



The Council Quarterly

Quarterly Newsletter of the Florida Urban Forestry Council

2014 Issue Three

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LANDSCAPE TREES AND CLIMATE CHANGE

Michael Kuhns, Extension Forestry Specialist – Utah State University Extension

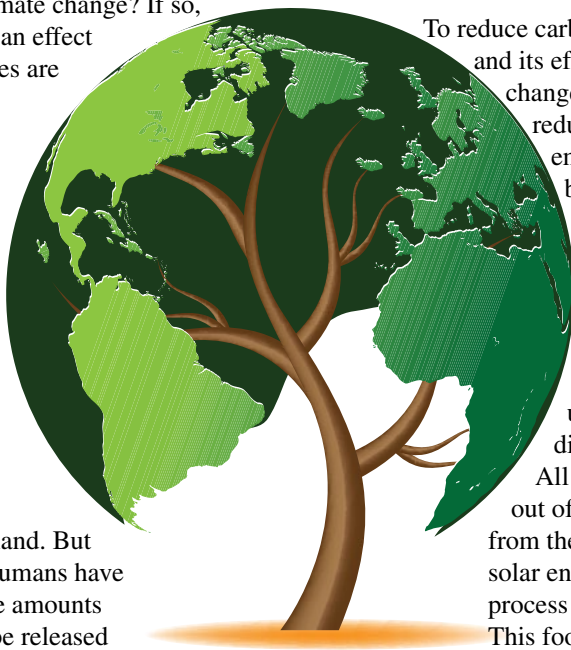
Reprint from <http://forestry.usu.edu/htm/city-and-town/urbancommunity-forestry/landscape-trees-and-climate-change>

We all hear a great deal these days about climate change and its potential problems. And, we who work with landscape and urban trees have heard that we can greatly reduce these problems by planting and caring for trees. Certainly trees are good for our environment. But can urban trees make a difference in climate change? If so, how do they have an effect and how many trees are needed?

First, what is climate change, sometimes also referred to as global warming? Certain gases, sometimes called “greenhouse gases,” occur in our atmosphere naturally and help trap radiation and warm the air and land. But since the 1800s, humans have been causing large amounts of these gases to be released into the atmosphere, with carbon dioxide being the most abundant, along with methane. The main sources of carbon dioxide from our modern society are the burning of coal and oil in power plants and gasoline in automobiles. Clearing and burning of forests also releases considerable carbon dioxide.

The theory behind climate change or global warming is that increasing greenhouse

gases are causing a general warming over the earth that is affecting global climate. Carbon dioxide in the atmosphere certainly has increased, and a consensus seems to have emerged amongst scientists, policymakers, and citizens that warming and climate change is occurring.



To reduce carbon dioxide buildup and its effects on climate change, we can either reduce carbon dioxide emissions (mainly burn less fossil fuels), or we can re-absorb carbon dioxide from the air. Trees enter the picture here because they can be used to take carbon dioxide out of the air.

All plants make food out of carbon dioxide from the air, water, and solar energy through the process of photosynthesis. This food is then used to make most of the body of

the plant, including roots, leaves, stem or trunk, and flowers and fruit.

Trees (and shrubs) are unique among plants in that they have a woody stem and roots that get bigger every year and these woody parts last for decades or even centuries. Since this wood is mainly made of carbon from carbon dioxide, tree stems and roots are good, long-term storage

places for carbon. Annual plants (such as corn, tomatoes, and annual grasses) and many non-woody perennial plants (such as perennial grasses, clover, and alfalfa) are not good places for long-term carbon storage. Most of the carbon dioxide they absorb is re-released within one to several growing seasons as leaves, stems, and roots die and decay.

So, trees can take carbon dioxide out of the air and store it as carbon in wood. How many urban trees would it take to absorb all of the carbon dioxide put out by the United States in a year by fossil fuel burning and related activities? On the average the U.S. releases 6.2 tons of carbon per person per year as carbon dioxide, as compared to 6.0 tons for Canada, 3.0 for Japan, 1.1 for

continues on pg. 3

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PRESIDENT'S MESSAGE



Climate change...regardless of who or what is responsible for the measurable shifts in temperature across the globe, it is real and we all need to consider how it impacts our surroundings and what actions need to be taken to compensate for the changes. I often find myself examining worst-case scenarios for changes such as this while

*my wife is wondering if a global temperature rise would allow for the planting of a date palm, avocado and/or mango trees in our northern Central Florida yard. In either case there are some great articles in this issue of *The Council Quarterly* discussing how climate change may impact our urban forests.*

Planning for next year's urban forestry events? You may have already seen some advertising on an event called "The Cost of Not Maintaining Trees" symposium. The Florida Urban Forestry Council, International Society of Arboriculture and the ISA Florida Chapter have teamed up to put on this event which will feature presentations and discussions regarding maintaining trees, urban forestry and utility vegetation management from some of the world's leading experts. Our education committee is diligently working to finalize all the details, but you can count on a great event that you don't want to miss. Don't forget to mark your calendars for March 18 and 19, 2015 and plan on attending the "The Cost of Not Maintaining Trees" symposium being held at the Patel Center of Global Sustainability on the University of South Florida Campus in Tampa. Looking forward to seeing you all there!

