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Urbanizing Forest Programs at the UF-Gulf Coast REC-Plant City Campus

By Dr. Michael G. Andreu and Melissa H. Friedman
UF - School of Forest Resources and Conservation, GCREC - Plant City Campus

Rob J. Northrop
UF/IFAS Hillsborough County Extension

The Gulf Coast Research and Education Center—Plant City campus offers a variety of professional development and training workshops for urban forestry and natural resource professionals as well as the general public. When appropriate, these courses are broadcast to extension offices throughout the state via the Polycom® system. Some of these trainings take place on campus and others may be taught “in the field.”



The year started off by hosting a 1.5 day training session on the i-Tree urban forestry software package produced by the USDA Forest Service at the UF-Plant City Campus. The i-Tree suite of tools includes programs that assess the structure, function, and environmental values of street trees (STRATUM), in addition to the entire urban forest (UFORE). This training program was made possible through the collaborative effort by **UF-IFAS Extension, USDA Forest Service, Florida Division of Forestry, and Florida Urban Forestry Council.** Representatives from all four organizations led parts of the training. Participants consisted of

urban foresters and arborists in the public and private sector.

Over 15 people attended this inaugural i-Tree training in Florida. Program participants were able to get hands on experience using the i-Tree software in the computer lab and learned about the data collection process in the field. Based on the success of this training, the team is planning a second training event in July in Palm Beach, Florida at a location that is yet to be announced. To keep abreast of i-Tree trainings in Florida visit <http://sfrc.ufl.edu/urbanforestry>. To learn more about the i-Tree suite of programs visit <http://www.i-treetools.org>.

On April 15-17 a three-day

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Storm Damage Assessment Protocol for Florida Hurricanes

By Francisco Escobedo
UF-School of Forest Resources and Conservation

Past hurricane seasons in Florida demonstrated the need for information and tools for effective pre-hurricane planning and post-hurricane assessment and response. Following the 2004-05 hurricanes, street trees were severely damaged and downed trees and branches accounted for a substantial part of post-hurricane debris. Several communities in Florida are still trying to assess damage, account for debris removal costs, and initiate street tree restoration activities.

The **Storm Damage Assessment Protocol (SDAP)** from the i-Tree suite of software was developed for communities as a low-cost and easily accessible tool for managing damage to the urban forest following ice storms

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Natural Resource Conservation in Plant City, Florida

By Melissa H. Friedman

UF – School of Forest Resources and Conservation

GCREC – Plant City Campus

If you thought the University of Florida (UF) was only located in Gainesville, Florida, think again! That's right, UF has several satellite campuses located around the state. Satellite campuses offer courses to a variety of students; those that are degree seeking (requires an A.A. or transfer of up to 60 credits), non-degree seeking (requires a H.S. Diploma), and post baccalaureate. These campuses provide a means to those who would like to pursue a degree or simply further their education at an accredited university to do so without having to relocate. The newest satellite campus is located in Hillsborough County, Plant City, Florida. The **Gulf Coast Research and Education Center (GCREC) – Plant City Campus** offers bachelor and graduate degrees in several programs, including a B.S. in **Natural Resource Conservation (NRC)**. The NRC program is administered through the **School of Forest Resources and Conservation (SFRC)** and combines the fields of Forestry and Wildlife Ecology into an interdisciplinary degree. This well-rounded degree not only provides students with a foundation in

the teachings and philosophies of these two disciplines but also equips them with the necessary field experience that makes UF graduates competitive in the professional work force.

Dr. Michael Andreu, professor of Forest Systems, teaches a wide array of courses at the Plant City campus including: Dendrology and Forest Plants, Forest Ecology, Natural Resource Sampling, Fire Ecology and Management, Global Energy Issues, Forest Ecosystems of the Southeast (a field tour), and **Critical Thinking: Challenging Your Ecological Perspectives**. In general, class sizes are small and courses are offered in the evenings and weekends to accommodate working students. Dr. Andreu's philosophy is that students learn best with a hands-on approach and most of his classes have a heavy field component to them.

