The Fourteenth Annual Conference of the
Florida Exotic Pest Plant Council

FLEPPC
May 24 - 27, 1999
Holiday Inn University Center Gainesville, FL

MONDAY MAY 24

Field trips
12:00 Field trips depart from hotel lobby, carpool encouraged. Bring your own lunch, beverages, and sunscreen. Be ready to pay any park entrance fees. Canoe fees paid to outfitter during trip.

A. Loblolly Environmental Center, Hogtown Creek floodplain. Invaders of this beautiful natural area include wandering Jew (Tradescantia fluminensis), heavenly bamboo (Nandina domestica), Chinese privet (Ligustrum sinense), and coral ardisia (Ardisia crenata). This easy outing in bottomland hardwood hammock will reveal patterns of community involvement and cooperation to counter multi-pronged exotic species invasions.

Leaders: Steven Vann, Robert Hamlin
Length: ½ day
Difficulty: Easy
Limit: 20 people

B. Flamingo hammock. An easy 3 km hike, possibly including a brief stretch of ankle-deep water, through diverse communities including long leaf pine, oak scrub, mesic hardwoods, and cypress swamp. The preserve is owned by two conservation-oriented community associations, which effectively control their exotic species. Our outing will highlight issues of private natural areas management.

Leader: Mark Stowe
Length: ½ day
Difficulty: Easy
Limit: 20 people

C. Canoe the Santa Fe River. Paddle the wildly scenic Santa Fe River, entering several spring runs along the way. Experience this aquatic corridor of awesome Florida flora and fauna guided by awesome Florida outfitter Lars Andersen. Bring hats, waterproof gearbags if you got 'em. Back to hotel by 6 p.m. $15 per person collected during trip.

Leader: Lars Andersen
Length: ½ day
Difficulty: Easy canoeing
Limit: 14 people, 2 per canoe

1:00-3:00 FLEPPC committee meetings
3:00-6:00 FLEPPC board meeting
3:00-5:00 Early registration open
6:00-7:00 Dinner on your own
7:00-9:00 Poolside social with desserts, cash bar and, for your listening pleasure, music by Weeds of Eden. Early registration continues.
TUESDAY, MAY 25
8:00-9:00 Registration
9:00-9:05 Welcome, Tony Pernas, FLEPPC chair
9:05-9:40 Morning Keynote address: Plant stories from the banal to the bizarre. Dana Griffin, Univ of Fla Botany Dept

Predicting plant invasions: can it and should it be done?
Moderator: Doria Gordon, TNC
Audio Visual: Catherine Johnson, USACE

9:40-10:00 How invasive is Bahia grass (Paspalum notatum)? Doria Gordon, M.J. Hattenbach, and G. S. Seamon, The Nature Conservancy and Univ of Fla

10:00-10:20 What about predictive indices, assessment criteria, prioritizing control programs, economic balancing, experimenting in complex habitats, and international agreements on movement of non-native plants? Randall Stocker, Univ of Fla IFAS Ctr for Invasive Plants

10:20-10:40 Updating predictive potential of invasive species: Where we are and why we don't stop trying. Linda Tyson, UF Dept of Environ Eng

10:40-11:00 Can we develop recommendations and set priorities for invasive plants? The Univ of Fla/IFAS approach. Alison Fox, Univ of Fla Agronomy Dept

11:00-11:20 Report from the Fla Dept of Ag, Fla Nurserymen and Growers Assoc, and Fla EPPC working group. Hugh Gramling, Tampa Bay Wholesale Growers

11:20-12:00 FLEPPC's invasive plants list: intentions, impacts, and interactions. Panel discussion.
Moderator: Randall Stocker, UF/IFAS
Panelists: Hugh Gramling, Tampa Bay Whols Growers; Kathy Burks, FLEPPC List comm; Ken Langeland, FLEPPC Publications comm; Doria Gordon, TNC; Linda Tyson, UF Env Eng; Alison Fox, UF Agron; Bill Jolly, FDACS

