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SPRING 2002



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Cover: *Ruellia* is a genus in the *Acanthus* Family. It comprises about 150 species native to tropical and temperate North and South America. Five species are native to Florida and three non-native species have escaped cultivation and are listed as naturalized in the state. Of these three exotic species, clearly the one to watch is Mexican bluebell (*Ruellia tweediana*), pictured here. Photo by Roger Hammer.

Evaluation of Herbicides to Control Carrotwood (*Cupaniopsis anacardioides*) and Response of Time of Herbicide Application After Felling

Figure 1. Carrotwood is easily recognized when mature fruit is present.

Ken Langeland, Randall Stocker, IFAS CAIP; Walt Betit, Mike Bodle, Amy Ferriter, Steve Smith, Dan Thayer, Craig VanAuken, SFWMD; Jackie Smith, DEP

Introduction

Carrotwood is native to Australia, where it occurs on the north and east coasts on rocky beaches, sand dunes, hilly scrub, and riverine and monsoon forests (Reynolds 1985). When fruits are present it is easily recognized by the copious amounts of woody capsules, light green in color, to one inch across, with distinctly ridged segments, which occur in branched clusters. Fruits turn yellow-orange when ripe (April/May), dry to brown, and slit open to expose 3 shiny oval black seeds covered by a yellow-red crust (aryl) (Figure 1). Other identifying characteristics include dark gray outer bark and often orange-colored inner bark; compound, alternate, usually even-pinnate leaves with petioles swollen at the base; 4-12 stalked leaflets, which are oblong, leathery, shiny yellowish-green, to 8 inches long and 3 inches wide, with untoothed margins,

and tips rounded or slightly indented; and numerous white to greenish yellow flowers that occur January and February.

Carrotwood was introduced commercially to Florida in 1968 and quickly became a popular landscape planting for residential landscapes, as well as parking lots and street plantings (Coile 1997). Unfortunately for natural areas, carrotwood seeds are consumed by birds and dispersed far from parent plants (Lockhart *et al.* 1999, Coile 1997). Consumption by fish crows is particularly important because seeds are carried from inland feeding sites to coastal islands where they are deposited and germinate, threatening mangrove communities (Lockhart *et al.* 1997). By 1990, seedlings were found established in various habitats, disturbed and undisturbed, on both Florida coasts (Oliver 1990). Habitats that have been invaded by carrotwood include spoil islands, beach dunes, marshes, tropical hammocks, pinelands, mangrove and cypress swamps, scrub, and coastal strands (Lockhart *et al.* 1997). It is especially a problem in low moist areas, is salt tolerant, and has become a pest to mangrove ecosystems (Coile 1997). Natural areas of 14 coastal counties in central and south Florida have been

impacted by carrotwood (Langeland and Burks 1998).

Carrotwood was listed in Category I of FLEPPC's "1995 List of Florida's Most Invasive Plant Species." In 1999, it was added to the Florida Noxious Weed List (5b-57.007 FAC) by the Florida Department of Agriculture and Consumer Services. Plants on the Florida Noxious Weed List may not be introduced, possessed, moved, or released without a permit.

As part of the Comprehensive Everglades Restoration Project, the South Florida Water Management District purchased Griffin Tree Farm (Broward County, FL) in 1998. The tree farm inventory included a large number of invasive plant species including mature carrotwood trees. Because the District had made a decision to destroy all invasives on the property, an excellent research opportunity presented itself. Not often are invasive plant species available in nice neat rows for conducting herbicide research. The University of Florida Institute of Food and Agricultural Sciences and the South Florida Water Management District cooperated on a study to identify herbicides and application methods that were effective for controlling carrotwood. In addition to testing three herbicide products for cut-stump

applications, the test was designed to determine the effect of applying the herbicides at various times elapsed following felling the trees.

Materials and Methods

Ortho Brush-B-Gon (8.0% triclopyr amine), Rodeo (53.8% glyphosate), and Pathfinder II (13.6% triclopyr ester) were applied to ten trees each at 3, 30, 60, and 180 minutes after felling. Herbicides were directed just inside the bark where active vascular tissue occurs, using paint brushes (Figure 2). Ten trees were felled and the stumps left untreated as checks. Pathfinder II or Garlon 4 (61.6% triclopyr ester) diluted to 10%, 20%, or 30% in either JLB Oil Plus or Pro-Mate Impel were applied as basal bark treatments to 50



Figure 2. Application of herbicide to stump of felled carrotwood tree, concentrating herbicide just inside the bark where active vascular tissue occurs.

trees each. Basal bark treatments were applied using backpack sprayers. Trees ranged from 8 to 12 inches DBH. All applications were made in March 1999. All cut stumps were evaluated three and six months post treatment for sprouting and basal bark treatments for morbidity.