The NRC program has only fully been in place for three years, yet it has already graduated six students (it takes at least two years to graduate) and currently has eight more working towards



Students estimating ground cover in a field lab.

their degree! To date, many of our recent graduates have found employment in the natural resources field. One of our graduates is working with Natural Resource Planning Services and is involved with traditional forestry work (e.g., management plans, afforestation, timber cruising) and urban forestry. Another graduate is the field supervisor for an ongoing project to inventory the urban and urbanizing forests within the Tampa Bay watershed. Lastly, one more graduate is working with a prescribed fire crew for The Nature Conservancy and is currently completing a program to be certified as a Florida prescribed burner. In all cases, the field experience these students gained through our program and their involvement in student club organizations such as the **Society of American Foresters**, gave them an immediate competitive edge in the job market upon graduating.

To find out more about the NRC program and other programs offered at the GCREC—Plant City Campus, please visit our web site at <http://gcrec.ifas.ufl.edu/pcc>, contact **Dr. Michael G. Andreu** (mandreu@ufl.edu) or contact the program coordinator **Dr. Martin Wortman** at (813) 757-2280.



Student employees having fun during field work.

Urban Forest Ecosystem Management

Science Corner

By Dr. Wayne C. Zipperer, Research Scientist
USDA Forest Service

Traditionally, ecologists have defined an ecosystem as the interactions between the biotic (e.g., trees and shrubs) and abiotic (e.g., soil and atmosphere) components at a location for a specific time. Originally, humans were not considered part of the biotic component. The definition was for only “natural” systems and those systems with humans were considered not “natural”. Fortunately, ecosystem science has evolved and now includes humans as a component of the system (See the Baltimore LTER (<http://www.beslter.org/>) and CAP LTER (<http://caplter.asu.edu/home/index.jsp>) web sites).

Interactions, location, and time characterize the ecosystem. Ecosystems are all about interactions between the biotic components and the environment. These interactions or processes include the movement of energy, organisms, materials (e.g., water, nutrient), and information (when we include humans) within and among adjacent ecosystems. By managing the structure of the urban forest, we attempt to control, modify, or maintain these processes for human benefits.

An ecosystem is also defined by its location. The size and shape of the location of the ecosystem is dependent on your management objectives. An entire city can be considered an ecosystem. Likewise, an individual neighborhood or census block can also be considered an ecosystem, and collectively, these ecosystems form the city. This flexibility in how we define the location of the ecosystem enables us to look at factors affecting

processes at different scales. For example, tree cover at the city scale may have minimal influence on reducing pollution. Knowing that tree cover may reduce pollution concentrations, a manager can better decide where to place trees to be most effective when reducing pollution for residents at a finer scale.

“ . . . an individual neighborhood or census block can also be considered an ecosystem, and collectively, these ecosystems form the city.”

Ecosystems are also open systems. Since energy, organisms, and materials are moving in and out of them, location plays an important role in defining the context, the surrounding area, in which an ecosystem occurs. Because an ecosystem influences and is influenced by neighboring ecosystems, we need to be aware of these interactions and how they can affect our management. For example, a manager may decide to plant trees on a recently created vacant lot rather than depend on natural regeneration if invasive species occur in neighboring areas. By knowing that these species could colonize the site before trees become established, the decision to plant trees, may actually be more cost-effective than having to conduct

remedial actions by clearing the lot and then planting.

Ecosystems are dynamic—changing over time. This change is brought about by vegetation growing and maturing, human activities, and natural disturbances. In Florida, we regularly see the effect of a natural disturbance, such as hurricanes on urban forests. Because these events can have catastrophic effects on the urban forest, managers need to plan for change when making management decisions. For example, by planting and replanting only with wind resistant trees, we may reduce losses from hurricanes.

Now, I want to introduce the concept of ecosystem management. First, I need to state that given the complexities of an ecosystem, it is impossible to manage the entire ecosystem. Secondly, ecosystem management is actually about a mind-set. It is an approach that makes us aware that our actions on a site can affect the ecological and social integrity of the site, adjacent sites, and the city as a whole. By knowing that your actions may affect other processes positively and negatively, you can assess those effects before implementation. Likewise, as managers, we need to identify alternative management scenarios that may minimize negative effects and yet, achieve management objectives. Through an ecosystem management approach we can potentially reduce management costs, maintain site integrity, and improve ecosystem benefits for city residents.