12:00-1:00 Lunch on your own

1:00-1:40 Afternoon Keynote address: Herbicides in forested ecosystems: toxicology, fate, and effects on vegetation. Tim Harrington, Univ of Ga Warnell School of Forest Resources

Proclamations, plans, and portents
Moderator: Amy Ferriter, SFWMD
Audio Visual: Dan Clark, City of Sanibel Island

1:40-2:20 Update on the national invasive species partnership initiative. Randy Westbrooks, USDA-Animal and Plant Health Insp Service

2:20-2:40 Florida's Noxious and Exotic Weed Task Team (NEWTT). Catherine Johnson, U.S. Army Corps of Engineers

2:40-3:00 Florida's inter-water management districts exotic plant management program. Wayne Corbin, St. Johns River Water Mgmt District

3:00-3:20 Florida's upland invasive plants regional task forces. Greg Jubinsky and Mark Zeller, Fla Dept of Environ Protection

3:20-3:40 Break

3:40-5:00 FLEPPC annual business meeting and awards

5:00 Adjourn

5:00-7:00 FLEPPC chair's reception, hors d'oeuvres and cash bar poolside.
WEDNESDAY, MAY 26
Exotic species management and controls
Moderator: Ken Langeland, UF/IFAS
Audio Visual: Jackie Smith, Fla DEP
8:00-8:20 Classical biological control of Brazilian peppertree (Schinus terebinthifolius): What's up? Jim Cuda, J. C, Medal, D.H. Habeck, Univ of Fla Dept of Entomology and Nematology; J.H. Pedrosa, M.D. Vitorino, Univ of Parana, Curitiba, Brazil
8:20-8:40 Paradise under siege: The susceptibility of oceanic islands to invasive plants. Keanya Francis, Bermuda Zool Soc
8:40-9:00 Analysis of the invasive air potato (Dioscorea bulbifer). James Argento, 1999 winner of Florida Jr. Academy of Science competition
9:00-9:20 Herbicidal control of Old World climbing fern (Lygodium microphyllum), a non-native invasive in South Florida. Randall Stocker, Univ of Fla IFAS, Ctr for Invasive Plants
9:20-9:40 Getting Chinese tallow (Sapum sebiferum) out of Gainesville. Meg Niederhofer, City of Gainesville
9:40-10:00 Feasibility of control of wetland nightshade (Solanum tampsicense); Effect of submersion on seedling mortality. Todd A. Neel, Univ of Fla, Agronomy Dept
10:00-10:20 Break
Exotic Botany
Moderator: Kathy Burks, Fla DEP
Audio Visual: David Jones, Everglades Nat Park
10:20-10:40 Mallow family mobsters. Dick Workman, Coastalplan, Inc
10:40-11:00 Ring around the mulberry bush. Nancy Coile, Fla Dept of Ag and Consumer Svcs, Div of Plant Industry
11:00-11:20 Will the real Lantana depressa please stand up? Keith Bradley, Inst for Regional Conservation (IRC)
11:20-11:40 Yes, Eugenia you are exotic and other misapprehensions. Keith Bradley, Inst for Regional Conservation and Kathy Burks, Fla DEP
11:40-12:00 The new Salvinia on the block. Colette Jacono, U.S. Geol Survey
12:00-12:20 Bamboozled by bamboo. Kathy Burks, Fla Dept of Environmental Protection
12:20-1:20 Lunch on your own
Tools, resources and outreach
Moderator: Hillary Cherry, UF Botany Dept
Audio Visual: Mike Badle, SFWMD
1:40-2:00 APIRS - Growing by leaps and bounds. Karen Brown, Univ of Fla IFAS Ctr for Invasive Plants
2:00-2:20 Update on Miami Dade County's prohibited species ordinance. Joy Klein, Miami Dade Dept of Environmental Resource Mgmt
2:20-2:40 Public awareness and alternative funding sources in invasive plant control. Steve Manning, Invasive Plant Control, Nashville, TN
2:40-3:00 LEAP-ing to attack Lygodium ferns (L. microphyllum and L. japonicum) in Florida. Amy Ferriter, SFMWD.
3:00-3:20 Break
Invasive species ecology and management
Moderator: Michael Drummond, Alachua Co Environ Protection
Audio Visual: Steve Smith, SFWMD