Results and Discussion

Good news — carrotwood is apparently very susceptible to herbicides. All



Figure 4. Carrotwood trees effectively controlled by basal bark herbicide applications.

herbicides applied (Table 1) at all times elapsed post felling were effective, evidenced by no resprouting of treated stumps, as compared to resprouting of all untreated stumps (Figure 3). All basal bark treatments (Table 1) were effective, evidenced by necrosis of all foliage (Figure 4), drying and cracking of bark (Figure 5), and lack of basal resprouting.

It is always recommended that herbicides, especially products that contain water soluble active ingredients such as triclopyr amine, be applied as soon as possible (e.g. within fifteen minutes) after felling of trees. Results in this study should not be construed as contrary to those recommendations. Under other circumstances and with other species, timing may be of more critical importance and applying herbicide soon after felling will always provide greater confidence in anticipated control.

Brush-B-Gon was evaluated because it is readily available in small quantities from retail garden supplies to homeowners who may have only one



Figure 5. Drying and cracking of carrotwood tree bark 6 months following basal bark herbicide application.

or several trees to remove. Rodeo was included because it is registered for use in aquatic sites. In addition to the products tested in this study, other products that contain the same active ingredients should also be effective for controlling carrotwood. Lower rates of herbicides used in this study may also be effective.

Carrotwood is a relative newcomer and not yet as widespread compared to other invasives, such as melaleuca and Brazilian pepper. With an immediate and aggressive public information and control program, we may be able to keep carrotwood at bay. Look for a "Carrotwood Management Plan" from the FLEPPC Carrotwood

Table 1. Herbicides found effective for control of carrotwood at the SFWMD Griffin Tree Farm.

Herbicide	Application Method	Dilution
Brush-B-Gon	Cut-stump	Undiluted
Rodeo	Cut-stump	Undiluted
Pathfinder II	Cut-stump, basal bark	Undiluted
Garlon 4	Basal bark	10%-30% in oil



Figure 3. Resprouting of untreated carrotwood stump.

Task Force in the near future. A fact sheet pertaining to carrotwood and its control can be printed for public distribution from the IFAS EDIS Web site: <http://edis.ifas.ufl.edu> (search natural area weeds).

Literature Cited

- Coile, N.C. 1997. Risk Assessment for Carrotwood. Memorandum to Connie Riherd, Assistant Director, Division of Plant Industry.
- Langeland, K.A. and K. Craddock Burks. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas, IFAS Publication SP 257. University of Florida, Gainesville. 165 pp.
- Lockhart, C.S., D.F. Austin, W.E. Jones, and L.A. Downey. 1999. Invasion of Carrotwood (*Cupaniopsis anacardioides*) in Florida Natural Areas (USA). *Natural Areas Journal* 19: 254-262.
- Oliver, J.D. 1992. Carrotwood: a review of the literature. Tech. Report. Tallahassee: Florida Department of Environmental Protection, Bureau of Aquatic Plant Management. 10 pp.
- Reynolds, S.T. 1985. Sapindaceae, p. 4-163. In: George, A.s., ed. *Flora of Australia*, Volume 25, Meleanthiaceae to Simaroubaceae. Australian Government Publishing Service, Canberra.

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Mexican Bluebell (*Ruellia tweediana* Griseb.) A Pretty Invasive Weed

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Ruellia is a genus in the Acanthus Family (Acanthaceae) that honors the French herbalist, Jean de la Ruelle (1474-1537), and comprises about 150 species native to tropical and temperate North and South America. Five species are native to Florida and three non-native species have escaped cultivation and are listed as naturalized in the state (Wunderlin, 1998). Of these three exotic species, clearly the one to watch is Mexican bluebell.

