showy flowers, foliage, exfoliating bark Arrowwood: showy flowers, fruit, fall color Steeplebush, Hardhack: showy pink flowers Alabama Snowwreath: showy white flowers, mounded form Summersweet: showy white to pink flowers, fragrant Piedmont & Pinxter Azaleas: showy fragrant flowers, fall color	yes yes yes yes	bees, birds, butterflies bees, birds, butterflies butterflies bees, butterflies bees, butterflies
	VINES					
W	Ampelopsis brevipedunculata	Amur Peppervine, Porcelainberry (Asia): blue fruit	Passiflora lutea Menispermum canadense Parthenocissus quinquefolia Vitis spp. Berchemia scandens	Yellow Passion-flower: flowers, blue fruit Moonseed: blue-black fruit Virginia Creeper: blue-black fruit, fall color Grape: edible blue-black fruit, fragrant flowers Alabama Supplejack: blue-black fruit, glossy leaves	yes yes	birds, butterflies birds, butterflies birds birds, mammals birds, mammals
3	Cardiospermum halicacabum	Love-in-a-puff, Balloonvine (Central/So. America): compound foliage, puffy seedpod, unique seed	Ampelopsis cordata Campsis radicans Staphylea trifolia Aristolochia spp.	Heartleaf Peppervine: blue fruit Trumpet Creeper: compound foliage, showy flowers Bladdernut: shrub, puffy seedpods, showy flowers, bark Pipevine: unique flower	yes	birds hummingbirds butterflies butterflies
1	Celastrus orbiculatus	Asian Bittersweet: showy fruit capsules	Clematis viorna Celastrus scandens	Leatherflower: showy purple flowers, fluffy seedheads American Bittersweet: showy fruit capsules, poor soil Cardina Garilando manting for landous and the second se		hummingbirds birds
2	Clematis terniflora	Sweet Autumn Clematis (Japan): showy	Cocculus carolinus Clematis virginiana	Carolina Snailseed: quantity of red fruit, short vine Virgin's Bower: showy flowers, fragrant		birds, mammals bees
1	Euonymus fortunei	Wintercreeper (China): evergreen,	Bignonia capreolata	Crossvine: semi-evergreen, winter color, climber,	yes	bees, hummingbirds
		maroon color, climber, sun/shade, dry soil, groundcover	Antennaria plantaginifolia Pityopsis (Heterotheca, Chrysopsis) graminifolia Salvia lyrata Polystichum acrostichoides Chrysogonum virginianum	showy flowers, sun/shade, dry soil Pussytoes: poor soil, dry soil, evergreen herb Narrowleaf Silkgrass: poor soil, dry soil, groundcover, silvery leaves, yellow flowers, herb, sun Lyre-leaf Sage: herb groundcover, maroon foliage, sun Christmas Fern: evergreen fern, dry soil, shade 'Eco-Lacquered Spider' - Green-and-gold: evergreen	yes yes	butterflies bees, butterflies bees, butterflies butterflies
1	Hedera helix	English Ivy (Europe): evergreen,	Decumaria barbara	Climbing Hydrangea, Woodvamp: vine, shiny leaves,	yes	bees
		shiny leaves, shade, dry soil, groundcover, climber	Berchemia scandens Bignonia capreolata Mitchella repens Gaultheria procumbens	tardily deciduous, fragrant flower clusters, light shade Supplejack: shiny leaves, blue-black fruit, dry soil Crossvine: semi-evergreen, winter color, shiny leaves, flowers Partridgeberry: evergreen creeping vine, flowers, red fruit, shiny leaves, shade, acid soil Wintergreen, Eastern Teaberry: evergreen groundcover, flowers, red fruit, shiny leaves, shade, acid soil	yes	birds bees, hummingbirds birds bees, birds, mammals
			Pachysandra procumbens	Allegheny Spurge: herb groundcover, yearlong foliage mottles in winter fragrant flower:		
	WILDLAND WEEDS		Asarum canadense	Wild Ginger: herb groundcover, shade, moist soil		15

