Forests



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IN JUNE, 1864, CENERAL HUNTER PASSED HERE RETREATING FROM LYNOBURG, IN 1874 BIG LIGK WAS INCORPORATED, IN 1881, WYNT HE JUNOTION OF THE NEW SHENANDOAH VALLEY RAILROAD WITH THE N.AW, APID CROWTH BEGAN IN 1802 THE NAME WAS CHANGED TO ROANOKE, IN 1804 IT WAS INCORPORATED AS A CITY, IN 1909 THE VIRGINIAN RAILROAD OPERATED ITS FIRST TRAIN. IN RECENT YEARS ROANOKE BEGAME THE THIND CITY OF VIRGINIA.

Urban Forestry

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Getting to Know Urban

by P. Eric Wiseman, Ph.D.

Readers of *Virginia Forests* magazine are accustomed to learning about the people, places, and issues surrounding Virginia's 15.7 million acres of rural forest. But how often do we step back and contemplate the scale, complexity, and value of Virginia's urban forests? id you know that in Virginia's urban areas, according to a 2009 study by the U.S. Forest Service, there are over 85 million trees, projecting more than 400,000 acres of canopy and providing nearly \$120 million worth of pollution removal benefits per year? As the state and its population become more urban, trees in the city are leaving behind the stereotype of "window dressing" that merely beautifies our communities and are moving into a prominent role as natural resources critical to the sustainability of our state and the well-being of our citizens Let's take a closer look at the urban forest and demystify this complex natural resource and the people who manage it.

What is an Urban Forest?

There is an assortment of forest types found across Virginia, from the cypress-tupelo swamps of the Coastal Plain to the spruce-fir forests of the high-elevation Appalachians. These forests are typified by the tree species and associated flora and fauna that reside there. These forests are incredibly valuable natural resources that provide a myriad of cultural, ecological and commercial benefits. Indeed, these forests are among our most cherished and most valuable natural assets.

With Virginia's burgeoning population and associated land development, we are seeing arise within these natural forest ecosystems a new type of forest—the urban forest. Although one could argue that no forest



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is out of reach of human influence, urban forests are somewhat unique in that they owe their existence almost entirely to human influence. That is, people alter the abundance, composition, distribution, and health of trees in urban forests to a greater extent than almost any other forest ecosystem (with perhaps the exception of forest plantations).

So what sets apart urban forests and uniquely characterizes them as a forest ecosystem? Indeed, they are not endemic to any particular climate zone or physiographic province. In fact, urban forests are in some respects the most generic forest type in that they can exist anywhere that the natural vegetation cover type is forest. Here, we will look at urban forests as being typified by the presence of three things: trees, people, and infrastructure.

The foundational ingredient of the urban forest is the trees, which can be a motley crew. They are a mash-up of naturally-occurring and planted trees that are distributed across a mosaic of land uses and land ownerships. Naturally occurring trees are found in places such as riparian buffers, forest fragments, parks, and suburban woodlands that have either avoided or been set aside from land development. You also might find naturally occurring trees reclaiming the landscape in vacant lots, back alleys, and utility easements. The species composition in these areas is likely to reflect the natural forest cover type in the background along with, unfortunately, a hodgepodge of exotic invasive species such as tree-of-heaven and Siberian elm that tend to pioneer disturbed lands. If you are in a sparsely developed urban area, naturally occurring trees may account for the bulk of the forest. But if you are in a densely developed or older urban area, the majority of the urban forest that surrounds you likely came about by people purposefully planting trees. As a result, the species composition may stand in stark contrast to that of the natural forest cover type because people commonly plant non-native and ornamental species to meet their needs in the urban landscape (A good thing or a bad thing, depending on the context and your perspective).

Where do People Plant These Trees?

Well, it depends on who is doing the planting. On municipal public lands, the majority of the planting is focused on streetsides along with other public spaces such as parks, playgrounds, greenways, and school campuses.

