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What do you think of when someone mentions “urban forestry”? Editor Steve Wilent thinks of his childhood adventures among trees and forests in cities and suburbs. Providing places to have such experiences is just one of many responsibilities urban foresters have, and it is a crucial one. **Page 2.**

Employer Support for SAF

SAF President Clark Seely explains why one of his priorities is to encourage employers to provide support for attending SAF-sponsored continuing-education training and development opportunities and other involvement with the Society. He outlines three keys to a strong foundation of employer support. “The wonderful thing about an effective employer support program is that it is truly a ‘triple win,’” he writes. **Page 3.**

2015 Leadership Review

Immediate Past President Bob Alverts writes, “We appreciate the Board of Directors’ help and hard work, and that of Matt Menashes and all of our dedicated SAF staff, to make 2015 a productive year for SAF. Our theme going in was ‘growing the pie’ in all its dimensions, and I believe we made some real progress on the eight priorities we established, while also recognizing that more work needs to be done in the year ahead.” **Page 3.**

Final Bat 4(d) Rule

The US Fish & Wildlife Service has released the much-anticipated final 4(d) rule for the northern long-eared bat (NLEB). “This final rule better recognizes that white-nose syndrome is the overwhelming threat, highlights the potential benefits of forest-management activities, including prescribed fire, and seeks to implement more focused protections than previous iterations of the rule,” writes SAF’s Danielle Watson. **Page 18.**

Last Call for UK Forestry Tour

If you’re interested in attending SAF’s United Kingdom Forestry Tour, June 19–25, 2016, time is short: you have until March 15 to sign up. The tour is scheduled to visit the Duchy of Cornwall’s Hereford Estate Woodland, the National Memorial Arboretum, Scotland’s Glentworth Forest, and many other fascinating places. **Page 19.**

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Urban Forests: Living Infrastructure

By Steve Wilent

To some people, urban forestry seems like a distant cousin to traditional forestry. However, the two are closely related—more like siblings. Consider the definition of urban forestry in the *Dictionary of Forestry* (dictionaryofforestry.org): “The art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society.” Take out “in and around urban community ecosystems,” and you have a concise definition of forestry.

This special edition of *The Forestry Source* presents a handful of articles and essays on the topic of urban forestry (see the index box on this page). Three main articles look at the art, science, and technology of managing trees in three US cities: Philadelphia, Pennsylvania; Madison, Wisconsin (the location of this year’s SAF National Convention); and Colorado Springs, Colorado. These cities have similar goals, including maintaining and enhancing trees and forested open spaces. And they have challenges in common, from scarce funding to potentially devastating tree diseases and invasive plants and insects. Colorado Springs annually faces the threat of wildfire. In 2012, 347 homes inside the city limits were destroyed by the Waldo Canyon Fire.

Philadelphia is the fifth-most-populous city in the US, with an estimated population in 2014 of more than 1.5 mil-



Trees along a busy street in Gresham, Oregon.

lion, according to the US Census Bureau. It also has a significant tree population: 3.275 million, including 135,000 street trees spread across 134 square miles and nearly 6,000 acres of parkland; total tree canopy cover is about 22 percent, up from about 16 percent in the mid-1990s.

From the city’s 120-page *Parkland Forest Management Framework*, published in 2013:

“The diverse benefits of a healthy urban forest include improved water quality, pro-

PHILADELPHIA ■ Page 4

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Sheila Spores Receives National Silviculture Excellence Award

By Andrea Watts

SAF member Sheila Spores, a silviculturist with the Tongass National Forest for more than 20 years, recently received the US Forest Service’s Silviculture Excellence Award. I spoke with Spores in January to learn more about her work and its challenges on the Tongass. Additional information about forest management on the Tongass is available in the February 2015 edition of *The For-*



SAF member Sheila Spores, a Tongass National Forest silviculturist, recently received the US Forest Service’s national Silviculture Excellence Award for her outstanding performance and support of the Tongass silviculture program. Source: Tongass National Forest

estry Source (“Transition to Young Growth Is Key Challenge on the Tongass National Forest,” tinyurl.com/zjnmqcd). What follows is an excerpt from our conversation.

How long have you worked on the Tongass National Forest?

I was attending the University of Montana in 1992 when I applied for a student cooperative education position. The Forest Service used to offer positions that were student-trainee positions, and I applied for a forester trainee position. I said I would do any field in forestry and I would go anywhere that they would take me. I got a job offer from the Tongass in Ketchikan. I worked there for four summers, and when I completed my forestry degree, I was converted to a full-time forester in 1996. I’m approaching my 20th year.

Does having that longevity in the same location result in a better understanding of

SPORES ■ Page 15

Rapid ‘Ohi’a Death Threatens Hawai’i’s Native Forests

By Andrea Watts

When describing the devastating impact that the fungal disease Rapid ‘Ohi’a Death poses to Hawai’i’s native forests, Dr. James Boyd (J.B.) Friday, an SAF member and associate specialist with the University of Hawai’i Cooperative Extension Service, paints a reality that mainland foresters can relate to: “It’s as if we lost all the oaks in Massachusetts, all the pine trees in Georgia, or all the Douglas-fir in Oregon.”

Within weeks of exhibiting the symptoms of a yellowing crown or browning leaves on single branches, an ‘Ohi’a, regardless of its age, dies. And the preliminary data on monitoring plots has revealed that of the trees which were alive in 2014, an average of 26 percent are now dead.

THREAT ■ Page 16

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Society of American Foresters

The mission of the Society of American Foresters is to advance the science, education, technology, and practice of forestry; to enhance the competency of its members; to establish standards of professional excellence; and to use the knowledge, skills, and conservation ethic of the profession to ensure the continued health and use of forest ecosystems and the present and future availability of forest resources to benefit society.

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Urban Forests Serve as Inspiration

By Steve Wilent

There is one common bond among foresters—a love of trees and forests, of creeks and ponds, of dirt roads and trails, and the paths we find where there are no roads and trails. So many foresters cite their yearning for the outdoors as the reason for becoming a forester that it's almost a cliché. Many describe childhood camping or hunting trips with family as the formation of that bond, of long summers and hours after school spent exploring canyons and woodlots as the source of that yearning. Of time spent rambling, rather than sitting before a television or computer screen.

Count me as one of those foresters. As the son of an electronics engineer, I lived wherever the work took him—in suburban neighborhoods in California (three cities), New Jersey, Washington State, and then California again. My family inhabited ranch-style homes in rows of look-alike houses on asphalt streets. I spent a great deal of time on those streets playing touch football, soccer, and stickball, and many afternoons on concrete driveways playing basketball. But always in my mind was getting off of the streets and into the woods.

And I did get away and into the woods, even in the middle of suburbia. In Sacramento, California, where I lived until I was eight years old, a grove of old oaks in the grassy field at the end of the street was my personal playground. My friends and I built forts there, climbed trees, rode bikes, and socialized with horses in a neighboring pasture. So many bad guys we cowboys fought from the cover of the trees, so many troves of buried treasure we uncovered beneath them—or ourselves buried. The grove was just far enough from my house that my brother and I could reasonably claim not to have heard our mother's call to dinner or to bed. Paradise.

We lived in New Jersey for only a year, on a half-acre of oaks and ash. I built a lean-to fort and fire ring and played at wilderness camping there many times, until my fire escaped the ring and burned

the lean-to. At the end of a short gravel road along one side of our property, the woods there seemed to be endless, and I felt as much at home there as I did in my bedroom.

In a suburb of Seattle, I had to walk a couple of blocks to the woods, but once inside the dense stand of Douglas-fir and bigleaf maple, I was a world away. I knew my way by heart to the log “cabin” built by neighborhood kids, to the creek with

The grove was just far enough from my house that my brother and I could reasonably claim not to have heard our mother's call to dinner or to bed.

clear, cold water and spawning salmon, to the hilltop with a meadow of bracken and a view of Puget Sound.

In California again, our San José tract home was one in a vast sea of houses. The nearest woods were along a former country road along a creek, now hemmed in by suburbia, but with a trail through the oaks and sycamores that provided a refuge from suburban life for kids like me. On one undeveloped parcel of a few acres, my buddies and I made our own bike trails and a stout fort built of logs. One day, after being stung by yellowjackets, we sought revenge with firecrackers. The yellowjackets had made their home in a large, hollow log. Our frontal and flanking assaults were loud and glorious, but seemed hardly to bother the yellowjackets—until the next day, when the log caught fire. Firefighters arrived with hoses, and although the bees counterattacked in force, the smoldering log was quickly extinguished. What's the statute of limitations for such mischief?

These urban open spaces no longer



Steve Wilent and his brother, John, at 13 and 11 years old, respectively, on a 1972 camping trip. Photo by their mom.

exist: they've been developed, paved over. The field and grove are today covered by streets and houses, though a few of the oaks remain. The woods in New Jersey and Washington? Houses. The lot in San José? Apartments. The kids who have since grown up in those places do not know what was lost.

What do you think of when someone mentions “urban forestry”? I think of my childhood adventures among trees and along creeks and trails in the middle of cities. Providing places to have such experiences is just one of many responsibilities urban foresters have, and it is a crucial one. Research demonstrates that children benefit from being exposed to green spaces both physically and emotionally (see page 9), and children who are exposed to nature may be inspired to consider career paths in this line of work. City councils, parks and recreation departments, mayors, nonprofits, community groups, and, ultimately, citizens, share in the responsibilities. The several articles and essays on urban forestry in this special edition of *The Forestry Source* offer a close look at some of the challenges in managing city trees and forests, as well as the numerous benefits these natural resources provide. I hope the articles encourage “traditional” foresters to strike up conversations with their urban counterparts. We have much to learn from one another. **ES**

LETTERS

Plantation Forestry

I would like to offer a response to Jim Coval's question about the maintenance of natural forests in his Learning from Our History article on “Plantation Forestry” in the January edition. Based on my experiences in Chile and New Zealand, managed plantations have allowed for the maintenance of natural forests by focusing industrial wood production on economically marginal agriculture land. In the United States, intensively managed plantations on low-yielding agriculture and forest lands offset the set-asides of natural forests on public and private lands. In the future, more wood can be produced from more intensively managed plantations and areas

of economically marginal agriculture and forest land. I raise a question of my own: What is the optimal area of natural forests needed to maximize all forests' contribution to society on a sustainable global basis?

Richard Pierson
Federal Way, Washington

Erratum

In “The Nature Conservancy Aims to Increase the Scale of Forest Restoration,” February, the year of the founding of The Nature Conservancy is incorrect: It was established in 1951. TNC began its prescribed burning program in 1962.

Address Change, Same Location

SAF hasn't moved its national headquarters, but it has new address: 10100 Laureate Way, Bethesda, MD 20814. SAF's physical location and all other contact information remain the same.

Letters to the Editor

Agree? Disagree? *The Forestry Source* welcomes letters to the editor. Send letters to Steve Wilent at wilents@safnet.org or 10100 Laureate Way, Bethesda, MD 20814.

Employer Support: The “Triple Win”

By Clark Seely

As I shared with you in my leadership commentary in the January edition of *The Forestry Source*, one of our four SAF Board of Directors and staff priorities for this year is increasing member engagement. This priority manifests itself in a number of ways, but one that is particularly important to the ongoing health of the profession and the Society is support provided by employers to their employees for professional-organization involvement. For many SAF members, support by their employers is a key link to their ongoing involvement in their professional society.

This type of support comes in many forms and, of course, varies by employer, based on their own human resource policies, business plans, procedures, and in some cases, statute or administrative rule. However, some common components often include such things as support for attending SAF-sponsored continuing education training and development opportunities, encouraging employees to take leadership or elected officer roles within the profession, providing support to employees to be speakers or presenters at local, state or national conferences or meetings, and the use of meeting facilities or forest properties for local meetings and tours of the professional association. Tangible support for these kinds of activities often comes through means such as allowing employees to be active during normal working hours as a part of their paid work (particularly if they are serving as an officer or leader); payment of training and development registration costs, travel costs or vehicle transportation via pooling; coverage of some or all of an employee's Certified Forester testing or ongoing registration costs; and financial support for annual membership dues, either in part or in whole. Certainly, one size does not fit all, but various components can be combined to make a very effective program.

In my experience, three key elements typically provide a strong foundation of employer support and thus an effective program. These include:

1. An established employer support policy that is well understood across the organization and can be effectively

utilized by employees on a regular basis. These policies typically provide clear parameters of support and explicit expectations for all employees.

2. From the top of the organization down through the managers and supervisors in the chain of command, the policy is articulated and implemented consistently and professional involvement is encouraged.
3. The top leaders of the organization actually participate and are involved in the professional society themselves, attending meetings, serving as officers, making presentations, and generally “leading by example.”

The third element may in fact be the most important over the long run—clearly, modern management practice tells us

employee support in turn attract and hire the “best and the brightest” candidates for jobs over time (and unfortunately, the converse is also true). And third, the profession and professional association (SAF in our case) gains through a more vibrant, engaged, diverse, and growing membership that, as a whole, makes gains in leadership effectiveness.

So what are we doing about it within SAF? Building on efforts started under Immediate Past President Bob Alverts, this topic is also one of my personal focus areas. We have group of members with a passion for this topic who are working together to gain an understanding of what is working well around the country, and also where there are gaps or needs. From this effort we plan to produce an employer support guide of “best management practices” that can be used to both celebrate excellence of the stellar performers and also serve as



organization that does not currently provide support or your approach or policy have waned in recent years, I strongly encourage you to reengage a support effort that is meaningful and to lead by example. It doesn't have to be elaborate or complicated, but at least take the first steps and begin. If you need ideas or approaches to consider or try out, contact me—we'll chat and I'll share with you what some great organizations are doing that might fit your needs.

Third, if you are currently a student member of SAF and will soon be considering post-graduation employment, research and seek out those employers who will support your professional involvement. Ask questions, get answers, and make a decision that supports your professional development. Finally, if you are an employee, particularly an early-career employee, and your organization has a good set of policies and procedures in place, be aware of what's available and possible, utilize it effectively, and share the word amongst your fellow employees. On the other hand, if you are in a situation with little to no employer support, approach your manager and leadership and open the discussion about establishing or instituting some positive support efforts. Sometimes it simply takes recognition of need and a “nudge” to get the ball rolling. And I'll help in any way that I can. **FS**

Clark W Seely, CF, is President of SAF. You can contact him by email at cseely2@cfl.rr.com or by phone at 503-999-3475.

For many SAF members, support by their employers is a key link to their ongoing involvement in their professional society.

that employees pay attention to the actions of the leaders, and either model it in the positive, or shun it in the negative. I was very fortunate to work my entire career for the Oregon Department of Forestry, which had a solid policy, encouragement up and down the line, and leaders at the top of the organization that “walked the talk.” As I progressed during my career, I did my best to emulate their behavior, proactively implement our policy, and effectively lead by example.