3:20-3:40 Assessing spread of Florida's non-native plant species with interactive databases: The FLEPPC example. Hillary Cherry, Univ of Fla Botany Dept

3:40-4:00 Viability of shoebutton ardisia (Ardisia elliptica) seeds in five habitats in the Hole-in-the-Donut, Everglades National Park. Tony Koop, University of Miami, Dept of Biology

4:00-4:20 Coral ardisia (Ardisia crenata), differences in ecological behavior between populations in Florida and its native range in Japan. Kaoru Kitajima, Univ of Fla Dept of Botany

4:20-4:40 Water-use patterns of the invasive exotic Brazilian pepper (Schinus terebinthifolius) contrasted with native species in Everglades National Park. Sharon M.L. Ewe and L. da S.L. Sternberg, Univ of Miami Biology Dept

4:40-5:00 Wandering Jew (Tradescantia fluminensis Vellozo): An exotic invader of Florida's mesic hammocks and floodplain forests. Brett A. McMillan, Univ of Fla Botany Dept

5:00 Adjourn

EVENING BANQUET
6:00-10:30 Bouwore Springs, Gainesville, $15. Down home food, fun, and beverages plus a cool local band playing by a beautiful spring high above Paynes Prairie.

ALTERNATE PRESENTATIONS
Quarantine, host range and biology studies for biocontrol of hydrilla (Hydrilla verticillata), water milfoil (Myriophyllum spicatum) and melaleuca (Melaleuca quinquenervia). Gary Buckingham, USDA Agri Res Service

Making the moves on melaleuca (Melaleuca quinquenervia). Francois Laroche, SFWMD.

Quicksorb™, a new penetrant for basal bark applications. Lonnie Pell, Monsanto Corp

THURSDAY, MAY 27
Field Trips
8:00 AM Field trips depart from hotel lobby, carpools encouraged. Bring your own lunch, beverages, and sunscreen. Be prepared to pay any park entrance fees. Canoe fees paid to outfitter during trip.

D. Paynes Prairie State Preserve. Paynes Prairie State Preserve is widely recognized as one of the most important natural and cultural features in the state and in the South. Added to the National Register of Natural Landmarks in 1974, the preserve comprises more than 21,000 acres, mostly freshwater marsh and wet prairie that are home to 710 vascular plant species. At least 15% of these species are introduced, including Chinese tallow (Sapium sebiferum), and need continual management. The tour will trace the course of Sweetwater Branch from its source as an urban creek carrying pollutants and weed propagules into the natural prairie preserve. Feet may get wet.
Leaders: Michael Drummond, Jim Wiemer
Difficulty: Easy
Length: ½ day
Limit: 30 people
E. Austin Cary Forest. Explore the University of Florida's Austin Cary Forest research preserve with renowned botanist Dan Ward. Dr. Ward will lead us through pond cypress domes and longleaf pine flatwoods. Feet may get wet, depending on recent weather.

Leader: Dan Ward
Difficulty: Easy
Length: ½ day
Limit: 20 people

F. Cedar Key Scrub Preserve. David Hall will extol the wonders of pristine, ancient Florida scrub, and then proceed downhill to the beautiful black rush marshes along the Gulf shore. Ken Langeland will then lead on through Cedar Key highlighting the town's Brazilian pepper management program, likely concluding in one (or several) of the town's welcoming establishments for refreshment.

Leaders: David Hall, Ken Langeland
Difficulty: Easy
Length: ½ to full day
Limit: 25 people

G. Ocala National Forest. Managing cogon grass (*Imperata cylindrica*) means creative partnering on the federal, state, county, and private lands involved. Visits to several sites will showcase invasive plant control, Florida scrub, bottomland forest, and several springs (Juniper Springs, Salt Springs, Silver Glenn, the latter charges $3 per person admission). Bring swimsuits and snorkels for close ups of aquatic flora in the springs. Or, just bring your suits and jump in to wind up our tour.