PICTURED ABOVE (I. to r.): Photo captions to come

Trees in these spaces can be both assets and liabilities. Private lands, which constitute the largest percentage of the urban forest and its ownership, are roughly divided into commercial areas and residential areas. In commercial areas, trees primarily are planted within parking lots for shade and stormwater capture and around the perimeter of establishments to screen undesirable sights and sounds. Residential areas are where we find quintessential shade trees planted to add beauty, comfort, and curb appeal to home landscapes. In most urban areas, the majority of the urban forest (and the opportunities to expand the urban forest) are found on private residential properties. This presents one of the unique challenges for urban forestershow do we get people with diverse values, interests, and means to steward a healthy forest for the benefit of everyone?

The second ingredient of the urban forest is people. What sets urban forests apart from other types of forests is the high degree of interaction between people and landscape trees and the significant influence that people exert on the composition and health of urban forests. People encounter trees almost daily in the urban forest. Most of these interactions are indirect and not purposeful. We drive past street trees and walk below shade trees without giving much thought to their existence. But these trees are impacting our lives in numerous subtle ways. They are cleansing the air, cooling the surroundings, and soothing our psyches. Landscape trees provide a dose of nature that would be absent from the lives of many urbanites who do not have the means or inclination to travel to a distant rural forest. In this way, urban forests can help cure what has been termed "nature deficit disorder" by author Richard Louv and provide a "living laboratory" for K–12 educators to instill environmental literacy in children.

On the flip side, landscape trees—because they are in close proximity to people—can present a myriad of costs, risks, and liabilities when they are not thoughtfully planted and cultivated. There is a gamut of potential issues that the



Virginia Tree Stewards

Virginia's Tree Stewards are trained volunteers who work with their neighbors and local officials to ensure a healthy urban forest, and training is key to each volunteer who must complete at least 20 hours of classroom study with additional hands-on field work, all taught by professional horticulturalists and arborists. Volunteer activities center on community education, direct care of trees, and being a voice for trees in our jurisdictions. There are

by Nora Palmer

approximately 500 trained volunteers throughout the state.

Community education is offered through events such as Tree Stewards in Front Royal that holds reading hours at local libraries with tree books, Richmond hosts Arbor Day festivals with children's tree games and educational posters, Arlington distributes International Society of Arboriculture (ISA) pamphlets on construction damage to trees at the Home Show, while Loudon, Peninsula and Fairfax provide tree information tables at farmers markets in partnership with Master Gardeners.

Volunteers also share information and provide resources for their neighbors on the proper way to mulch, prune or selecting the right tree for the right place. The group received funding to develop a public education campaign with slide presentations and posters available at http://treestewards.org/take-ivy-off-trees/

Tree Stewards work with the

urban forest may present: pollen allergies, nuisance wildlife, leaf litter, unwanted shade, storm debris, and so on. Often these are issues of our own creation. Because most urban forests are a product of human choice-what we choose to plant and where we choose to plant it-we have an opportunity to create urban forests where the assets far outweigh the liabilities. We live in an unheralded time for access to information and technology that can empower the average citizen to be a good steward of the urban forest. Everything from web-based tools that help us select the right tree for the landscape setting to YouTube videos providing us with step-by-step tutorials on how to plant, water, and prune trees is literally in our pocket on a mobile device. While this is not a cure-all for issues in the urban forest, it is having a profoundly positive impact on what trees we plant and how we care for them. Urban forests cannot thrive without people and vice versa. There are numerous stakeholders and role-players in the urban forest, each with a part to play.

The third and final ingredient of the urban forest is infrastructure. Cities are defined by their infrastructure: buildings, streets, sidewalks, traffic signals, railways, and utilities. Urban planners and civil engineers are the masterminds behind this "grey infrastructure" that makes commerce, transit, education, and governance possible. It is rightly viewed as essential to our day-to-day lives and modern lifestyles. Equally important, though, is the "green infrastructure" that is engineered by landscape architects, horticulturists and urban foresters. Instead of bricks and mortar, green infrastructure is constituted by soil, water and vegetation. A sustainable, livable city is increasingly viewed as one that thoughtfully incorporates both gray and green infrastructure. When properly planned and implemented, urban forests can complement the built environment. Street trees shade asphalt from damaging UV light and calm aggressive driving behavior. Parking lot trees intercept rainfall and reduce runoff of vehicular contaminants. Park trees absorb airborne pollution and sequester carbon.