Ken Lacasse, Ken.lacasse@secoenergy.com
FUFC President

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China, and 0.3 for Nigeria (figures for 2004 from Oak Ridge National Laboratory). This amounts to a total of about 1.82 billion tons of carbon that would need to be absorbed each year in the U.S. alone. According to Rowntree and Nowak (see their article on urban forests and carbon dioxide in the October 1991 Journal of Arboriculture), all of the urban trees in the entire U.S. only contain 800 million tons of carbon, so in a little over 5 months the U.S. puts out as much carbon as is stored in all of our urban trees.

Planting 44 million more urban trees per year in the U.S. for the next 50 years, for a total of 2.2 billion trees, would replace trees lost to mortality and increase urban tree cover by 5% (see Rowntree and Nowak 1991). Those 2.2 billion trees, however, would only store an additional 150 million tons of carbon. At 2004 rates, 91 billion tons of carbon would have been emitted in the U.S. over those 50 years, 600 times more carbon than would have been stored. The situation is made worse by the fact that these figures assume that all of the trees planted must remain alive and healthy to keep absorbing carbon dioxide.

So, planting 44 million trees per year for fifty years would result in absorbing 0.16 percent of the carbon dioxide the U.S. would emit over the next fifty years. These figures are not presented to belittle the idea of planting trees to help ease environmental problems. Trees can play a role in helping reduce greenhouse gas emissions. But we should not be planting trees in U.S. cities and towns thinking that we are absorbing great amounts of carbon dioxide. Landscape tree planting or even rural tree planting in the U.S. cannot make a significant dent in absorbing the carbon dioxide we release.

The only way that U.S. residents can significantly affect climate change/global warming is by changing their behavior to reduce greenhouse gas emissions, mainly by reducing the use of fossil fuels (coal, oil and gas). And this is where trees can play an important part. In the hottest part of the summer about half of the electricity used in the U.S. powers air conditioners, and air conditioning causes power plant emissions of 100 million tons of carbon dioxide (27 million tons of carbon) each year. Trees planted to shade buildings and cool the air through transpiration can reduce this energy

use by up to 70%. Well-placed trees that slow the wind can reduce energy use for heating by 30%. Trees in living snow fences reduce the energy needed to plow roads and parking lots. These are just some of the ways that trees can be used to reduce energy use, thereby reducing fossil fuel use and carbon dioxide emissions.

Arborists and other tree people across the country should be promoting appropriate tree planting, both urban and rural, because of the many benefits trees provide. Trees certainly are not the answer to climate change problems, but they can play an important part in reducing fossil fuel consumption and carbon dioxide emission. Few pollution fighting tools provide such diverse benefits at such a low cost for such a long period of time.

The Carbon Dioxide Information Analysis Center at Oak Ridge National Laboratory has an interesting website that attempts to answer many simple and complicated questions on climate change. Further information can be found at <http://cdiac.ornl.gov/pns/faq.html>.

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 Jerry Renick, FUFC newsletter editor, at jrenick@landdesignsouth.com.

Thanks for contributing!



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Tree of the Quarter

**SWAMP CHESTNUT
OAK**
(Quercus michauxii)

Named for French botanist, Frances A. Michaux, an author of the trees of eastern North America. Swamp chestnut oak (*Quercus michauxii*) is also known as Basket Oak because baskets were woven from fibers and splints obtained by splitting the wood. These strong containers were used to carry cotton from the fields. The sweetish acorns can be eaten raw, without boiling. Cows consume the acorns, hence the name Cow Oak.

One of the important timber trees of the South, it grows on moist and wet loamy soils of bottom lands, along streams and borders of swamps in mixed hardwoods. The high-quality wood is used in all kinds of construction and for implements.

Form: Swamp chestnut oak is a medium to large deciduous oak. This low-maintenance tree grows in swampy conditions, producing chestnut-like leaves and acorns. This variety of oak tree can reach 40 to 60 feet tall with a canopy spreading 30 to 50 feet wide.

Leaves: Swamp chestnut oak is known for its fall foliage. The shiny green, chestnut-like leaves reach 11 inches long and turn dark red in autumn before they drop.

Bark:

The bark is light gray, rough with flaky ridges.

Flower and Fruit:

In spring, red and yellow catkins appear. These non-showy flowers reach 2 to 4 inches long and rely on wind for pollination. Mature trees 20 to 25 years old produce 1-inch-long acorns, which ripen from September to October and are edible right off the tree. These acorns are sweet and serve as food to wildlife.

