

#### Quarterly Newsletter of the Florida Urban Forestry Council

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## **BRIEF HISTORY OF PINE FLATWOODS IN SOUTH FLORIDA**

Submitted by Jerry Renick, Environmental Service Manager - Wantman Group, Inc.

Pine flatwoods were first identified as pine barrens by William Bartram in 1791 during his travels in Florida. The term flatwoods was used by the English settlers in the early days to describe the characteristic flat ground with no topographic relief in south Florida. Slash pine (Pinus elliotti) forests have the smallest range of all the major southern pines, historically extending from South Carolina to south Florida and as far west as Louisiana. The south Florida variety (Pinus elliotti var. densa) has a natural range from just north of present day Orlando, south into the Keys and even

extending into the Bahama Islands. This south Florida variety of pine is also known as yellow pine, swamp pine, and pitch pine. It is estimated that pine flatwoods as an ecosystem covered up to 50% of the land area of Florida at one time. Within these pineland communities other habitats were included such as cypress domes, bay swamps, hardwood hammocks, freshwater marshes, wet prairies, and upland sandhills or sand pine scrub ecosystems.

Pine flatwoods are considered a type of savannah with scattered pines, scattered

shrubs including saw palmetto, galberry, lyonia, cocoplum, and a few other common species. They are usually inhabited with a diverse groundcover of grasses and wildflowers. The terrain for pine flatwoods can vary greatly from its northern extent near central Florida, to its southern range of Dade County, and the Keys including both the Atlantic and Gulf coastal areas. It can vary from a dry scrubby flatwoods with shrubby oaks through mesic to wet flatwoods that are similar to wet prairie.

Pine flatwood ecosystems prefer acid sandy soils that are typically low in organic material. Moisture levels are from dry to saturated, varying with the site and with yearly weather fluctuations. Flatwood plants tolerate a wide range of moisture and soil fertility. Many species may be suitable for only drier or wetter conditions. Plants are

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## **PRESIDENT'S MESSAGE**



#### Hello FUFC members!

This issue of The Council Quarterly will discuss the history of trees in Florida. Florida looked much differently 500 years ago. Covering the land back then would have been millions of acres of virgin timber made up of predominately longleaf and slash pine and large areas of cypress, loblolly pine, sand pine, palms, and oaks. Over time, these stands have

dwindled, and finding virgin timber is rare. Trees have helped shape Florida, providing capital and resources to permit rapid growth and development over the past 200 years.

The forest industry continues to be the leading agriculture industry in Florida and the economic impact is second to tourism. Over 5,000 products can be derived from the forest including the obvious products such as lumber and paper, but also products such as clothing, toothpaste and adhesives.

Other benefits come from the forest that are just as important but are not always measured economically. These benefits include air and water quality, energy savings, reduction of street noise and sound pollution and overall improved emotional and psychological health.

Managing our forest is about balancing the ecological, social and economic needs of our state. It is important that we continue to educate the citizens and visitors of our state about the importance of our forests and proper management practices so future generations can benefit from a healthy, viable forest.

Yours Truly,

Linda Seufert

Linda Seufert 2016 FUFC President

## **REQUEST FOR ARTICLES**

Please let us know what urban forestry projects you have going on in your neck of the woods. The Florida Urban Forestry Council would greatly appreciate the opportunity to share your information in our newsletter. These articles can include:

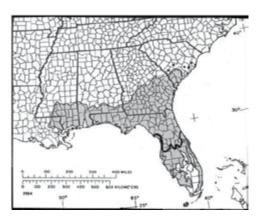
- New trends in the industry
- News about tree advocacy groups
- Volunteer projects
- City tree programs
- Letters to the Editor
- Questions for "Stump the Forester"

We look forward to hearing from you on this or any other interesting topic related to the urban forestry industry and profession. Please send any articles or ideas to Joe Anderson, FUFC newsletter editor, at <u>andejs@jea.com</u>.

Thanks for contributing!

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generally not tolerant of salt and shade. Under natural conditions fires occur at 1-5 year intervals, preventing natural succession to upland forest.