The wonderful thing about an effective employer support program is that it is truly a “triple win.” First, the employee gains in their professional development and growth. Second, the organization gains through more well-developed and seasoned employees, who often are bringing the fruits of their professional involvement back to the organization in a direct manner, e.g. leadership training, skill building, knowledge transfer, an improved business edge. In addition, the word spreads, and those employers who provide outstanding

a resource for those employers who want to either take the first steps or reinvigorate their efforts. To that end, if you have an approach or policy that works particularly well, please share that with me so that we can build this portfolio of best practices with your great approaches and examples. Then from this “gathering” effort, we hope to engage directly with employers to assist and encourage wherever we can, and if necessary, to also help break down barriers or impediments.

In closing, let me be specific: first, if you are currently an employer of SAF members and provide support to your employees for professional involvement, I express my heartfelt “Thank You” and deep appreciation for your commitment to your employees and the profession. I'm aware of so many great examples of organizations and leaders right now that are doing a terrific job, and to all of you, I'm grateful for your commitment to being an employer of choice.

Second, if you are a leader in an or-

Past-President's Report: A Productive 2015 for SAF

By Bob Alverts

It has been my honor to serve as your 2015 SAF President along with my good friends and colleagues Immediate Past-President Dave Walters and Vice-President Clark Seely. We appreciate the Board of Directors' help and hard work, and that of Matt Menashes and all of our dedicated SAF staff, to make 2015 a productive year for SAF. Our theme going in was “Growing the Pie” in all its dimensions, and I believe we made some real

progress on the eight priorities we established, while also recognizing that more work needs to be done in the year ahead.

Priority 1: Being responsive to member needs and delivering key, relevant services (learning opportunities, forums for communications, and effective website). The many State Society meetings held across the country provided excellent learning opportunities for participants, and attending these with the other officers

and key SAF staff was very rewarding. Those meetings reaffirm the importance of local SAF units, bringing diverse interests and disciplines together—member and non-member professionals, students, retirees, academics, and various employment sectors—to discuss and address complex natural resource issues.

Our involvement with SAF's House of Society Delegates has also been excellent. Chaired by Tim Phelps, HSD has been

well represented at SAF Board meetings throughout the year, and board members actively participated in the excellent HSD meeting held at the 2015 National Convention.

To help keep members informed about SAF activities, the staff has initiated an electronic newsletter and monthly

tection of native biodiversity, wildlife habitat, energy savings, temperature modification, air pollution reduction, and property value enhancement, among others. The Parks' forest lands provide significant economic benefit to the City of Philadelphia, both through improved ecosystem function and social benefit. In Philadelphia the urban tree canopy stores almost 500,000 metric tons of carbon, at an estimated value of close to \$10 million and air pollutant removal associated with urban forest canopy is valued at nearly \$5 million annually. Property values in neighborhoods across the City see a 10% increase with the inclusion of enhanced forest canopy, translating to a \$4 million gain in property values associated with increased urban forest.

The city's Urban Forestry and Ecosystem Management division, part of the Department of Parks & Recreation, has a staff of 47, including arborists, tree maintenance and inspection crew members, natural-area managers, and others. I recently spoke with Joan S. Blaustein, director of urban forestry and ecosystem management, and Curtis Helm, a forester, arborist, and project manager with the division, about their management Philadelphia's trees and forested areas.

Over her 35-year career, including 10 years with the city of Philadelphia, Blaustein has worked primarily for public agencies and small nonprofit organizations involved in managing ecosystems. "This is the first time that my responsibility has included individual trees, as well as forests of trees and all the land management that goes with it," she said.

Helm earned a degree in forestry from Cook College in the mid-1980s, then worked as an arborist for five years after college and as a consultant for another 15 years. He's worked for the city of Philadelphia for about six years. In short, his job is "trying to make trees grow in the city," Helm said. "It's a challenge."

Under its "GreenPlan Philadelphia, 2010," the city set a goal of reaching 10



Without installing fencing to keep out deer, little native tree regeneration occurs in forested areas within Philadelphia. Photo: Philadelphia Urban Forestry and Ecosystem Management Division.

acres of park space for every thousand residents. Since then, the city has acquired 300 acres of new parkland. The GreenPlan's long-term vision is of a forested city, with a goal of 30 percent tree cover.

"Our goal is to reach 30 percent canopy cover in every neighborhood—not just as a citywide average, but in every neighborhood. That will be a challenge in some of our neighborhoods that are very dense," said Blaustein.

In 2010, the University of Vermont Spatial Analysis Lab and the US Forest Service's Northern Research Station issued a report showing that the 30-percent tree cover goal was possible.

"In some neighborhoods, that will mean removing considerable amounts of impervious surface," Blaustein said. "But the report also told us that we would not be able to achieve a 30-percent goal by planting on public space alone—that there weren't enough opportunities along streets and in parks in many neighborhoods. The single biggest opportunity we had was to plant trees on private proper-

ty—trees that homeowners would plant in their front and back yards."

In 2012, the city initiated a program to distribute private funding for tree purchases to homeowners. Wells Fargo bank provided most of the funding for the first three years of the program; TD Bank is now the main sponsor, along with other donors (see www.tdtreedays.com for information on the bank's TD Tree Days program).

"Over the last four years, we've given away about 12,000 trees—a variety of trees, including a great number of fruit and nut trees, which appealed to many people who were reluctant to plant trees. People really like fruit trees, so our audience has expanded because of that," Blaustein said.

The city's tracking of the trees planted under the program shows that the trees have been planted in every neighborhood in the city.

"Our distribution points are recreation centers, libraries, and community centers, and we work closely with community organizations, so that this is truly having citizens be involved in helping us reach our goal—it is not a government mandate that is thrust upon them," she said.

Why does the city place such importance on becoming a forested city? Aside from the obvious reasons, city planners were thinking about long-term livability.

"It was part of the sustainability goals developed by the mayor, but the larger issue is to make sure that the city is livable into the next century," said Blaustein. "We are fortunate to have such rich forest resources, and we know that that has provided the city with clean air and clean water. With the pressures of climate change and other issues, to have a city that is literally habitable into the next century, we have to make sure that those resources continue provide the benefits they do for the people living here."

Hungry Critters

For Blaustein and Helm, the emerald ash borer (EAB) poses a significant impediment to reaching and maintaining its canopy-cover goal.

"The EAB has been found within 15 miles of us in three directions, so its arrival is imminent, if it's not already here," Helm said.

According to Helm, 7 to 10 percent of the trees in Philadelphia are ash. That translates into 300,000 or more trees that are likely to die after being attacked by the insect.

The first step in the city's EAB management plan was an inventory of ash trees on city property and an analysis of the likelihood of EAB susceptibility.

"We've also started removing ash trees that we feel aren't worth trying to retain in these areas. This past summer we treated more than 1,200 of our biggest and best ash trees to try to save them for the future. We're injecting the trees with emamectin benzoate, which is good for about three years, and then they'll need to be reinjected," said Helm.

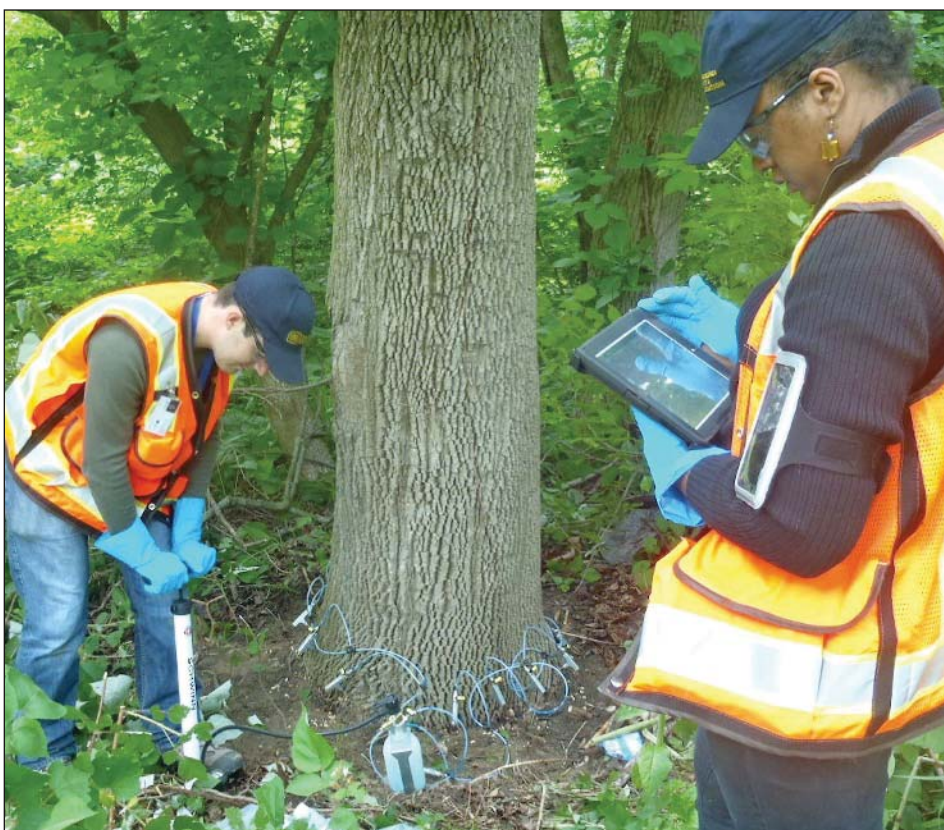
Most of the ash trees removed are in forested areas, rather than along streets, with emphasis on low-vigor trees or those with structural problems, and trees that may jeopardize trails, power lines, buildings, or other infrastructure if they die and fall.

"One of the big problems is that, if we don't deal with [the EAB infestation] ahead of time, everything else that we're trying to do will tend to go by the wayside," Helm said. "As soon as the ash trees start to die, all of our resources are going to be directed to dealing with that massive die off, and all of the other trees are going to be ignored for another 10 years."

As for ash trees on private property, the city can do little but provide education to the property owners.

"We've tried to get newspapers and news stations to interview us, so that we can try to make the public aware that this insect pest is coming," Helm said, "and encourage them to contact a private arborist as soon as they can, to have their trees assessed and treated, or removed if they're not worth keeping."

Aside from working to increase the city's tree canopy and prepare for the



An ash tree is injected with emamectin benzoate to protect it from the emerald ash borer. Photo: Philadelphia Urban Forestry and Ecosystem Management Division.

arrival of the EAB, the division's focus is conserving and enhancing its existing forest areas.

"If we're going to reach 30-percent canopy cover, we have to make sure our existing canopy remains intact," said Blaustein. "Those areas have been under a tremendous amount of pressure from deer and from invasive species. Over the last 15 years, we've been pretty active in restoring our forested areas. Two years ago, when we updated our forest management plan, we looked closely at what had worked and what hadn't, and what was likely to be coming in the future. We had been restoring back to an early 20th-century mix of species, as many cities have done, and we realized that that's no longer going to work for us, from a practical standpoint, financially. And when we started looking at the climate change that Philadelphia is going to experience over the next hundred years, we knew that many of those species will no longer be viable here."

Helm said he and his crews have recently planted loblolly pine, Southern red oak, Carolina Silverbell, American yellowwood, and other species not native to Philadelphia.

Blaustein and her colleagues selected three forested areas, each with differing mixes of species and conditions, to begin testing approaches to managing for the future. That meant first separating these areas from the most potent current threat: deer.

"It's sort of shocking as a forester to walk into the woods in this city and see some of the largest diameter trees I've seen in my life," Helm said. "Some of the areas were set aside a hundred and fifty years ago, and they haven't been touched, so we essentially have almost old-growth forests on vast acreage. But there isn't a tree seedling to be found."

Invasive plants that deer won't eat, such as northern spicebush (*Lindera benzoin*), thrive in these areas.

"In each of the areas, we decided that we had to fence against deer," Blaustein said. "You can sink thousands and thousands of dollars into plants and trees, but it just doesn't last. It's like a smorgasbord. We can no longer afford to do large-scale restoration without deer fencing. Even with using larger trees and shrubs, and using deer repellents or tree-bark protectors, we're still not getting the survival or the regeneration that would make it worthwhile."

With the deer excluded, the city's foresters have begun to think about future forest composition and structure.

"We have a number of experiments. In one we're experimenting with southern species—species that are native to locations about 300 miles south of here," she said. "Another experiment is in plant density. Now that we don't have the deer there, we think we can plant smaller trees and more densely and get the same results or better."

High-Tech Tools

The city of Philadelphia has long been interested in its trees, a fact that Helm recently learned when he found notes about

a tree inventory while researching methods to combat invasive pests. Around the turn of the century, foresters used applications of whale-oil soap to trees to control aphids, and lead arsenate was used against tussock moths.

"In 1912, Philadelphia conducted an inventory of more than 102,000 street trees that was recorded on index cards. They had 15 men going around the city doing this inventory. Unfortunately, those index cards are lost. It would be really interesting if we could find that information. Apparently, it was the first such inventory done by a city."

The following year, in 1913, Philadelphia established the first agency charged with managing the street streets.

Today, said Blaustein, Philadelphia is behind the times as far as its urban tree inventory, and is racing to catch up.

"We're trying to ascertain more accurately how many street trees we actually have, how many of them are alive or dead, where exactly they are, and where the planting opportunities are. We're using CycloMedia, which is a little bit like Google Street View, but super accurate."

"Google Street View on steroids," added Helm.

CycloMedia (www.cyclomedia.com) describes its products and services as an "end-to-end solution for collecting, processing, and hosting street-level panoramas allowing professionals to leverage the intelligence of updated geo-referenced imagery." The company supplies HD-Cycloramas, 360-degree panoramic images of street-level environments from which assessments and measurements of infrastructure, including trees, can be made.

The department also uses Esri's Collector app to gather data to add to its ArcGIS system.

"We used Collector for the emerald ash borer inventory and suppression work. It allows us to locate and tag individual trees, and enter data about each tree—species, diameter, health, when it was treated, how many milliliters of pesticide was applied, what the temperature was, and so on—on an iPad. In the end, you have a map with numbered points for each tree, and that database is accessible in many different ways," Helm explained.

So far, more than 1,200 ash trees, mostly in forested areas, have been entered into the database and physically marked with metal tags. This data and the tags will be useful in three years, when the trees will need to be treated again with an herbicide, Helm said.

"We're also using this data in managing the ash tree-removal contract. I can identify the trees I'm concerned about and our contractor, who has the same software, can easily locate the trees to remove," he said. "And when the contractor enters the date when he completes the work, I can access that data right away."

People Love Trees

Humans have always had a reverence for trees, for forests and natural places. The 1912 inventory that Helm found shows that this has long been true for city-dwellers. Philadelphians, said Blaustein, love their trees and forested areas more than ever.

"Philadelphia is getting to be a



Lumber is milled from ash trees removed as Philadelphia prepares for an invasion of the emerald ash borer. Photo: Philadelphia Urban Forestry and Ecosystem Management Division.

younger city, and younger people really understand and value trees, both from a functional and an aesthetic standpoint. So as they move into neighborhoods where trees were once considered something like devils, because they made such a mess, they're coming in and asking for trees to be planted," she said. "That's really changed the character of those neighborhoods where there were few or no trees

before. We get so many comments on our social media outlets thanking trees for coming to the neighborhood, welcoming them to the city. It's really gratifying.

