Virginia’s Street Trees: Ambassadors of the Urban Forest

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Virginia Cooperative Extension
A partnership of Virginia Tech and Virginia State University  www.ext.vt.edu

Forest Resources & Environmental Conservation
at Virginia Tech

TREES VIRGINIA
Virginia Urban Forest Council

August 15th 2012
Street Trees in Virginia ~ What We Have, What We Want, & How We Get There
PRESENTATION OVERVIEW

- Workshop context
- Workshop objectives
- Brief history of street trees
- Tour of Virginia Street Tree Assessment Project website
PRESENTATION OVERVIEW

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Why are street trees ambassadors of the urban forest?

- Street trees are immersed in the built environment
- Citizens have a high level of interaction with them
- Their assets and liabilities are readily noticed by the public
- Citizens form their opinions and values of urban forests based on their experiences with street trees
Where are we right now?

59% Say Creating New Jobs More Important Than Protecting Environment

Tuesday, January 24, 2012

Despite President Obama’s decision last week to delay the Keystone XL pipeline from Canada to Texas for environmental reasons, most voters think creating jobs trumps the environment.

A new Rasmussen Reports national telephone survey finds that 59% of Likely U.S. Voters say, generally speaking, that creating new jobs is more important than environmental protection. Twenty-nine percent (29%) disagree and say protecting the environment is more important. Another 12% are not sure. (To see survey question wording, click here.)
**Where are we right now?**

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>VERY IMPORTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>74%</td>
</tr>
<tr>
<td>Health Care</td>
<td>67%</td>
</tr>
<tr>
<td>Gov't Ethics and Corruption</td>
<td>64%</td>
</tr>
<tr>
<td>Taxes</td>
<td>55%</td>
</tr>
<tr>
<td>Energy Policy</td>
<td>44%</td>
</tr>
<tr>
<td>Education</td>
<td>55%</td>
</tr>
<tr>
<td>Social Security</td>
<td>60%</td>
</tr>
<tr>
<td>Immigration</td>
<td>47%</td>
</tr>
<tr>
<td>National Security/War on Terror</td>
<td>46%</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>30%</td>
</tr>
</tbody>
</table>
Where are we right now?

Save Urban & Community Forestry Program from Being Repealed!

Washington, DC (June 18, 2012)- Help save the U.S. Forest Service Urban and Community Forestry Program! Among the hundreds of Farm Bill amendments filed in the Senate is Amendment 2292 from Sen. Tom Coburn (R-OK) that would repeal the U.S. Forest Service Urban and Community Forestry (U&CF) Program. This amendment has been identified as one of 40 priority amendments by Senate Republicans. ACTrees believes U&CF is a vital program. We strongly encourage you to reach out to your Senators and ask that they oppose Amendment 2292. Votes are expected as early as today, Monday June 18.

ACTrees fully supports the U&CF Program, which provides assistance to over 7,000 communities in all states and territories. Many state forestry agencies rely on funds from the federal U&CF program to provide assistance and cost-share grants to communities. If you have ever received training, technical assistance, or funding from your state urban and community forestry program, you have benefited from the federal investment in the U.S. Forest Service U&CF program.

The flawed reasoning behind Amendment 2292 suggests that local and national nonprofits can do the work of the U&CF program, without U&CF assistance. Tell your Senators that’s not true-U&CF is vital for supporting, enhancing, and innovating the community forestry work that nonprofits are doing in cities and towns all across the country.
Eastern U.S. storms kill 13, cut power to millions

WASHINGTON — Millions across the mid-Atlantic region sweltered Saturday in the aftermath of violent storms that pummeled the eastern U.S. with high winds and downed trees, killing at least 13 people and leaving 3 million without power during a heat wave.
High winds and mature trees prove to be a dangerous mix
Summer’s storms highlight need for inspections

By Meredith Somers - The Washington Times
Monday, July 30, 2012

Violent storms last month and a deadly incident two weeks ago are amplifying the danger presented by falling trees and tree limbs, which can be a hazard to houses, cars, people and power lines.

On July 17, a 64-year-old Reston man was crushed to death by a 100-foot oak tree that fell on his car in Great Falls. An arborist with the Virginia Department of the Environment said the tree was rotten on the inside, but no one had called to complain about the ivy-covered behemoth in the many years it stood along Georgetown Pike.

Dying trees are a hazard in themselves, but experts said people need to watch out even for the healthiest trees, especially after severe weather — something the D.C.-area has had no shortage of this year.