	Exotic Pest Plant		Native Plant Alternative(s)				
	SCIENTIFIC NAME	COMMON NAME (ORIGIN)	SCIENTIFIC NAME	COMMON NAME	CULTIVAR	WILDLIFE VALUE	
	VINES continued						
1	Lonicera japonica	Japanese Honeysuckle: White	Lonicera sempervirens	Coral or Trumpet Honeysuckle: prolific red flowers, well-	yes	hummingbirds, birds, butterflies	
		black fruit	Lonicera flava Gelsemium sempervirens	Vellow Honeysuckle: yellow flowers, orange fruit Carolina or Yellow Jessamine (Jasmine): semi-evergreen, fragrant flowers, well-behaved, twining, glossy leaves	yes	hummingbirds, birds	
2	Vinca minor	Common Periwinkle (Eurasia):	Phlox stolonifera & P. divaricata	Creeping & Wild Blue Phlox: semi-evergreen herbs,	yes	butterflies	
		flowers, glossy foliage, shade	Carex flaccosperma, C. plantaginea, & C. platyphylla Mitchalla rapas	Blue Wood, Seersucker, & Silver Sedges: herb groundcover, yearlong foliage	100	hirde	
				red fruit, acid-loving, glossy foliage	yes	DIIUS	
			Packera aurea (Senecio aureus) Drvonteris marainalis	Golden Ragwort: dark evergreen foliage, groundcover, yellow fragrant flowers Marginal Woodfern: evergreen fern		bees, butterflies	
2	Wisteria floribunda	Japanese Wisteria: showy flowers,	Wisteria frutescens	American Wisteria & Kentucky W.: showy flowers,	yes	butterflies	
2	Wisteria sinensis	fragrant Chinese Wisteria: similar to above	&/or (W. macrostachya)	fragrant, blooms in first couple of years, not as aggressive			
-	HERB	chillese miscente similar to above					
W	Bupleurum rotundifolium	Hare's Ear (Eurasia): short annual, foliage	Triodanis perfoliata	Venus' Looking-glass: short annual, foliage, showy flowers			
3	Centaurea cyanus	Bachelor's Button, Cornflower (Mediterranean): Showy blue flowers, annual	Collinsia verna Campanulastrum americanum (Campanula americana)	Blue-eyed Mary: showy blue/white spring flowers, annual Tall Bellflower: showy blue summer flowers, biennial		bees bees, butterflies	
			Phacelia bipinnatifida Stokesia laevis	Purple Phacelia: showy purple spring flowers, biennial	νος	bees	
_			Eurybia hemispherica (Aster paludosus ssp. hemisphericus)	Southern Prairie Aster: blue flowers, dry soil	ycs	butterflies	
3	Cichorium intybus	Chicory (Eurasia): blue flowers, poor alkaline soil	Sisyrinchium angustifolium Symphyotrichum (Aster) patens	Blue-eyed Grass: blue flowers, poor alkaline soil Late Purple Aster: blue flowers, poor dry soil	yes	bees, butterflies	
W	Cosmos bipinnatus & C. sulphureus	Cosmos (Mexico): colorful flowers, feathery foliage, annuals, poor soil	Heliopsis helianthoides Bidens aristosa	Smooth Oxeye: yellow summer flowers, poor soil Tickseed Sunflower: yellow summer/fall flowers, annual, feathery foliage	yes e	bees, butterflies bees, butterflies	
2	Daucus carota	Queen Anne's Lace (Europe): showy flowers, butterflies	Angelica venenosa Thaspium spp. Zizia aptera & Z. aurea	Hairy Angelica: showy white flowers Meadow Parsnip: showy yellow flowers Heartleaf & Golden Alexanders: showy yellow flowers		bees, butterflies bees, butterflies bees, butterflies	
2	Dipsacus fullonum	Fuller's Teasel (Europe): unusual flower head	Eryngium yuccifolium	Button Snakeroot, Rattlesnake-master: unusual flower heads, unusual form		bees, butterflies	
3	Eschscholzia californica	California Poppy: showy yellow - orange flowers	Oenothera fruticosa Asclepias tuberosa	Sundrops: bright yellow, poppy-like flowers Butterfly-weed: orange flowers, drought/heat tolerant	yes ves	bees bees, butterflies	
2	Hesperis matronalis	Dame's Rocket (Europe): showy flowers	Phlox spp.	Phlox: showy flowers	yes	bees, butterflies	
3	lris pseudacorus	Yellow Iris (Eurasia): showy flowers, damp soil	Iris virginica Iris fulva Iris versicolor Hymenocallis caroliniana (H. orcidentalis)	Southern Blue Flag, Virginia Iris: blue flowers, damp soil Red Iris: copper flowers, damp - wet soil Harlequin Blue Flag: blue flowers, damp soil Spiderlily: showy white flowers, moist to damp soil		bees bees bees	
2	Lespedeza bicolor	Shrubby Bushclover (Asia): showy flowers, shrublike habit	Baptisia spp. Thermopsis villosa Amsonia tabernaemontana	Wild Indigo: showy flowers, shrublike habit Carolina Bushpea: showy flowers, shrublike habit Bluestar: showy flowers, shrublike habit	yes	bees, butterflies bees, butterflies bees, butterflies	
3	Leucanthemum vulgare (Chrysanthemum)	Oxeye Daisy (Eurasia): white daisy flowers	Erigeron pulchellus Boltonia asteroides Symphyatrichum (Actor) aricaidas	Robin's Plantain: white daisy flowers, spring Boltonia: white daisy flowers, late summer White Heath Actor: white daisy flowers, dry soil fall	yes	bees, butterflies bees, butterflies bees, butterflies	
2	Lysimachia nummularia	Creeping Jenny (Europe): groundcover,	Chrysogonum virginianum	Green-and-gold: evergreen herb, yellow flowers,	yes	butterflies	
		sun or shade	var. australe Phlox bifida Sedum ternatum	groundcover, part sun Glade Phlox: groundcover sun, pale blue flowers Woodland Stonecrop: evergreen groundcover, white flowers		butterflies	
1	Lythrum salicaria	Purple Loosestrife (Eurasia): showy	liarella cordifolia Liatris spp.	Creeping Foamflower: evergreen groundcover, showy flowers Blazing Star, Gayfeather: showy purple flowers, various species bloom over long paried summer fall	yes yes	bees, butterflies	
		······, ····	Lobelia spp. Eupatorium spp. Chelone spp. Physostegia virginiana Conoclinium coelestinum	Lobelia, Cardinal Flower: showy blue or red flowers, moist-wet soil Joe-Pye-weed: showy purple flowers, moist-wet soil Turtlehead: showy white or pink flowers, wet soil Obedient Plant: showy pink flowers, moist soil Mistflower: showy blue flowers, moist-wet soil	yes yes yes yes	hummingbirds, butterflies bees, butterflies butterflies bees bees, butterflies	
			Asclepias incarnata Asclepias purpurascens Lysimachia ciliata	Swamp Milkweed: showy pink flowers, moist-wet soil Purple Milkweed: rose-purple flowers, moist-dry soil Fringed Loosestrife: showy yellow flowers, moist-wet soil	yes	bees, butterflies bees, butterflies bees	
W	Muscari neglectum (M. atlanticum) & M. botryoides	Grape Hyacinth (Europe): blue flowers, spring bulb	Camassia scilloides Mertensia virginica Iris cristata	Wild Hyacinth: blue flowers, spring bulb Virginia Bluebells: showy blue spring flowers Crested Iris: showy blue spring flowers	yes	bees, butterflies bees bees	
3	Ornithogalum umbellatum	Star-of-Bethlehem (Europe): white spring flowers, bulb	Claytonia virginica Thalictrum thalictroides	Spring Beauty: white spring flowers, bulb Rue Anemone: white spring flowers, long bloom	yes	bees bees	
1	Polygonum cuspidatum	Japanese Knotweed, Fleeceflower,	Aruncus dioicus	Goat's-beard: tall, white summer flower panicles		bees	
		Mexican Bamboo: tail, white summer flower panicles, shrublike	veronicastrum virginicum Ageratina altissima Cimicifuga racemosa Clethra alnifolia Itaa virginica	Univer's Koot: tail, white summer flower spires White Snakeroot: tail, white fall flowers Black Snakeroot: tall white summer flower spires Summersweet: shrub, fragrant white summer flowers	yes yes yes	bees, butterflies bees, butterflies bees, butterflies bees, butterflies bees	
			neu virginika	virginia sweetspire: surub, white summer flowers, fail Color	yes	Dees	