"Philadelphia was called a 'greene Country Towne' when William Penn established it," Blaustein continued. "I think we lost that for a while, but I think it's really coming back to be that green town again." **FS**

Madison, Wisconsin: Planning to Keep Its Tree City USA Status

By Steve Wilent

SAF members who attend the 2016 SAF National Convention in Madison, Wisconsin, on November 2–6 (www.safconvention.org), will have the opportunity to visit a city that has been an Arbor Day Foundation Tree City USA for more than 25 years. In 2012 the foundation designated Madison as a Sterling Community after it had garnered ten-annual Growth Awards for its leadership in community forestry.

However, Madison is known for more than its trees. It was once home to Aldo Leopold, author of the classic 1949 book, *A Sand County Almanac*. Leopold served as associate director of the US Forest Products Laboratory in Madison and as a professor of wildlife management in the Agricultural Economics Department at the University of Wisconsin–Madison. Today, Leopold's granddaughter, Madelyn D. Leopold, serves on Madison's Park Commission.

Madison is the capital of Wisconsin and, with a population of nearly 250,000, is the second largest city in the state. More than 96,000 trees line the city's 700 miles of streets, and these, combined with hundreds of thousands of trees in parks, golf courses and cemetery, provide a canopy cover of 22 percent. Street trees make up about 15 percent of the total canopy cover.

Marla Eddy is responsible for managing this urban forest. She has worked for the Madison forest since 1997 and became the city forester in 2004.

"I grew up in Madison and I always wanted to be the city forester, so my dream has come true," she said.

She earned a bachelor's degree in forestry from the University of Wisconsin–Stevens Point, and in her sophomore year decided to specialize in urban forestry.

"I saw the impact that I could have in the community that I grew up in," she said.

Eddy carries on a long tradition of urban forest management in Madison. The first street tree inventory was conducted in 1939; a more recent inventory, con-

ducted over five years, was completed in 2011.

"In traditional forestry we talk about stocking levels. In Madison, we have a 98-percent stocking level of street trees. For every available 100 available planting sites, we have a tree planted in 98 of them," she said. "It really comes down to our previous elected officials and the residents of Madison. They passed an ordinance back in the late 1970s that said when a new street is constructed or an existing street is reconstructed or improved, street trees would be added as part of the infrastructure, just like sidewalks, fire plugs, streetlights, traffic signs, and so on. When we make improvements on a street, there is money as part of that construction project to replace any trees that are removed and plant new ones where there is room for them."

Madison has room to grow, Eddie said, with land being platted to this day.

"When a new plat comes into play, we have the ability to go in and add street trees. For some of the homes, that street tree may be the only landscaping they have, because the new owners can't afford other landscaping, having just purchased a house."

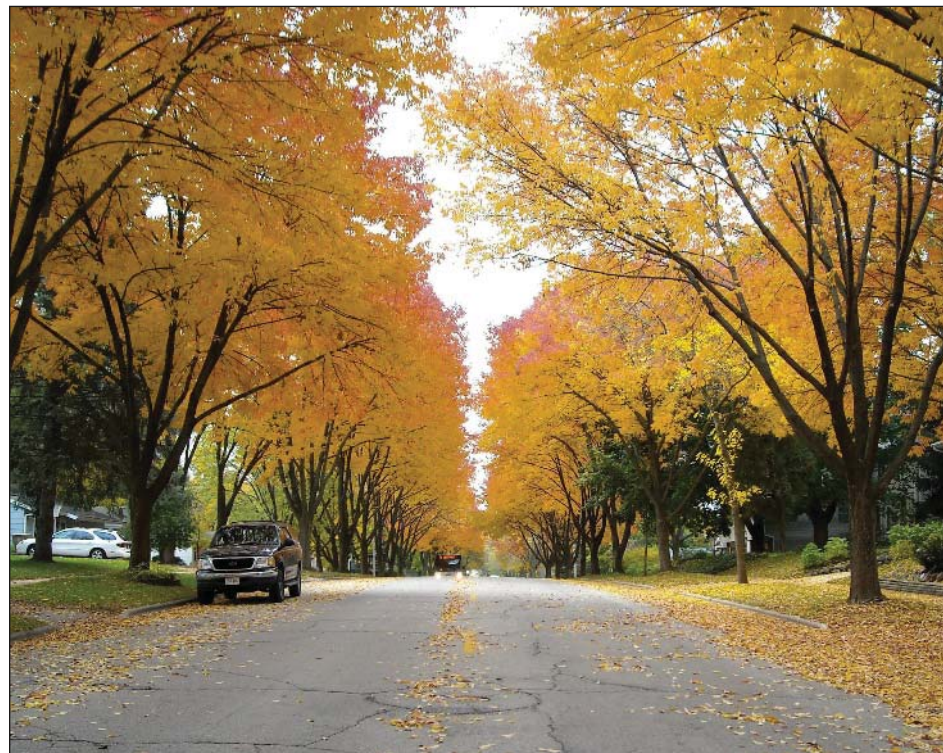
The city also boasts 234 parks and natural areas.

"We have more parks per capita than any city in the US," Eddy said, citing Baton Rouge, Louisiana, as second on the list. "When new developments are built, there's an expectation that parks will be included in that new neighborhood. It's an expectation that you don't need to go more than a couple of blocks to be in a green space or a park."

The EAB Threat

Since 2013, Madison has been one of many cities in the US that have the emerald ash borer as uninvited guests. The insect has been found in 24 states, most of them in the eastern US, and in the Canadian provinces Ontario and Quebec.

"Our inventory shows that 22 percent of our 96,000 Street trees are ash. When



These ash trees in Madison, Wisconsin, are unlikely to survive an invasion of the emerald ash borer.

Dutch elm disease came through and wiped out our elms, maple and ash were the predominant trees that were planted," Eddy said.

During the decade of the 1970s, responding to Dutch elm disease cost the city \$7 million, according to Eddy. The lessons learned have come into sharper focus today, in the face of the EAB.

"Did we do a good job back then? Maybe not so much. But going forward, we know that diversity is key for us," she said. "With traditional urban forestry master plans, it was typically one species on a block. That model is not working. We're planting at least three species per block."

Eddy assembled a multidisciplinary EAB task force in 2008, even though the insect was then far from Madison. She visited other cities that had the EAB to see firsthand the lessons they learned in dealing with infestations. While Eddy and her colleagues kept watch for the insect, the task force solicited input from Madison residents and developed an EAB response plan, which was approved by the city council in September 2013. In 2014, EAB larvae were found in three trees, all of which were near an interstate highway; one tree was adjacent to a park-and-ride lot. In 2015, the EAB was found in five more trees.

The EAB plan called for treating ash trees larger than 10 inches in diameter and in good health and good condition, and that weren't under high-voltage power lines or threats other vulnerable infrastructure. All other ash trees would be removed.

"We are creating age diversity, species diversity, and a temporal canopy as part of that age diversity. On some blocks, some ash trees would be treated and others would be removed because they didn't need the treatment criteria," Eddy said.

Treatments, involving direct injection of TREE-age, a brand of emamectin benzoate, were conducted in 2014 and 2015.

Of 20 species planted to replace ash,

one is a disease-resistant elm, along with oaks, catalpa, and basswood.

Eddy and her colleagues also deal with other insects and diseases. Several treatments for gypsy moth have been made over the past decade. Oak wilt disease also is a concern in Madison, and a city ordinance empowers the forestry department to condemn the trees shown to be infected with the disease.

Using Urban Wood

Eddy has proposed an urban forestry tour for this year's SAF National Convention that would include information about the commercial use of wood harvested from city trees—"upcycling," as she calls it—as well as visits to some of the places where that would have been used. [Editor's note: Eddy's tour proposal had not been accepted at press time, as SAF had not yet finalized its tours for the 2016 convention].

In some cities, the trees and branches collected throughout the urban area are recycled and as mulch or wood chips. Madison is one city that has enough large logs to be commercially viable on a small scale.

"This November we held our first log auction," Eddy said. "It's not just ash, but also other species, including a very large black cherry that was uprooted during a storm, and there was a pretty good-sized hickory in there, too. And oak, Norway maple. We sold 72 logs. We didn't grade them, we didn't calculate Scribner Decimal C, we just sold them in 10 lots. The sale generated about \$1,200."

The logs from a large Norway maple, which had a number of burls, attracted the most interest. The auction was conducted online, with the help of an auction company that does business primarily in Wisconsin.

"We felt that the auction was pretty successful, so we're going to try it again this year," Eddy said.



Madison, Wisconsin, City Forester Marla Eddy with black cherry logs cut from a city tree blown down in a storm. These and other logs were sold via an online auction.

Another part of the proposed tour will highlight the city's response to the EAB.

"We know the EAB is not going to be just a city issue, it's going to be a county issue, a state issue, and we all have parts to play in dealing with this infestation—or future infestations," she said. "So how do we work together to deal with this? Our tour is going to be looking at what the city of Madison has done and how we're using our ash resource. We'll stop at a new building, a grocery store, where they actually used ash logs from trees that were removed from a city park four blocks away as support beams and walls. We'll also look at what our county is going to be doing with the influx of ash wood, and what Wisconsin DNR has done to promote the use of urban wood."

Another component of the tour will look at urban forest data collected by the US Forest Service's Forest Inventory and Analysis (FIA) division. The first Urban FIA inventories were conducted in 2014 in and around Baltimore, Maryland, and Austin, Texas, and since then field sampling has taken place in Madison as well as Milwaukee, Wisconsin; Houston, Texas; Des Moines, Iowa; Providence, Rhode Island; and St. Louis, Missouri (see www.fs.fed.us/research/urban/fia.php).

"During the tour we will be measuring two plots with the Urban FIA staff and looking at the differences between an urban inventory and a traditional FIA inventory," Eddy said.

Financing Future Forestry

When a city treats its trees and forested areas as infrastructure, it is more inclined to more carefully plan for the future of that infrastructure. Madison, said Eddy, is the first city in Wisconsin to have a "grow contract" with a tree nursery—in essence, it is paying now for the trees it will need later.

"There's a very high demand for street trees here in Wisconsin, as well as elsewhere in the Midwest—Michigan, Ohio, Indiana, Iowa, and Minnesota," Eddy said. "I wouldn't say there's a shortage, but we need to make sure we have a diversity of species when we need them. So we have an exclusive relationship with a nursery—essentially, we've made a down payment on trees to be delivered in 2018, 2019, and 2020, and were going to extend the contract through 2023."

For the city, the contract provides an assurance that a wide variety of species will be available as ash trees are replaced, as well as for planting elsewhere.

"When we look at what happened with Dutch elm disease, people expected those trees to be replaced once they came down. If your nursery says, we only have 500 of this species and 600 of that species, but nothing else, then what do you do? Well, you take what you can get, but then you don't have species diversity and you repeat the cycle. Supporting that grow contract is forward thinking by our elected officials and the community."

Madison also is the first city in Wisconsin to institute a forestry "special charge." In 2014, the city spent about



Trees line the Capital City Trail along Lake Monona in downtown Madison, Wisconsin. The Monona Terrace Community and Convention Center, site of this year's SAF National Convention (November 2-6), is visible at far right.

\$4.2 million on its urban forestry program and projected that annual program costs will increase by 40 percent or more once the EAB response plan was fully implemented. To provide that additional funding, the Madison City Council added a forestry surcharge to municipal services bills in mid-2015. Residential customers pay \$2.76 per month; commercial and industrial customers are levied \$7.47 per

month. During the last five months of 2015, surcharge revenues were about \$1 million. The city estimates that it will collect \$2.4 million in 2016.

"It's not just because of the EAB—it's designed to support all of our forestry services, such as planting, pruning, tree removal and replacement, and so on," said Eddy. "It's wonderful to have that support for our urban forestry work." **FS**

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Colorado Springs: Fire in the City

By Steve Wilent

Most cities don't have to contend with large-scale wildfires. Colorado Springs, Colorado, is one that does. In 2012, the Waldo Canyon Fire raced off of the Pike National Forest and burned 347 homes inside the city limits. The following year, the Black Forest Fire came very close to the city, destroying more than 500 homes; two people died.

Urban foresters in this city of nearly 446,000, which is located a bit more than an hour's drive south of Denver, also have more typical responsibilities, including managing nearly 200,000 street trees and more than 19,000 urban park and median trees. Total canopy cover in this high-desert community is 3 percent, far lower than many cities in other regions, but crucial to the city's quality of life.

Colorado Springs has a wide variety of urban trees, nearly 20 percent of which are percent ash species. On the city's west side, in the foothills of the Rockies, most of the trees are ponderosa pine, with a few Douglas-fir, white fir, and Colorado blue spruce, along with significant expanses of scrub oak mixed in. On that west side, there are about 35,000 private properties in a wildland urban interface (WUI) zone—more than in any other Colorado city.

Dennis Will, an SAF Certified Forester and International Society of Arboriculture (ISA)-certified arborist, is a staff forester with the Forestry Division of the city's Parks and Recreation Department. He has a bachelor's degree in forest management, with an emphasis in entomology and geology, from Stephen F. Austin University in Texas. Will helps manage street trees as well as trees in seven regional parks, eight community parks, 136 neighborhood parks, five sports complexes, and 47 open-space areas. The city includes more than 14,000 acres of parks and open spaces, 105 miles of urban trails, and 160 miles of park trails.

Forest restoration and fuels management are crucial in and near the WUI.

"We focus our restoration practices on city parcels [in the WUI], to try to connect the dots between what the city fire department and landowners do on private property and what we do in our open spaces and parks," Will said. "We're trying to create a strip of mitigated, restored WUI on the west side. It's a difficult arena to work in, when you have open spaces that, when I came to work for the city in 2005, hadn't been touched in terms of forest resource management, or even fuels management, for that matter."

The division and its partners have made significant progress in thinning and fuels reduction, but these activities haven't been popular with many residents.

"To propose thinning operations or mastication work in the pine stands and oak brush immediately adjacent to properties that people have owned for 30, 40, 50 years, creating an open look that they're not used to, has been a hard sell. For me, it's more of a compromise. It's not quite forest restoration work and it's not quite fuels mitigation. Some of our parcels have dwarf mistletoe in the ponderosas and even in the Doug-fir, but we don't do sanitation, because we're really trying to maintain a balance between a managed open space and what looks like an urban landscape. I cut as much as I feel like I can get away with, without getting people really upset."

The privacy provided by a dense forest is paramount for many private property owners, regardless of the risks of wildfire.

"Maybe part of the problem is that we foresters aren't good at PR and at understanding how people think about the woods and how we can interact with them on a scientific level, how to teach them that this is a ponderosa pine forest and this is what this stand should look like



Colorado Springs has more than 14,000 acres of parks and open spaces, such as this recently thinned stand of ponderosa pine.

in a normally functioning fire-dominated ecosystem," Will said.