Leader: Lorraine Miller, Ocala National Forest
Difficulty: Easy
Length: ½ to full day
Limit: 25 people

H. Canoe the Ichetucknee River. Canoe the aquamarine waters of the Ichetucknee River from its "Blue Hole" source down to its confluence with the Santa Fe River. This five-hour paddle will course through pristine forest, including 6 or 7 other spring runs and abundant wildlife. Our guide, local naturalist Lars Andersen, will lead on to a convivial riverside restaurant (Sandy Point) where all are invited to unwind just a little more after the rejuvenating aquatic trek. Life is good. $25 per person collected during trip.

Leader: Lars Andersen
Difficulty: Easy canoe
Length: ½ day (8 am to 4 pm)
Limit: 14 people, 2 per canoe

I. Morningside Nature Center and Bivens Arm Nature Park. Amongst the City of Gainesville's properties are these two beautiful preserves. Morningside Nature Center in southeast Gainesville includes mixed forests including longleaf pine flatwoods with diverse wiregrass understory flora. Prescribed burns help maintain the communities and control exotics. In southern Gainesville, the lakeside trail along Bivens Arm lake winds through beautiful mixed hardwoods and mesic forests with daunting invasions of coral ardisia (*Ardisia crenata)*.

Leader: City of Gainesville Parks staff
Difficulty: Easy
Length: ½ day
Limit: 20 people
PRESENTATION ABSTRACTS

The air potato grows as an invasive vine that adversely affects Florida ecosystems. The objective of this research is to investigate its means of intrusion. Factors found to be correlated with growth and success included: size of tubers, utilization of tubers in terms of size, tuber position, and effect of severing tubers from vines.

The Aquatic Plant Information Retrieval System (APIRS) database was begun in 1979 to collect the literature on aquatic plant species, primarily problematic aquatic weed species. Some years ago, we added the collection of literature on wetland plant species, while retaining the acronym of APIRS. Most recently, we have added the collection of literature on FLEPPC's Category I invasive species list. Although we retain the acronym of APIRS, it now stands for Aquatic, Wetland and Invasive Plant Information Retrieval System. We now collect the literature on over 2,000 plant species.

APIRS holdings total over 48,000 keyworded literature citations held in a fully-searchable database. We also maintain a hard-copy collection of this literature with approximately 90% of these references on file. Literature searches of the APIRS database are available to anyone, either online at the APIRS website, or by contacting staff at the APIRS office. In other words, everyone has access to this entire collection of almost 50,000 references on aquatic, wetland and now, invasive plant species.

This paper briefly describes the process of retrospective literature searching for new species added to our collection list, provides an update of current holdings in the collection, and summarizes other efforts we make to assist in the provision of information to researchers, agency managers, students and the public. These efforts include the production of botanical illustrations, photographs, posters, identification guides, videotapes, and more.

Burks, Kathy Craddock. Bureau of Invasive Plant Management, Florida Department of Environmental Protection. (850) 487-2600. Burks_k@dep.state.fl.us. Bamboozled by Bamboo.
Recognizing large grasses with hard, "woody" stems as some sort of "bamboo" is fairly easy. Deciding just which bamboo, native or exotic, you've found outside cultivation in Florida can be tricky. Vegetative characters will be reviewed that distinguish the forms of the native Arundinaria gigantea from various exotic species that may turn up—in Florida's natural areas.

Assimilation of data regarding non-native invasive plants in Florida has begun in earnest with the creation of the Florida Exotic Pest Plant Council's invasive plant database. Information maintained in the FLEPPC database has the potential to reveal pertinent trends in exotic pest plant invasions. These trends can be correlated with various data to examine the role of pest plant invasion in conjunction with other factors that may facilitate the spread of these species. This study examines relationships between rate of spread for several exotic pest plants on a per-county basis. Rate of
spread is correlated with such factors as human population density, horticultural usage of species, and "invasive" characteristics, such as vegetative vs. sexual reproduction, biotic vs. abiotic dispersal, and other attributes which are traditionally used to predict species invasibility. The FLEPPC database is used to determine presence or absence of species in Florida's 67 counties. Rate of spread is determined by dividing the number of counties containing the exotic species by the total number of counties. This number is then divided by the number of years since known introduction of the species. When rate of spread is plotted against data such as biotic and abiotic dispersal, trends are revealed which illustrate invasive species' response to environmental and autecological variables. A series of statistical tests is performed to test the significance of the relationships between and among the variables tested. Although the FLEPPC database is still in the formative stages, extraction and interpretation of the data provide useful results. Continued maintenance and increased participation in construction of a thorough database is urged.