K E Y



To Minimize the Spread of Invasive Plants the FLORIDA DEPARTMENT OF TRANSPORTATION Adopts These VOLUNTARY CODES OF CONDUCT

The Florida Department of Transportation is believed to be the first state agency in the nation to adopt a voluntary code of conduct to minimize the spread of invasive plants. The code defines conduct designed to curb the use and distribution of invasive plant species through self-governance and self-regulation. In 2006, the FDOT refined the Voluntary Codes of Conduct developed at the Workshop on Linking Ecology and Horticulture to Prevent Plant Invasions. This event was convened in 2001 by the Missouri Botanical Garden and the Royal Botanic Gardens, Kew, and brought together some of the most respected leaders in their fields for the first time. The aim of the workshop was to explore and develop workable voluntary approaches for reducing the introduction and spread of non-native invasive plants by commercial, professional and government groups. The FDOT is incorporating the code into their statewide policy for roadside landscaping and other related business practices, and the document is now page one of the Department's Guide to Chemical Weed and Grass Control. The action by the Department's Chief Engineer in 2006 increased statewide awareness and understanding of invasive plants at all levels within the agency. In November 2008, new Chief Engineer Brian Blanchard renewed the department's commitment by re-endorsing the Voluntary Codes of Conduct.

The Department routinely takes the following actions:

- Complies with Federal, state, and local invasive plant legislation.
- Consults with regional experts and stakeholders to determine which species are known to be invasive.
- Cooperates with owners and managers, and encourage the management of invasive plants on adjacent public and private lands.
- Supports the development of environmentally sound methods to manage invasive plants.
- Encourages the use of non-invasive plants.
- Develops specifications to lessen the impact of invasive plants.
- Provides training on invasive plant identification and management.
- Encourages employees, consultants, and contractors to participate in training on invasive plants.
- Disposes of unwanted invasive plants and plant parts using appropriate safeguards.
- Participates in Florida's Invasive Species Partnership and Cooperative Weed Management Areas (CWMAs).

The Department will evaluate the following practices and, where appropriate, will take steps to implement:

- Phase out the use of Florida Exotic Pest Plant Council (FLEPPC) Category I and II plants, and other species known by the Department to be invasive.
- Advise plant nurseries of the Department's intent to phase out the use of invasive plants.
- Encourage plant nurseries to increase availability of non-invasive plants.
- Take precautionary actions to reduce the probability that invasive plants are moved on construction and maintenance equipment and materials.
- Develop a system-wide invasive plant management plan with budget projections.
- Develop innovative, effective, and enforceable specifications for management and removal of invasive plants from the right-of-way.
- Schedule opportunities to evaluate the effectiveness of these voluntary codes of conduct.

http://www.dot.state.fl.us/emo/

WeedUS Plus: Expanded Database of Plants Invading Natural Areas in the U.S.

Jil M. Swearingen, National Park Service, Center for Urban Ecology, Washington, DC

Overview

The WeedUS Database was initiated in 1997 to address the need for current distribution information on exotic invasive plants affecting natural areas and ecosystems in the United States, including Hawaii and Alaska. This information was not readily available or compiled in an accessible manner prior to this effort. In October 2008, a much expanded version of the WeedUS database was launched at http://www.invasive.org/weedus/index. html/. The database was developed by the University of Georgia's Center for Invasive Species and Ecosystem Health (CISEH). For each invasive species in the database, the new WeedUS format provides an individual web page featuring images from the Center's large image database, distribution maps by county or state, and a link to native species alternatives provided by the Lady Bird Johnson Wildflower Center. Native origin also is provided in the database, which can be useful for predicting the potential spread and adaptability of invasive species. Additionally, WeedUS will soon allow users to query invasive plant lists for one or more states, national parks, or listing source. Regular updating will be performed by a designated contact for each listing source (e.g., state Exotic Pest Plant Council (EPPC), federal agency, The Nature Conservancy, etc.) who will be able to log-on to the site and add or remove species from their lists. A list-serve will be created to keep designated contacts and other WeedUS users informed of changes.

Background

As of November 2008, WeedUS had identified 1,026 invasive plants affecting natural areas, including over 600 species affecting national parks. Unlike many state and federal weed lists, WeedUS focuses solely on natural ecosystems, excluding weeds of agricultural and other heavily managed or harvested lands or developed landscapes. As a result, it offers a more accurate picture of the extent, impact and threat of invasive plants to the nation's natural ecosystems.

Qualifications for Inclusion

In order to be considered for inclusion in the WeedUS database, a plant must have been introduced to the invaded area by humans rather than by wind, water, wildlife or other non-human-mediated mechanisms. In addition, the

species must currently be causing a notable impact to natural habitat, native species or ecological functions. Species included on "watch lists" or those that are considered to be potentially invasive do not qualify for inclusion. Individuals requesting that species be added to the database are asked to work through a state or regional EPPC, Invasive Species Council, federal, state, or local agency or other qualified agent to ensure proper identification of the species and confirmation of the extent of its distribution.

Taxonomic Authority

Scientific names used in WeedUS are based on the U.S. Department of Agriculture's PLANTS Database and website (http://plants.usda.gov/index.html).

Information Sources

Published reports on invasive species that conformed to the qualifying conditions were gathered and evaluated. These included The Nature Conservancy's survey of exotic plants affecting TNC preserves; plant lists produced by EPPCs and related organizations, and state and federal agencies; scientific papers, and other published records. A survey of national parks was conducted by the author largely by e-mail beginning in 1998.



Using WeedUS to Assess And Combat Invasive Plants In National Parks

The WeedUS database has proven to be a useful tool for evaluating and combating non-native invasive plant species within the National Park Service. Beginning in April 1998, a survey was initiated to ascertain the extent of exotic plant species invading national parks. This survey resulted in a fairly comprehensive list of over 600 species that was incorporated into the WeedUS Database. The full listing can be found at http://www.nps.gov/plants/ alien/list/nationalparks.htm. In most cases, data for invasive species in national parks corroborates reports made by other agencies and organizations. This information is essential for substantiating the need for

funding to support monitoring, control, and prevention efforts and for predicting the spread of invasive species. Occurrence and distribution data from WeedUS have been used to justify funding assistance for the National Park Service's Exotic Plant Management Teams.