Yet we often find trees at odds with the built environment—branches grow into utility lines, roots heave sidewalks, leaves and twigs clog stormwater drains, and trunks fall onto roadways. While these issues are rare in a well-managed urban forest, they do occur and thus shape the perceptions and preferences of people who live among trees. One uninformed retort may be, "Keep trees in the

local urban forester in Richmond to provide care to more than 2,000 trees and planted 100 new ones. Roanoke Tree Stewards pruned street trees on both sides of 20 city blocks and supervised an Eagle Scout planting project along a greenway. Lynchburg and Arlington Tree Stewards volunteer under the direction of the city arborist to prune and plant trees on city and school property. Direct care of trees is always done in partnership with the trees' property owners whether public or private. Tree Stewards also are encouraged to become active members with PTAs, churches, Home Owner Associations, or condos to ensure appropriate tree maintenance is ongoing.

Being a voice for trees entails providing education on the benefits of trees and ensuring their financial and intrinsic value is included in decision making. While Tree Steward groups are not political or lobbying

Current Virginia Tree Steward Groups, include:

- Alexandria & Arlington Central Rappahannock Valley Charlottesville Area
- Fairfax County Front Royal/Warren County Greater Lynchburg Harrisonburg
- Loudon County Peninsula Richmond Roanoke Virginia Beach

Interested in starting a Tree Steward group in your area?

Contact info@TreesVirginia.org for details.

organizations, educating local decision makers and developers on the stormwater and pollution capturing benefits of trees is an important part of our mission. Many Tree Stewards are on local Urban Forestry Boards or Tree Commissions where they can be effective advocates on budgetary and development issues.

The Virginia Urban Forest Council (known as Trees Virginia) is the coordinating organization with responsibility for updating the Tree Steward Training Manual, bringing leaders of the Tree Steward groups together to share information, and distributing grants for small projects among the groups. Each group is run independently by volunteers. Some (Loudon, Peninsula, Virginia Beach) are part of Virginia Cooperative Extension's Master Gardener program, while the other groups work closely with their local jurisdiction's urban forester and staff from Virginia Department of Forestry and Extension. Each group has the freedom to create local projects that make a positive impact on their community's trees.

Read more about the volunteer activities of the eleven Virginia Tree Stewards groups at http://trees virginia.org/outreach/tree-stewards. parks where they can't cause us problems." However, landscape trees provide their greatest ecosystem services not when they are relegated to vacant spaces, but rather when they are integrated into the built environment. This is particularly important to stormwater mitigation and heat island abatement. If tree canopy does not project over impervious surfaces and onto buildings, these benefits will be greatly diminished. Is there potential for infrastructure conflict? Yes, but when we thoughtfully plan and manage urban forests, we can reap a number of benefits without creating undue costs and risks.

What is an Urban Forester?

The professionals who plan and manage urban forests are called urban foresters. The quintessential urban forester is an individual who works for municipal governmenta county, city, or town. Municipal foresters, as they are commonly known, manage the urban forests on municipal lands and in municipal rights-of-way. In many jurisdictions, street trees are a primary focus of the municipal forester. In others, the focus may be on park trees, greenways, and nature preserves. Sometimes, the purview of the municipal forester extends beyond public lands. Because the majority of the urban forest resides on private property in most jurisdictions, municipal foresters are increasingly extending the scope of their work to private lands and property owners. The mission varies-sometimes the focus is strictly on outreach and education about urban forest stewardship. In other cases, the municipal forester plays a regulatory role in land development: reviewing site plans, enforcing tree protection ordinances, and auditing landscape designs.