Environment:

Swamp chestnut oak trees grow wild in southeastern North America in zones 5 through 9. They are found in rich lowland areas, along streams and in swampy locations. These sun-loving trees grow best in constantly moist soil, tolerating flooding for up to two weeks. Swamp chestnut oaks tolerate strong wind but do not like seaside exposure.



Wildlife:

Birds tend to use the branches as nesting sites. Acorns on this oak are especially good for wildlife. They feed deer, squirrels, turkeys, and woodpeckers. Cows feed on the acorns when they are available. Feeding livestock give this tree the nickname of Cow Oak.



Other Attributes:

Although native to bottomlands and slopes and despite its common name, this oak performs nicely along streets and in parking lots with no irrigation once trees are established.

The tree grows upright until middle age when the canopy spreads out forming a rounded outline. This makes the tree well-suited for street tree planting. Trees are very tolerant of urban conditions and have survived and grow well along streets.

Little known facts:

The dried leaves are suitable for use as mulch. Do not mulch with fresh green leaves, because the leaves produce a chemical that inhibits growth of other plants.



CLIMATE: TREES AFFECT CLIMATE DIRECTLY

Reprint from American Forests website <http://www.americanforests.org/why-it-matters/why-it-matters-climate/>

The earth's climate is largely controlled by how much of the sun's light and heat is absorbed and reflected. By absorbing the sun's heat, trees cool the air.

The interaction of this relationship with an area's topography, latitude, and altitude, can create microclimates, just as trees create microclimates almost anywhere they are by providing a windbreak and shade. Think about it: on a hot, sunny day, it's always cooler beneath a shade tree. A city with a robust tree canopy is cooler in the summer than a similar city with fewer trees, which translates into less energy use and lower cooling costs. Also, in using less energy, less air pollution is created.

The most important role that rural trees and forests play is taking carbon dioxide out of

the atmosphere. The living tissue of a tree is a storage vault for carbon, which would otherwise contribute to the greenhouse effect and to global climate change. Simply put, more trees can decrease the rate of climate change and help us withstand its effects, potentially resulting in less intense storms, fewer infectious diseases, a more stable water supply, and fewer wildfires.

Trees, however, aren't immune to the effects of climate warming. Areas once too cold to support trees now can, and as forests migrate north, harmful insects that were once held at bay by winter freezes can wreak havoc on native species. Tropical vines called lianas are now growing faster than the trees they climb, causing trees in the Amazon and other rainforests to die at an alarming rate.



Trees and forests can either be the key to slowing climate change and mitigating its effects, or they can become its victims. It's up to us.

POSITION REPRESENTS ALL STATES IN EFFORTS TO INFLUENCE FOREST POLICY, PROMOTE HEALTHY AND SUSTAINABLE FORESTS ACROSS UNITED STATES



Tallahassee, FL – State Forester Jim Karels has been appointed to serve as president of the National Association of State Foresters, a nonprofit national organization composed of the directors of forestry agencies in all 50 states and the District of Columbia. The appointment was announced at its national

meeting in September. “Jim Karels has provided strong leadership on forestry, wildfire suppression and land management for more than 30 years. It comes as no surprise that he is now recognized among his peers as the best of the best,” said Florida Commissioner of Agriculture Adam H. Putnam.

The National Association of State Foresters represents state and territorial forestry agencies by helping to influence forest policy and lead efforts to promote healthy and sustainable trees and forests. As president, Karels will work with the states, federal agencies and congress to provide strategic direction, management oversight and policy leadership for our nation's forests.

Karels, who is director of the Florida Forest Service, has more than 30 years of experience in land management and wildfire

suppression, including four fire seasons with the U.S. Forest Service. He is the past Chair of the Southern Group of State Foresters, is a member of the Governor's Land Acquisition and Restoration Council and sits on numerous national boards and associations dealing with wildland fire suppression and forest land management.

He was the leader of the review team for the Yarnell Hill Fire, which took the lives of 19 firefighters in Arizona in 2013. Karels