As the geographic area extends south, the sandy layer becomes thinner and the limestone layer becomes more prominent. This area, known as pine rocklands, is an ecosystem unique to the south Florida environment as it evolved on a limestone substrate. This ecosystem comprises the southernmost extent of the pine flatwood range and is found in the Miami-Dade County area (Miami Rock Ridge), the Big Cypress Swamp and even into the Bahama Islands. It often includes a diverse hardwood and palm understory with a very rich and diverse herbaceous groundcover. Pine rocklands are also critical foraging and nesting habitat for a diverse group of wildlife including the federally protected Key deer (Odocoileus virginianus clavium).

Another important ecosystem endemic to the pine flatwood ecosystems of south Florida is the hydric pine flatwood. This is an ecosystem that is a tale of extremes,

## NEWSLETTER ADVERTISING ANNUAL RATES:

Business-card size advertisement: \$75 Quarter page advertisement: \$115 Half-page advertisement: \$225 Full page advertisement: \$450

To place an advertisement in *The Council Quarterly*, please contact Sandy Temple, *FUFC Executive Director* (407-872-1738). where its characteristics and conditions fluctuate between a wetland and an upland

community. This occurs due to the extremes in hydrology from the wet summer season when the south Florida region typically receives as much as 65 inches of rain or more and the dry winter and spring season where the water table can drop down to several feet below ground elevation.

As a result, hydric pine flatwoods have the highest plant diversity of any habitat in south Florida.

Over the course of time, and upon settlement by Europeans several changes to the ecosystem began to occur including attempts by settlers to perform agricultural activities (livestock and crop production), clearing of forests during the Civil War period for building fortresses and barracks, construction of roads for travel created fire barriers, and introduction of non-native plant species to the ecosystem. All these

activities had a negative impact on the health and stability of the pine flatwood ecosystem.

By 1841, the United States Federal Government granted each state in the union to preserve as much as 500,000 acres of land for conservation purposes. This act was in

addition to the land received by the federal government as a result of the Swamp and Overflowed Lands Act of 1850. By this time, the state of Florida had 21 million acres of conservation lands. This all came in the nick of time as the 1930s brought an era that drained the Everglades and brought incredible growth to Florida for the

coming decades at an average annual rate of 4% population

"By 1841, the United

States Federal

Government granted

each state in the union

to preserve as much as

500,000 acres of land for

conservation purposes."

growth. In the last 50 years more than 8,000,000 acres of forest lands and wetlands have fallen to development, accounting for nearly 24% the state's land mass. Thanks to the vision of the state of Florida, Pelican Island is the nation's first wildlife refuge, and Ocala National Forest is the first eastern United States national forest.

After preservation and conservation, the next step is restoration of pine flatwood ecosystems. This is a fairly recent activity that has had variable measures of success, although much has been learned through this process. Regular fires are essentially to the health of this ecosystem. Historically they were introduced on a 3 to 7 year cycle as a result of lightning strikes during the frequent summer thunderstorms. Today, prescribed fires are used to mimic what nature used to do on its own and is used as a tool to maintain the vegetative community

structure and keep it from transitioning to a more hard-







wood environment as well as controlling the encroachment of exotic and nuisance plant species. South Florida slash pine is very fire resistant, and the pine seedlings are well protected during fire events due to its long needles which shelter the apical buds from damage. Many plants in the shrub and groundcover layers quickly sprout after the fire event.

As with many ecosystems and natural lands in south Florida, the pine flatwood have been susceptible to the impacts of man since Europeans settled in North America. Through many concerted efforts the federal, state, and local government agencies have placed thousands of acres into conservation status including upland and wetland pine flatwood ecosystems. Continued restoration efforts are a critical element in the continued attempt to preserve a diminishing and important ecosystem.



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## **BEYOND THE URBAN FOREST**

Submitted by Dana Sussman, Orange County Senior Forester - Florida Forest Service

Many articles in *The Council Quarterly* discuss the ecosystem services provided by our urban forests and how important they are to the health and vitality of our communities. The work of arborists and urban foresters helps manage and protect this resource.

Beyond the urban forest lies a resource equally important to our well being: the rural forest. Foresters who manage these lands face many of the same challenges as those working in our urban forests. Their goal? A healthy, diverse, and sustainable forest. Something urban foresters strive for as well.

Rural forests support the timber industry which has been an integral part of Florida's economy since the 1700s. From timber to naval stores, the forests supported hundreds of families and the towns in which they lived. Until the 1920s, the supply of timber was seen as endless. Millions of acres of pine forest were clear-cut without any plan to reforest them. "Cut and Move On" was the loggers' mantra.