Participating Parks and Their Invasive Plants

Sixty-one national parks from all over the United States participated in the survey of exotic invasive plants impacting natural areas and ecosystems. They are listed in the box to the right according to the region they represent. The state(s) the park is located in, the park's four letter code, and the number of non-native invasive plant species impacting the ecosystems of each park is provided. The number of species may be underrepresented for some parks due to differences in reporting. If you know of a species that is not in the database, you are encouraged to contact the author.

Acknowledgements

I am grateful to Cindi Hoover and Cortney Price for assisting with data entry and for suggesting the name "WeedUS," to Tommy Foltz for verifying and updating national park data, to Larry Morse and Carey Minteer for taxonomic cross-checking and verification, to Stephanie Lu for assistance with species nativity, to Olivia Kwong for technical assistance in publishing, enhancing, and maintaining plant lists on the Weeds Gone Wild website, and to Chuck Bargeron, Dave Moorhead and Keith Douce of the University of Georgia CISEH for their support and assistance in transforming WeedUS into a more usable resource with advanced capabilities.

Jil M. Swearingen, National Park Service, Center for Urban Ecology, Washington, DC, 202-342-1443, ext. 218, e-mail: Jil_Swearingen@nps.gov Results from sixty-one national parks surveyed for exotic invasive plants impacting natural areas and ecosystems, listed by region and indicating number of species causing impacts.

Great Lakes Region (IL, IN, MI, OH, WI)

- Indiana Dunes National Lakeshore (Indiana) INDU 23
- Saint Croix National Scenic Riverway (Wisconsin) SACN 10

Mid-Atlantic Region (DC, DE, MD, NJ, PA, VA, WV)

- Antietam National Battlefield (Maryland) ANTI 83
 Appomattox Court House National Historical Park (Virginia) APCO 11
- Booker T Washington National Monument (Virginia) BOWA 9
- Catoctin Mountain Park (Maryland) CATO 15
- Chesapeake and Ohio Canal National Historical Park (Maryland, Washington, D.C., and West Virginia) CHOH 29
- Colonial National Historical Park (Virginia) COLO 110
- Delaware Water Gap National Recreation Area (Pennsylvania) DEWA 10
- Eisenhower National Historic Site (Pennsylvania) EISE 5
- Fredericksburg & Spotsylvania National Military Park (Virginia) FRSP 11
- Gettysburg National Military Park (Pennsylvania) GETT 12
- George Washington Birthplace National Monument (Virginia) GEWA 15
- George Washington Memorial Parkway (Virginia) GWMP 18
- Harpers Ferry National Historical Park (Maryland, Virginia, West Virginia) HAFE 51
- Manassas National Battlefield Park (Virginia) MANA 18
- Monocacy National Battlefield Park (Maryland) MONO 49
- National Capital Parks Central (Washington, D.C.) NACC 1 **Change to NAMA
- National Capital Parks East (Washington, D.C.) NACE 144
- Petersburg National Battlefield (Virginia) PETE 27
- Prince William Forest Park (Virginia) PRWI 10
- Richmond National Battlefield Park (Virginia) RICH 20
- Rock Creek National Park (Washington, D.C.) ROCR 41
- Shenandoah National Park (Virginia) SHEN 29
- Thomas Stone National Historic Site (Maryland) THST 6
- Wolf Trap National Park (Virginia) WOTR 5

North Central Region (IA, MN, ND, NE, SD)

- Badlands National Park (South Dakota) BADL 39
- Scotts Bluff National Monument (Nebraska) SCBL 8
 Theodore Roosevelt National Park (North Dakota)
- THRO 28

Northeast Region (CT, MA, ME, NH, NY, RI, VT)

- Acadia National Park (Maine) ACAD 13
 - Minute Man National Historical Park (Massachusetts) MIMA 15
 - Weir Farm National Historical Park (Connecticut) WEFA 6

Northwest Region (ID, MT, OR, WA, WY)

- Craters of the Moon National Monument (Idaho) CRMO 16
- Devils Tower National Monument (Wyoming) DETO 2
- Glacier National Park (Montana) GLAC 5
- Yellowstone National Park (Wyoming) YELL 114

Pacific Islands (HI)

• Haleakala National Park (Hawaii) HALE 291

South Central Region (AR, KS, LA, MO, OK, TX)

- Lake Meredith National Recreation Area (Texas) LAMR 4
- San Antonio Missions National Historical Park (Texas) SAAN 7

Southeast Region (AL, FL, GA, KY, MS, NC, SC, TN)

- Big Cypress National Preserve (Florida) BICY 2
- Blue Ridge Parkway (North Carolina) BLRI 28
- Dry Tortugas DRTO 1
- Everglades National Park (Florida) EVER 9
- Great Smoky Mountains National Park (North Carolina & Tennessee) GRSM 41
- Kings Mountain National Military Park (South Carolina) KIMO 11
- Stones River National Battlefield (Tennessee) STRI 71
- Vicksburg National Military Park (Mississippi) VICK 12

Southwest Region (AZ, CA, CO, NM, NV, UT)

- Chiricahua National Monument (Arizona) CHIR 45
- Death Valley National Park (California) DEVA 82
- Dinosaur National Monument (Colorado) DINO 21
- Fort Bowie National Historic Site (Arizona) FOBO 21
- Glen Canyon National Recreation Area (Utah) GLCA 19
- Grand Canyon National Park (Arizona) GRCA 61
- Lake Mead National Park (Nevada) LAME 45
- Organ Pipe National Monument (Arizona) ORPI 23
- Presidio National Park (California) PRES 22
- Redwood National Park (California) REDW 24
- Rocky Mountains National Park (Colorado) ROMO 31
- Sequoia and Kings Canyon National Parks (Californina) SEKI 15
- Wupatki National Monument (Arizona) WUPA 3
- Yosemite National Park (California) YOSE 18

CALL FOR ABSTRACTS



Florida Exotic Pest Plant Council's 24th Annual Symposium

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

We invite abstract submissions for contributed oral or poster presentations at the 2009 FLEPPC Annual Symposium. The meeting will be held Tuesday, May 26th through Friday, May 29th in Delray Beach, Florida, at the Marriott Hotel.