Municipal foresters share many of the same roles, philosophies and practices of rural foresters. They inventory and analyze tree resources, write management prescriptions and plans, oversee reforestation projects, and control invasive pests that threaten forest health. The biggest difference is the management context and purpose.

First, municipal foresters work with trees in a very different growing environment. While soil and weather still exert a lot of control on site productivity, they are quite different in the built environment. For example, soil volume in sidewalk pits or parking lot islands is often inadequate to sustain tree growth. And the soil is often compacted, contaminated with salt, low in organic matter, and elevated in pH. Open-grown trees don't benefit from the cool, damp climate of the forest interior. Therefore, they are often drought-stressed and are likewise vulnerable to damage from wind, ice, and lightning by being out in the open. Also more prevalent in the urban environment are infrastructure and people (see earlier discussion), which leads to greater likelihood of conflicts and hazards. For these reasons, much of the planning and maintenance work of municipal foresters goes into ensuring that trees are adaptable to site conditions and compatible with site use. Municipal foresters must work with more and more diverse stakeholders and property owners. Take a typical street tree, for example. It may cast desirable shade onto the homes of residents on one side of the street, yet drop objectionable litter onto the patio of a business owner on the other side of the street. Meanwhile, the public works supervisor for the city wants to cut the roots off of the tree to widen the sidewalk, nd the transportation engineer is pushing to have branches pruned back that extend over the roadway. You can see why a municipal forester must have impeccable interpersonal and public relations skills.

Although they may not have the title of urban forester, several state agencies employ natural resources professionals whose work touches on urban forestry. The Virginia Department of Forestry has personnel whose primary focus is urban forest conservation through technical assistance to communities and property owners. Virginia Cooperative Extension also has numerous county and regional Extension Agents whose broad mission includes educating citizens about urban forests. And as urban areas have grown and the role that urban forests play in air and water quality has increased, the Department of Conservation and Recreation and the Department of Environmental Quality have found themselves engaged in urban forestry. With the increasing role of roadside vegetation in traffic engineering, safety, and environmental compliance, the Virginia Department of Transportation is now routinely involved in urban forestry matters, often working closely with municipal foresters to manage street trees.

Urban forestry is also a private sector enterprise. Utility foresters are often on staff with electric service providers where they oversee management of trees and vegetation in rights-of-way to prevent utility conflicts and power outages. They inspect rights-of-way to determine management needs and then prescribe treatments such as pruning, mowing and targeted herbicide applications to control growth and modify species composition. The field work is often carried out by contractors who are utility arborists specializing in this type of work. Broadly speaking, arborists are professionals who focus on the planting, inspection, maintenance, and protection of individual landscape trees. Although the terms are often used interchangeably, the urban forester and arborist are distinct, complementary roles. Urban foresters are involved with the planning and management of the entire urban forest, employing knowledge and skills in forest succession, geospatial analysis, site plan review, and public policy. In contrast, arborists focus on the intensive cultivation of individual trees, employing highly technical -continued on page 11

Bare Root Planting Success in Fredericksburg

by Anne Little, Tree Fredericksburg

Tree Fredericksburg was established in 2008 when a few neighbors joined together to plant 17 trees in a nearby playground. From a desire to have a few more trees for shade, the group became a force in our community that has drawn us closer together to improve and beautify our city.

At first, city staff was skeptical of our efforts. Volunteers had started projects in the City before that had faded away after a few years. We needed to prove ourselves and we had a timely opportunity.

The year was 2008, and a recession had hit. The City Arborist retired and the position was cut to save money. A report to City Council a few years prior, had noted that there was a deficit of over 5,000 street trees and the problem was growing. The city was removing about 400 trees a year, but only replanting 100—not a good long-term success rate

We started slowly. The first year after we planted the playground, we planted 55 three-gallon trees along a park and along the streets. The city paid for the trees and volunteers did the labor. We borrowed a water tank from the Parks Department and volunteers watered the trees. The trees all survived and we were on a roll.