At the end of June, a rare derecho storm tore through the mid-Atlantic region, bringing with it 60 mph winds that ripped roofs from homes and knocked over thousands of trees and pulled down electrical lines. Nearly 30 deaths nationally were attributed to the storm, including one 90-year-old woman in Virginia who died when a tree fell through her roof, and a tree-trimmer working in Garrett County, Md., who felt to his death trying to remove debris. A D.C. woman was paralyzed after a tree landed on her while she was riding her motorcycle during the storm.
Where are we right now?

**Restoring power post-storm cost $37 million, Appalachian Power reports**

By Laurence Hammack | The Roanoke Times

More than a month after a windstorm caused record power outages, Appalachian Power Co. has put a price tag on restoring electricity to its Virginia customers – $37 million.

But it’s still too soon to say whether the costs of repairing downed power lines will be passed on to customers in the form of a rate increase, a spokesman for the utility said today.

Appalachian spent a total of $94 million repairing damage in Virginia and West Virginia caused by a derecho storm that hit the night of June 29, downing trees and power lines with wind gusts of 80 mph.

At the peak of the crisis, about 243,000 Appalachian customers in Virginia were powerless.

Appalachian will factor in the $37 million cost of restoring electricity in its next biennial proposal, due in March, to the State Corporation Commission, the agency that has the final say on rate increases.

Although the cost of the storm will be included in Appalachian’s proposal, "we can’t say with certainty that it will result in a rate increase," spokesman Todd Burns said.
Where are we right now?

**Are Street Trees Worth It?**

**Street Trees Help Solve Relevant Issues!**
A new analysis of U.S. obesity rates shows that, as a nation, we’re still carrying a lot of extra pounds. Twelve states have obesity rates that top 30 percent, according to an analysis released this morning by the Trust for America’s Health and the Robert Wood Johnson Foundation.
Where are we right now?

Do Unsafe Streets Prevent Us From Walking and Biking?

by JOSEPH CUTRUFO on Tuesday, May 24, 2011 at 1:45 PM

A new study in the American Journal of Public Health says that Americans aren’t walking or cycling as much as we think they are. Even though transit use is up, active transportation has mostly stagnated.

The research, which was conducted by Dr. John Pucher of Rutgers University’s Bloustein School of Planning and Public Policy, shows that walking has increased (though not by much) among those who are well-educated, employed, and living without a car. It’s also mostly men who are walking and cycling more. Despite programs designed to get women, children and seniors walking more for health and transportation, these segments of the population are actually walking less now than they were a decade ago.
Where are we right now?

Street Tree Functions
- Traffic calming
- Physical barrier
- Shade
- Stress relief
**Workshop Context**

Where are we right now?

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**Asthma in the US**

Growing every year

- **1 in 12**
- **12M**
- **$56 Billion**

**What Can Be Done**

- Federal, state, and local health officials can:
  - Track asthma rates and the effectiveness of control measures so continuous improvements can be made in prevention efforts.
  - Promote influenza and pneumonia vaccination for people with asthma.
  - Promote improvements in indoor air quality for people with asthma through measures such as smoke-free air laws and policies, healthy schools and workplaces, and improvements in outdoor air quality.
Where are we right now?

Increasing urban tree cover from 20 to 40% led to:

“Overall, 8-hour average ozone concentration in urban areas dropped by 0.5 ppb (1%) throughout the day.”

“However, nighttime ozone concentrations increased due to reduced wind speeds and loss of NOx scavenging of ozone from increased deposition of NOx.”

A modeling study of the impact of urban trees on ozone
David J. Nowak, Kevin L. Civerolo, S. Trivikrama Rao, Gopal Sistla,
Christopher J. Luley, Daniel E. Crane
PRESENTATION OVERVIEW

• Workshop context

• Workshop objectives

• Brief history of street trees

• Tour of Virginia Street Tree Assessment Project website
Workshop Objectives

- Learn about the abundance, composition, and benefits of Virginia’s street trees through an unprecedented i-Tree study
- Identify challenges and opportunities facing Virginia’s street trees
- Improve the value and sustainability of our municipal street trees by applying basic principles and leveraging our collective resources
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BRIEF HISTORY OF STREET TREES
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Modern concepts of street trees traced to Renaissance Europe

Garden Allée - Tuileries Garden - Paris, France
Modern concepts of street trees traced to Renaissance Europe

The Cours, or Carriage Promenade – Paris, France

“Transformed the garden allée into a place for vehicles, albeit one not yet integrated into a city’s street system.”