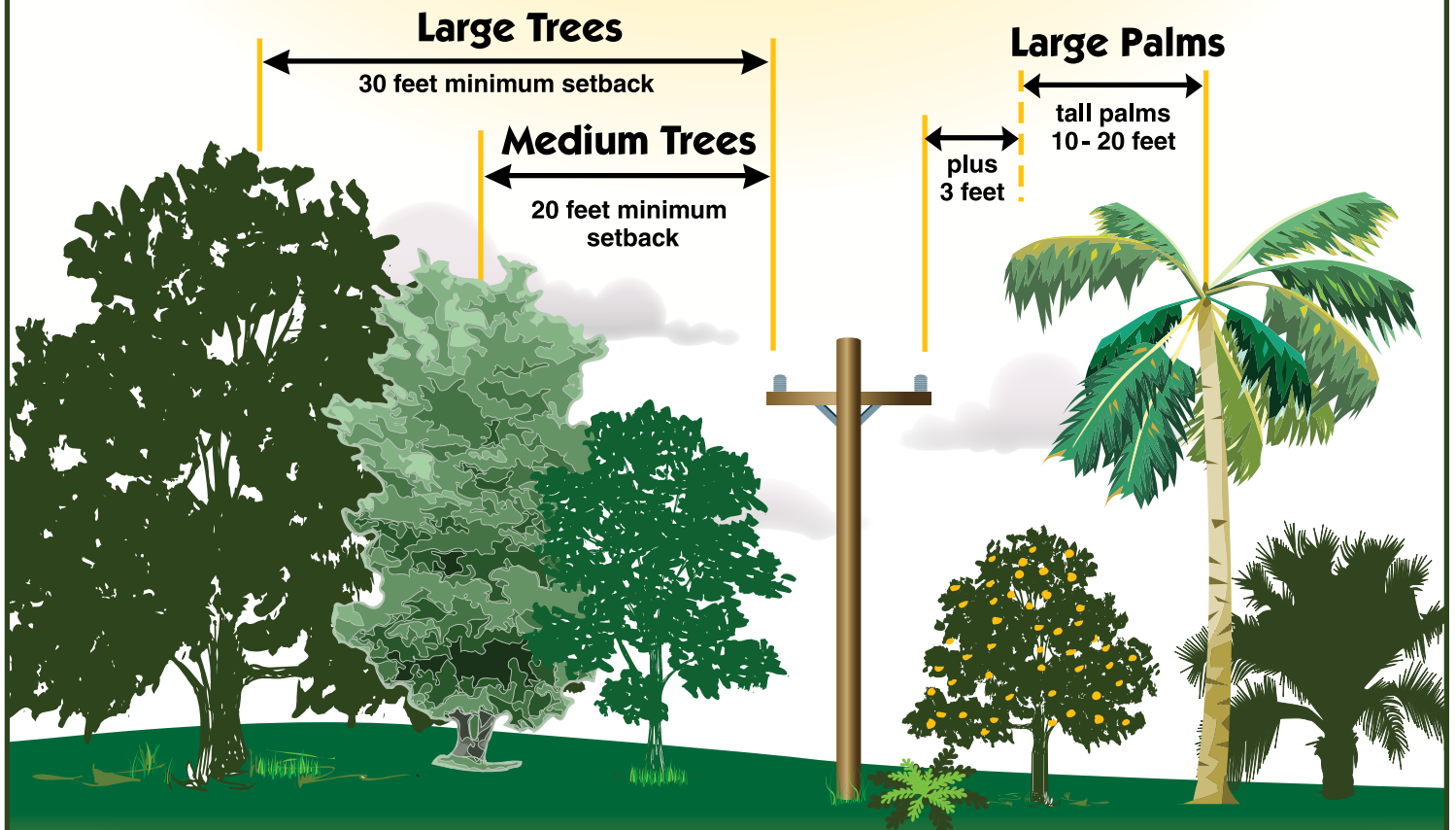
also organized and directed the interagency review team into the Blue Ribbon Fire, which took the lives of two Florida wildland firefighters in 2011.

The Florida Forest Service manages more than 1 million acres of public forest land while protecting 26 million acres of homes, forestland and natural resources from the devastating effects of wildfire.

“The Florida Forest Service manages more than 1 million acres of public forest land while protecting 26 million acres of homes, forestland and natural resources from the devastating effects of wildfire.”

Right tree in the right place

Location is one of the most important considerations when planting a tree.



Trees add beauty and character to any community. As part of the “green infrastructure” trees provide environmental services such as fresh air, shade and wildlife habitat. **Sumter Electric Cooperative** is committed to bringing uninterrupted services to our members. Trees that grow too close to utility lines need

to be trimmed to minimize the chance of an outage. Sometimes trees will need to be removed to reduce recurring right-of-way maintenance costs. Planting trees away from overhead and underground utilities will allow your new tree to achieve its fullest potential and offer you the greatest benefits.



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STUMP THE FORESTER



QUESTION: I have two East Palatka Hollies in front of my house. They both seem to be losing leaves and dying back. What could the problem be?