Taxonomically, this plant has been somewhat confusing. Florida nurserymen offer it under the name *Ruellia brittoniana*, but Richard Wunderlin, Ph.D., of the University of South Florida, points out that "The basionym for both *Ruellia tweediana* Griseb. (1879) and *Ruellia brittoniana* Leonard (1941) is *Cryphiacanthus angustifolius* Nees (1847), thus they have the same type. This makes *Ruellia tweediana* the correct name and *R. brittoniana* a synonym" (email correspondence, in part, to the List Committee of the Florida Exotic Pest Plant Council, January, 2001). The species was named in 1879 by the German botanist, August Heinrich Rudolf Grisebach (1814-1879), who studied tropical plants in the West Indies. The name, *tweediana*, commemorates James Tweedie (1775-1862), the head gardener at Edinburgh, Scotland who

emigrated to Argentina. Dieter Waschausen, Ph.D., and an expert in the Acanthaceae, once favored even another name, *Ruellia coerulea* Morong, but now agrees with Wunderlin that *R. tweediana* is the legitimate name for this popular landscape plant.

In Betrock's PlantFinder®, a wholesale guide to foliage and ornamental plants in Florida, there are a number of cultivated varieties (cultivars) of Mexican bluebell listed (as *Ruellia brittoniana*). These include a compact growth form ('Compacta') as well as various flower color forms ('Princess Pink,' 'Pink Showers,' 'Purple Showers,' 'Snow Queen,' 'Snow White,' 'Tricolor Katie'™, and 'Pink Shorts Katie'™). Cultivars have no botanical standing and are merely plants that are propagated because of certain horticultural traits. When cultivars spread from seed, they often revert back to the typical growth form or color form of the species. For instance, seedlings from the pink-flowered forms may revert to the blue-flowered type of the species. Regardless, all of the various growth and color forms of this species are exceptionally weedy.

Nurseries that promote butterfly-attracting plants offer Mexican bluebell as a larval foodplant to attract the Common buckeye (*Junonia coenia*) and the Malachite (*Siproeta stelenes*). Secondary larval foodplants of the Common buckeye are native species of *Ruellia*, particularly *R. caroliniensis* and *R. succulenta*. There are no documented records that Malachites will utilize *R. tweediana* in Florida, although they will use it in captivity when it is the only plant available to them. Neither Ron Boender nor Marc Minno, two noted authorities on butterflies, have ever observed Malachites utilizing any *Ruellia* species in the wild in Florida (pers. comm., October, 2001). In Florida, the preferred larval foodplant of the beautiful, green-and-black Malachite is Green shrimp-plant (*Blechnum pyramidatum*), another weedy, non-native species that is firmly entrenched in the flora of Florida. Several butterfly gardening books even list Mexican bluebell as a butterfly nectar source although personal observations indicate that butterflies pay little or no attention to the flowers (hummingbirds serve as pollinators of some members of the

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genus in tropical America).

As a weed, Mexican bluebell prefers wet, disturbed sites. It has been observed frequently by the author on roadside ditch banks and around road culverts in the Big Cypress National Preserve and Fakahatchee Strand Preserve State Park, both in Collier County, Florida. Large, spreading populations have also been observed around two widely separated hunting camps deep within the Big Cypress National Preserve, and hundreds of seedlings were found lining the swamp buggy trails leading to and from the camps.

It is not limited to southern Florida either. Large, naturalized populations in Gainesville (Alachua County, FL) and Lake Wales (Polk County, FL) have been reported to the author, and Wunderlin (1998) lists it as "frequent" throughout the Florida peninsula into the central and western panhandle. In *A Flora of Tropical Florida* (Long & Lakela, 1971) it is listed for "disturbed sites, peninsula Florida, scattered sites in southeastern U.S., Texas, naturalized from Mexico." In *Aquatic and Wetland Plants of Southeastern United States* (Godfrey & Wooten, 1981) its range

and habitat is reported as "drainage ditches, shores of ponds or lakes, moist to wet wooded areas. Native to central Mexico; in parts of our range cultivated for ornament and sporadically naturalized; coastal plain, South Carolina to Florida, west to Texas." It is interesting to note that long before Mexican bluebell gained its recent popularity and exploded in the nursery trade, it was already being reported as a weed in the southern states.

Its widespread range in Florida is not surprising because anyone who grows this plant, in any of its various forms, will quickly realize its weedy tendencies in cultivation. Plant one and you will have many dozens in a short period of time. Attempts to eradicate the species by hand removal is nearly futile because a persistent seed bank in the soil allows it to reappear long after eradication efforts are thought to be successful. Let a single plant go unnoticed until it flowers and seeds, and the whole process begins anew.