By 1925 less than 30% of the original 27 million acres of Florida's timberland remained. Amidst growing concern that the forest resource was being damaged irreparably, a small group of conservationists created the Florida Forestry Association (FFA) in 1923. One of its early

accomplishments was the establishment of the Florida Forest Service (FFS) in 1928. This partnership, along with cooperation from the timber industry, promoted efforts to better manage the forest resource and protect Florida's forests. The dramatic loss of forest due to timber harvesting spurred

the FFS to establish a seedling nursery. Over the next two decades millions of trees were planted.

With guidance from the FFS's County Forester Program (enacted by the Florida Legislature in 1941), private landowners were encouraged to plant, grow, and harvest their forests on a continuous cycle. Small woodland

owners became the backbone of the timber industry providing pine trees for the saw timber and pulpwood markets.

During this time, the FFA voiced strong support for the establishment of a School

of Forestry at the University of Florida. In 1936 the School of Forestry was created and research and educational efforts were begun. Important areas studied include forest genetics, Best Management Practices for silviculture, the use of prescribed fire as a management tool, and multiple use

"With guidance from the FFS's County Forester Program..., private landowners were encouraged to plant, grow, and harvest their forests on a continuous cycle." resource management. The resulting information helped support significant changes in forest management practices and a more positive view of the timber industry.

In the decades since, advances in mechanization and expansion of seedling nurseries combined to support reforestation efforts by small landowners, the

Florida Forest Service, and forest industry. While there will never be as many forested acres as there once were, great strides have been made towards a healthy, diverse, and sustainable rural forest in Florida.

#### Sources:

From Florida Trees, State Archives of Florida A Comparative Analysis of the Evolution of Forest Management in the United States in General, With a Focus on Oregon, North Carolina and Florida. Patrick W. Kelly, 2006





Submitted by Julie Iooss, Horticulture and Irrigation Program Manager - City of Orlando Parks Division



#### Yellow Poinciana (Peltophorum dubium)

A popular Florida landscape tree due to its cold-hardy nature, Peltophorum dubium, also known as Yellow Poinciana, Yellow jacaranda, Copperpod, and Horsebush is a tropical tree in the bean family from South America and the West Indies. It looks very similar to P. pterocarpum, but is more cold tolerant, making it the tree of choice for Central Florida. Commonly confused P. dubium is a prettier bloomer and more graceful tree than the latter. It has a rather slender trunk, is high branching, with about 40 to 60 percent of the tree being cleared trunk. Its fine leaflets give it a graceful look, and its umbrella-like shape makes it a useful shade tree. At flowering, P. dubium is completely covered with bright yellow, upright panicles. The species is a poor bloomer in alternate years. In some cases, trees only several feet apart alternate in providing a magnificent floral display in successive years, primarily from late June to late July. The degree to which P. dubium flowers apparently affects the extent of its deciduousness. In a year of heavy flowering, the tree will become completely deciduous.

In spite of its drawbacks the Yellow Poinciana is a worthy species, especially as it is so tolerant of drought and salt conditions. It should be pruned to reduce its bulk in dry months and never planted near buildings.

**Size and Form:** Medium evergreen tree growing between 30-40' X 40' tree with a rectangular trunk.

Habitat: Dry tor moist coastal forest, deciduous woodland. Highly drought tolerant.

**Growth Rate**: Young trees are fast growers, up to 6 feet in one year.

**Leaves:** Leaflets are about ½ long and arranged in 20-30 pairs, bright glossy green and deciduous. Fallen leaflets and petals seem to fade away into lawns and are not much of a litter concern.

**Bark and Roots:** Although it has brittle wood and shallow roots, appears to be more storm resistant.





**Flower**: The flower buds are bright yellow with dark ochre tomen, arranged in bundles that end in spikes. The bright visible flowers are in corollas. They flower in the summer, but the bloom can be unpredictable. It has produced a flush of bright golden blooms one year and little to none the next year.

**Fruit and Seed:** The fruit is dull, grey-tan. Pods, flat, indehiscent, to 4 inches long with 1-3 seeds.

**Usage:** Timber is renowned in India and used for cabinet work. It also provides a source of brown dye that is used in batik.