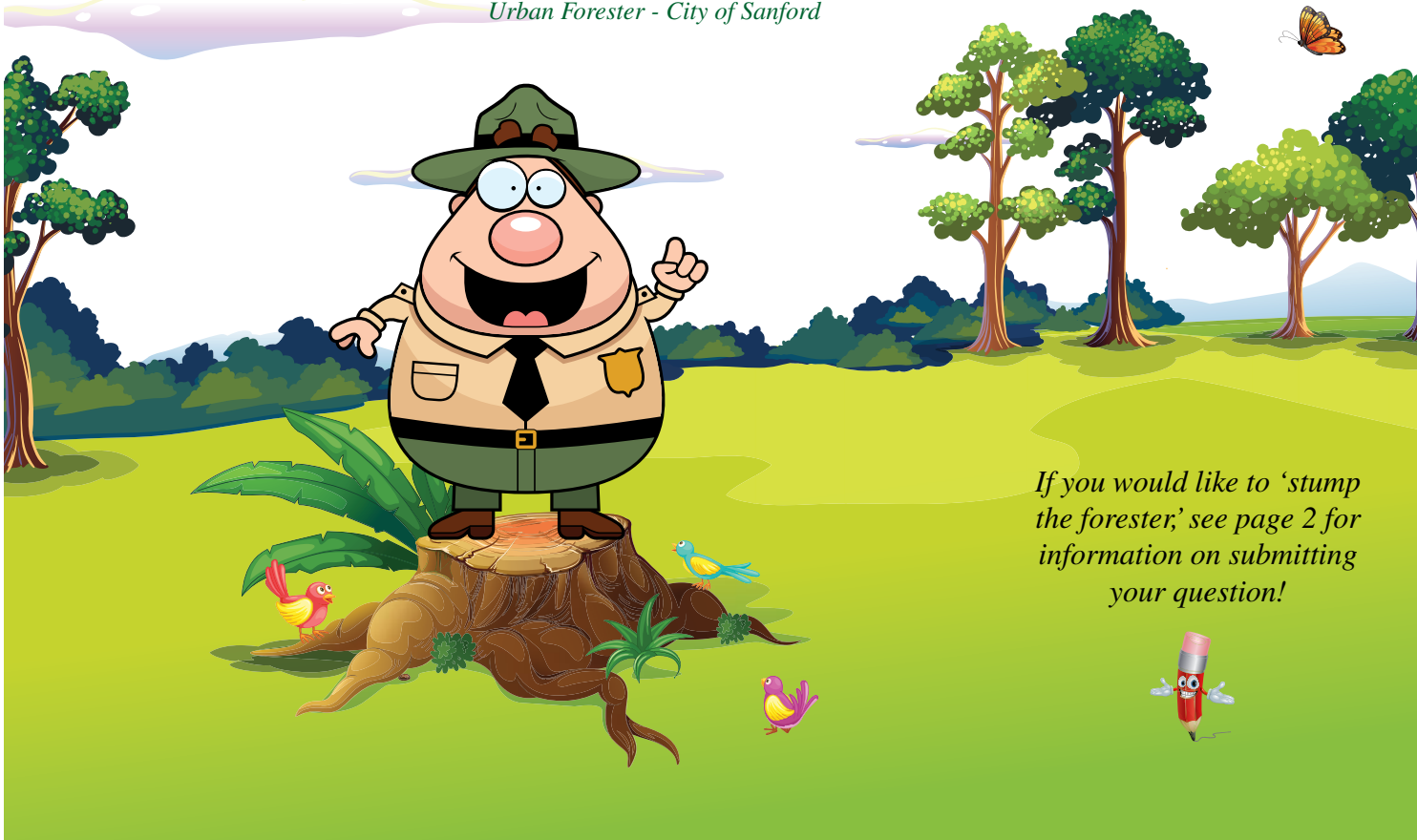
ANSWER: Discovered in 1927 growing near East Palatka, Florida, this Holly is one of a group of hybrids between *Ilex cassine* x *Ilex opaca*. The broad, dull green rounded leaves have one spine at the tip and few, if any along the blade edge.

A common disease specifically of East Palatka holly is called Sphaeropsis Gall (Sphaeropsis Tumefaciens Fungus). The symptoms range from swellings on young twigs to gall on older wood. Multiple shoots arise from the galled area causing a witch's broom effect. Horizontal branches can "tip up" to grow nearly vertical. Dieback of infected branches eventually occurs.

The disease can be maintained to some extent by pruning back the diseased area 6-8 inches into good wood. Sterilize pruners between cuts and/or plants as the disease is transmitted on pruning shears. Severely-infected plants should be removed and destroyed. Extensive defoliation can also occur on diseased portions of the tree with widespread dieback. It looks like this is a sound diagnosis according to the trees symptoms.



*Answer provided by Elizabeth Harkey,
Urban Forester - City of Sanford*



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



MANAGING COMMUNITY SPOTLIGHT – CITY OF FORT LAUDERDALE

Gene Dempsey, City Forester – City of Fort Lauderdale



The City of Fort Lauderdale is located in Southeast Florida in Broward County. Encompassing more than 33 square miles with a population of nearly 167,000, Fort Lauderdale is the seventh largest city in Florida and the largest in Broward County. Fort Lauderdale was incorporated in 1911 and has served as Broward County's county seat since 1915.