In southern Florida it is not uncommon to see thousands of potted Mexican bluebells being propagated in nurseries. Not only is it promoted

and sold by local wholesale and retail nurseries, it is also available in garden centers of such large distributors as Home Depot, K-Mart, and Wal-Mart. With such a wide distribution coupled with a growing popularity as a colorful landscape and bedding plant, it will likely prove difficult, if not impossible, to eliminate it from cultivation in Florida. In short, it appears that the Florida nursery trade has helped unleash yet another invasive weed for resource managers to cope with. How Mexican bluebell will affect Florida's natural areas has yet to be seen, and how costly its control will be has yet to be realized. Unfortunately, it's too late to close the barn door now that the cows are out.

Literature cited:

- Godfrey, R. K. and J. W. Wooten. 1981. *Aquatic and Wetland Plants of Southeastern United States*. The University of Georgia Press, Athens, GA.
- Long, R. W. and O. Lakela. 1971. *A Flora of Tropical Florida*. University of Miami Press, Coral Gables, FL.
- Wunderlin, R. P. 1998. *Guide to the Vascular Plants of Florida*. University Press of Florida, Gainesville, FL.

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DISPOSING OF Landscape material TO REDUCE ITS Distribution into the LANDSCAPE

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Be careful with that yard waste. You may be spreading aggressive plants to areas where they don't belong.

Yard or landscape maintenance involves removal of leaves, clippings, whole plants, and unwanted potted house plants. However, these yard materials can allow some plants to establish in the disposal site given contact with soil and sufficient water. As a result, careful disposal of this material is critical so that plants unwanted in one location don't unintentionally become established elsewhere.

A disposal site may be on the edges of the property from which the material was removed, causing future maintenance and removal efforts, or it may be in a designated organic material disposal site. Designated sites are determined by your local government — some mix landscape and household wastes in a landfill, others have separate areas designated for compost. Anyone disposing of landscape wastes needs to be aware of the destination of those materials. Contact your county waste management utility or extension agent for information about local disposal sites in your area that are designated for plant waste.

Unfortunately, landscape waste materials are sometimes disposed of in accessible locations on someone else's property, either public or private. The — generally illegal — dumping has allowed several species to become established in natural areas. Discarded plants have spread into interiors of parks and other conservation areas through seed dispersal and vegetative growth. For example, wax begonia, Pothos, heavenly bamboo, Ardisia, golden bamboo, and arrowhead vine are among the species which have moved into wild areas through this mechanism. This spread of non-native species into protected sites is threatening the plant and animal species those sites were purchased to conserve.

There are several options available to dispose of this material appropriately depending on the situation and local ordinances. Living plant tissue can be destroyed on site through burning, composting in bins, or putting it in or under heavy plastic, where sunlight can rapidly cause decomposition. Information on composting can be obtained from your County Cooperative Extension Office. Material also can be dumped in designated disposal areas.

Timing of maintenance operations also can reduce the potential for plant propagation movement to undesirable sites. Plants can be pruned before fruit is mature or leaf raking can be done before seeds of surrounding plants have dropped. Awareness of how a species is likely to become established is important. You can gain valuable clues from propagation methods. For example, if a species is most likely to be propagated from cuttings (e.g. Wedelia or lantana), pruned material of that plant may take root without appropriate precautions.

FNGA requests its members to carefully dispose of unwanted plant materials, regardless of the source, to ensure that more plants are not given the opportunity to invade into natural areas. Particular care should be used when disposing of species known to be invasive, especially with those FNGA has recommended for discontinued use. Education of your customers also encourages protection of natural areas. *This article also appeared in Greenline 20(1):3 and 20(2):10.*



Unfortunately, landscape waste materials are sometimes disposed of in accessible locations on someone else's property, either public or private.

Photo by Dennis Teague.

Where's the Proof?