The next year we doubled our output and decided to go with larger 15-gallon trees and decided that we would bare root all of the trees prior to planting. This followed a seminar at the local college where Bonnie Appleton spoke about her success with bare root. A workshop at Bartlett Tree Research Center also espoused the same philosophy: "Get the tree roots out of the planting medium and put them right into the native soil where the roots can uptake nutrients and moisture." It worked! Our trees leaped out of the ground.

We established our protocol. 1) Bare root all trees before planting for root health and to mitigate girdling roots; 2) Water all trees weekly during the first year of planting. 3) Ensure that all trees are planted correctly with the root collar at or above soil grade. 4) Plant as many native trees as possible even though we were in an urban environment. 5) Show and teach proper mulching to residents and landscape companies working in our city. 6) Right tree/Right place planting prevents power line conflicts and unsafe tree planting. 7) Plant a wide variety of species to ensure tree health, meaning no more than five percent of any species in a neighborhood or in the city.

Through a strong partnership and support with the city staff and City Council, Tree Fredericksburg has planted over 5,000 trees since 2008. We plant 600-900 trees per year with volunteers. The City pays for the cost of the trees and materials, and reimburses Tree Fredericksburg for the watering costs. Our group works with city staff on all aspects of planning, planting and care, and our rate of attrition is less than three percent a year.

The city also offers a free tree program to residents who agree to plant a tree in their yard within 15 feet of the curb. This creates a safer, healthier tree that will live three to five times longer than a tree planted in the utility strip. The city gains a street tree and the resident gets a free tree that adds to their property value





(Top) The first tree planted in 2008, a Sycamore, was 18-inches tall. (Bottom) This summer that tree measures 55-feet tall after eight years of growth.

and reduces their cooling cost in the summer. Tree Fredericksburg waters and cares for that tree for the first five years. Corrective pruning is done on all of our trees at least every two years. Trees that grow quickly, like elms and maples, are pruned yearly to establish good form.

In 2016, Fredericksburg received recognition as a 30-year participant of Tree City USA with the Arbor Day Foundation. This was a very happy occasion for all of us. Fredericksburg is seeing our tree canopy being restored, and the support for our program is paying many dividends. More residents are doing proper mulching, planting more trees, and walking with appreciation under our newly planted canopy. Our trees are growing amazingly well because of our bare root planting.

Virginia State University: A Tree Campus USA

by Joel Koci, Urban Forestry Extension Specialist

Tree Campus USA began in 2008 as a branch of the Arbor Day Foundation's Tree City USA program. Tree Campus USA is open to junior colleges and four-year universities, and in the inaugural year of the program 29 schools received the designation. As of spring 2016, 308 schools participate in the program with four of the schools in Virginia, including Virginia State University (VSU), Virginia Tech, Old Dominion University and University of Mary Washington.

The goal of the program is to educate and engage students, faculty, staff, and adjacent community in the enhancement of, and the perpetuation of urban/community forests. Education centers on the eco-services provided by trees and how to perpetuate a healthy, sustainable urban forest. At VSU, an added benefit is the university's ability to comply with its Municipal Separate Storm Sewer System (MS4) obligation from public education of the system. This is accomplished through an Arbor Day celebration that fulfills the community outreach requirement for Tree Campus USA.

The process to achieve the desig-

nation at VSU began in February of 2014. Attendees at the meeting consisted of four facilities representatives, three faculty reps, a representataive from Virginia Department of Forestry, three students, two staff members and a member of the local community. The initial meeting was met with a bit of skepticism. (I think they thought I wanted to plant every open space with shade trees.) Once the parameters and goals were understood, we began the process to apply for the designation.

Five standards need to be met in order to achieve a designation as Tree Campus USA:

Standard One requires a Tree Advisory Committee represented by facilities staff, faculty, students and the local community. This group's responsibility is to assist in planning and approval of a comprehensive campus tree care plan that benefits the campus trees and the community.