Deadline for Abstract Submissions: January 15th 2009

Program Topics:

Submissions are welcome for any area of invasive plant species investigation, including but not limited to:

• Ecology

- Management
 Evolutionary Biold
- Risk Assessment

- Policy and Regulation
- Evolutionary Biology
- Interdisciplinary Projects

SUBMIT YOUR ABSTRACT ONLINE!

www.fleppc.org/Symposium/2009/abstactsubmission.html Authors will be notified of acceptance or rejection no later than February 1st, 2008. Online submission of abstracts is strongly encouraged.

LeRoy Rodgers, FLEPPC Program Chair, South Florida Water Management District 561-682-2773 voice; 561-682-5044 fax, lrodgers@sfwmd.gov

11TH ANNUAL SOUTHEAST EXOTIC PEST PLANT COUNCIL SYMPOSIUM Creating Sustainable Landscapes for the Future

May 13-15, 2009 Georgetown, South Carolina

Plenary speakers

Kathy O'Reilly-Doyle

Biologist, Partners for Fish and Wildlife Program, US Fish and Wildlife Service

Jack M. Whetstone

Associate Professor, Extension Aquatic Specialist-Clemson University, Department of Forestry and Natural Resources, SC Sea Grant Extension Program, SC DNR-Clemson University Cooperative

Hotel

Quality Inn and Suites 210 Church Street Georgetown, SC 29440 843-546-5656

Concurrent Sessions and Panel Discussions

- Building Cooperative Weed and Invasive Species Management Areas
- Early Detection and Rapid Response Efforts
- Current Research in Control and Restoration
- Screening Species for Use in Biomass Production

Thursday Field Trips

- Bell Baruch and Hobcaw Barony
- Francis Marion National Forest .
- Mepkin Abbey and Mepkin Gardens
- Cape Romaine National Wildlife Refuge
- Historic Plantations/Historic Landscapes

Contact for Posters and Abstract

Submissions: Meredith Malone, mmalone@TNC.org

Submit abstracts online: http://www.se-eppc.org/2009/abstractsubmission.html Vendor and Sponsorship Contact: Brenda Davis, brenda-davis@sc.rr.com General Information: Robin Mackie, rmackie@fs.fed.us

For more information: www.se-eppc.org/2009/





GA-EPPC 2008 Annual Meeting Informative and Productive

by Brian Arnold, Natures Landscape Services, Inc.

he Georgia Exotic Pest Plant Council (GA-EPPC) held their annual meeting at the Elachee Nature Science Center in Gainesville, Georgia on September 19. Over fifty people attended, including professionals involved in forestry and wildlife, natural resource management, and the horticulture industry. Presentations addressed the severity of the environmental damage caused by invasive plants, as well as current and promising methodologies of management. The Elachee Nature Science Center, an outdoor classroom used to teach environmental science to both youth and adults, was a fitting location as it has been pioneer-like in forging a cooperative effort with local government, utilities, and other prominent institutions.

Connie Gray, President of GA-EPPC, called the meeting to order.

Dr. Dave Moorhead, Professor of Forestry and Natural Resources at the University of Georgie (UGA) Warnell School of Forestry Resources, and co-director of the Center for Invasive Species and Ecosystem Health (CISEH), discussed the latest findings in invasive plant establishment, spread and control. Dr. Moorhead also discussed the severity of spread of several species, reinforcing the Council's need to be active.

Thomas Farmer, Director of Government Relations for The Nature Conservancy in Georgia, discussed the current environment of governmental policy and some of the obstacles that are hindering progress relating to control of invasive plants.

James Johnson, Forest Health Coordinator with the Georgia Forestry Commission, provided an update on the management of cogongrass.

Chuck Bargeron, Information Technology Director at the UGA CISEH, showed how invasive species are being mapped and recorded and, most importantly, how attendees can contribute to this critical element of invasive plant management.

Nathan Klaus, Wildlife Biologist with the Georgia Department of Natural Resources Non-Game Division, gave insight as to when fire is and isn't useful in controlling invasive plants and restoring habitat. Attendees learned how simple disturbances of a natural environment predispose it to the establishment of invasive plants.

Marty Langmaid of Monrovia Nurseries, together with Rick Barnes of Nature Scapes, represented the Georgia Green Industry Association's Invasive Plant Task Force. Mr. Langmaid explained practices used by his company and others for controlling invasive plants, including an inventory system that prevents the sale of a given plant in areas where it has been identified as invasive.

A portion of the day was utilized to discuss how the Council should move forward in addressing governmental policy, communication and fundraising. Attendance at the annual meeting was encouraging but considering the impact that invasive plants are having in both rural and urban environments, greater involvement is needed. Recognizing this, Ms. Gray stressed the need to increase general membership and their involvement in the Council.

Methods of educating the public to increase awareness of and sensitivity to the problems associated with invasive plants were addressed as well. Cynthia Taylor of the Elachee Nature Science Center shared her experience in educating youth to discuss how the Council's educational efforts can accomplish council goals as well as aid schools in achieving curriculum requirements. Ms. Taylor presented an overview of how the cooperative effort was forged.

The meeting concluded with a field session at the Center, led by Mr. Bargeron and Ms. Taylor.

Future functions are being planned, including a workshop to teach landowners methods of controlling invasive species in early 2009. Check the GA-EPPC website (www.gaeppc.org) for the date and location.



Lettuce Lake Park Invasive Species Display

By Jennifer Roberts, Environmental Specialist II Hillsborough County Parks, Recreation and Conservation Department

Lettuce Lake Park in Hillsborough County, Florida receives nearly one million visitors each year. In 2007, county Invasive Species Task Force members Jennifer Roberts and Jason Chilson received funding from FLEPPC's Kathy Craddock Burks Education and Outreach Grants program to purchase an educational exhibit for the Lettuce Lake Park Visitor Center in Tampa. The display was created to increase awareness of non-native, invasive plants in Hillsborough County and throughout Florida. The display focuses on four FLEPPC Category I species that are of considerable concern to the park: cogongrass (Imperata cylindrica), Old World climbing fern (Lygodium microphyllum), Brazilian pepper (Schinus terebinthifolius) and water lettuce (Pistia stratiotes). Identification, prevention and control of these species are the main objectives of the display. The table-top display is easily assembled and disassembled as an educational exhibit at local schools and community events. Brochures, flyers, non-native plant identification guides, educational CDs and videos accompany the display for distribution to the public. The visitor center is located at 6920 E. Fletcher Avenue in Tampa. Hours of operation are Monday through Friday from 9:00 am to 3:00 pm, and Saturdays and Sundays from 1:00 pm to 5:00 pm.