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The *Atlas of Florida Vascular Plants* (<http://www.plantatlas.usf.edu>) of the University of South Florida Institute for Systematic Botany and the Florida Center for Community Design and Research provides the user with distribution and nomenclature information on all native and naturalized seed plant and fern species reported for Florida. The most used feature on the website is the mapping feature, which provides county by county distribution of species. The *Atlas* is continuously updated as new information becomes available. It now gets about 25,000 hits a week! Since the *Atlas* became available on the web in 1995, communications from people reporting the sighting of new county records or even species they believe to be new to the State has increased each year. After checking the *Atlas* database to verify that the species is not documented from a particular county or from the State, my usual response is: "Did you collect an herbarium (or a voucher) specimen?" In other words, "do you have the proof?" Depending on the expertise of the person, the response varies considerably. Some know exactly what I mean and usually provide me with a specimen or information that a specimen has been deposited in another herbarium. Some of them actually seek out new records and collect specimens for us to "fill in the gaps." Others who deposit or file specimens on a regular basis in other herbaria, such as Loran Anderson at Florida State University, Kent Perkins at the University of Florida, and Keith Bradley who puts his specimens in Fairchild Tropical Garden, send us new information on a regular basis. This type of cooperation is greatly appreciated and contributes to our knowledge of the distribution of Florida species, making our easily



accessed database even more useful. Funding for development and maintenance of the web site is currently provided by the Florida Department

of Transportation.

Science requires proof through experimentation and documented observation. The report of the occurrence a plant species in Florida, and subsequently its report on the *Atlas* or in publication, needs to be substantiated. This is done by the collection of a specimen and placing it in an herbarium where it will be permanently preserved and will be available for study by others when necessary. If the species is not

documented in this manner, there is no record that the plant ever existed at that location or even existed at all. It is like the Loch Ness Monster, Bigfoot, the Skunk Ape, UFO's, where the evidence

For the Record:

Florida Exotic Pest Plant Database

Established in 1995, this database contains over 5,000 occurrence records of Florida EPPC Category I and II pest plant species on public lands, currently with 322 public conservation lands represented in 91% of Florida's 67 counties. The intent is to raise awareness among the public, policy makers, and land managers of the extent of the invasive exotic plant problem in conservation lands. For example, the information has been quite useful in supporting legislative funding for the recently established statewide control program targeting these pest plants.

Building the database has been almost entirely a volunteer effort by conservation land managers and other veteran observers of Florida's natural landscapes. Since 1999, the Florida Department of Environmental Protection's (DEP) Bureau of Invasive Plant Management has supported data entry and maintenance in collaboration with the Florida Exotic Pest Plant Council (EPPC). The Bureau is now funding a pilot project with the Florida Natural Areas Inventory, Florida State University, to begin filling in data gaps and improving the database to include links to a GIS-based mapping system. Eventually this work will allow generation of distribution maps with an estimated acreage of infestations by species in public conservation lands (local, state, and federal). Right now, no maps are "maintained," i.e., regularly generated, from the database.

Accessibility of the location details for each record does allow anyone to check a listed occurrence—to "see for themselves." Nonetheless, because most of these records constitute "sight records," "observational data," or "anecdotal evidence" in scientific parlance, the preparation of herbarium voucher specimens has been encouraged since the beginning as additional confirming documentation. It is especially important when the occurrence represents an infestation in a county not previously documented for the species in the herbarium-based Plant Atlas database housed at the University of South Florida, a basic resource on vascular plant distributions in the Sunshine State.

The EPPC-DEP occurrence database provides a focus on Florida's exotic pest plants. With continued contributions and updates, it is and will be an essential tool in determining priorities and policies for invasive plant management. To contribute to it, query it, or comment on it, visit the website: HtmlResAnchor www.fleppc.org/database. —K.C. Burks, FDEP

is circumstantial and hearsay; there may be something there, but without physical evidence all is speculation. For years I have been hearing second-, third-, and fourth-hand reports of lady-slipper orchids in northern Florida, but no one has ever produced a specimen of one as proof of its existence in the State. About 4,100 taxa of seed plants are documented to occur in Florida. However, there are over a thousand further taxa reported, both verbally and in the scientific and popular literature, for which an herbarium specimen is not known to exist. There is, therefore, no proof of their occurrence here. In other cases, many reports of species have proved to be erroneous because the plant was originally misidentified. This can only be determined when the herbarium specimen that provided the basis for the original report is found and correctly identified. This happens even among the best botanists! For example, there are recent reports in the *Palmetto* and *Florida Scientist* made by a highly respected Florida botanist of a certain exotic species in southern Florida heretofore unknown from the

State. Requests to see a specimen of the plant were unsuccessful for nearly a year because the person making the report had not bothered to collect one or a collection was made but was "temporarily misplaced." When a specimen was finally studied, my suspicion was confirmed that the material had been misidentified and actually represented a different species of the genus, one already known from the State.