Standard Two requires the creation of a Campus Tree Care Plan. The purpose of the Tree Care Plan is to ensure that the urban forest on VSU property is sustainable by maintaining mature trees in healthy condition and safe manner. Along with the proper selection, installation, and care of the trees that promote young trees coming along to replace those that may be lost, American National Standards Institute and International Society of Arboriculture best management practices were followed to demonstrate the increased sophistication in urban/ community forestry practices. No longer "tree huggers," we have hard science to back up what we practice. The Tree Care Plan also specifies authority for enforcing the plan; established policies for planting, maintenance and removal of trees; prohibited species; protection of trees in areas of construction; and program goals that include communication to contractors as well as the campus community about policies regarding VSU's urban forest.

Standard Three recommends annual funding to include cost of trees, as well as labor and equipment for installation, watering, and mulching. Liberal expenditure guidelines make it easy for a school to satisfy the expenditure requirements.

Standard Four requires an Arbor Day Observance. VSU's first Arbor Day observance included a tree planting at Ettrick Elementary School. An Amelanchier x grandiflora was planted in the school courtyard, and the fourth-grade class listened to a tree talk and were given seedlings provided by the Department of Forestry. For our second observance the university installed an American Sycamore (Platanus occidentalis), in honor of the 50th anniversary of the Selma March. We chose sycamore because the marchers gathered in a grove of sycamore trees near Browns Chapel before the march. Our 2016 Arbor Day observance included a tree planting and educational talks to fourth graders from the City of Petersburg, including a look at American history in an 85-year-old oak slice.

Standard Five includes Service Learning Projects. Along with VSU's Arbor Day observances, we recently printed tree tags that will hang on a variety of trees on campus to show the value of each tree's eco-services in the environment. The values on the tags are are derived from the website treebenefitcalculator.com.

Our application to be designated a Tree Campus USA was submitted to Barbara White, Virginia's urban and community forestry liaison and to the Arbor Day Foundation. It took about 60 days for approval. On Arbor Day 2015 VSU was presented with a plaque and flag to show that the university had earned its designation as a Tree Campus USA.

Since we earned the designation I have experienced a more tree-friendly attitude on campus from the facilities department, campus police and security, and VSU faculty and students. When this process began I learned about crime prevention through environmental design (CPTED), and was informed that any planting must also meet CPTED guidelines. Tree planting done to date has met the standards. In addition, we are working together to plan a campus tree walk. The effort and time put into gaining our Tree Campus USA designation has been worthwhile.

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skills such as pruning, pesticide application and tree structure evaluation. For these reasons, commercial arborists are often contracted by municipal foresters to implement their prescriptions for tree maintenance and protection. Likewise, commercial arborists are commonly hired by homeowners and businesses to care for landscape trees on private property.

What are the Goals and Challenges of Urban Forestry?

Urban forestry is the policy, planning and management of forest resources in areas of dense human settlement. Much like traditional forestry, the goals and challenges of urban forestry vary with local conditions and context. With that said, most urban foresters subscribe to a common set of management philosophies. Generally speaking, the overall goal is to maximize the benefits of the urban forest for stakeholders while minimizing the costs and risks associated with trees in the built environment. Although the relative importance may vary from place to place, the key benefits that urban foresters seek to provide are stormwater mitigation, air purification, heat island abatement, and landscape amenity. Urban foresters strategically plan what types of trees to plant and where to plant them to maximize these benefits. Likewise, they help craft municipal policies that encourage conservation of trees in sensitive landscapes such as riparian buffers and steep terrain.

Because the rate of land development often outpaces the growth trees and forests, many urban foresters keenly focus on the amount and distribution of tree canopy cover in their jurisdiction and seek opportunities to increase tree planting on both public and private lands. Ongoing programs that plant diverse tree species across varied land uses and ownerships is key to resilient, sustainable urban forests. Urban foresters also seek to minimize costs and risks by making sure that the right types of trees are planted in the right places, and that the trees receive adequate preventative care early in their lives. In this way trees will remain healthy and safe and provide a long service life for the community with minimal expenditures for mitigating conflicts and hazards.