Even after the Waldo Canyon and Black Forest fires, many landowners still prefer to leave the forests around their homes unmanaged. In his work in the Black Forest community prior to the fire, "there were a lot of people who just flat out refused [to thin their trees], despite the fact that they knew they should do it," he said. "They didn't do anything at all because they liked it the way it was."

"Have attitudes changed? Maybe to a small extent, maybe with the folks who live immediately adjacent to the homes that were burned," said Will.

Insects and Disease

Fire is but one challenge to maintaining the city's trees. Like the other cities profiled in this edition, Colorado Springs is bracing for an infestation of the emerald ash borer.

"We think we have it, but we just don't know for sure. We've never found any in our traps. If we do, EAB will be a big, big deal for us," said Will.

As reported in the January 2014 edition of *The Forestry Source*, the EAB was found in 2013 in Boulder, Colorado, about 100 miles north of Colorado Springs ("Emerald Ash Borer Jumps West to Colorado").

For now, other insects demand much of the division's attention.

"We have a pretty active spot with Douglas-fir tussock moth and to a lesser extent western spruce bud worm on our southwest side, in Cheyenne Cañon. Western spruce bud worm has been around this

area for a long time. That spot started out in 2012 and 2013, and doubled in size in 2014."

Last summer, when the size of the infestation had increased yet again, Will and his colleagues found that the culprit this time was Douglas-fir tussock moth. He estimates that about 20 percent of the trees on 1,500 acres in North Cheyenne Cañon Park, a regional Park owned by the city, were completely de-foliated.

"That got a lot of attention, because the park is a very popular place. It's more than 100 years old and in 2009 the park was named to the National Register of Historic Places," Will said. "We're planning an aerial application of Btk [*Bacillus thuringiensis kurstaki*] to help hold the outbreak in check."

Like foresters in other cities, Will knows that urban trees are much more than ornamental. For example, a 2013 analysis showed that Colorado Springs' urban forest helped conserve energy in terms of reduced natural gas use in winter and electricity use for air conditioning in summer. That pencils out to reduced energy costs of more than \$3.3 million annually—\$16.74 per tree per year.

"You have to think about trees in terms of infrastructure, just like streets, gutters, bridges, and that kind of thing," Will said. "When I tell people I'm an urban forest manager, they say, well, that's just trees. But I say, hold on a minute. Our street trees have a value of a billion dollars. They sequester a million pounds of CO₂ every year, and that's worth more than half a million dollars. They reduce annual storm water runoff in the city by hundreds of millions of gallons, saving \$4.7 million. Those are the values you have to talk to your city planners and city councils and mayors about."

"Everybody knows that urban trees are valuable," he added, "but actually they are the only infrastructure in the community that increases in value over time." **FS**

New Address, Same Place

SAF's national headquarters hasn't moved, but it has new address: 10100 Laureate Way, Bethesda, MD 20814. All other contact information remains the same.



In 2012, 347 homes inside Colorado Springs, Colo., were destroyed by the Waldo Canyon Fire.

Three Avenues in Urban Forestry Research

By Andrea Watts

Research on the benefits of urban forests spans a wide range of subject areas—from health benefits to modeling. Here are highlights of the work of three researchers who are uncovering these linkages to help policy makers and citizens understand the value of their green spaces.

Quantifying Public Health Benefits

Geoffrey Donovan, Research Forester
USFS PNW Research Station
www.fs.fed.us/pnw/ruwit/gdonovan.html

Since his first study in 2011 that linked birth outcomes to a mother's proximity to trees, Donovan has worked to quantify the public health benefits of urban forests. Other notable studies have linked property value to the proximity of street trees.



"Many of us have this intuitive sense that the natural environment is an important thing," he said. "You spend time in the natural environment... but we can't quantify it. There's a belief that if you can't count it, it doesn't count, so it doesn't get taken into account. What energizes me is counting that, so it can be included in resource-allocation decisions."

This year Donovan will continue his work on the relationship between property values and trees in Tampa, Florida, yet he is also exploring the life-saving health benefits that urban trees provide. In a study whose results are being finalized now, he examined how Portland street trees affect air quality and their effectiveness in reducing airborne carcinogens—specifically, polycyclic aromatic hydrocarbons, which are produced from burning fossil fuels. Rather than going high-tech with instruments, Donovan used the moss growing on the trees as bio-indicators of how trees are affecting air quality.

"Trees are one of the ways we can reduce our exposure to carcinogens. Because it's all very well to say it's bad to live near the freeway but what can you actually do about that? What you can do is plant trees and the trees can absorb some of the carcinogens, reducing the public health impact of living near major sources of polycyclic aromatic hydrocarbons [i.e. major roadways]."

With his quantitative research, coupled with William Sullivan's research on the effects that stress have upon a person's stress and hormone levels (explained later in this article), "we're going to start seeing trees as an essential part of public health infrastructure" and they are a cost-effective way of achieving policy goals, Donovan said, adding that studying the public health benefits of trees is "definitely an area that's going to explode" in the near future.

Health Benefits of Urban Forests

William Sullivan, Professor & Head

Department of Landscape Architecture
University of Illinois
willsull.net

In Sullivan's Sustainability & Human Health Lab, researchers are identifying and quantifying the important, yet underexplored, health benefits of urban forests.



"We have good information on the urban heat island effect, for instance, and on what dense urban forests do in terms of slowing down water and reducing the probability of flooding," he said. "But there is so much more we need to understand about the impacts of urban forests on human health and wellbeing. We need a wide variety of research studies that examine the impacts of interacting with urban forests on human hormones, physiological stress, and neurobiology."

The latest research published by his lab builds upon previous work examining student academic performance and green views from windows. In a randomized controlled study with 94 students, the results demonstrated that window views of green landscapes serve the dual role of decreasing the length of time high school students' remained stressed following a stressful experience and also increased their performance on tests of attention. The paper is available online (<http://tinyurl.com/zl77ycj>) and will also be published in the April edition of *Landscape and Urban Planning*.

One of the reasons the physiological health benefits of urban forests were unexplored until recently was due to the costs of purchasing the equipment capable of taking physiological measurements, Sullivan said. Instruments that used to cost \$50,000 each now cost \$5,000, which in many cases can be easily covered by grant funds.

A research study that Sullivan started in March 2016, in collaboration with neuroscientists, goes beyond taking physiological measurements of people to looking at their brains. Research participants will be placed in a functional magnetic resonance imaging system (fMRI) to study how their brains react to urban landscapes without or with varying densities of urban forest and other kinds of green infrastructure, following stressful experiences or when coping with mental fatigue.

"I think this is a really exciting new area, and could potentially produce stunning results," Sullivan said. "This research could produce findings that have important policy implications for how to create healthy urban landscapes and healthier people."

Other research questions his graduate students are pursuing relate to the design of urban forests and green landscapes, and whether design plays a role in recovery following stressful situations. However, Sullivan said that design-related research has a long way to go due to the number

of variables involved, which have to be studied individually to determine which has an effect.

i-Tree: Modeling Urban Forests

David J. Nowak, i-Tree Team Leader
USFS Northern Research Station
www.nrs.fs.fed.us/people/dnowak

Introduced in 2006, the US Forest Service's i-Tree software (www.itreetools.org) now has more than 60,000 users, including nonprofit groups, cities, academics, tree care professionals, and private citizens. Nowak's goal for i-Tree is building an easy-to-use computer program to quantify forest structure, functions, and values across the globe. Through the i-Tree tools, users can quantify various ecosystem services (hydrologic effects, carbon storage, air pollution removal, effects on building energy use) and values that are associated with a forest or even an individual tree.

"We tend to manage things that we value, so the better we understand the true value of a forest, the more likely we will be to properly manage the resource," Nowak said. "The idea behind i-Tree is that if we can improve the quantification and valuation of a forest resource, through real data, managers and decision makers might make more informed decisions and improve forest management based on better and more comprehensive information."

i-Tree Landscape, released last November, is a web-based tool that lets users explore tree canopy, impervious cover, land cover, and basic demographic information across the United States. Users can learn the benefits and values of trees (carbon storage, air pollution removal, hydrologic effects) in their area and prioritize areas in which to focus tree planting and protection efforts down to the city block group level. All data are preloaded and analyzed from various sources, so the users need only select an area to begin understanding, valuing, and managing their forest resource. Nowak said that another feature to be released later this year is My-Tree, a mobile app that lets users input tree measurements and assess tree functions and values using their smartphone. Many tools in i-Tree can be used globally, but some of the tools require additional work to allow the program to work outside the United States. The team has built i-Tree versions for Canada, Australia, and the U.K., and is working on a European version.

Yet it's a newly released feature—i-Tree Forecast—that really excites Nowak, because it allows for time-series projections of forests. Users can model how a forest could change over time and investigate potential changes due to storms, climate change, invasive pests, or the planting of new trees. "A goal of my research is to answer the question: 'If I can only



plant one tree in a city, what should it be, and where and when should it be planted? Forests change through time. The key question is what should we do today to sustain optimal and equitable services for current and future generations." **FS**

Urban Forestry Fact Breaks



Need to help people understand urban forestry? A trio of videos called Urban Forest Fact Breaks may help them see the value of urban trees and forests. The three animated videos—Urban Forests, Urban Forest Benefits, and Urban Forest Wood Usage—each last about one and a half minutes. The videos are available for viewing at www.forestinfo.org, a website operated by Dovetail Partners Inc., in partnership with the North Carolina Forest Service. The website explains that "Forest Fast Breaks simplify complex forestry topics into concise, engaging animated shorts with sound effects and narration."

The videos, which are suitable for third grade through adult learners, were produced by the Oregon Forest Resources Institute, with support from the North Carolina Urban and Community Forestry Grant Program. A variety of other Fact Breaks from Dovetail are available on topics such as carbon capture, clearcutting, forest fire, forest management, reforestation, tree biology, water, and wildlife.

Where Do I Send It?

Member News

To submit member Society items for In Memoriam (SAF member obituaries), People in the News, and Society Affairs, send text and photos by e-mail to Steve Wilent, Editor, *The Forestry Source*, wilents@safnet.org.

Continuing Education Calendar

Events in this category are drawn from the Event Calendar on SAF's website, www.eforester.org/calendar/index.cfm. All events posted in the Event Calendar must offer Continuing Forestry Education credits. The instructions and forms for submitting events are available on the Event Calendar page. Space is limited. Publication in *The Forestry Source* cannot be guaranteed.

Employment Ads

All job announcements in the Classifieds are drawn from the SAF Career Center website, careercenter.eforester.org. Information about posting employment ads is available on SAF Career Center web site. Space is limited. Publication of employment ads in *The Forestry Source* may be subject to posting date limits.

Technology in Urban Forestry: Web/Mobile Software Applications

By Ian Hanou

A variety of exciting and innovative technologies are currently being used in urban and community forestry programs across the country. Technologies help forestry managers and arborists achieve the greatest return on investment from efficiency in their methods to assess, manage, plan, implement, track, and monitor the urban and community forest resource. Some management objectives are similar to those in traditional rural forestry while others are not. For example, while some traditional forestry practices manage to maximize timber yields, urban trees and forests are managed to enhance services and benefits like public health and energy savings. On the other hand, several management outcomes are common to both fields such as improving ecosystem function, wildlife habitat, recreation, and property values. In this sense, the ways that technology helps urban foresters properly manage trees to increase longevity and thus tree benefits are akin to proper forest stand management practices and associated outcomes (sedimentation and erosion control, increased basal area, reduced fire risk, etc.).

Urban forest technology applications focus on outreach, education, management, and planning to maximize benefits, minimize costs, prioritize maintenance, and visualize or quantify outcomes. While there are too many to list, some of these include unmanned aerial vehicles (UAVs) or drones, laser range finders, lidar analysis, multispectral and hyperspectral imagery, modeling of ecosystem services using i-Tree and other tools, various mobile apps, visualization tools, and sonic tomography. Since they cannot all be covered in a single article, I present some case studies from the nonprofit sector and state and municipal government, with a focus on web/mobile mapping and data-management software applications. Each case study has its own focus, purpose, and intended users. Broadly speaking, users benefit by being able to access data from anywhere and manage GIS tree inventory information, planting activities, volunteers, or work orders, and even view their entire urban tree canopy, all without knowing they're actually "doing GIS."

I'll first introduce the technology the apps use and demystify a few things about apps.

Trees and Apps "In-the-Cloud"

First, we often hear about storing data "in the cloud." This simply means that, instead of files being stored on your phone, computer, or a local server at an office, they're stored offsite on a remote server. Common examples include Google Docs and Photobucket.

Second, while we all know what "apps" are, the difference between a native app vs. a web browser app might not be common knowledge. The difference is simple: native apps require an install on

your phone or tablet (think Apple's App Store or Google Play), while web browser apps are accessed through an Internet browser (i.e. a website address). They each have advantages and disadvantages. Generally speaking, web browser apps are less expensive to build and maintain, and accessible to more users, because they're opened from a URL like any other website rather than a specific brand of device.

The tools in the case studies below are web browser-based software apps. The platform uses open source technologies (OpenLayers and PostgreSQL), allows for multiple users to add or edit information in real-time, and provides good visuals through maps, data tables, charts, and reports. Additionally, users don't need GPS or GIS hardware and software. This is often referred to as a "complete hosted solution." Any smartphone, tablet, or laptop can access the web apps on any brand of device (Apple, Windows, Android, etc.). The examples provide a model for organizations to aggregate, analyze, share, monitor, and report on urban forestry programs to improve management outcomes.

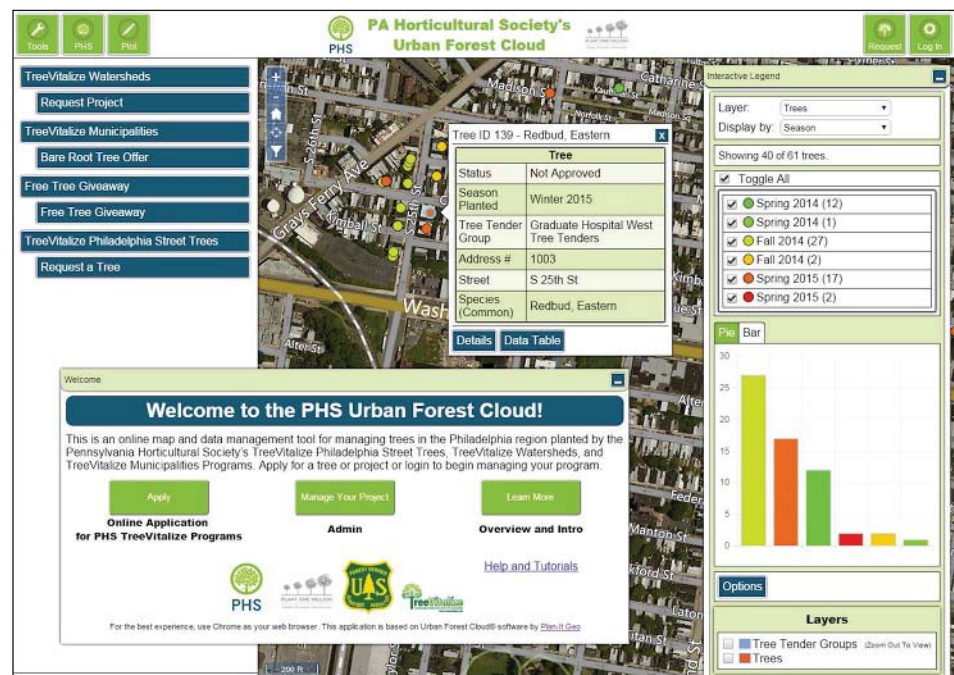
The PHS "Urban Forest Cloud"

The Pennsylvania Horticultural Society (PHS) is a Philadelphia-based nonprofit that has been leading greening efforts in the region for decades. PHS works with partners to educate residents and plant and care for trees through its Tree Tenders, Tree Checkers, Plant One Million, and riparian planting and tree-giveaway programs, resulting in 1,500 to 2,000 trees planted each year.