At the September Florida Exotic Plant Council (FLEPPC) Symposium in St. Augustine, it was mentioned that some distribution maps maintained by FLEPPC do not agree with those of the *Atlas of Florida Vascular Plants*. Part of the problem here is that databases maintained by some groups, such as FLEPPC, may include reports based on undocumented "sight records," that is, records based on "I saw it there and then with my own eyes." No doubt these observations are made by knowledgeable individuals and the species really does occur where stated, but the report is only anecdotal and not "good science." In some cases, a valid reason exists why an herbarium collection

could not be made, but in most, it was just "too much bother." Each distribution record on the *Atlas* website is documented by an herbarium specimen or a reliable published source, such as a monograph or revision. These records are traceable to the source. In the event of a question on the identification or locality information, the specimen can be located and examined. FLEPPC members, and FNPS members as well, need to get on board and document their observations. State and Federal research funding for exotic pest plant research and control is often dependent on the degree of the problem. If the problem is not properly documented, it becomes more difficult to obtain funding.

Here are some basics for those unfamiliar with the process:

- **How do I get my new record listed on the Atlas of Florida Vascular Plants web site or the FLEPPC web site?**

To get a new county record on the *Atlas*, it is required that a voucher specimen be deposited in a recognized

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herbarium. Once the identification is confirmed by someone at the herbarium, the data will be entered into the database at USF and will be immediately available on the web. To get your plant into the FLEPPC database, you must fill out a field form (available at www.fleppc.org/database/data_intro.htm) and mail a hard copy of it to: Florida Exotic Plant Pest Council, 3915 Commonwealth Blvd., MS 710, Tallahassee, FL 32399.

• **What is a voucher specimen?**

A voucher specimen is a pressed, dried plant deposited in a recognized herbarium for future reference and study. This is the documentation of the species' occurrence at a specific location.

• **How is a voucher specimen made?**

The plant specimen, consisting of a stem with attached leaves and, if possible, flowers and/or fruit, is placed in a single sheet of newspaper folded in half (roughly 11 1/2" x 13 1/2" folded,

depending on the newspaper), pressed flat by squeezing or putting a weight on it, and dried. Information containing the scientific name, detailed location, habitat, plant habit (e.g. growth form and approximate height), frequency of occurrence in the area, collector(s) name, and date of collection is written on a sheet of paper and placed with the specimen. For detailed information how to preparation a voucher specimen, visit the following websites:

www.flmnh.ufl.edu/natsci/herbarium/voucher.htm

www.science.siu.edu/herbarium/potpouri/prepare.htm

www.fleppc.org/her_prep.htm

When obtaining a specimen, be aware that you may need permission from the landowner to take a plant from private land, or a collecting permit for public lands.

• **What should be done after a voucher specimen has been**

made?

The specimen should be sent by mail or personally delivered to the person in charge (Curator, Collections Manager, or Director) of maintaining a recognized herbarium that is committed to long term maintenance of the specimen. Someone at the herbarium will verify the identification of your specimen, prepare a permanent label (if necessary), mount the specimen on acid-free paper, and file the specimen in a specially designed herbarium storage case. If the specimen is not acceptable or more information is needed, the herbarium manager will tell you what is needed. It is always a good idea to contact someone at the herbarium by phone or email for instructions before sending any specimen. Sometimes a specimen can be sent unpressed in fresh condition in a plastic bag, but the herbarium needs to be contacted before shipment so that special instructions can be given and that the herbarium manager can anticipate its arrival and can process it immediately on receipt.

• **What is a recognized**



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herbarium?

A recognized institutional herbarium is one with an official listing in Index Herbariorum (nybg.org/bsci/ih/ih.html), which is an international listing of herbaria, and with an official code to be used whenever a specimen from that herbarium is cited. In Florida, the main ones (over 100,000 specimens) and their official codes are:

University of South Florida Herbarium (USF)

Florida Museum of Natural History, University of Florida (FLAS)

Florida State University Herbarium (FSU)

Fairchild Tropical Garden Herbarium (FTG)

Marie Selby Botanical Garden Herbarium (SEL)

For more information, please feel free to contact me by email rwunder@chuma1.cas.usf.edu.