For more information, contact the author at (813) 672-7876 ext. 221, or robertsje@hillsboroughcounty.org

FLEPPC's Kathy Craddock Burks Education Grant REQUEST FOR PROPOSALS – FY2009

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

Award preference will be given to proposals that:

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

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

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

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



FLEPPC Julia Morton Invasive Plant Research Grant Program REQUEST FOR PROPOSALS • Deadline: February 27, 2009

Basic eligibility requirements:

To be eligible for funding, applicants must be an undergraduate or graduate student enrolled at an accredited institution of higher learning anywhere within the United States. However, the research must be on a listed Florida invasive plant (http://www.fleppc.org/list/ list.htm). An accompanying letter of recommendation from a faculty advisor is strongly encouraged. The Florida Exotic Pest Plant Council (FLEPPC) has available funding for a small number of research grants/scholarships for students conducting studies related to invasive exotic plant management in Florida.

The deadline for proposal submission is February 27, 2009. Written proposals should be no more than three pages in length and should request funding for no more than \$2,500. The proposal should include a summary of the research project and its relationship with Florida exotic pest plant management problems. Particular plant species involved in the study should be one or more of the Category I or Category II exotic pest plant species listed by FLEPPC (see: www.fleppc.org). In addition, the applicant should provide complete contact information and a detailed budget, with an explanation of how the funding will be used. Examples include (but are not limited to) travel funds for field work, funds for research equipment or supplies (or temporary use of specialized equipment), a 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.



Proposals are due by 5:00 p.m. 2/27/09. Send proposals by e-mail to: Dr. Betsy Von Holle, vonholle@mail.ucf.edu



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COMPLETE INDEX TO WILDLAND WEEDS

Winter 1997 (charter issue) through Fall 2008. Index includes tables of contents, invasive plant lists, author names and plant species. Available on the SE-EPPC website: www.se-eppc.org



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Idaho Invasive Species News

The Idaho Invasive Species Law was enacted in 2008 to address the increasing threat of invasive species in the State of Idaho. The intent of the law is to provide policy direction, planning and authority to combat invasive species in the state and to prevent the introduction of new invasive species. This legislation establishes the duties of the Idaho State Department of Agriculture (ISDA) as the lead agency and authorizes the department to promulgate rules and conduct inspections as necessary.

As part of this program, Idaho recently launched an aggressive education and outreach campaign. The campaign's goal is to reach Idaho audiences through targeted outreach avenues. This "No Hitchhiking" poster is a collaborative effort between ISDA, the Idaho Transportation Department and the Idaho Weed Awareness Campaign. These posters are placed at all Idaho highway gateways and rest stops – they encourage the traveling public to be aware of unintentional hitchhikers.



Amy Ferriter, Invasive Species Coordinator, Idaho State Department of Agriculture, aferriter@agri.idaho.gov



Internodes

Mark Your Calendar

- Weed Science Society of America (WSSA) and Southern Weed Science Society joint annual meeting, Orlando, FL. February 9-12, 2009. www.wssa.net
- NIWAW 10, National Invasive Weeds Awareness Week, Washington DC. February 22-27, 2009. http://www.nawma.org/index. html – click on NIWAW X or contact Lee.VanWychen@wssa.net
- Association of Southeastern Biologists, Birmingham, AL. April 1-4, 2009. www.asb.appstate.edu
- Florida Vegetation Management Association meeting, Daytona, FL. April 14-17, 2009. http://www.fvma.info
- The 16th International Conference on Aquatic Invasive Species (ICAIS), April 19-23, 2009. Montreal, Canada. www.icais.org
- UF/IFAS Aquatic Weed Control Short Course, Coral Springs, FL. May 4-7, 2009. Aquatic, upland and invasive weed control; aquatic plant identification. http://conference.ifas.ufl.edu/
- 11th Annual Southeast Exotic Pest Plant Council (SE-EPPC) Symposium hosted by the South Carolina EPPC (SC-EPPC), *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, Delray Beach, FL. May 26–29 2009. http://www.fleppc.org/ Symposium/2009/
- 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."* 23-27 August, 2009. Perth, Australia. http://www.ser.org/
- 12th European Weed Research Society (EWRS) International Symposium on Aquatic Weeds. Jyväskylä, Finland. August 24–28,

2009. E-mail: 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
- 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

The Habitattitude[™] campaign was recently unveiled at the first joint trade show between the pet and aquarium industry and the nursery and landscape industry. By drawing attention to the potential environmental ramifications of the aquarium and water garden hobbies while promoting responsible consumer behaviors, Habitattitude[™] seeks to eliminate the transfer and survival of any species outside of enclosed, artificial systems which have the potential to cause the loss or decline of native plants and animals. The web site is part of the Aquatic Nuisance Species (ANS) Task Force public awareness campaign and is sponsored by the U.S. Fish and Wildlife Service. http://www.habitattitude.net/

The North Carolina Sandhills Weed Management Area (NCSWMA) is composed of federal, state, and local agencies working with public and private landowners to prevent noxious and invasive weeds from causing ecological and economic damage in the region. Organized in 2006 with assistance from the US Army Engineer Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL) and the DoD Legacy Resource Management Program, the NCSWMA website is at www.ncswma.org

Publications

Program of Research on the Economics of Invasive Species Management – Fiscal 2003-2006 Activities, by E. Ashley, C. Osteen, W. Hahn, et al. 2007. USDA Economic Research Service, Washington, DC, 38 pp. http://www.ers.usda. gov/Publications/AP/AP021

Unmanned Aircraft Systems (UASs) for Ecological Research and Natural-Resource Monitoring (Florida), by A.C. Watts, W. S. Bowman, A.H. Abd-Elrahman, et al. 2008. Ecological Restoration 26(1):13-14. Internet Forums as Potential Invasion Routes for *Exotic Plants*, by Y. Reyjol. 2007. Biodiversity and Conservation 16:2231-2232.

Comparing the Rate of Invasion by Heracleum mantegazzianum at Continental, Regional, and Local Scales, by P. Pysek, V. Jarosik, et al. 2008. Diversity and Distributions 14:355-363. "At the continental and regional scales, humans played a crucial role in the invasion of *H. mantegazzianum* by planting it as a garden ornamental...Species traits played an important role in local spread, resulting in the colonization of new sites."