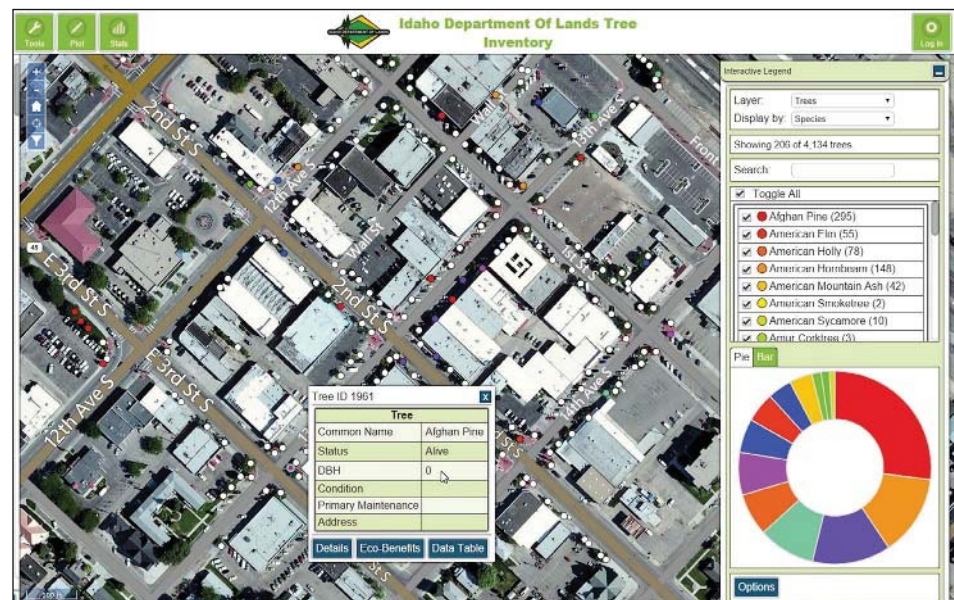
Data have historically been collected, managed, and reported for these programs in spreadsheets, making data collection, management and reporting cumbersome. In seeking a centralized database and versatile tool to manage project data and better track the health and maintenance of trees, PHS developed the PHS Urban Forest Cloud (UFC, pg-cloud.com/phs/).

The UFC is a regional online map and database application to track all data gathered for individual trees, projects, and programs. Multiple user groups can update, manage, and track information such as site approvals, species, tree condition, volunteers, location and maintenance needs and activities. The tool has forms to receive online tree-planting applications, create planting lists and nursery orders, and allow volunteers to collect tree information in the field.

The UFC provides three main login levels. The Advanced Admin has the ability to add, sort, filter, edit, import/export, and report on all data. The app simplifies the process of approving applications and site review. Then, species and planting location is collected and shared with another login type: Tree Managers. These users can create and manage accounts, organize planting events with functionality specific to project managers, and view their



The Pennsylvania Horticultural Society's PHS "Urban Forest Cloud" Application (pg-cloud.com/phs/).



The Idaho Department of Lands Tree Inventory web site showing trees in downtown Nampa, Idaho.

current or historical data in an efficient workflow. Finally, Guest Users can view trees that have been planted by program, tree-planting group, species, and season planted. During open application periods, the public is directed to the UFC, where they can choose one of the three programs to apply for a tree planting or project. An applicant is able to electronically sign and save the form and is immediately notified with a confirmation email that the application has been received.

From a requested tree to long-term maintenance, the UFC tracks data, creates efficient workflows, and summarizes the ambitious efforts of PHS and its partners.

Colorado, Idaho Online Inventory

The Colorado State Forest Service, Colorado Tree Coalition, and Idaho Department of Lands have recently pioneered statewide web/mobile tree inventory and data management applications. Cities, communities, campuses, nonprofits, and the state agencies can create an organization and upload existing tree inventories into the app or begin a new inventory. Numerous

data fields can be collected for individual trees in the field, and reports, charts, graphs, and summary tables are automatically generated for a single inventory data set or in an aggregated statewide fashion. Additionally, ecosystem services and benefit values are calculated for each tree and summarized citywide and statewide.

Cities of all sizes benefit from the tool locally, while contributing to the statewide database to analyze larger trends or challenges in forest health, structure/composition, and management/maintenance needs amongst communities. Early adopters such as the towns of Frederick, Colorado, and Shelley, Idaho, have inventoried hundreds of street and park trees. Visitors can see limited information without a login, thus providing an educational tool in addition to a management and analysis tool.

These online inventory apps help individual cities and state agencies make informed management decisions related to invasive species and the structure and

composition of public trees, as well as provide hard data for grant applications and budget requests. They also provide a comprehensive mapping, management, and custom report printing tool for communities with limited resources.

Online Woodlot Report Card Tool

The City of Mississauga, just west of Toronto, Ontario, manages about 300 woodlots that provide a wealth of social and environmental benefits to residents and visitors. As with any valued asset, there are challenges and stressors in a highly urbanized setting to properly and safely manage these areas. Fortunately, the City has several sources of data to aid in improving forest management. These include Conservation Ontario, Credit Valley Conservation, the Ontario Ministry of Natural Resources, the Committee on Status of Endangered Wildlife in Canada, and Natural Area Survey data and field-based inventories from the City of Mississauga. However, Mississauga's Community Services Department, Parks and Forestry Division, realized that this information needed to be organized to allow for more proactive practices while also providing a tracking, scoring, communications, and decision-support tool.

The Woodlot Report Card project designed and developed a framework for organizing, managing and displaying woodlot data through an interactive online map and database. Ten criteria are used to score and grade each woodlot to produce an interactive "woodlot report card." These include Forest Interior, Mean Coefficient of Conservatism (mCC), Downed Wood Debris (DWD), Standing Snags, Native Breeding Bird Species Richness, Spring Ephemeral Plant Species, Floristic Quality Index (FQI), Threatened and Endangered Species, Human Impacts, and Connectivity. Grades of A through F are calculated based on values for each criterion for each woodlot. Each criterion receives a point value based on its grade; the sum of those values is then used to determine the final grade.

The tool is dynamic based on updates from new field data and monitoring over time, which is entered by logged-in users. As an added benefit for communications and education, guests such as the public or elected officials can visit the online map and explore woodlot characteristics to better understand why one area has a higher grade than another.

Urban Tree Canopy Assessment

The City of Columbus, Ohio, has a new "Branch Out Columbus Campaign" led by the mayor's Green Team. How the 300,000 tree planting program sprouted makes for a great case study on the use of technology in urban forestry that's driving real change.

In 2014, in the face of emerald ash borer (EAB) and development pressures, the city needed an accurate benchmark of their urban tree canopy (UTC) to develop an informed canopy cover goal and prioritize areas for increasing canopy. The city initiated a canopy analysis using high-res-

olution lidar and multispectral imagery for its 230 square mile boundary, which showed an average tree cover of 22 percent. The study also mapped trends in canopy cover over time and analyzed socio-economic and demographic information on the equitable distribution of the urban forest.

The biggest outcome from the comprehensive study so far is the Branch Out program. It is a public outreach campaign intended to generate interest and participation in the growth of the urban forest. It was a response to information provided by the assessment which indicated that the City would likely be unable to reach its tree canopy goals without private partnerships and citizen involvement.

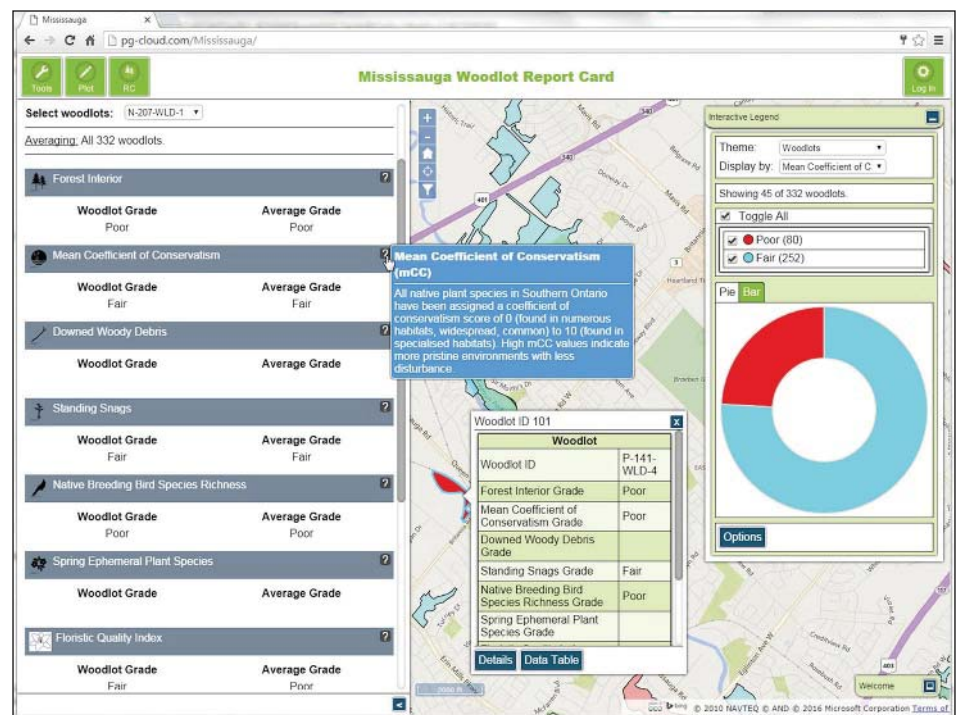
The city's Forestry Section is also working to implement operational changes that would more effectively address issues identified by the assessment. Primarily, making a more proactive approach to tree plantings in public space which will target sites where trees' benefits would be maximized, rather than the reactive approach used in the past. The assessment has also emphasized the need for well-defined standards for urban forest management and protection, which are currently lacking. Several administrative committees are working to develop these standards with the intent that they will soon be codified.

With this rich data set, the City also received an interactive, online map and canopy planning software (pg-cloud.com/columbus/). The web tool serves many purposes, from landscape-scale view to the maintenance of newly planted trees to reach the city's goal. Given the technical nature of the GIS canopy analysis data, any user can now quickly filter and display areas with low tree canopy and high potential for expanding UTC without using desktop GIS tools. Users can also weight various criteria for tree planting priorities such as Urban Heat Islands and energy conservation potential to make a targeted, priority-based planting map. In addition, approved users can add planting or restoration events and track individual tree plantings to reach Columbus' laudable tree planting goals. Volunteers can even "Sign-Up" for upcoming events using the online mapping tool, notifying an event leader automatically by email that they have a new volunteer.

The canopy report is available on the Branch Out program website, www.columbus.gov/branch-out/.

These organizations, agencies and cities are on the forefront of web/mobile technologies for urban forest management and will enjoy many benefits from increased awareness to new funding sources. There will also be challenges in terms of learning curve, changes in technologies, paying for long-term hosting and maintenance, and adoption by users. These tools increase in value the more they are used, but if we bring the horse to water, will it drink? We're hoping so. **FS**

Ian Hanou is the founder and owner of Plan-It Geo (www.planitgeo.com), a geospatial analysis and software development firm based in Colorado focusing on urban forestry and natural resources planning and tech-



A view of the tools and map features of the Mississauga, Ontario, Online Woodlot Report Card Tool, in this case, highlighting the Mean Coefficient of Conservatism (mCC) criteria, a score of assigned to all native plant species in southern Ontario from 0 (found in numerous habitats, widespread, common) to 10 (found in specialized habitats with more pristine environments with less disturbance).

nology. Hanou has managed more than 150 projects relating to GIS, forestry, planning, software, and related technologies. He specializes in web/mobile software development, ecosystem services analysis, remote sensing/GIS, business development, and project management.

Dana Dentice (Plant One Million Program Manager, PHS), John Bowers (City of Columbus), and Chris Peiffer (Plan-It Geo) contributed to this article.

Special Issue: Biomass Harvesting

The May edition of *The Forestry Source* will focus on forest biomass harvesting and processing. Are you involved in a biomass project that would be of interest to readers? Contact editor Steve Wilent at wilents@safnet.org or 503-622-3033 (home office in Oregon).

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Urban Forestry: Building a Sustainable Future Through the Classroom

By John R. Warner

Urban forestry is opening more than doors for communities and people. It is building a future for diverse communities, creating career pathways for youth, and providing avenues for diverse leadership within our forestry profession.

As an urban forester, arborist, and educator, I understand the important role that trees play in relation to where people live, work, and play. Trees can be delightful, but also burdensome when not planted correctly or when planted in the wrong location, when not properly maintained, or when a tree's health starts declining and the tree becomes costly to remove. As urban forestry professionals, we work, collaborate, and connect the many puzzle pieces to build greener places and spaces.

Professionals in the fields of science, technology, engineering, agriculture, and mathematics are investing time, money, and human capital to engage and challenge youth as young scientists, engineers, and researchers.

Could the same be said about forestry and ensuring our future as a profession?

More than five years ago, something ground-breaking started growing in Houston, Texas. Seeds were planted when partners came together with a vision of connecting inner-city youth to the land by connecting schools through curriculum-based programs that taught fundamentals of decomposition, permaculture, arboriculture, and sustainable land management practices. The program which integrated the planting of urban forests, changing food deserts into food forests and community gardens, and engaged community members and leaders in this youth-led education and restoration program. Today, The Green Institute at Houston's Furr High School hosts an array of Green Ambassadors, young conservation leaders who find solutions to important environmental issues and concerns within their own community. These students are creating pathways within their communities and their schools to recognize the issues, become informed, and find solutions. They are confronting environmental justice topics and are working to transforming concrete jungles into sustainable urban forests, which include healthy pollinator and wildlife habitat, food forests, and healthy urban forests that create a dynamic and vibrant place to live.