Coile, Nancy C. Florida Department of Agriculture and Consumer Services, Division of Plant Industry. (352) 372-3505, ext 1343. Coilen@doacs.state.fl.us. Ring around the mulberry bush.

Native and exotic mulberries (Morus spp.) in Florida will be distinguished. Another genus in the mulberry family is Broussonetia. An Asian species, B. papyrifera, is on the Category II list. Characters to easily identify "paper mulberry" will be provided. Is this exotic becoming more prevalent?

Ewe, Sharon M.L. and Sternberg, L. da S.L. University of Miami, Department of Biology, Coral Gables, FL 33124. Sewe@fig.cox.miami.edu. Water-use patterns of the invasive exotic Schinus terebinthifolius contrasted with native plant species in Everglades National Park.

Schinus terebinthifolius Raddi is a widely dispersed invasive exotic which has been observed growing from upland pinelands into the mangrove communities of South Florida. It is hypothesized that Schinus success is in part due to its ability to physiologically utilize resources inaccessible to native species. This study examines the seasonal water-use patterns of Schinus compared to that of native species. In Everglades National Park, Schinus is the dominant species in a post-farmed area known as the Hole-in-the-Donut (HID); Schinus is also observed growing in its adjacent pinelands. We examined Schinus and representative native species in situ, both in the short hydroperiod HID and an adjacent rock pineland. Within both the HID and pineland sites, seasonal predawn water potentials of Schinus remained the same although the potentials of all native species decreased during the wet season. We hypothesized that the flooded soils could have caused anaerobic conditions that resulted in root death of native species, leading to lower water potentials. Intrinsic water-use efficiency (WUE) was significantly higher during the wet season compared to the dry season in all species. Schinus had consistently higher WUE than most of the native species over both seasons. These results indicate that Schinus is probably more effective at utilizing available resources than native species at these sites.

Fox, Alison M. University of Florida/IFAS Agronomy Department. (352) 392-1808. Amfox@gnv.ifas.ufl.edu. Can we develop recommendations and set priorities for invasive plants? The UF/IFAS approach.

The FL EPCC's List of Florida's Most Invasive Species is an important tool for conservationists and land managers who need to set priorities for their vegetation management programs. For each species, the documentation of ecological damage to native communities (upon which the list is based) is evaluated by a committee of botanical and land management experts.
Criteria for inclusion on the list specifically exclude economic issues or the geographic range of the problem species. A working group within UF/IFAS is developing an assessment of invasive plants that does include these factors, with the intention of providing a well-defined basis for setting research or management priorities and planting recommendations within UF/IFAS. This assessment of plants currently occurring in Florida will evaluate: differing distributions of plants in certain latitudinal zones of the state; a range of ecological impacts; estimates of potential expansion; management difficulty; and plant value. A provisional version of this assessment and its objectives will be presented.

Francis, Keanya. Field coordinator, Bermuda Zoological Society, Bermuda Biodiversity Team member. Kfrancis@northrock.bm. Paradise Under Siege: The susceptibility of oceanic islands to invasive plants. Bermuda, like many other oceanic islands, has become increasingly susceptible to invasion by pest-plant species, largely as a result of anthropogenic influences. Thirty-five out of one hundred and twenty species from the FLEPPC's most invasive pest-plant list are found in our island. Some of our more obvious pest species are Australian pine (Casuarina equisetifolia), Indian laurel (Ficus microcarpa), and Brazilian peppertree (Schinus terebinthifolius).