Much like its benefits, the list of challenges to urban forestry is long and varied. Municipal foresters are always constrained by scarce resources for planting, maintaining and administering the urban forest. Likewise, municipal foresters often don't have a full range of public policies at their disposal to encourage conservation and stewardship of urban forests. Many communities are reluctant to adopt tree protection or landscaping ordinances for fear of infringing on private property rights or economic development. Some communities have carefully navigated the policy process to find the proper balance between public benefit and private burden in pursuit of urban forest conservation. Likewise, those communities that have been most successful in garnering resources for urban forestry continually focus on educating the public and decision-makers about the importance of urban forests. When urban forestry is viewed as a municipal priority requiring professional oversight, then fiscal and human resources will follow.

Aside from politics and money, there are some environmental challenges that urban foresters also face Numerous exotic invasive pests and plants have been introduced that threaten rural and urban forests alike. These pests and plants can be particularly problematic in urban areas where there is a high level of disturbance that favors their survival and spread. While Virginia has been fortunate to avoid the widespread destruction caused by emerald ash borer or Asian longhorn beetle in other parts of the country, ongoing vigilance is necessary to prevent introduction of unforeseen pests.

Increasingly worrisome to some urban foresters is the impact that climate change and extreme weather may have on urban forests. An emerging body of scientific evidence points to more frequent and more extreme weather events such as droughts, floods, ice storms, and tornadoes. Because such events can literally demolish an urban forest overnight, much attention is being given to species selection and preventive maintenance to make urban forests more resilient to extreme weather. In the longer term, there are also concerns about how a warming climate will impact tree species composition and vulnerability to pests. Because trees are long-lived, decisions made today about what species of trees are planted today may impact the health of the urban forest decades from now.

P. Eric Wiseman, Ph.D. is Associate Professor, Urban Forestry and Arboriculture at Virginia Tech Department of Forest Resources and Environmental Conservation. The department has an active urban forestry research and outreach program and many of these resources are available at urbanforestry.frec.vt.edu.

Students Learn Lessons in Urban Forestry at Dominion Envirothon



Urban forestry, which is the management of trees in urban settings, is an initiative that many communities are embracing—and not just for beautification purposes. A recent study published in the journal Scientific Reports observed that planting and maintaining trees in urban environments can have a long-term positive impact on the way people feel about their overall health.

Thanks to a recent Dominion Envirothon, an annual competition presented by the Virginia Association of Soil & Water Conservation Districts (VASWCD), hundreds of high school students across the Commonwealth learned about the role of urban forestry in communities.

Since 2010, Dominion Resources has awarded a \$50,000 grant through the Dominion Foundation to VASWCD's Education Foundation. The grant is used to support distribution of classroom materials for Envirothon teams, as well as to cover expenses for regional and state competitions.

"We are very proud to support this important program that promotes conservation at a local level and also encourages collaborative problem solving about environmental issues impacting our communities and our world," said Hunter A. Applewhite, president of the Dominion Foundation.

More than 160 teams representing about 750 high school students in Virginia prepare for months with a coach and advisors to improve their knowledge and skills in natural resource management and conservation. Their knowledge is tested in the subject areas of soils, forestry, aquatics and wildlife. Teams also present a solution to a specified realworld environmental issue to a panel of judges.

In 2015, teams where challenged to develop an urban forest management plan to ensure that healthy trees, shrubs, grasses and other vegetation could contribute to the environmental and economic rehabilitation of a redevelopment site in Front Royal, Va.

Hidden Pond Nature Center in Fairfax, Va., fielded the winning state team, composed of students from four different area high schools. "Four of the team members were seniors and now they are all taking environmental science courses in college, such as forestry, biology and herpetology," said team coach and parent volunteer, Karen Murdoch. "The Dominion Envirothon had a huge impact on the entire team. It really ignited the spark to pursue that course of study."

The Hidden Pond Nature Center team went on to place ninth out of 55 teams that competed in the national competition following their win at the state level. "I can't say enough great things about the Dominion Envirothon, and how the skills that they learned will carry over into college and a career," Murdoch said. It was a phenomenal experience."