The Green Institute, Green Ambassadors, and teachers are powering the effort to bring about awareness, environmental literacy, and life-changing experiences to the students at Furr High School. In turn, these youth are teaching and engaging pre-K to 12th graders who are being guided to become young conservation leaders within Houston



USDA Deputy Under Secretary Butch Blazer (center, white shirt) meets the Houston's Green Ambassadors to hear their story. Left to right: David Salazar, educator, The Green Institute at Furr High School; Luis Cruz, Houston Community College, Woodsy Owl Conservation Corps Leader; Nalleli Hidalgo, University of Houston; Blazer; Juan (Tony) Elizondo, educator, The Green Institute; and John R. Warner, Texas A&M Forest Service, Diversity & Urban and Community Outreach Coordinator.

Independent School District, their communities, and beyond.

Yes, it is important that subject experts in forestry and natural resources provide a solid foundation of knowledge, training, and expertise, but for strategic long-term sustainability within the profession, youth also need to be teachers, scientists, research field technicians, and advocates who will become the new faces of forestry for the

remember the groups covering everything, including the proverbial kitchen sink, in the final plan presentation.

An objective of this kind of applied investigative field study is to put youth out in the field, gaining experience in field data collection and observation skills, while developing a wide-ranging management strategy on several hundred acres of urban forest, this time near Furr High School's campus. This is a

munity members about conservation-related issues and solutions.

The youth telling their story demonstrated firsthand to others around the table, including the representatives of the Natural Resource Conservation Service and leaders from the Alabama-Coushatta tribe, how important it is for resource professionals to not only be at the table listening, but to be present in support of community-based initiatives. It is important to provide support and leadership when needed and to allow youth to envision the futures of their own communities through their own experiences, values, and expectations.

SAF members can continue to create legacies by inviting, involving, and engaging young people and educators who will touch lives and change communities through this imparted knowledge and passion for caring for the land. Our legacy will be carried forward through their leadership. We must give them sound environmental, natural resource, and forestry knowledge and insights. These young people will grow their seeds and harvest their rewards, because it is theirs to own, explore, share, and discover. When our profession nurtures, guides, and manages these young lives and hires them to communicate, teach, and reach out in their communities and schools and to share knowledge with others, it is a win-win for everyone. Our future resource managers are growing strong!

I challenge to you to be an agent of change by creating an everlasting legacy through investment in the future of our profession and young conservation leaders. **FS**

John R. Warner is Texas A&M Forest Service diversity & urban and community outreach coordinator.

If we are looking for a long-term and sustainable future, it is important to invest our time and knowledge in the young people who hold our legacy in their hands.

next generation. Peer-to-peer interaction brings about acceptability and accountability. Impacting the lives of youth, through cultivating and nurturing their interests and visions, creates a connection and passion that follows them into college.

In partnership with the Texas A&M Forest Service and other partners, Furr High School students engage in a series of investigative classroom and field experiences that cover concepts in urban forestry, arboriculture, traditional forestry, hydrology, ecology, fire ecology, and wildlife management. Students learn these fundamental building blocks through their application and incorporation into community-based service learning projects and programs.

As a forestry student, one of the highlights of my college experience was forestry field station, where many of us put our knowledge and what little experience we had to the test by writing an extensive and exhaustive resource management plan. Reminiscing, I can

youth-driven project, which highlights community engagement and feedback on how the managed area could best benefit the school, the community, and society.

A greener future for urban forestry may mean planting trees, but if we are looking for a long-term and sustainable future, it is important to invest our time and knowledge in the young people who hold our legacy in their hands. Students making that connection, sharing professional knowledge, and creating those personal experiences and exchanges will create the greatest good for the greatest numbers in the long run.

Recently, USDA Deputy Under Secretary Butch Blazer visited Texas and called a meeting with the US Forest Service, the Green Ambassadors, the Texas A&M Forest Service and other partners. The collaboration and energy flowing around the room was especially evident when the Green Ambassador educators and youth talked about empowerment of youth to teach other youth and com-

Values, Variables, and Rarity: Urban Forests vs. Working Forests

By Mark Mead

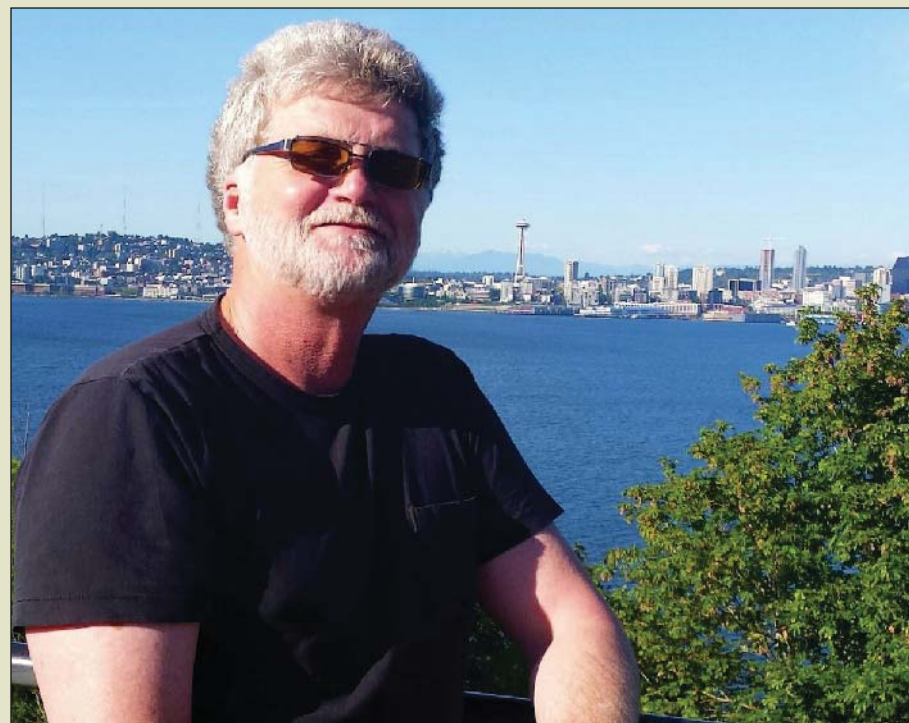
As a forester I am grateful to have the freedom to apply my knowledge, experience, ethics, and inquisitive nature to the issues I am asked to address. As a forester I hope my actions create a better future by preserving a tree here, planting a tree there, helping to pass an ordinance, or influencing a landowner to plant a tree. The ubiquity of these actions within the field of forestry is how I see myself as a forester. As an urban forester I have had many unique situations which have tested this hypothesis.

As an example: As the impeccably dressed elderly Italian couple took me up to the seventh floor of a condominium under construction, I listened as they described their love of Seattle's freshness and green vistas. The elevator door opened to a vista of concrete and steel — no walls, no windows, just a large open expanse of concrete floor. Seated at a portable picnic table set for four with wine and hors d'oeuvres was the couple's equally elegant and beautiful daughter. After introductions and an offer of wine (declined), the father spread out his arms and began to lay out their new home. "And this is where we wish to sit at dinner and look upon the lights of Seattle," he said, gesturing out toward downtown. As was no surprise to me, the vista was blocked by four rows of western red cedars, planted 30 years prior, 8 feet on center, in Gas Works Park, designed by an internationally known local landscape architect along a former railroad grade. The park, one of Seattle's architecturally recognized landscapes, is a hazardous materials remediation site where the trees are essential to the overall design of the park. Consider the variables an urban forester must weigh: The growth rate of closely planted, rapidly growing native evergreen trees; highly questionable soil pH and mineral content; hydrology apparently functional as the trees were just beginning to block the view at the seventh floor; affluence to political connection ratio fairly high; media involvement potential extremely high; controversy bias extremely negative for the city; justifiable arboricultural remedies nil; "kick upstairs" option doubtful with high potential for rebound; and customer satisfaction rating undoubtedly very low to poor. One must ask oneself, is this forestry?

The definitions for urban forestry have varied through the years as have the outcomes for forestry. What has become less and less noticed is that as foresters, urban or otherwise, we continue to work in an area where values and variables may change, but the rarity of the commodity we manage is increasing. As we work toward reforestation and replanting, we accomplish much, but as we continue to battle the expansion of

the human population across our open spaces, we are struggling over a commodity that has no replacement space. Within a city, space is merchandized by square feet; in a forest, space is measured in acres and square miles. However, there is a commonality between these urban and exurban spaces. The amount of this space available for trees diminishes daily, in cities and towns and most notably along the ever-expanding wildland urban interface. And, on a global scale, these impacts drive a change in the environment that is too rapid for tree species to migrate away from, as they have over the eons.

The concept of rarity came to me while watching recently produced Western movies and TV shows. In the backdrops I have noticed that there are trees planted along the streets, saplings supported by heavy structures to presumably protect them from horses and wagons. I did not see these in John Wayne movies. How did this subtle yet seemingly unmissed portion of the urban landscape come to be a part of these depictions of rapidly growing towns? A more realistic portrayal of how it was, or more wishful? Does this reflect our forefather's efforts to cool desert towns, creating oases to draw the western-bound populations? Or was this perhaps an effort to recreate the known landscape of the successful cities the migrants had come from? Or perhaps these plantings were



correspondingly. In urban settings, we deal with hundreds of species of trees in fairly homogenous environments; in our forest settings, we deal with limited species across vastly changing terrain. Yet we all deal with change, species adaptability, and the impacts of available soils and hydrology. All foresters along this continuum deal with politics, community interest, and the never-ending battle to justify our already strained budgets.

As urban foresters we speak to thousands of people individually with

beyond Arbor Day plantings and brochures. What is necessary are visits from federal foresters to urban centers to speak in support of urban forestry efforts to mayors and councils well beyond the boundaries of the working forest. Or maybe a more radical idea: a combined effort at state, federal, and local levels to establish ash wood identification classes for law enforcement. In addition, a corresponding effort to legitimize and emphasize the impact this disease is having on all environments will in turn build an effective level of awareness for all trees in all forests.

Ultimately, it comes down to a discussion of a tree versus the tree, the ubiquitous unseen tree in the forest. Foresters across the continuum do have the ability to aide each other in our respective endeavors, as we all speak tree.

FS

Mark Mead recently retired from Seattle Parks and Recreation department and is now a consultant. He holds a bachelor's degree in forestry from the University of Washington and has served on the SAF's accreditation committee for the last six years.

**As foresters, urban or otherwise,
we continue to work in an area where
values and variables may change,
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we manage is increasing.**

both a cognitive and almost instinctual decision by our predecessors toward staking claim on space for the future.

Over the last 30 years I have come to view forestry as a continuum. From national parks, national forests, state forests, state parks, working forests, small-private working forests, homes along the wildland interface, suburban homes, county and city parks, small private lots in urban areas, and all the way down to the individual street tree, we have common goals in our respective professions: creating more and better space for trees to grow.

What links us in these efforts are the tools we use. The most important? Our ability to zoom into the single insect-infested tree and rapidly zoom out to connect this single tree to the landscape level and the concurrent social, economic, political, and environmental values we will need to address. The variables for those of us along this continuum change

our messages of planting trees on their street and yards, proper care of trees, their trees, and the value and rarity of large trees. As foresters we speak to the masses and visitors about how they can protect the forest, how our work is making a better forest for all, and how only you can stop the next forest fire.

And how is that working for us? Take the emerald ash borer, for example, which is decimating native forests as fast as it is destroying entire city's ash tree populations. And the fastest known transportation system for this disease? Truckloads of firewood. Our struggles are communal, so it would seem prudent for us to reflect on what it is we have to offer to one another. Isn't it time to ask our urban forester sisters and brothers to help save our working and rural forests in an effort to save their forests? And in turn, what can the forestry world bring to urban forestry?

Urban forestry needs support be-

Make Your Point

The Forestry Source welcomes Commentary essays of 500 to 1,000 words on topics of interest to SAF members. Because space is limited and publication cannot be guaranteed, writers are encouraged to contact the editor before submitting manuscripts. Contact editor Steve Wilent at wilents@safnet.org or 503-622-3033.

WORKING GROUP NOTES: URBAN & COMMUNITY FORESTRY (B2)

Fellow urban foresters and friends, greetings to you all at the beginning of 2016! I hope everyone has had a great and beau-*tree*-ful 2015. Thanks to all who attended our Urban and Community Forestry Working Group (B2 WG) meeting at the 2015 Society of American Foresters National Convention in Baton Rouge, Louisiana. It was a pleasure to see such a good turnout at the meeting, because we had many things to discuss. On the agenda was the issue of certification for Urban Foresters, something SAF has been working on diligently.

In June, the steering committee for a national SAF-proctored Certified Urban Forester credential held a day-long workshop at the University of Maryland. The results of the workshop are summarized below by Allan Mills, our representative on that committee, constituting the principal content of this first issue of our re-born newsletter.

The idea for the resuscitation of *The Urban Forester*, the Urban and Community Forestry Working Group (B2) newsletter, came up at our annual meeting two years ago, and it has finally come to fruition with this Winter 2016 issue. We will start by sending the newsletter out once a year, following the annual SAF Convention. We may then have a second issue to release around midyear.

I look forward to seeing each of you at the 2016 SAF Convention! And I encourage you to contact me ahead of time with items you would like me to put on our B2 WG agenda for the urban and community forestry meeting at the convention.—Sam Oludunfe, B2 WG 2015-2016 President

Allan Mills: UF Steering Committee

In June 2015 I had the opportunity to represent our B2 Urban and Community Forest working group at an all-day meeting of the Steering Committee on Urban Forestry Certification at the University of Maryland. The purpose of the meeting was to begin to identify the requirements for an SAF certification credential in urban forestry. This is one element of Urban Forestry 2020 (UF 2020) project, a three-year effort to develop recommendations for strategic planning concerning education, recruitment, and professional development opportunities in urban forestry. Susan Day, an associate professor from Virginia Tech University, is the UF 2020 project leader. One of the first things discussed in this meeting was the criteria for professional certification. Many of the same things found in the literature were identified by workshop participants. For example, a unique body of knowledge and one or more peer-reviewed professional journals where that knowledge is published. Another important outcome of the meeting was support for surveys of urban forestry practitioners and employers. This was outlined for participants by a Virginia Tech graduate student employed to work on UF 2020, as well as a meeting participant from West Virginia University.

Subsequent to the meeting of UF 2020 participants, Susan Day sent out an email on October 19 that summarized

the outcomes of the June meeting which had been, or were in the process of, being implemented. She also described her efforts to add visibility and support to this project. Her email encouraged those of us who participated in the June meeting to "...feel free to share information with your colleagues." There were several items in Susan's update:

1. Schematics had been recreated based on the Steering Committee feedback obtained from the June meeting. These were vetted at the International Society of Arboriculture (ISA) Annual meeting in Orlando, Florida, and at the Ecological Society of America's (ESA) Annual Meeting in Baltimore, Maryland.