**Environment**: This plant is attractive to bees, butterflies and/or birds.







## OUR TEAM

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## **COMMUNITY INVOLVEMENT IS MAKING A DIFFERENCE**

Submitted by Lou Shepherd, Urban and Community Programs Coordinator - Florida Forest Service



Welcome to Florida's new and returning Tree City USA® communities for 2015:

- Atlantic Beach
- High Springs
- McIntosh
- Panama City Beach
- Stark
- Virginia Gardens

This brings our state total to 173, raising Florida to the #3 ranking in the nation for the most Tree City USA® communities. Almost all Tree Cities from the previous year applied for recertification which does not happen every year. Thanks to everyone involved in this effort.

Jacksonville remains the largest Tree City USA ® in Florida, with a population of close to one million residents. The City of Pomona Park in Putnam County, with a population of less than one thousand proud residents, is the smallest.

The Tree City USA® program recognizes communities who are actively managing their tree canopy. The Florida Forest Service administers the Tree City USA ® program in Florida. Program information is available on the Arbor Day Foundation web site; www.arborday.org or on the Florida Forest Service website; www. freshfromflorida.com.

City and county governments, as well as federal military bases, are eligible for certification. To qualify, they must have a designated tree board, advocacy group, or department in charge of tree management. They must have a tree ordinance, work plan with an annual budget of at least \$2 per capita, and an annual Arbor Day celebration.

For those who go above and beyond the call of duty, there is the Tree City USA Growth Award. To qualify, the cities need to start either new tree management activities or broaden the scope of their current activities over those of the past year. In 2015, a total of 25 Florida communities received Growth Awards.

A city receiving a Growth Award for at least 10 years is recognized as a Sterling Tree City USA. This year, the City of Palm Coast received Sterling recognition. Florida currently has 18 cities having achieved this honor.



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The Tree Campus USA program recognizes colleges (any post-secondary academic institution) who maintain an active tree management program on their campus with adequate funding, dedicated staff and resources, and volunteer participation in tree activities from students, staff, and faculty. Florida currently has 14 Tree Campus USA's, which include:

- College of Central Florida
- Eckerd College
- Florida Atlantic University
- Florida Gulf Coast University
- Florida Institute of Technology
- Florida International University
- Jacksonville University
- Johnson & Wales University
- St. Johns River State College
- Stetson University
- University of Central Florida
- University of Florida
- University of Miami
- University of South Florida

The Florida Urban Forestry Council is actively promoting Tree Campus USA and welcomes potential applicants.









Electric utility companies and cooperatives who use good tree care practices and do public tree outreach in their communities are eligible for certification under the Tree Line USA program. Certification requirements include adhering to established standards for tree pruning and tunneling, using integrated vegetation management principles when maintaining transmission line rights-of-way, providing a worker training and adequate safety for line clearing crews, promoting tree planting for energy conservation, and participating in the urban forestry programs of their local communities. Florida companies and cooperatives that are currently certified as Tree Line USA are:

- Duke Energy
- Florida Keys Electric Cooperative
- JEA (Jacksonville Utility)
- Ocala Utility Services
- Orlando Utilities Commission
- Sumter Electric Cooperative (SECO)
- Talquin Electric Cooperative
- Tampa Electric (TECO)
- Winter Park Utilities

If your city, county, college, company, or cooperative would like to participate in any of these Arbor Day Foundation programs, or if you would like more information about them, please contact the Urban Forestry Coordinator Lou Shepherd at (850) 681-5881, or Lou.Shepherd@freshfromflorida.com.

# Working in Harmony with Nature

Sumter Electric Cooperative has always placed a high priority on the environment by working to stay in harmony with nature. Evidence of SECO's environmental stewardship is displayed through the following programs.

## Sumter Electric Cooperative:

- was named a *Tree Line USA* utility for the fourth consecutive year by *The National Arbor Day Foundation*. Employee arboriculture training, public education, and maintaining abundant, healthy trees in SECO's service area are common practices.
- installs osprey nesting dishes atop of the utility pole cross arms as needed for these magnificent birds.
- places squirrel guards atop the transformers to protect a variety of animals from danger, particularly squirrels.
- offers net metering to members interested in renewable generation such as photovoltaic systems.
- recycles retired power equipment, scrap steel, aluminum, copper, porcelain, fluorescent lights, ink printer and copier cartridges, plus much more.
- researches and writes *Nature's Reflections,* a special column in the members' newsletter developed to educate the community on the flora and fauna of Florida with eco-friendly topics like xeriscaping and conservation.