BRIEF HISTORY OF STREET TREES

Modern concepts of street trees traced to Renaissance Europe

Cours de la Reine – Paris, France (1616)
BRIEF HISTORY OF STREET TREES

Modern concepts of street trees traced to Renaissance Europe

Avenue des Champs-Élysées – Paris, France (1724)
Modern concepts of street trees traced to Renaissance Europe

Pennsylvania Avenue – Lombardy Poplar (1824)

L’Enfant’s Plan for Washington, DC (1791) called for trees on both sides of the main avenues
BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management.
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Americans developed concepts of design and management

Nathaniel Egleston
2nd Chief of USDA Forestry Division (1883-86)
BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management.

Nail Laws enabled towns to distinguish which shade trees were public; MA (1890)
Brief History of Street Trees

Americans developed concepts of design and management.

Nail Laws enabled towns to distinguish which shade trees were public; MA (1890)
Americans developed concepts of design and management

Nail Laws enabled towns to distinguish which shade trees were public; MA (1890)

Tree Warden Laws enabled towns to appoint a warden to care for and protect public trees

Philadelphia hired Chief Forester John C. Lewis – might be the first professional urban forester in America by title.
BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management

William Fox
NY Superintendent of State Forests
Brief History of Street Trees

Americans developed concepts of design and management

Bernhard Fernow
3rd Chief of USDA Forestry Division

The Care of Trees

In Lawn, Street and Park

With a List of Trees and Shrubs for Decorative Use

By Bernhard E. Fernow
Dean of the Faculty of Forestry, University of Toronto

Illustrated

(1910)
BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management of street trees. Bernhard Fernow, the 3rd Chief of the USDA Forestry Division, is a key figure in this development.

THE CARE OF TREES

CHAPTER I
INTRODUCTORY

This book is not a sentimental effusion on the beauty and need of trees, but a compilation of information such as the owner of trees may be in search of.

Throughout our entire continent, especially in its more settled parts, and most of all in its cities, there has never before been such widespread interest as is now manifested in trees and tree-planting for shade and ornament. Although this kind of tree-planting has been quite assiduously practised in past generations, and although as a result we are the heirs of stately elms and oaks and maples, the necessity of greater care for this inheritance has only of late been fully realized. As a consequence, the “Tree Warden” and “City Forester” have become recognized institutions, and the statutes of several states for the protection of planted trees bear testimony to the popular sentiment, and to the conception that the care of public shade trees is a public duty.

Although with this awakened interest there has come forward a large amount of information regarding the care of trees, in the form of bulletins and essays, these generally confine themselves to some particular phase of the subject; a collective and more comprehensive manual, so far as the writer knows, is still lacking. It is to supply this gap that
BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management

1918 – Milwaukee, WI forestry program begins when Otto W. Spidel is hired as city forester with a salary of $2,025 and a budget of $15,000

1925 – Green Bay, WI initiates first street tree planting program

1939 – Madison, WI street tree inventory conducted by Work Projects Administration (WPA)
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BRIEF HISTORY OF STREET TREES

Americans developed concepts of design and management

“A specialized branch of forestry that has as its objectives the cultivation and management of trees for their present and potential contribution to the physiological, sociological and economic well-being of urban society.” ~ Jorgensen (1967)

16 USC Chapter 41 - COOPERATIVE FORESTRY ASSISTANCE

(c) General authority

The Secretary is authorized to provide financial, technical, and related assistance to State foresters or equivalent State officials for the purpose of encouraging States to provide information and technical assistance to units of local government and others that will encourage cooperative efforts to plan urban forestry programs and to plant, protect, and maintain, and utilize wood from, trees in open spaces, greenbelts, roadside screens, parks, woodlands, curb areas, and residential developments in urban areas. In providing such assistance, the Secretary is authorized to cooperate with interested members of the public, including nonprofit private organizations. The Secretary is also authorized to cooperate directly with units of local government and others in implementing this section whenever the Secretary and the affected State forester or equivalent State official agree that direct cooperation would better achieve the purposes of this section.

(d) Program of education and technical assistance

The Secretary, in cooperation with State foresters and State extension directors or equivalent State officials and interested members of the public, including nonprofit private organizations, shall implement a program of education and technical assistance for urban and community forest resources. The program shall be designed to—

1) assist urban areas and communities in conducting inventories of their forest resources, including inventories of the species, number, location, and health of trees in urban areas and communities, identifying opportunities for the establishment of plantings for the purposes of conserving energy, and determining the status of related resources (including fish and wildlife habitat, water resources, and trails);
Presentation Overview

- Workshop context
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Welcome!