In the 1960s, Fort Lauderdale's urban forest, which consisted mostly of Jamaican Tall coconut palms, was ravaged by a disease called Lethal Yellowing. A 1971 tree canopy analysis revealed that the City had only a 5.1% tree canopy. Fortunately, the City of Fort Lauderdale received one of the State's first urban foresters through a cooperative

agreement with the Florida Forest Service, formerly known as the Florida Division of Forestry, in the early 1970s and the City's urban forestry program was up and running! Soon a Landscape and Tree Protection Ordinance was put in place. The 1981 tree canopy analysis showed that the urban forestry program and the ordinance were working because the canopy had almost tripled to 15.2%. Over the years, the city has grown, incorporating areas with low canopy. Storms have negatively impacted the canopy, but the latest tree canopy analysis shows we have a canopy of 23.4% in 2014.

The City of Fort Lauderdale is proud to have an active urban forestry program,

celebrating 35 years as a Tree City USA. Fort Lauderdale has always had leadership committed to greening the city. The City hired its first full-time urban forester in 1996 to oversee the trees and tree programs throughout the city. The forester works with all City departments to make sure proper urban forestry practices are in place. As a result, Fort Lauderdale has developed a four-prong approach to its urban forestry program – regulatory, maintenance, growth, and sustainability.

Regulatory

The City's landscape and tree protection ordinance has gone through many revisions since it was passed. Currently, the ordinance is undergoing revision to



incorporate Florida-Friendly principles. Fort Lauderdale is committed to making the City more sustainable through its urban forest and landscaping. The revision touches on Right Tree, Right Place, the use of native and drought-tolerant plants and more efficient irrigation systems. The City also plans to reduce the diameter of trees that can be removed without a permit on a single-family residence.

Fort Lauderdale has a dedicated landscape plans examiner that reviews all plans to make sure new development meets our City code. Before a Certificate of Occupancy is issued for new development, all plants and trees are inspected to make sure they are of good quality and planted properly.

Maintenance

A certified arborist oversees three tree maintenance crews in the City's parks and recreation department. Each crew has a bucket truck--two of those are hybrid bucket trucks--chipper and chipper truck. These crews are in charge of maintaining all trees on City rights-of-way and public spaces. Fort Lauderdale also works with Broward County to enforce the County-wide Tree Trimmers Certification to make sure all trees on private property are maintained correctly.

Growth

In the 1970s, the City Commission created a Tree Canopy Trust Fund to purchase and plant trees. Money is collected from tree removal permits and fines. The fund has remained in place for more than forty years. Today, the fund pays for the trees planted in public rights-of-way and public spaces, as well as trees given to our neighbors (the City refers to its residents as neighbors) through free, tree giveaways. Quarterly

tree giveaways were established in the Fiscal Year 2013-14 as part of an aggressive program to increase the canopy. Four giveaways have been held in different parts of the City, and more than 1600 trees have been distributed. Neighbors can receive two trees per household per giveaway. Fruit trees--Avocado, Dwarf Mango and Carambola--were added to the giveaways to help create a more sustainable urban forest. Neighbors are instructed on Right Tree, Right Place principles and proper planting techniques at these giveaways.

Fort Lauderdale feels it is very important to have everyone involved in the growth of the urban forest. Besides the quarterly tree giveaways, Fort Lauderdale has an Adopt-A-Tree program that provides 25-gallon trees to neighbors interested in planting in their swales. Last year, the Save-A-Tree, Plant-A-Tree program was started to give trees to neighbors that enroll in the City's utility E-billing and automatic bill pay plans. And through the City's Neighborhood Capital Improvement Program, civic associations can receive annual matching grants of up to \$35,000 for tree planting.

In 2013, an aggressive goal was set to increase the tree canopy from 21.6% in 2012 to 23.6% in 2018. The tree canopy is measured each year using i-Tree software. As mentioned earlier, the recent 2014 tree canopy analysis estimated the current canopy at 23.4%, so barring any drastic storm events, the City is well on its way to exceeding its goal and we will continue efforts to keep increasing the tree canopy.

The City is currently developing a strategic tree planting plan to target the neighborhoods that are below the 2018 canopy goal. These neighborhoods have been hard to reach in the past with the traditional tree giveaways and public rights-of-way

plantings, so the City is exploring alternative ways to increase their interest in the tree canopy.

Sustainability

Climate change and sea level rise are in the forefront of all future plans for the City due to its coastal location. Fort Lauderdale's goals are to create a more resilient and sustainable city in the future. The urban forest is already seeing impacts of increased flooding during high tides in some neighborhoods. Hurricane Sandy was definitely a wake-up call for many of our neighbors when a portion of A1A was washed out to sea.

The goal to increase the tree canopy helps manage stormwater runoff, reduces the heat island effect and has other positive environmental impacts. Fortunately, Fort Lauderdale leaders understand the importance of having a healthy urban forest. In 2012, the urban forester position was moved from the parks and recreation department to the sustainability division of the public works department. With that move, an emphasis has been made on planning and creating a vision for a resilient and sustainable urban forest.