Internodes



Lygodium Brochure Gets Around!

Botanists at the Guanghai Tea Institute in Guangdong China (above) and Graham Schultz, Weeds Management Officer, Northern Territory Department of Primary Industry & Fisheries and Ian, Mangarrayi Tribe, Never Never Station, Mataranka, Northern Territory, Australia (from left) learn about the threat of *Lygodium microphyllum* in South Florida.

Helena Ad 2/c
P/U

MARK YOUR CALENDAR

4th Annual Southeast Exotic Pest Plant Council Symposium, **April 3-5, 2002**. Renaissance Hotel, Nashville, TN. Contact: www.se-eppc.org.

Association of Southeastern Biologists 63rd Annual Meeting, **April 10 – 13, 2002**. Appalachian State University, Boone, NC. Contact: www.asb.appstate.edu.

First Latin-American Short-Course on Biological Control of Weeds, **June 24-28, 2002**. Montelimar, Nicaragua. Contact: Julio.Medal@gnv.ifas.ufl.edu.

Society for Ecological Restoration 14th Annual International Conference Held Jointly with the Ecological Society of America. **August 4-9, 2002**. Tucson AZ. Contact: www.ser.org.

European Weed Research Society's 11th International Meeting on Aquatic Weeds, **September 2-6, 2002**. Moliets, France Contact: ewrs.2002@bordeaux.cemagref.fr.

2002 Natural Areas Conference, **October 2-5, 2002**. Renaissance Asheville, NC. Contact: [Jeff DeBlieu@tnc.org](mailto:Jeff.DeBlieu@tnc.org), www.natareas.org, 252-441-2525

Notes From The Disturbed Edge

Chapter 4

The kids got it — last year was history to them and tomorrow is a brand new day full of possibilities. For them it all made perfect sense. Out with the new, in with the old. The parents and teachers who stood in the back were a different story. With each new species he'd rattle off, he could see them conducting mental inventories of their yards, their neighborhoods, counting the beans, trying to calculate a bottom line, comparing the relative value of ecological restoration to the costs it could exact upon their pocketbooks, their privacy. He knew they loved their shady spots, their barriers, their trees, their blooms. Myopic with age, and territorial by nature, they found it hard to dial in the big picture. He understood, better than most, how difficult and expensive it could be to remove invasive exotics and replace them with natives. Yep, he was losing the old folks fast, but the kids were hooked in, glances darting from his boots to the backpack sprayer with its sloshing blue contents (water and marker dye only, of course, around the kideleewinks), the potted plants and, ooh, his machete. That was cool. He was a warrior on the front lines in the battle for planet earth! But she was even cooler. They could not keep their eyes off her.

She stood by his side, posing today as Our Lady of Land Stewardship (someone had once made the mistake of jokingly referring to her a "land stewardess" — once), with the centerpiece of all attention dangling around her neck — their wildly popular mascot "Big Blue", a six-foot indigo

snake. She felt like a living display case, window dressing for his slithering magnificence, but she knew that if he captured their attention, they would listen and learn. It was an OK deal.

She too saw the cynical facial ticks creeping across the countenances of the over-10 contingency. She stood and smiled, but all the while her mind was running a mile a minute. How do we reach the grown ups? How could this all come together?

The take home message was emblazoned on a banner hanging overhead: "Only YOU Can Prevent Habitat Degradation." Sure, it was a shameless rip-off, but she didn't see anybody in a bear suit coming to arrest them. He droned on for a while as Blue explored her shirt buttons, luckily decided not to lift and separate, and then it was time to go. She was coiling Blue back into his box, when she saw a little guy break free from his mother's hand and make his way across the room. It never failed — there was always a future herpetologist who asked to pet Blue, and she always felt bad telling them no.

He walked right up to her, looked her in the eye and squeaked out "Thank you Ma'am, I learned a lot." He lowered his voice, and raised his eyebrows towards his waiting mother "Don't worry — I'll convince my Mom. Last year, I got her to quit smoking." He gave a big missing tooth smile, and then spun and left, with nary a snake-ward glance. She departed the room as if walking on a cloud.

— J.A.

An excerpt from "The Adventures of Hack Garlon and his buxom sidekick Squirt."

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