Preventing Horticultural Introductions of Invasive Plants: Potential Efficacy of Voluntary Initiatives, by J.W. Burt, A.A. Muir, J. Piovia-Scott, et al. 2007. Biological Invasions 9(8):909-923. A survey of nursery professionals showed "...only 7% of respondents had heard of the St. Louis Voluntary Codes of Conduct..."

Inventory and Survey Methods for Nonindigenous Plant Species, Ch. 5, p. 46, Training – discusses training field crews to identify and record nonindigenous plant species by placing plastic plants within known infestations of weeds. If these locations are not subsequently recorded by the crews during ID exercises, trainees are sent back out until the plants are found. "It is especially humbling if the plastic weeds are labeled with a note telling anyone who finds them to return them to the trainer."

An Asian Orchid, Eulophia graminea (Orchidaceae: Cymbidieae), Naturalizes in Florida, by R.W. Pemberton, T.M. Collins, and S. Koptur. 2008. Lankesteriana 8(1):5-14. The authors request help in finding new populations in Florida and ask for photographs or specimens, and location and occurrence details.

Roadside Weed Management by B. L. Harper-Lore, M. Johnson and M.W. Skinner, eds. 2007. USDA Federal Highway Administration Publ. No. FHWA-HEP-07-017. 369 pp. Goes "beyond the law and policy of weeds to the applied science of weed control and management."

The 2008-2012 National Invasive Species Management Plan (the first revision of the 2001 plan) has been released by the National Invasive Species Council. The plan was developed collaboratively by 13 federal departments and agencies and their partners. It is available online at: http://www.doi.gov/ news/08_News_Releases/080801.html

Wildand Fire in Ecosystems: Fire and Nonnative Invasive Plants, by K. Zouhar, J. K. Smith, S. Sutherland, M.L. Brooks (2008) is available from the Rocky Mountain Research Station publications website (www.fs.fed.us/rm/pubs/ rmrs_gtr042_6.html). This comprehensive,



Invasive Plants of the United States DVD-ROM – Identification, Biology and Control, FHTET-08-11 is a collaboration between the USDA Forest Health Technology Enterprise Team and the University of Georgia Center for Invasive Species and Ecosystem Health (CISEH). The DVD compiles information in recent publications from the USDA Forest Service, USDA APHIS PPQ, The National Park Service, US Fish and Wildlife Service, The Nature Conservancy, The Plant Conservation Alliance, The Southeast Exotic Pest Plant Council, the Invasive Plant Atlas of New England and the University of Florida Center for Aquatic and Invasive Plants. It contains 2,738 images by 187 photographers covering 218 species. Copies are free from Richard Reardon, FHTET, USDA Forest Service, Morgantown, WV, rreardon@fs.fed.us, 304-285-1566. Also available online at: http://www.invasive.org/weesdcd/

nation-wide review synthesizes the current knowledge regarding the effects of fire on nonnative invasive plants, the effects of nonnative invasives on fire regimes, and the use of fire to control invasive plants. It also describes emerging fire-invasive issues in each of 7 bioregions in the United States, including Hawaii and Alaska. The volume can be used in fire management and ecosystem-based management planning. 355 pp.

CDs

1,200 Weeds of the 48 States and Adjacent Canada, \$49.95 - XID Services has released this DVD as a follow-up to the 1,000 Weeds of North America *CD*, a comprehensive weed identification database. It includes an interactive key with a graphical user interface, illustrated glossary, and county level distribution maps (courtesy of Biota of North America Program (BONAP)). www.xidservices.com

Invasive Exotic Plants of North Carolina is now available electronically on the North Carolina Department of Transportation's website: http://www.ncdot.org/doh/preconstruct/pe/neu/ NEUProcedures/default.html

Intended as a field guide, the ultimate goal is to provide land managers with hard copies whenever funds for printing become available. The primary purpose of the guide is to provide assistance in the identification of those 74 plants that pose the most threat to wildlife habitat and natural areas, the habitats most susceptible to invasion, and methods to control or eradicate these plants. The guide also contains information on native plant alternatives, the SE-EPPC mapping project, EDDMapS, for early detection of infestations, additional resources for exotic and native plants, and the Federal Noxious Weed List.

—Cherri Smith, North Carolina Department of Environment and Natural Resources, cherri. smith@ncmail.net

In the News

Invasive Plants in Galápagos May Really Be Native by Henry Fountain, November 20, 2008 "...according to a study in Science: some of these pariah plants turn out to be native after all. They predate humans in the Galápagos by thousands of years. The evidence for this is in the form of fossilized pollen grains found in sediment cores from bogs on Santa Cruz island in the heart of the archipelago." http://www.nytimes.com/2008/11/25/ science/25obplants.html?_r=1&-ref=science

Reported in the Buffalo News World & Nation, August 28, 2008 — A mother of two survived five nights buried in a kudzu infestation along U.S. 321 in Lenoir, North Carolina. The woman's pickup truck jumped an 18-foot embankment and landed 100 feet below in a deep ravine covered over in kudzu. Hundreds of people had been searching for five days but the vehicle was obscured by the noxious vine. http://www.buffalonews.com/nationalworld/ national/story/425026.html

Invasive Plants Threaten Florida's Native **Species** by Steve Patterson, The Times-Union, Nov. 12, 2008 — In sand dunes by the St. Johns River, chain-saws and squirt bottles became weapons to defend Florida's ecology. Land-clearing crews crossed Buck Island in teams, some slicing through young trees as others sprayed herbicides to kill the fresh-cut stumps. Their targets were the Jacksonville island's 5,000 shoots of saltcedar [Tamarisk], a fast-spreading Asian plant that long ago overran the American Southwest and is emerging on the Atlantic coast. The project was organized by the First Coast Invasive Working Group, a collection of governments and landowners trying to control an explosion of plants that aren't native to the state. http://www.floridainvasives.org/FirstCoast/ http://www.jacksonville.com/tu-online/ stories/111308/met_355308290.shtml (see article in this issue on the Florida Invasive Species Partnership, p. 6-8).