The Virginia Street Tree Assessment Project is a collaboration between the Virginia Tech Department of Forest Resources & Environmental Conservation and the Virginia Department of Forestry. The goal of this project is to improve our understanding of the abundance, composition, and benefits of municipal street trees throughout the Commonwealth. Since 2008, project collaborators have partnered with over twenty Virginia municipalities to inventory and assess their street trees.

Why Street Trees?

Street trees are arguably the most vital component of the public urban forest. Typically situated in the public right-of-way between the edge of roadway pavement and adjacent private property, these trees can provide a range of important social, economic, and environmental benefits, including:

- Safer and more comfortable walking environments
- Reduced urban traffic speeds
- Greater shopping and tourism activity
- Increased real estate value
- Longer pavement life
- Less stormwater runoff
- Lower air temperatures and energy costs

Links

- VT Urban Forestry Gateway
- i-Tree: Urban Forestry Assessment Tools
- Virginia Geospatial Extension Program
- Virginia Urban Forest Council

Related Projects

- Urban Tree Canopy Analysis of Virginia Localities
- Municipal Urban Forest Assessments
  - Town of Abingdon
  - City of Charlottesville
  - City of Falls Church
  - City of Roanoke
  - City of Winchester

Contact Us

Eric Wieseman, Project Leader
228 Cheatham Hall
Virginia Tech, VA 24061
**Virginia Street Tree Assessment Project**

An application of i-Tree Streets

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**Locality Reports**

The table below contains summary statistics for the street tree assessments conducted to date. Place the mouse pointer over each column header to see a description of the metric. For an overview of the methods used to conduct these street tree assessments, visit Resources.

<table>
<thead>
<tr>
<th>Locality</th>
<th>Inventory Type</th>
<th>Street Tree Population</th>
<th>Annual Benefits ($)</th>
<th>Replacement Value ($)</th>
<th>Links</th>
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<tr>
<td>Abingdon</td>
<td>Complete</td>
<td>1,193</td>
<td>65,171</td>
<td>2,029,014</td>
<td>report</td>
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<td>1,047,157</td>
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<td>20,355</td>
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<tr>
<td>Buchanan</td>
<td>Sample</td>
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<td>1,467,944 (713,639)</td>
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<tr>
<td>Charlottesville</td>
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<td>5,888</td>
<td>603,390</td>
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<td>Culpeper</td>
<td>Sample</td>
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<td>Emporia</td>
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<tr>
<td>Falls Church</td>
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<tr>
<td>Farmville</td>
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<td>3,613 (#366)</td>
<td>195,644</td>
<td>9,482,089</td>
<td>report</td>
</tr>
</tbody>
</table>

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**Links**

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**Related Projects**

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TOUR OF STREET TREE ASSESSMENT WEBSITE

Click the place marks to learn more about that locality’s urban forest.

View Larger Map

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Design by: styleshoot and S.B. Gugercin
TOUR OF STREET TREE ASSESSMENT WEBSITE

Virginia Street Tree Assessment Project
An application of i-Tree Streets

Tree Selection Tools

Virginia Tech’s Virginia Urban Street Tree Selector: 7 selection criteria and 74 candidate species, focused specifically on urban street trees.

Urban Forest Ecosystem Institute’s SelectTree: an interactive program designed to match specific tree species to particular sites based on compatible characteristics. SelectTree presently searches a database of 1,481 candidate species and provides 40 selection criteria to choose from.

Rutgers and University of Florida’s Northern Tree Selector: this tool provides 50 selection criteria and searches 976 candidate species. It is for the northeast US, zones 2-7.

The University of Illinois Extension’s Selecting Trees for Your Home: 9 selection criteria and 121 candidate species.

Utah State University’s Tree Browser: browse 242 trees by 21 characteristics including growth,

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Tour of Street Tree Assessment Website

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Assess your Trees

On your own

Want to do a tree assessment in your own neighborhood or community? Click here to learn more about i-Tree, a free software tool.

Curious about the benefits that your tree provides? Try out the National Tree Benefit Calculator.

Open Tree Map enables individuals, organizations, and governments to search and contribute to a collaborative, interactive, and dynamic map of a community's tree population.

Partner with us

Does your municipality have street tree data that you would like to contribute to this project?

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