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Is a Tree Canopy Goal Sufficient?

By Dr. Michael G. Andreu

UF – School of Forest Resources and Conservation

GCREC – Plant City Campus

Often urban forests are viewed by city officials as something “to be dealt with” or as cost centers versus revenue generators. One approach to manage this dilemma is to create a tree canopy goal and recommendation based on other cities and organization’s experiences. Communities can then allocate their resources towards meeting this goal. Recently many cities have been developing policies regarding the urban forest based on these tree canopy cover goals (i.e., percent tree cover across the city).

The **Urban Forest Effects (UFORE)** model analysis is an approach that provides a city information on not only its canopy, but its tree species composition and distribution, how those trees are affecting air quality, carbon, and building energy usage, and also the economic and community values of the urban forest. Although UFORE is a model and requires a statistical field sample and weather and pollution data, it is an effective way to overcome the bias of strictly focusing on “how much urban forest.” A UFORE analysis was recently completed in the **City of**



“ . . . because we have this information, we can manage the urban forest to meet some functional objectives like reducing greenhouse gas emission through carbon sequestration.”

Tampa that provides insight into its 28% tree cover. For example if one looks further into the City of Tampa’s tree cover we would realize that mangrove trees in coastal areas make up a substantial portion of this tree cover and the majority of the City’s tree cover is in private lands.

Results from a Tampa UFORE analysis were presented to the **Mayor of the City of Tampa Pam Iorio’s executive staff** (all city department heads) by **Dr. Michael Andreu, Rob Northrop, and Melissa Friedman**. Despite only having a short time to share the information from the analysis, the staffers seemed to fully grasp the implications of this work both from an ecological as well as policy standpoint. Rather than just focusing on percent tree cover we were able to present a more complex picture of the urban forest by providing quantitative and real economic values for forest attributes such as replacement values based on species composition, and other values such as carbon sequestration and air pollution removal (approximately \$6 million in 2007). But perhaps most telling was when one of

the staffers stated that “because we have this information, we can manage the urban forest to meet some functional objectives like reducing greenhouse gas emission through carbon sequestration.” Furthermore, they saw how this analysis provided them with the mechanism to formulate policies and a way to evaluate their effectiveness rather than simply being told what was “good or bad.” These results were also presented to the City Council of Tampa in early April. Following this presentation we will present the results of this analysis to the general public in a forum later this spring.

While a tree canopy objective can be useful it often does not tell the entire story. Often urban foresters and planners need to know more than just “how much urban forest” but also “what kind of urban forest do we have and want,” “where do we want it,” and “why do we want it.” Additional information not provided by canopy goals are “what portion of my canopy is made up of invasive exotics,” “what proportion of this tree cover is susceptible to pests and disease,” and “in what areas in my city is the urban forest in poor condition?” Asking these questions can begin to change the paradigm on how urban forests are viewed from simply a collection of trees that cost money to maintain to one where the collection of trees are seen as a functioning ecosystem which adds real value to those that live and work in these urban forests.

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Storm Damage Assessment Protocol for Florida Hurricanes

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(<http://www.itreetools.org/applications/sdap.shtm>). This program establishes a standard method to plan for and assess widespread damage before and after an ice storm in a simple and efficient manner providing information on storm impacts, time, resources, and funds needed to mitigate storm damage.

The SDAP application and field methods were designed to be used for pre- and post-storm estimates from ice damage events in the northeastern United States. Unfortunately, the protocol is not applicable for assessing hurricane wind effects in the southeastern United States. To address this need, **Francisco Escobedo** and **Christina Staudhammer**, with the **School of Forest Resources and Conservation at the University of Florida—IFAS Extension** through a grant from the **Florida Division of Forestry** are working with **Christopher Luley** and **Jerry Bond** from **Urban Forestry LLC** to develop a Florida Hurricane Adaptation of the SDAP.