Along with ordinance changes, the Downtown Street Tree Plan is being adjusted to face future realities. Diversity of tree species within the urban forests is very important to the City, and Fort Lauderdale is adjusting the types of species it typically plants to include varieties that are more resilient to changing climate conditions.

For more than forty years, the City of Fort Lauderdale and its neighbors have been very protective of its urban forest and understand the importance of its role in the environment. Everyone involved can be very proud of the City's urban forestry program and the direction it is heading.



HOW DO TREES AFFECT THE WEATHER? TREES AND CLIMATE

Maria Trimarchi, Reprint from <http://science.howstuffworks.com/nature/climate-weather/storms/trees-affect-weather1.htm>

Trees affect our climate, and therefore our weather, in three primary ways: they lower temperatures, reduce energy usage and reduce or remove air pollutants. Each part of the tree contributes to climate control, from leaves to roots.

Leaves help turn down the thermostat. They cool the air through a process called **evapotranspiration**. Evapotranspiration is the combination of two simultaneous processes: **evaporation** and **transpiration**, both of which release moisture into the air. During evaporation, water is converted from liquid to vapor and evaporates from soil, lakes, rivers and even pavement. During transpiration, water that was drawn up through the soil by the roots evaporates from the leaves. It may seem like an invisible process to our eyes, but a large oak tree is capable of transpiring 40,000 gallons of water into the atmosphere during one year [source: USGS].

The outdoor air conditioning provided by trees reduces the energy used inside your home or office. Shade provided by strategically planted deciduous trees cools buildings during the warm months, allows the sun's warming rays to shine through its branches in the winter and also protects buildings from cold winds. With some planning, urban trees can help minimize the **heat island effect** that saddles many cities.

Heat islands are cities that are often several degrees warmer than the suburbs because the urban areas generate and trap heat. Studies of Atlanta found that temperatures downtown were 5 to 8 degrees hotter than

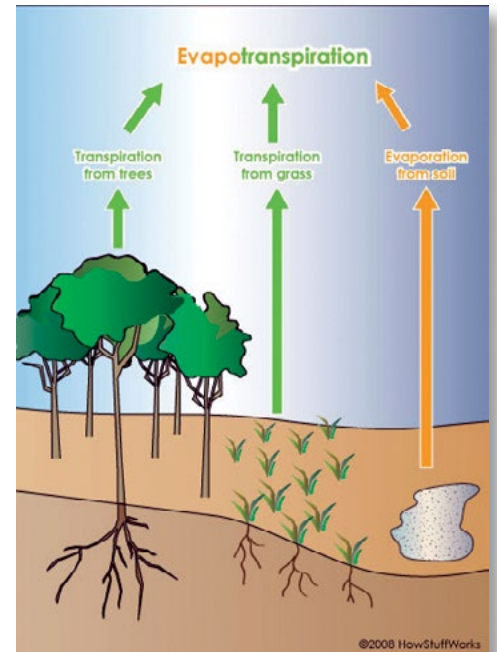
those in the suburbs. This, in turn, increased the number of local storms [source: NASA]. Phoenix is also warmer than its outlying areas. In 1950, Phoenix was 6 degrees warmer than the nearby Casa Grande Monument. By 2007, however, the temperature difference increased to 14 degrees [source: Christian Science Monitor].

When trees grow throughout urban areas, both surface and air temperatures are reduced. Researchers have found that planting one tree to the west and one to the south of a home can significantly reduce energy consumption. In the Environmental Protection Agency's study, annual cooling costs were reduced by 8 to 18 percent while annual heating costs were reduced 2 to 8 percent [source: EPA].

Leaves also filter particles from the air, including dust, ozone, carbon monoxide and other air pollutants. Through the process of **photosynthesis**, trees remove carbon dioxide (a **greenhouse gas**) and release oxygen into our air. Trees store the carbon dioxide, called **carbon sequestration**, and -- depending on the size of the tree -- can hold between 35 to 800 pounds of carbon dioxide each year [source: EPA].

Trees aren't our saviors from smog, though. **Photochemical smog** is smog caused when sunlight and chemical compounds such as car exhaust combine. Trees contribute to this when they release organic gases.

Additionally, planting trees as a solution to global warming -- a practice commonly



linked to carbon offsets -- may have a positive impact on global temperature control only when planted in the **tropics**, a thin geographical belt around the equator. Normally, trees help cool the planet by absorbing carbon dioxide as part of the photosynthesis process and by evaporating water into the air. In the tropics, water evaporates naturally from trees, increasing cloud cover and keeping temperatures cooler. Outside of the tropics, however, researchers are finding that forests trap heat because their dense, dark canopies absorb sunlight.