Previous efforts to address the problems associated with invasive plants were minimal. Management strategies involved observations and the documentation of noticeable pest species. However, in 1997, the Ministry of Works and Engineering, the Department of Agriculture and Fisheries, and the Parks Division launched the Ficus Management Project. The aim of this project was to prevent the ecological damage caused by the Indian laurel and to communicate the extent of the problems associated with this tree. At that time, the Ficus Management Project was composed of a baseline survey, treatment programs, and a public awareness campaign. The success of this project has led to the development of strategies that aim to preserve the integrity of Bermuda's biodiversity from the effects of invasive pest-plants.

The Bermuda Biodiversity Project has evolved as one of the premier steps taken to address the growing problems associated with plant invasion. The main focus of this project is to develop a comprehensive information management system for the island's natural resources.

Gordon, Doria R., Ph.D., State Ecologist, Associate Professor of Botany, Hattenbach, Mery J., and Seamon, Greg, The Nature Conservancy, courtesy University of Florida, Gainesville. (352) 392-5945. Dgordon@botany.ufl.edu. How Invasive is Bahiagrass? Bahiagrass (Paspalum notatum) has been used extensively for soil stabilization and forage throughout Florida. In a retrospective assessment, we investigated the possibility that bahiagrass might vegetatively invade native vegetation adjacent to areas where it is sown or sodded. We located 45 sites, 15 each in North, Central, and South Florida, where we measured the distance from the road edge that bahiagrass had grown into native vegetation relative to the distance that was mown. We assumed that the mown distance represented the minimum distance that bahia had been originally sown, and that movement beyond that distance represented potential invasion into the adjacent area. The sites selected were based on several criteria: presence of bahiagrass on the right-of-way, presence of a native plant community adjacent to the right-of-way, no evidence of soil disturbance in that adjacent area, no road construction or maintenance work within three years, and at least 10 road miles between sites. The possible movement of bahiagrass did not exceed 7.45 min any region of Florida, with mean values ranging from 0.61 m in South Florida, to 2.11 m in Central Florida. These distances were not significantly different than zero, giving no evidence that
bohiagrass has invaded vegetatively or by seed beyond the original planting distances into relatively intact native vegetation. We have no data on seed dispersal beyond the edge of the right-of-way.

Harrington, Timothy B. Associate Professor of Silviculture and Applied Ecology, Daniel B. Warnell School of Forest Resources, University of Georgia, Athens, GA 30602-2152. Tharring@smokey.forestry.uga.edu. Herbicides in Forest Ecosystems: Toxicology, Fate, and Effects on Vegetation.

When used appropriately, herbicides can be safe and effective tools for manipulating species composition and abundance of plant communities. In this presentation, elements of herbicide toxicology, fate, and effects on vegetation are discussed as they pertain to forests and other natural ecosystems. Toxicology is the science of quantifying biological effects of toxins, such as herbicides, in order to determine their relative risk to humans. A common measure of toxicity is the lethal-dose to kill 50% of a population of test organisms (LD-50), usually determined via feeding, injection, or dermal studies on rodents or other test organisms. Most herbicides have LD-50 values of 2000 to over 7000 mg toxin per kg body weight, indicating that a third to a full pound of active ingredient must be ingested in order to approach a lethal dose for an adult human of average size. Ordinary table salt could also be considered a toxin, since it has an LD-50 value of 3000 mg/kg. Typically, herbicides are applied at rates of less than 4 lbs. of active ingredient per acre, suggesting that potential exposure to humans is extremely low. Studies have been conducted to determine exposure of commercial applicators to herbicides. In all of these studies, very little herbicide could be detected within the body fluids of the herbicide applicators, most of which could be traced to a leaky sprayer or poor hygiene, such as not wearing gloves or washing up after spraying. Research has been conducted to determine if herbicides move into the groundwater and streams of forest ecosystems following routine applications. Use of streamside buffer zones essentially eliminates any direct movement of herbicides into streams, while vertical movement of most forestry herbicides in the soil profile is limited to 1.5 feet or less. In addition, all forestry herbicides have half-lives ranging from as little as a week to six months.