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## A REVERENCE FOR TREES OF AN EARLY FLORIDA FOREST

Submitted by Joe Anderson, Utility Forester - JEA

"These are the trees that provide the smell of pine, the utility of oak, the shade of summer, and the pleasure of fruit - familiar to each passing generation, that lived, loved, and labored so that one day, long after they have passed, we may carry on, to live, love, and labor – just as future generations,

unknown to us, may forget who we are – all our worries, faults, and fears – yet still share and enjoy together, if only for a moment, the very same timeless smell of pine, the utility of oak, the shade of summer, and the pleasure of fruit." -Nostalgia

There is little doubt that the future is not

what it used to be in the mind's eye of our ancestors. Could Florida's early inhabitants, who came centuries before us, have imagined the world we live in today? Conceivably not, bar the remaining remnants of a frontier landscape. Our trees are fragments of days gone by. Earlier inhabitants would recognize our trees. They may not recognize the abundant forests they once knew, but they would hold a keen reverence for wood - and they would remember more than we know about our neighborhood trees.

Once upon a time, trees were more than ornamentals that line our streets, shade our sidewalks, define our parks, and beautify our yards. Trees were the grocery store, hardware store, and the local pharmacy. When building a boat, trees not only provided the bark, twine, and pitch to build a canoe, they held the secrets to an entire ship building industry. Florida's coastal maritime forest and adjacent backwoods provided the longleaf pine (Pinus palustris) for the masts, live oak (Quercus virginiana) for the interior ribs of a ship, bald cypress (Taxodium distichum) and red cedar (Juniperous virginiana) for planking, and slash pine (Pinus elliottii) for the resin-based naval stores (turpentine, rosin, pitch, tar, and cordage) needed to float a boat. Naval stores remained an economic mainstay for the southeastern states long after the age of sailing ships passed.

Our astute forefathers may not have known how to measure the British thermal unit (Btu) of a burning log, but they knew the different burning potential of hickory, oak, maple, ash, and pine. The hearth, bread oven, smoker, kiln, and the forge required different wood. They knew how to create charcoal by reducing the oxygen supply to a wood burning fire. Charcoal could bring a blacksmith's forge to the required temperatures needed to work iron and other

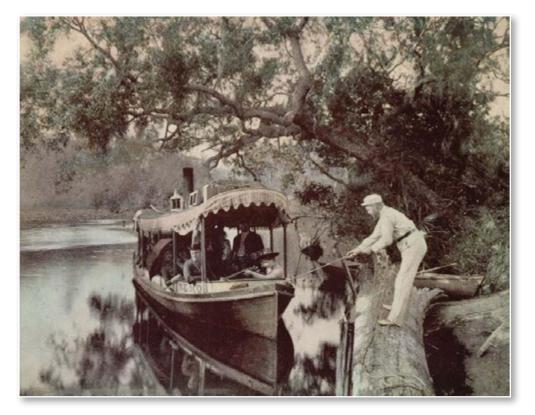
"They may not recognize the abundant forests they once knew, but they would hold a keen reverence for wood - and they would remember more than we know about our neighborhood trees." metals. The raw material for charcoal was readily available everywhere to the early pioneers, and budding industries. Coal was a better fuel for the forge, but you had to mine coal. The story of coal is later narrative and a conversation that can't take place without talking about trees.

Not all wood is created equal. Our forbearers understood this. Each wood has its own characteristic; each has its own magic. Everyday chores and tasks required the wizardry of wood. How each wood breathes, swells, shrinks, scars, colors, twists, and turns would depend upon the composition and personality of its parent tree. There was a need for ladles, baskets, shovels, tankards, handles, gun stocks, benches, stools, barrels, casks, mallets, yokes, plows, doors, lumber, planks, braces, pegs, shingles, shakes, barns, rails, crates, tools, skids, buggies, and buckboards. Some wood was good for this, but not for that. Other wood was good for that, but not for this.

For example, the vascular tissues within the red and white oaks are physically and biologically different. White oaks have wider wood grain, lower wood tannins, and smaller vascular pores making them ideal for the staves of barrels built to carry such liquids as water, beer, wine, and other spirited drinks. The tanning industry, on the other hand, sought the red oaks due to their higher tannin levels.