CLIMATE IMPACTS IN THE SOUTHEAST

Reprint from <http://www.epa.gov/climatechange/impacts-adaptation/southeast.html>

Over 70 million people live in the Southeast. [1] The region includes many cities with populations over 250,000, including Houston, Jacksonville, Charlotte, Atlanta, Miami, and New Orleans. [1] The region's economy includes forestry, tourism, oil and gas production, and agriculture. The Southeast also includes 29,000 miles of coastline. [2]

The region's climate is generally warm and wet, with mild and humid winters. Since 1970, average annual temperatures in the region have increased by about 2°F. [3] Winters, in particular, are getting warmer. The average number of freezing days has declined by four to seven days per year since the mid-1970s. [3] Most areas, with the exception of southern Florida, are

getting wetter. Autumn precipitation has increased by 30% since 1901. The number of heavy downpours has increased in many parts of the region. [3] Despite increases in fall precipitation, the area affected by moderate and severe drought, especially in the spring and summer, has increased since the mid-1970s. [3]

Average annual temperatures in the region are projected to increase by 4 to 9°F by 2080. [3] Hurricane-related rainfall is projected to continue to increase. Precipitation in southern Florida will likely decrease. It is unclear how precipitation will change in the rest of the region. Climate models are currently inconclusive as to whether the net change will be an increase or decrease. Models do suggest that rainfall

will arrive in heavier downpours with increased dry periods between storms. These changes would increase the risk of both flooding and drought. [3] The coasts will likely experience stronger hurricanes and sea level rise. Storm surge could present problems for coastal communities and ecosystems. [3]

References

- [1] U.S. Census Bureau (2011). 2010 Census. Accessed 6/15/2011.
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- [3] USGCRP (2009). Global Climate Change Impacts in the United States. Karl, T.R., J. M. Melillo, and T. C. Peterson (eds.). United States Global Change Research Program. Cambridge University Press, New York, NY, USA.

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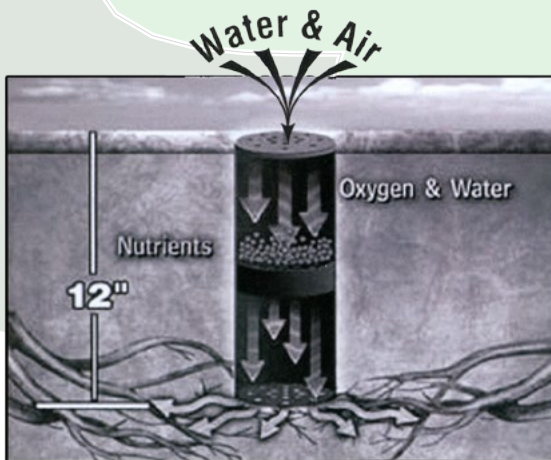
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MANAGING COMMUNITY SPOTLIGHT - CITY OF SANFORD

Elizabeth Harkey, Urban Forester - City of Sanford



giving Sanford an account by priority of trees that warranted removal, pruning and also located vacant planting sites for future trees. The grants also allowed the City to provide citizens with replacement trees to replace trees lost during the storms.

The City also has a yearly budget to replace trees removed on the right-of-way. Lift equipment has been purchased to help with structural pruning and trimming on City trees throughout the year. Training and safety sessions have been presented to employees on proper pruning, chain saw safety and the use of lift equipment necessary to care for the City's trees.

City **staff** manages trees throughout the City. Parks and grounds operations manage trees in the cemetery, parks and highly visible areas along the waterfront and downtown. City rights-of-way are managed

by the street department. Both divisions are within public works.

Schedule J is the overall preservation **ordinance** managed through planning and zoning. This is for private property and new construction. Arbor permitting is included in this ordinance for the private sector.

An urban forester is employed by the City to oversee and communicate with the public and City officials on tree issues that occur on a daily basis. The forester serves as an **advocate** for the urban forest surrounding the City.

Sanford has been a Tree City USA for 27 years and received the National Arbor Day Growth Award in 2013. By managing the urban forest, Sanford has evolved and created a much sounder urban forest for generations to come.

Sanford is one of Florida's oldest incorporated cities sitting on the shore of Lake Monroe with a population of approximately 53,000. Dating back to 1880, E.R. Trafford's plat of Sanford shows five green spaces donated by City founder Henry S. Sanford. This shows Sanford as being a managing community since establishment.

Flash forward to 2004 when three hurricanes swept through Florida leaving a lasting effect on the City of Sanford. Sanford realized after this occurred that having a management **plan** in place was crucial. Through Hurricane Grants awarded by the USDA and the Florida Forest Service, Sanford established a tree inventory





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

Supporting @ \$200.00

(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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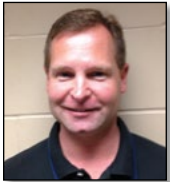
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