Herbicides shift the species composition and abundance of plant communities by injuring or killing species that are susceptible and by selecting for those that are tolerant to the toxin. Herbicides can cause short-term decreases in species richness, usually because another species is able to capture the new growing space and temporarily dominate the community. Later, other species will re-invade because of the increased availability of light and soil water, and species richness will return to levels equal or greater to that observed prior to treatment. When combined with burning, herbicides will shift the community to one that is dominated by herbaceous species, principally grasses. Species richness of forest understories can be enhanced by combining treatments of herbicides, burning, and thinning of overstory pines.

As an important tool for managing natural areas, herbicides provide a safe and effective means for regulating abundance and species composition of plant communities. When used according to the manufacturer's label and federal and state regulations, herbicides will not pose a significant hazard to humans or their environment.


With occurrences increasing to six states within a year of its 1998 discovery, the aquatic fern Salvinia molesta, giant salvinia, is moving in. Although larger and more aggressive than the previously introduced Salvinia minima, common salvinia, early forms of giant salvinia can easily be confused with the smaller species. Distinguishing features for field identification are easy to learn.
and hold the key for detecting new infestations and for intercepting cultivated plants before they escape into natural waters.


Coral ardisia (Ardisia crenata, Myrsinaceae) is an attractive shrub with many red berries, commonly planted around houses in the southeastern U.S. However, as recently reported by H. Dozier (UF Forestry Dept), it has become an aggressive invader in the understory of evergreen hardwood hammocks in north central Florida and Georgia, creating dense stands in the forest understory. The high potential vegetation coverage in the understory (over 50% of ground area) observed in Florida is very unusual in Japan, where it occurs as individually scattered shrubs covering less than one percent of the understory vegetation, in a similar habitat of warm temperate evergreen broadleaf forests. One possible source of difference is difference in behaviors of avian seed dispersers. Both in Japan and Florida, fruits mature in late fall and stay on plants till late spring and summer, indicating unwillingness of birds to consume the fruits. However, in Japan, it has been reported that birds, when other food sources are not around, consume fruits and disperse fruits in a scattered manner. It is possible that in Japan, due to some natural enemy, undispersed seeds and seedlings would not survive near fruiting parents due to density-dependent mortality. However, in Florida, seeds dropped right around parents may be able to establish and outcompete other understory plants, such as native shrubs and tree seedlings. We hypothesize that pests at seed and seedling stage, as well as mutualistic soil fungi, may have altered demographic parameters and resulted in the greater apparent competitiveness of the exotic shrub Ardisia crenata in Florida than in Japan.

Koop, Tony. University of Miami, Department of Biology. (305) 284-5364. Tkoop@fig.cox.miami.edu. Seed dynamics of Ardisia elliptica seeds in five habitats in the Hole-in-the-Donut, Everglades National Park.

Consideration of the seed dynamics of invasive, non-indigenous species is just as important as consideration of adult survival and reproduction. The purpose of this study was to understand the seed dynamics of Ardisia elliptica in five habitats (hammock, prairie, Schinus-stand, pineland, and Ardisia thicket) in the Hole-in-the-Donut of Everglades National Park.

Mcmillan, Brett A. University of Florida Dept of Botany. Mcmillan@botany.ufl.edu. An Exotic Invader of Florida's Mesic Hammocks and Floodplain Forests (Tradescantia fluminensis Vellozo).

Tradescantia fluminensis ('Wandering Jew'; Commelinaceae) is a semi-succulent herb that is native to subtropical Brazil and Argentina. Sold as a houseplant and erosion control, it has become naturalized in Australia, New Zealand, and at least ten counties in Central Florida. Its invasion has not been experimentally characterized or studied in Florida.


Wetland nightshade is a prickly invasive weed, currently encroaching upon a limited number of seasonally flooded wetlands in southwestern Florida. Although wetland nightshade is susceptible to control by herbicides, there is little information about the possibility of regeneration from the soil seed bank. Since preliminary observations show that adult plants may have the ability to tolerate
lengthy periods under flooded conditions, it was hypothesized that a possible alternative might be
to treat a population with herbicide prior to the beginning of the seasonal hydroperiod, allowing
emerging seedlings to be controlled by submersion.