Early Florida forests served as the feed & seed store; the grocery produce and deli; and the corner pharmacy. Once it was common practice to let hogs forage on the acorn crop within the forests. An old story tells that our early forest had such a wealth of acorns that the pigs that fed upon them soon went nuts. The temperate hardwood forests were common place on a variety of sites throughout the upper 2/3rds of the state. Florida's deciduous and evergreen forests provided an abundance of wild game - to include wild turkey, quail, duck, rabbit, raccoon, opossum, deer, fox, black bear, mink, otter, bobcat, and a host of other fauna. The decline of species diversity and population followed the loss of forest

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habitat. There were a few species that once roamed and thrived within the open woods, cypress swamps, and pine stands commonplace to early Florida. The red wolf (Canis rufus) also known as the Florida wolf, may have been the first New World wolf species encountered by European colonists. The fox squirrel (Sciurus niger), the largest tree squirrel native to North America, was an important source of meat for settlers in the 17th and 18th centuries. The Red-cockaded woodpecker (Leuconotopicus borealis) is a native, nonmigratory woodpecker exclusive to longleaf pine stands once common to Florida. Like the Florida panther (Puma concolor) today's populations are only fragments of what used to stalk our forests and swamps. The existence of Florida's wildlife had everything to do with trees. Knowing the trees was crucial to obtaining all the benefits that wild game would bring.

The sassafras (*Sassafras albidum*), elderberry (*Sambucus canadensis*), and holly (*Ilex sp*) were sought as new found wonder drugs. The hackberry (*Celtis* occidentalis) and red cedar (Juniperus virginiana) berries were used to flavor foods. Knowing the trees and plants was the secret to better health.

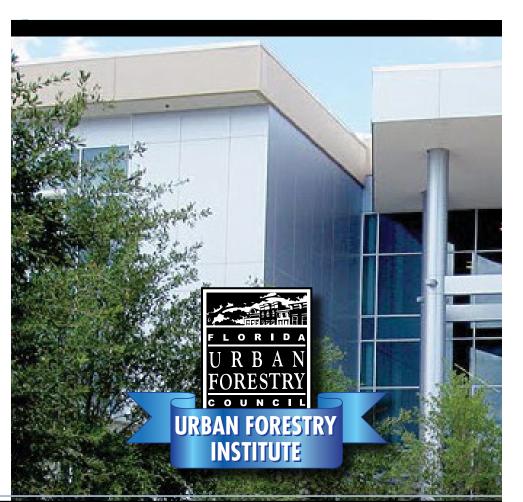
Knowing the woods, leaves, fruits, and flowers was more than a pastime. Knowing the trees was a way of life. Being able to read the trees – by species, form, and shape – was the key to knowing the land. The trees could tell you where the rich and poor soils could be found. Trees could tell you where good water was located. On a calm day, the form of a tree would tell about harsh, prevailing winds.

As early as the 1850s our forebears expressed rising concerns about the rapid reduction of our forest. Andrew Jackson Downing, a 19th century landscape designer and horticulturalists--named after Major General Andrew Jackson following the 1815 victory of the Battle of New Orleans and former territorial governor of Florida and the 7th president of the U.S.--had a profound reverence for trees and forests. He spoke to our generation with the following sentiment, "If our ancestors found it wise and necessary to cut down vast forests, it is all the more needful that their descendants should plant trees. We should do our part, therefore, toward awakening again, that natural love of trees...We ought not cease, till every man feels it to be one of his moral duties to become a planter of trees."

A tree is a story book whose words weave among its branches, leaves, and inner rings of its trunk. There is a treasure trove of secrets within a tree. There is a wealth of knowledge held within a forest. Our forbearers understood this. A reverence for trees was more than a way of life. A reverence for trees was more than knowing how to live, but knowing how to live well. Our urban forests and community trees are not immune to this truth--a truth that does not fade with the passing of time. It is the same today, as it was yesterday, as it will be tomorrow.



# Urban Forestry Institute 2017



## Thursday & Friday March 16–17, 2017

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Climbing to the Next Branch of a Managed Urban Forest



## Featuring the Following Speakers:

Dan Lambe, Arbor Day Foundation Rob Northrop, UF IFAS Extension - Hillsborough County Don Winsett, Davey Resource Group Lou Shepherd, Florida Forest Service Wayne Zimmerman, Orlando Utilities Commission Charlie Marcus, Legacy Arborist Services and others

#### Topics Include:

- Creating High-Impact Urban Forestry Programs
- Using Tree Inventory or Canopy Analysis Data in the Development of Urban Forest Management Programs
- How to turn a Developing Community into a Managing Community
- Maximizing Coordination with Advocacy Groups and Communicating to the Public
- Tree Protection Ordinance Writing and Enforcement
- Communicating Urban Forestry Issues Across Departments and to Elected Officials

## **STUMP THE FORESTER**

**QUESTION**: Why can squirrels run across utility wires and not be harmed? How can birds sit on electrical wires and not be electrocuted?