The new SDAP Florida Hurricane Adaptation will allow hurricane-prone Florida communities to plan for, assess, and respond to hurricanes and their effects on urban forests. The protocol is being developed based on existing hurricane related woody debris, tree density, wind speeds, and right-of-way debris data. This data is then being used to develop statistical relationships to FEMA debris data, street segment information, and disposal costs from communities throughout Florida that experienced the 2004—2005 Florida Hurricane season. Post-hurricane tree removal and pruning rate and cost data were also collected and integrated into the protocol. Once complete, this protocol should have the potential to increase the reliability of hurricane tree debris and cost estimates and provide useful information for FEMA reimbursement requirements. This project will also increase the use of SDAP and i-Tree in Florida and in doing so promote and advocate proactive management of the urban forest resource.

The Florida Hurricane SDAP Adaptation can soon be downloaded for use by communities in Florida and throughout the southeastern coastal United States. An announcement of availability will be posted on our web site at <http://sfrc.ufl.edu/urbanforestry>.

Francisco can be reached by phone at (352) 378-2169.

Student Spotlight

My name is **Benjamin Thompson**, a graduate student developing a method for Urban Foresters to forecast and estimate hurricane-related damages, debris volumes, and costs. This will help Gulf Coast cities better plan for, respond to, and mitigate for damage and losses to their urban forests. I bring urban forestry experience from New England and Washington State and now look forward to learning about urban forests in this corner of the U.S.



Sign up for *Florida's Urban and Urbanizing Forests* Newsletter

NOTE: This newsletter is only available in electronic format.

This newsletter is published three times a year in January, May, and September. Issues are sent via email for free and posted on our web site. Send an email to flurbanforests@ifas.ufl.edu requesting to be added to the e-newsletter mailing list.

We want to hear from you!

Let us know what topics and information you want to see in future issues. Send ideas to Jennifer at flurbanforests@ifas.ufl.edu.

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training session on **Restoration Planning and Techniques for Forested Lands** was conducted in Hillsborough County. This training was a collaborative effort coordinated by **UF-IFAS Extension** and **The Nature Conservancy's Natural Areas Training Academy**, in partnership with the **Southwest Florida Water Management District** and **Hillsborough County Parks, Recreation, and Conservation Department**.

The focus of this event was on best management practices for restoring biological diversity and ecological functions on forested lands in an urbanizing environment. Today in Florida, public agencies and private non-profit organizations are purchasing lands for conservation purposes. However, too often these conservation lands are islands of "natural forest" surrounded by development which limits managers on the tools they can use (e.g., prescribed fire) in these settings. This course reviewed how managers can overcome some of these challenges through information provided during classroom lectures, case study presentations, and field site visits. For more information about this program and future workshops please visit <http://nata.snre.ufl.edu>.

And lastly, our forthcoming program titled **Community Forest Steward Program** is a 32-hour training taking place May 29-June 26, 2008, in Hillsborough County.

This program is designed to serve community volunteers who are interested in the cultivation and care of trees and woodlands, and who enjoy sharing what they learn with others. The goal of this program is to develop a network of highly motivated, well-trained volunteers to expand and improve Florida's community forests and the public's awareness of them. Upon completion, participants will receive their certification as a new "Community Forest Steward". In return for their training, participants are committed to volunteer at least 30 hours in their communities within the first year of receiving their certification. In the future, we would like to expand this program statewide but currently it is only being offered in Hillsborough County. For more information about this program and how to register, please contact northrop@ufl.edu or call (813) 744-5519.

Upcoming extension workshops developed by our team this year include: **The Mayor's Conference on Community Trees and Urban Forests—June 19**, and a workshop titled **"Strategies for the Sustainability of Tampa's Urban Forests"—Summer 2008**.

For questions about the Plant City Urbanizing Forest Program, please contact **Dr. Michael Andreu** or **Melissa Friedman** at (813) 757-2272 at the UF-Plant City Campus or Rob Northrop at (813) 744-5519 x 106 at the UF/IFAS Hillsborough County Extension Office.

Urban and Urbanizing Forests Program

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"We address the **issues** surrounding expanding urban areas and to understand **forest ecosystems** in and around urban areas and their **multiple functions**."

Check Out Our Web Site

<http://sfrc.ufl.edu/urbanforestry>

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