From the **KO Kudzu** September newsletter: The "joint study" behind the Beacon Restaurant in Spartanburg, SC with Matt Nespeca's SC-EPPC "kudzu control with chemicals team" has gone so well that we now have a second "multi-discipline" undertaking. With support by Travis Rogers from Dow AgroSciences, and with donation of time and equipment by certified herbicide applicator Tommy Eubanks of Helena Application Services, Milestone HMV[®] was sprayed on four to five acres of kudzu behind the Preservation Trust homes on Carlisle Street in Spartanburg. The marriage of well-managed herbicide application and follow-up with non-chemical methods appears to work well. http://kokudzu.com/JointStudy.html



Howls of victory sounded through the area as Spartanburg Urban Youth Corps members in South Carolina carried out the largest Kudzu crown of the day. And what a crown it was! This monster measured 25½ inches (65 cm) in circumference, surpassing the previous champion. Thanks to the work of volunteers like the Spartanburg Urban Youth Corps, the appearance of the site continues to improve. http://www.kokudzu.com/ Collins_Barksdale.html **INVASIVE SPECIES: In war against invasive plants, nurseries play unwitting role** *by Scott* Streater special to Lond Letter July 31, 2008

Streater, special to Land Letter, July 31, 2008 -"The most powerful incentive to produce and sell is demand," said Wayne Mezitt, the past president of the American Nursery and Landscape Association, and the current chairman of Weston Nurseries in Hopkinton, Mass. Gary Smith, an ecologist and member of the American Society of Landscape Architects, says the key is to provide consumers with alternatives to invasive plants. "We've got to find a way to keep the sexy plants in cultivation, but do it in such a way as to not encourage the use of invasive plants," he said. "Otherwise people will get bored with the native thing, and they'll go back to the thing they used to do, and that's not good."

http://www.eenews.net/Landletter/ 2008/07/31/ archive/1?terms=unwitting

Grants

The Florida Exotic Pest Plant Council is soliciting proposals for the FLEPPC Kathy Craddock Burks Education Grant and the Julia Morton Invasive Plant Research Grant. See RFPs on page 22 or visit the FLEPPC website at: www.fleppc.org

From the Other Side

Be sure to visit the **Center for Invasive Plant Management** (CIPM) for everything you need to know about invasive plant species in the West. Although oriented mostly toward western states, CIPM provides resources pertinent to the entire nation, including a substantial compilation of grant opportunities and a bimonthly e-newsletter on invasive plant science, management, education, and policy. See their website at http://www. weedcenter.org/

Aquatic Invasive Species News In A Nutshell focuses primarily on regional and aquatic issues, but it also contains terrestrial, national and international invasive events of interest. Published by the Pacific States Marine Fisheries Commission, Portland, Oregon, phone (503) 595-3100 http://www.psmfc. org/. Executive Editor: Joan Cabreza, e-mail: Joan_cabreza@psmfc.org; Managing Editor Stephen Phillips, ANS Program Manager, e-mail: Stephen_phillips@psmfc.org.

Hydrilla in Idaho

Hydrilla (*Hydrilla verticillata*) was identified in July 2008 in a small warm-water ditch in suburban West Boise, ID. There is no public access to the ditch and 21 properties have been found to have hydrilla present in a 400 meter area. The ditch receives geothermal water from several wells in the area and remains warm throughout the winter. Hydrilla also was identified in the Bruneau River near Bruneau, ID in December 2007. A subsequent survey found a 7-mile infestation extending toward CJ Strike Reservoir. ISDA, in cooperation with Idaho Fish and Game. Idaho Department of Environmental Quality, Idaho Office of Species Conservation, US Fish and Wildlife Service (USFWS) and landowners, worked together on a treatment plan and the river was treated with a diquat injection. Diver assisted suction dredging later was used to remove the plants and tubers from the upstream end of the infestation. The distribution of established hydrilla populations in Idaho appears to be limited to geothermally influenced warm-water areas. Due to the aggressive nature of this plant, the Idaho State Department of Agriculture (ISDA) is dedicated to the eradication of hydrilla from Idaho wherever it occurs. For more information on the progress of the hydrilla eradication program in Idaho, contact Tom Woolf, Aquatic Plant Program Manager: (208)-332-8564, twoolf@agri.idaho.gov

Q&A

Date: Friday, August 01, 2008 **Subject:** 'Plant of the Week'

Attached is our Plant of the Week for 8/4/08, *Clematis terniflora*, Virgin's bower. This week, we have selected a hardy vine that will bloom well from Maine to Florida, and there's not too many of those! It's the cousin of a Northern favorite, that we're in love with down here in Florida! We think you will be, too. — Sales

Date: Thu, 11 Sep 2008 Subject: 'Plant of the Week' Hello,

The plant you are promoting this week is a species we have been working very hard to control here in north Florida. It is a very aggressive exotic invasive that is extremely difficult to kill. The University of Florida just completed a research project on the best herbicides to use to control this species. The City of Gainesville and the Florida Department of Environmental Protection have spent tens of thousands of dollars on eradication efforts. The plant completely infests many natural areas where I live, overwhelms the native vegetation and degrades the habitat value for wildlife.

It is disheartening to realize that people can go out and buy this plant we are trying so hard to keep from taking over. I hope you will reconsider selling this plant.

—Erick Smith, Urban Forester

Videos

New documentary videos have been produced as part of the National Invasive Species Program from the USDA Forest Service including: Defending Favorite Places - How Hunters and Anglers Can Stop the Spread of Invasive Species and a training video for road maintenance crews, "Dangerous Travelers: Controlling Invasive Plants Along America's Roadways."

Videos can be downloaded or are available free. http://www.fs.fed.us/invasivespecies/ prevention/defending.shtml

In additon, the USDA has produced the following short videos (approx. two minutes each) on how hunters and anglers from all over the country can get involved with invasive species prevention and control:

URL: mms://ocbmtcwmp.usda.gov/content/ bmtc/vnr/places_part1.wmv

URL: mms://ocbmtcwmp.usda.gov/content/ bmtc/vnr/places_part2.wmv

URL: mms://ocbmtcwmp.usda.gov/content/ bmtc/vnr/places_part3.wmv

URL: mms://ocbmtcwmp.usda.gov/content/ bmtc/vnr/places_part4.wmv

URL: mms://ocbmtcwmp.usda.gov/content/ bmtc/vnr/places_part5.wmv

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