(352) 846-0630. Pearlstinel@wec.ufl.edu. Discrimination of an invasive plant, Schinus
terebinthifolius, from aerial digital imagery.
Discussing is the potential for spatial texture measures and recent advances in non-parametric
statistical classification techniques to effectively discriminate land cover in aerial digital imagery.
The Florida Cooperative Fish and Wildlife Research Unit is acquiring high-resolution aerial digital
imagery as a component of the Florida GAP Project to map biological diversity of the state.
Because individual plant species often can be visually identified on the imagery, there appears to be
a potential to use the imagery for rapid, relatively inexpensive sampling and monitoring of invasive
plant species establishment. Rapidly and accurately identifying land covers is critical to successful
monitoring of ecosystem change.

A rapid assessment approach to surveying and monitoring exotic species such as Schinus
terebinthifolius that: (1) uses unmodified small fixed-wing aircraft, (2) doesn't require film
processing or printing and is, therefore, available immediately to the resource manager, (3) provides
archival, geo-coded documentation of the exotic species' existence and location, and (4) provides
automated computer discrimination of the target species that is consistent and repeatable with
statistically determined confidence levels. Use of this approach may benefit natural resource
managers and researchers attempting to document and control exotic plant expansion.

Stocker, Randall K. UF/IFAS Center for Aquatic and Invasive Plants and Agronomy
Department. (352)-392-9613. agplants@gnv.ifas.ufl.edu. Herbicidal control of Old World
climbing fern (Lygodium microphyllum), a non-native invasive in South Florida.
Five rates of three herbicides (2,4-D amine, triclopyr ester, and glyphosate) were made to
replicated plots of nearly continuous low growing Old-world climbing fern near Jupiter, FL.
Applications were made in November 1997 and May 1998. To measure kill away from treated
portions of single plants, bands of herbicide were applied to "trellised" plants in two separate
experiments.

Stocker, Randall K. UF/IFAS Center for Aquatic and Invasive Plants and Agronomy
Department. (352)-392-9613. agplants@gnv.ifas.ufl.edu. What about predictive indices,
assessment criteria, prioritizing control programs, economic balancing, experimenting in
complex habitats, and international agreements on movement of non-native plants?
There are sound reasons to want objective methods to predict whether a new non-native plant
species is apt to become a problem weed before it is introduced, to label certain non-native plants
already in the state as "might become invasive," "sort of invasive," "invasive," "really invasive," or
"red-alert invasive," to prioritize distribution of limited resources for management programs, and to
assess the economic and well as ecological impacts of invasive non-native plant species. It is less
obvious that objective methods that satisfy these wants will be available any time in the near
future. Further complications arise when discussing the possibility of international agreements
restricting the movement of plants, in particular because of widely different views around the
world on the level of acceptable risk, and because of existing trade agreements.
Tyson, Linda. University of Florida, Department of Environmental Engineering Sciences. L.tyson@nervm.nerdc.ufl.edu. Updating predictive potential of invasive species: Where we are and why we shouldn't stop trying.

The recent past has seen many new attempts to predict the successful invasion of unwanted species into natural areas in an attempt to invest energy into early control (a no-brainer for experienced resource managers). But with these predictive models come nay published reasons why the outcome of the predictive model frequently do not live up to their promises. This talk explores some recent attempts and criticisms and offers reasons for hope for attaining the benefits of knowing "who's next and where?"


The name mahoe refers to a number of trees of the family Malvaceae that have bark used for cordage. They are planted pantropically as ornamentals for attractive flowers and rapid growth. Four "mahoe" trees will be discussed, *Hibiscus tiliaceus*, *H. pernambucensis*, *H. elatus*, and *Thespesia populnea*. Two of these are listed as invasive pest plants, one is considered by some as a New World native, and one probably hybridizes with two of the others. A description of habits, habitats, and a guide for field identification of each is included with this presentation.