2. An in-depth summary of the conversations at the meetings and an internal survey about networking in urban forestry is also in the Steering Committee's repository. It was suggested at the ISA and ESA meetings that one particular issue that should be given serious attention is that "Urban foresters feel pulled between numerous professional organizations..."

3. An article [about UF 2020] was written for publication in the December 2015 issue of *Arborist News* [see www.isa-arbor.com].

4. A survey of first- and second-year undergraduate students at Virginia Tech has been prepared and submitted for approval to the Internal Review Board at Virginia Tech.

5. West Virginia University prepared a survey of employers of urban foresters. It consists of two versions, one sent directly to managers in the 200 most populous cities in the US and a second that uses a "snowball" sample. The snowball sample allows anyone to complete the web-based questionnaire [see urbanforestry.frec.vt.edu/2020/survey.html].

6. A survey of allied professionals has been realigned in response to feedback from a draft presented to Steering Committee participants at the June meeting.

7. Susan Day has been asked to speak about UF2020 at both the FAO in Rome, Italy, and at the Second International Conference on Urban Tree Diversity in Melbourne, Australia. **ES**

—Submitted by Allan Mills, B2 WG 2015-2016 Secretary

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- Treasurer: vacant
- Secretary: Allan Mills, 804-356-2093, allanscottmills@gmail.com

The Forestry Source welcomes articles from working groups that are of interest to the broader SAF membership. Authors are encouraged to contact their working group officers. For information, contact Steve Wilent, Editor, 503-622-3033, wilents@safnet.org.



B2 Working Group President Sam Oludunfe is the open space manager and city forester for the City of Chula Vista, California. He previously was the campus urban forester at the University of California, San Diego. Photo: UC San Diego.



B2 Working Group President Sam Oludunfe and Vice-President Kamran Abdollahi speak during an urban forestry tour at the 2015 SAF National Convention in Baton Rouge, Louisiana.

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SPORES

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the landscape you are managing?

I think that it's generally beneficial, especially here on the Tongass, because our harvest history is fairly young compared to other forests. The Tongass covers almost 17 million acres and we're southeastern Alaska's primary landowner. There are other landowners, but for the most part, logging started first with the Forest Service and then moved to other ownerships. The logging history is fairly young. We have one documented harvest from the 1880s, but for the most part, the larger scale logging began in 1954. Some of our older, younger stands are 60 to 70 years old and it's been fun to spend the last 11 years focused on the young growth. It has been a fascinating to not only expand my knowledge of young growth, but the whole forest as a whole. We're learning so much about young growth and forest dynamics.

What specifically are you working on and what challenges do you face?

The biggest thing we have been working on, in terms of silviculture on the Tongass, is in response to the Department of Agriculture's July 2013 Memorandum 1044-009, "Addressing Sustainable Forestry in Southeast Alaska," which directs us to transition the timber program from one that is predominately based on old growth to one that is predominately based on young growth. In the previous forest plan, we assumed we would transition to young growth when the trees got old enough. The transition, as we've analyzed it in previous forest plans, shows that we can't transition for about 30-40 more years, but we have been looking at ways to transition earlier because the agency would like us to transition in the next 10-15 years.

I have been serving as the subject matter expert for silviculture on the forest plan amendment. I also last year worked on an agreement with the state of Alaska to collect more young-growth data. We've spent a lot of time in the last 10 years collecting data and then working to populate

our growth and yield models, so that we can project our stands forward and see the areas and stands that may be harvestable.

Which would mean there would no longer be cutting of old growth and harvests would come from the younger stands?

That's correct, but the mills are all geared toward old growth at this time. The current forest plan draft came out at the end of November and it proposes that we transition predominately to young growth in 15 years, but that we will always have at least 5 million board feet of old growth offered every year to support the mom-and-pop mills that are very specialized.

That sounds like a far more sustainable operation, similar to the Menominee method of operating, by retaining millling capacity that can accommodate old growth rather than converting everything to young growth. I'm sure the milling industry would appreciate having both wood sources available.

Yeah but they're going to have to transition. A couple mills just will not be able to maintain on 5 million without doing some conversion to using young growth.

In the forest plan, is there a plan to grow old growth so that at some point you're not harvesting the existing old growth?

No, but that's a good point. We had these long-term contracts put into place, but even with a significant amount of logging, we've only logged 4 percent of the Tongass. I think when you look at acres of the productive forestland, eleven percent has been logged. What we're finding as we analyze this transition to young growth is that, if we go down to our young-growth land base, there's a lot of young growth that is no longer in the timber base. Obviously we're not going back into the areas now designated as wilderness areas or along the streams. This forest plan shows that we will actually be trying to have a timber program on a little less than 2 percent of the forest. With that in mind, our analysis is showing that we'll have to intensively manage that 2 percent if we want to sustain the timber industry. Some of the things we have proposed to transition to



Sheila Spores gives a presentation to the Youth Advisory Council, a group of high school students who are working with the Tongass National Forest on the forest plan amendment. Source: Tongass National Forest

young growth earlier is harvesting stands before they reach the culmination of mean annual increment. We received an exemption from the CMAI requirements outlined in the National Forest Management Act through the defense funding bill that was passed December 2014.

Have you been tempted to transition to another national forest?

I have dreams of moving south again. I'm from Montana, but I moved up here and I brought my boyfriend at the time, and now he's my husband. He and my son have thoroughly adapted to the southeastern Alaskan lifestyle. It's going to be very difficult to get them out of here. I have taken the opportunity to do several details. I took a few details in the Washington office working on the Roadless Rule. I also detailed onto the Chugach National Forest as a vegetation program manager on the Seward ranger district. And I worked as a silviculturist on the Wrangell ranger district for a while, as well as the Ketchikan district. Even if I haven't physically moved, I've been very fortunate and able to do some details that give me more experience.

Touching on that experience, for students

who are considering which career path, what should they focus on if they are considering silviculture?

I recommend that students take a natural resource management course of work through an accredited program that leads to a professional forestry degree. As a silviculturist, you get your start as a professional forester and then you move into [a position where you specialize in] silviculture. Things I wished that I spent more time on in college would have been mensuration and biometrics.

Do you think it's good to get experiences working in different forest types? Or is it better to find a place that you fall in love with and build your career there?

I think there are pro and cons to both approaches. You can certainly become more well-rounded by moving. I live in a small community in southeastern Alaska, and even though it covers 17 million acres, there are only about 77,000 people spread out across the area. I know that by staying here as long as I have, I've gained a lot of credibility amongst the folks who have been here longer even than I have. And I think that helps a lot when it comes to building internal and external partnerships. **ES**

PEOPLE IN THE NEWS

Jay Sullivan, professor of forestry economics and management at Virginia Tech since 1988, has been named head of university's Department of Forest Resources and Environmental Conservation.



Jay Sullivan

"This is a rewarding time to be a part of our field, with forests, environment, and water more than ever at the forefront of ongoing discussions of ecological, social, and economic well-being at regional, national, and global levels," Sullivan said. "I am honored to be able to serve as department head, and I can't imagine a role where I could have a greater impact on our profession and on the future of our

students."

Sullivan's professional interests include forest and resource economics, the economics of forest conservation and restoration, forest landowner incentives and decisions, and forest management and planning. Among numerous awards, Sullivan received the Teaching Excellence Award from the university's College of Natural Resources and Environment in 2012. He holds a Ph.D. in forestry economics from the University of California, Berkeley; and a master's in forestry economics and a bachelor's degree in forest management from Colorado State University.

David B. South was inducted into the Alabama Foresters' Hall of Fame in January at the Alabama Division of the Southeastern Society of American Forest-



David South (left) was recently inducted into the Alabama Foresters' Hall of Fame. SAF member Dick Brinker, Hall of Fame chair, presented a certificate of induction.

ers (SESAP) Business Meeting in Auburn, Alabama. South's research on nursery management and plantation establishment has contributed to the successful

regeneration of millions of acres of plantations. His research on nursery weed control, seedling quality, and soil fumigation has helped to keep the cost of producing a bare-root loblolly pine seedling to less than six cents. South, an emeritus professor at Auburn University, has received various awards including SAF's Barrington Moore Award and the SESAP Award for Excellence in Research. He also received the Auburn University Distinguished Graduate Faculty Lectureship and a Fulbright Senior Scholar award for his work in South Africa. South has served on the SAF Forest Science and Technology Board.

To submit brief People in the News items, send text and photos by e-mail to Steve Wilent, Editor, The Forestry Source, wilents@safnet.org. Space is limited.

Dr. Flint Hughes, an ecologist with the US Forest Service Pacific Southwest Research Station, who is involved in the research efforts, said, “It’s been tough on folks who have spent their entire career to basically protect and steward our native forest from so many different threats and stressors—whether that’s ungulates or invasive plant species. And now to face this has been a real challenge and a tough thing for folks to come to grips with. [It] just brings tears to people’s eyes, frankly.”

The ‘Ohi’a is the backbone of Hawai’i, both ecologically and culturally. There are eight varieties of ‘Ohi’a, hence the species name *Metrosideros polymorpha*, which means “many forms.” Its vibrant nectar-filled flowers, called lehua, range from red to orange to yellow and serve as a source of food for Hawaiian honeycreeper birds. The word lehua also carries symbolic significance—the first warrior to fall in battle is called a lehua, as is a person who is regarded as a paramount expert in his or her field. And a lei comprised of lehua blossoms is regarded as the most worthy lei.

Although ‘Ohi’a is a hard wood, it’s too unstable for use as lumber. However, its strength makes it usable as flooring, posts, or railings. Traditional uses of the wood were as weapons or tools, and the unique sound of the kala’au dancing sticks because of ‘Ohi’a wood properties.

On Hawai’i Island, one of the eight islands in the state of Hawai’i, ‘Ohi’a covers more than 250,000 hectares, which dwarfs the combined 100,000 hectares found on the other islands.

“‘Ohi’a trees are the most important tree on Hawai’i Island,” Hughes said. “Overall across all the trees on Hawai’i, they represent 50 percent of the stems and 50 percent of the basal area. But when you think of the native forests that encompass our watershed and supply our drinking water, ‘Ohi’a represent 80-90 percent, and in some areas even higher, of the stems in those forests.”

Collectively the ‘Ohi’a varieties fill ecological and successional niches that usually require a several tree species to fulfill. They grow along an elevation gradient of sea level up to 9,000 feet and are found on sites that can receive little mois-

ture or 300 inches a year of rainfall.

“They are the first angiosperm that colonizes the young lava flows and they are the dominant tree in our four-million-year-old montane bogs on the oldest island of Kaua’i,” Hughes said. “They are the most extensive, widespread, and most important tree on our islands.”

Friday added that the tree is capable of becoming “100-foot-tall, six-foot diameter giants.” And although the ‘Ohi’a is not used as a street tree, they are the dominant tree species in many small family forests.

This fungal disease isn’t the first to attack ‘Ohi’a; in previous decades it was the ‘Ohi’a rust that was of high concern and still is, said Suzanne Case, chair of the Department of Land and Natural Resources (DLNR). “But Rapid ‘Ohi’a Death has the ability to kill healthy, adult trees in different climates, unlike the rust disease which mainly damages young seedlings in wet areas.”

Detective Work

The first reported outbreaks occurred in 2010 on the eastern side of Hawai’i Island. Friday recalled that when he investigated the diseased trees, “we didn’t see anything on the landscape that didn’t look like the background level noise of disease.... We did some sampling but we were not able to find any new disease pathogens.” It wasn’t until 2014, following the deaths of more trees, that the disease emerged from the background noise and researchers began documenting its spread and taking samples. One reason the die-off wasn’t that apparent is that there isn’t a pattern to the disease’s spread: trees are randomly infected and the infected trees don’t appear to be the source of the spread.

Dr. Lisa Keith, a research plant pathologist with the USDA Agricultural Research Service, joined the research efforts in 2014 when one of the collected samples contained an unknown pathogen.

“There was a lot of sampling, and bringing things back to the laboratory, and doing isolation and purification work,” Keith said of how they finally identified the fungus. “Once we were confident [this pathogen] was consistently found with the field symptoms we were seeing, which included rapid death—leaves attached to the trees and yellowing to browning—and once you started looking inside, you could



A health stand of ‘Ohi’a in 2005 and 2015, after most of the trees were killed by Rapid ‘Ohi’a Death disease. Photo courtesy of J.B. Friday.

see the vascular discoloration caused by the fungus.”

Once the fungus was isolated, she inoculated ‘Ohi’a seedlings to determine whether it was responsible for causing the rapid death disease. Not only was the fungus (*Ceratocystis fimbriata*) the culprit, but she also found that there are two different isolates that are genetically different. This was the first time that *Ceratocystis fimbriata* was found to infect ‘Ohi’a. With time of the essence in testing samples, which could take anywhere from two to four weeks using the traditional carrot-baiting method, Dr. Wade Heller, a post-doctoral student on Keith’s team, developed a rapid detection method that uses molecular techniques to identify the fungus. Now, “within hours of getting a sample, we can provide results,” Keith said.

Apart from how quickly death occurs, another concern is how easily the fungus spreads.

“The fungal spores are not just easily windblown. They’re very sticky and sometimes sweet smelling, which can attract insects and other things and the spores will hitch a ride,” she said. “They’re in sawdust, which is easily spread around by the wind or it gets into the soil and water movement will take it.”

And the fungus also appears capable of surviving across the same landscape conditions as the ‘Ohi’a, killing trees at the highest elevations as well as in the drier areas of the island. The results of a 2015

aerial survey project, a collaboration of the DLNR and the Hawaii Department of Agriculture (HDOA), USDA, the University of Hawai’i, Hawai’i Invasive Species Committee, National Park Service, Agricultural Research Services, and the Nature Conservancy, reveal just how quickly the disease is moving across the landscape: The 15,000 infected acres infected in 2014 had grown to over 30,000 acres.

“And it’s also showing up in different locations, which means it’s getting moved around the island somehow,” Case said.

Research and Outreach

To address the disease, Case said that a taskforce of state and federal agencies is taking a two-pronged approach of research and outreach. For outreach efforts, there is a Rapid ‘Ohi’a Death web site (rapidohiadeath.org), which provides a timeline of the outbreak, tips on how to prevent the spread—such as cleaning equipment and vehicle when leaving an infected area—and contact information for Hughes, Keith, and Friday if the public has questions or wants to report an infected tree. Friday said that landowners are cooperating and want to contribute samples.

“I’m really thankful for such a collaboration that we have here,” Keith said, and Flint added that the response to this dis-



The visual symptoms of the Rapid ‘Ohi’a Death disease are a yellowing crown or browning leaves on single branches. All age classes of trees are affected by the fungal disease. Photo courtesy of J.B. Friday.

THREAT

■ From Page 16

ease “is truly a cooperative, collaborative effort that involves everybody from the local aid to the congressional delegation. Everybody has been pulling together to do what they can because everyone understands what an important problem this is.”

It’s likely that people are responsible for the spread of the fungus to southern and western portions of Hawai’i Island, outside of the core infected area, Hughes said.