**ANSWER**: Don't be fooled. This high wire act can be a dangerous stunt for our arboreal acrobats.

The short answer is that electrical shock will only happen if electrons (electric particles) move through you--not past you. As long as the squirrel is running along, or the bird is sitting upon, a non-electrical wire, an insulated wire, or contacting points in the same electrical state, electrons are not passing through the body. The animals are safe.

Let's take a closer look. Let's first consider the wire. Not all wires are created equal regarding an electrical hazard. Insulated communication (cable, TV, telephone) lines

do not pose a threat as do electrical lines. Electrical wires with a low voltage are often wrapped, or sheathed with a rubber-like, insulating material that will shield against electrical shock. Generally, the electrical distribution lines with the highest voltage and the highest risk will be highest on the pole. These wires are often bare, having no protective insulation other than height, space or distance. There is a real potential danger with the high wire-electrical potential to be exact.

Electrical potential is voltage difference between two points. If the difference is low the risk is low. If the difference is high the results can be shocking. Disparity makes all the difference. In the world of physics a difference in temperature, elevation, speed, or voltage is like a difference of opinion – it can create conflict.

Consider the speeding train analogy. As long as all your parts are entirely inside the train traveling at the same speed you are safe. You'll be in jeopardy if you attempt to leave the moving train and your body makes

contact with another object - stationary or moving at a different speed.

Difference (electrical potential) between two points will cause electrons to move in much the same way elevation differences will cause water to flow and objects to roll. The greater the difference, the greater the flow. The greater the flow, the greater the current. The greater the current, the greater the hazard.

It's all about your POINT of reference. If the squirrel, or bird, contacts a wire at a single point, or two points with the same voltage potential they are relatively safe. The bird sitting on a wire is like a cul-de-sac in the electrical system--a deadend. Electrons have nowhere to go. Electrons can't escape and pass by the bird--not through it. If the bird spreads its wings and comes in contact with another wire or object, the body may become an escape route. Electrons will flow through the body--ouch.

Therefore, as long as the squirrel is traveling along an energized wire, or a bird is sitting at a single point where the electrical potential is low, the risk is low. They are safe for the time being. However, if the bird spreads its wings and contacts an adjacent wire; or if the squirrel bridges the gap between two conductive objects, electrons will flow and the animals will become Crispy Critters.

Safety distances, insulating materials and animal guards are often engineered into the design of electrical distribution systems in order to reduce the hazards to wildlife and tree limbs.

Answer provided by Joe Anderson, Utility Forester with JEA



If you would like to 'stump the forester,' see page 2 for information on submitting your question!

# Wedgle® Direct-Inject... TREE INJECTION SYSTEM

Our advanced technology for tree treatment allows you to

# INCREASE THE NUMBER OF TREES YOU TREAT IN A DAY!

- No drilling damage
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- No waiting for uptake
- Treats most trees in five minutes or less!
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AVAILABLE AT:

Multiple injection tips designed for all types of trees, conifers and palms



Insecticides • Fungicides • PGRs • Antibiotics • MicroNutrients



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## EMBERSE



New and renewed members through November 15, 2016. Please let us know if we fail to mention your name.

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John Harris

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Michael Marshall James Marshall, Jr. James Marshall, Sr.

NELSON TREE SERVICE, INC. Chuck Benton Bob Turner Greg Viscusi

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#### Categories (please check one):

□ Professional @ \$25.00

(Professional membership is open to anyone who is actively working in the profession of Urban Forestry or any related profession.)

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#### $\Box$ Tree Advocate @ \$20.00

(Tree Advocate membership is granted to those volunteers who are members of a tree board, beautification committee or other Urban Forestry volunteer group.)

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(Supporting membership is granted to those individuals, groups or other entities expressing a desire for a strong supportive role in the Council. Membership will be granted for up to five individuals of an organization or business.)

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