“We don’t know for sure, but we’re attributing [these infection areas] to people moving contaminated material, whether their vehicles or equipment and contaminated wood.”

Feral ungulates also are suspected vectors for moving the fungus.

“One area where we’re seeing a new outbreak is quite high [in elevation] and we have a lot of feral cattle moving around; they’re wounding trees. Wounds are an excellent way for the fungus to get into a tree, and we’re seeing a lot of disease in that area,” Hughes said.

To halt the spread of the disease to other islands, the HDOA instituted a quarantine that prohibits the “interisland

ment for quite some time before we’re understanding that it’s there,” Hughes said. “Coupled with that, if we’re thinking about these localized populations, many more trees could be infected before we know that it’s there. So that’s a challenge for us in terms of containing the disease.”

Drawing upon his success in mapping drought stress in California’s forests using Carnegie Airborne Observatory (CAO) imagery (cao.carnegiescience.edu), Greg Asner, CAO principal investigator, is lending his expertise to see whether water stress could reveal infected trees before they become symptomatic. “He’s learned a lot from that work in California and he wants to translate it back to Hawai’i and use those tools to help us with this disease,” Hughes said.

Ecosystem Impacts

What also makes Rapid ‘Ohi’a Death devastating is its long-term impact upon the ecosystem.

“One of the things that is sadly happening in our lower elevation native forests, which are under such an onslaught of invasive species, is that when a disease takes out the ‘Ohi’a canopy, essentially it’s a stand-replacing event, when the stand will be replaced with invasive species,”

It’s as if we lost all the oaks in Massachusetts, all the pine trees in Georgia, or all the Douglas-fir in Oregon.

movement of ‘Ohi’a plant and plant parts without inspection and a permit.”

“The HDOA has really been on top of this and in the forefront of creating a quarantine of ‘Ohi’a products moving from Hawai’i Island to other islands... but it’s really hard to contain the spread on Hawai’i Island itself,” Case said.

Unfortunately, preventing the spread of the disease can’t currently be solved by identifying infected trees and removing them. Keith said that although the infected trees die fairly quickly, once visible symptoms are observed, the tree may be colonized by the fungus for up to five years before it becomes visually symptomatic.

“The disease can be in the environ-

Friday said. “In the higher-elevation, more pristine areas, we just don’t know what’s going to happen there.” And stand-replacing events are even more likely because the fungus is capable of surviving in the soil for up to a year. “In the more heavily hit areas, we’re not seeing seedlings come up at all,” Keith said.

Researchers are optimistic that there will be some resistance to the fungus, which offers hope for future reforestation efforts.

“Given how widely ranging the tree is, we are hopeful in that within that innate variation we will see variation in regards to resistance,” Hughes said. “Because of the wide, ecological radiation of the species, we may be more likely to find resistance in this species than other species that may have a more homogenous distribution.”

Reforestation efforts will likely draw upon the seeds that are being collected through a seed-collection project started by Dr. Marian Chau, seed conservation laboratory manager at the University of Hawai’i at Manoa’s Lyon Arboretum. She realized that with all the focus on identifying and treating the disease, collecting seeds for future reforestation was being overlooked—and even given ‘Ohi’a’s cultural significance, prior to the disease outbreak, there had been limited collection and banking of its seeds.

In conjunction with the Friends of Lyon Arboretum and the University of Hawai’i Office of Communications, Chau started the #OhiaLove Campaign (ohialove.com), a crowdfunding project to raise money for the cost of trips to collect and prepare the seeds for storage. “We’re



One sign of the Rapid ‘Ohi’a Death disease is black streaking in the sapwood of affected trees. The fresh-cut wood also had a strong fruity odor. For more information see www.ohiawilt.org. Photo courtesy of J.B. Friday.

setting our goal at \$35,000, at least initially, because we think that will give us the funding to do a really comprehensive job on getting this project off to a good start, with one several-day long collection trip to Hawai’i Island, collections on O’ahu, as well as the time and supplies to process the seeds and prepare them for storage,” Chau explained.

The campaign launched on February 7 and raised more than \$24,000 by the middle of the month. Chau said that she and coworker, Tim Kroessig, will visit Hawai’i Island to make targeted collections, “both from trees and populations that are at risk, and we do have some varieties that

are limited to just certain islands, including Hawai’i Island”—one of which is a variety that is currently being infected by the fungus.

“I think everyone is upset about it. It’s scary that we could actually lose a huge amount of our trees,” Chau said. “But I think it will bring awareness to not only ‘Ohi’a but also to conservation in Hawai’i, and even all the work that people are doing to combat Rapid ‘Ohi’a Death and our seed storage efforts. Hopefully something good will come out of it.” **FS**

Andrea Watts is the associate editor of The Forestry Source.



A researcher’s boots are disinfected to prevent the spread of the *Ceratocystis fimbriata* fungus, the cause of Rapid ‘Ohi’a Death. Photo courtesy of J.B. Friday.

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USF&WS Releases Northern Long-eared Bat 4(d) Rule

By Danielle Watson

On January 14, 2016, the US Fish & Wildlife Service (FWS) released the much-anticipated final 4(d) rule for the northern long-eared bat (NLEB). Thanks to hard work by FWS staff and information from SAF, its members, and other forestry organizations, this final rule better recognizes that white-nose syndrome is the overwhelming threat, highlights the potential benefits of forest management activities including prescribed fire, and seeks to implement more focused protections than previous iterations of the rule. The final 4(d) rule went into effect February 16, 2016.

A 4(d) rule lets the FWS define protections for species listed as threatened Endangered Species Act (ESA), but not as endangered, and to focus on those protections deemed “necessary or advisable to conserve the species.”

SAF began work on this issue in October 2013, when the species was first considered for listing under the ESA. After multiple comment periods, extensions, and hundreds of thousands of comments from organizations, institutions, companies, and individuals, the FWS listed the NLEB as a threatened species under the ESA in April 2015 and established an interim 4(d) rule. Through this interim rule, the FWS tried not to unduly restrict forest management activities while still protecting the bats during critical stages throughout the year. Although attempting to strike a difficult balance, SAF and others felt that language in the interim rule could be improved to better reflect that forest management is vital to the conservation and recovery of the NLEB and other forest-dependent species.

SAF is pleased to see that the final rule has streamlined, changed, or even removed several provisions that were concerning to SAF and the broader forestry community. Below are a few of the positive developments in the final rule:

- The prohibition against cutting around known maternity roost trees during the pup season (June 1 to July 31) has been reduced from a quarter-mile radius to a 150-foot radius.
- The language about avoiding clearcuts and other similar harvest methods (e.g., seed tree, shelterwood, and coppice) around known roost trees has been removed. In its explanation, FWS mentions the potential negative impacts of these practices, but highlights research showing that the NLEB lives in a wide variety of forest types across its range. In addition, the conservation measures within the 4(d) rule still protect against these practices when and where the bats are most vulnerable—at hibernation sites and during the pup season.
- The provision stating that “the conversion of mature hardwood, or mixed, forest into intensely managed monoculture pine plantation stands, or non-forested landscape, is not exempted” has been removed. Again, FWS still discusses conversion issues, but it reiterates that habitat is not a limiting factor for the NLEB, and that the small amount of conversion likely to occur will not limit the conservation of the species.
- The final rule more clearly articulates how private landowners and land managers can meet due diligence requirements through reasonable efforts to determine whether there are maternity roost trees or hibernacula on their property or project area. FWS also emphasizes that landowners are not required to conduct surveys on their lands if no data is available, and that documentation is the key to compliance.
- The FWS clarified that short-term sites are not considered hibernacula nor are sites that are no longer suitable as hibernacula.
- The FWS added specific language emphasizing the importance of forest management and prescribed fire to the NLEB and forest ecosystems broadly. In particular, FWS highlighted research which demonstrated that bats can often be found in intensely managed

forests, and that forest management (including prescribed fire) has the ability to maintain or even increase suitable roosting and foraging habitat for bats and prey availability.

The final rule still presents a few concerns, specifically related to implementation across FWS offices and public access to species and habitat data. Implementation of the interim rule suffered from inconsistencies in communications and expectations across the various FWS offices. Although the final rule should clarify some of these issues and lead to more consistent application, landowners and land managers must still rely heavily on state Natural Heritage Inventory databases. The quality and availability of this data varies widely by state. While some are readily accessible online, others necessitate submission of a data request and may require payment. In other cases, access to the data may be strictly limited in an attempt to protect the bats. Considering these limitations, this process has the potential to become quite cumbersome, time-consuming, and confusing as landowners and managers try to complete their due diligence and determine reasonable steps in identifying maternity roost trees and hibernacula.

Although scientists are working hard on solutions, white-nose syndrome continues to spread and to affect bat populations. If populations continue to decline, FWS may be forced to consider upgrading the

listing to endangered, which would void all 4(d) exemptions. In addition, the Center for Biological Diversity and three other groups have officially filed a Notice of Intent to sue FWS and the US Department of the Interior, contending that the 4(d) rule is unlawful for a number of reasons, including that the NLEB should have been listed as endangered instead of threatened, and that the 4(d) rule was not “necessary and advisable” for the conservation of the species as required under the ESA.

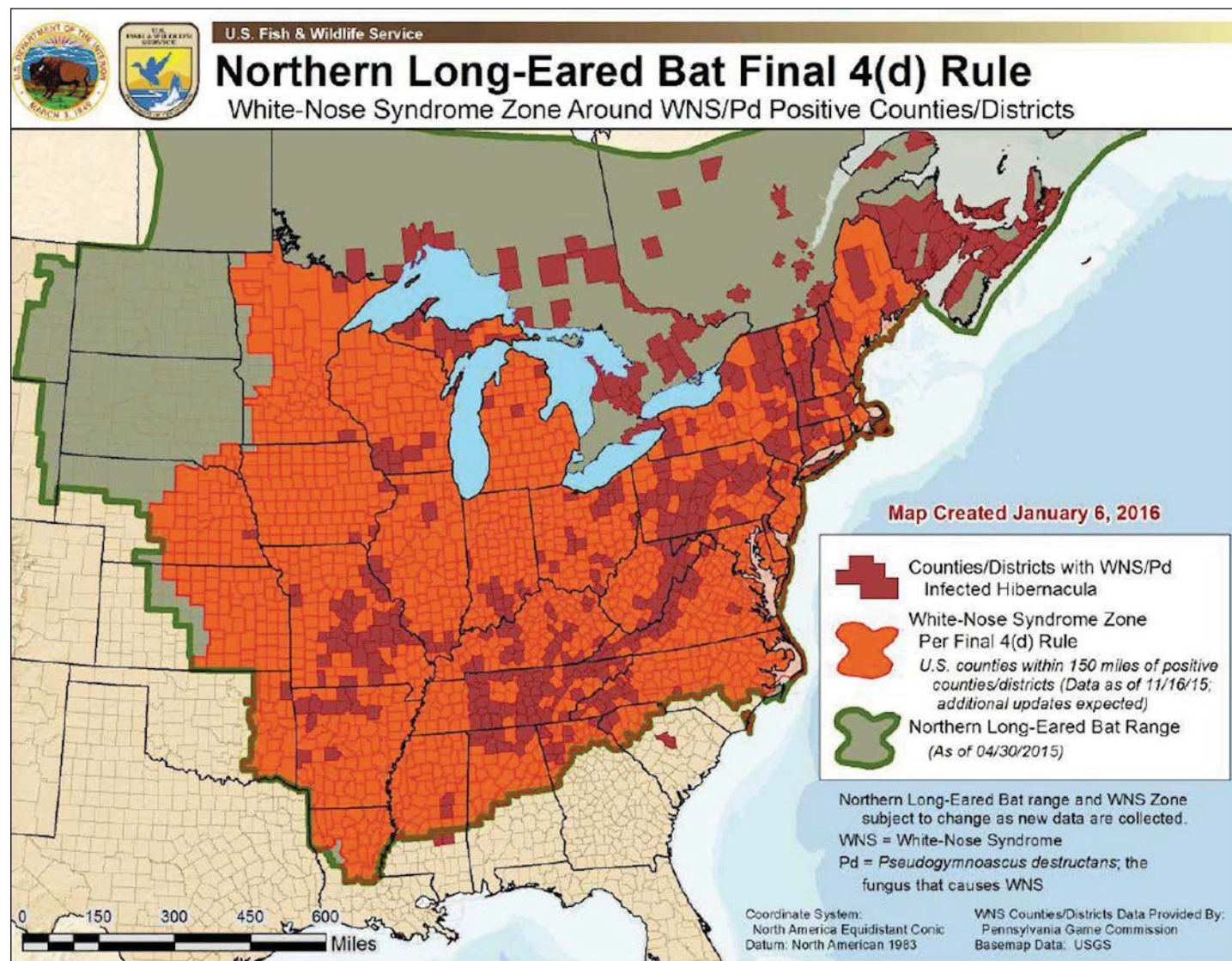
The SAF government affairs and external relations team will continue to monitor the status of the NLEB and this lawsuit. In the meantime, please contact me with any questions and let us know what issues you come across as you try to work within these new restrictions.

To see the full text of the final 4(d) rule and access further information, visit the FWS website at <http://www.fws.gov/midwest/nlebl/>. **FS**

Danielle Watson is assistant director, SAF government affairs and external relations. watsond@safnet.org.

New Address, Same Place

SAF's national headquarters hasn't moved, but it has new address: 10100 Laureate Way, Bethesda, MD 20814. All other contact information remains the same.



SAF Offers United Kingdom Forestry Tour

If you're interested in attending SAF's United Kingdom Forestry Tour, June 19-25, 2016, time is short: you have until March 15 to sign up. The tour is scheduled to visit the Duchy of Cornwall's Hereford Estate Woodland, the National Memorial Arboretum, and Scotland's Glentress Forest, as well as Oxford University for discussions with the forestry faculty. Tour-goers also will visit Edinburgh Castle, the Palace of Holyroodhouse (Holyrood Palace), Britain's Holy Mile, Buckingham Palace, the Tower of London, and the Houses of Parliament. The advertisement on this page has more information. See also www.eforester.org/calendar/uk_tour.cfm.

The tour is offered in cooperation with the Canadian Institute of Forestry /l'Institut Forestier du Canada (CIF/IFC), and managed by Anglatin, a tour organizer with a philosophy that is "fulfilled when participants travel to other regions and destinations, and interact with their counterparts. The exchange of professional ideas in information is not complete if participants don't gain a good understanding of the region, country and culture. Therefore, we arrange social gatherings with hosts and take part in cultural activities. This social interchange is also an effective forum for increasing mutual understanding and collaboration."

Anglatin, Founded in 1993, has organized and operated 106 international study tours since then, including forestry-oriented tours to Ireland, Scotland, Brazil, Austria, Slovakia, Chile, Australia, and

New Zealand.

"A common objective among the hundreds that have participated is to 'see how it is done in other places.' There is no substitute to talking directly with counterparts in other countries and to learn that labor management, finance, pests, regulations, weather, etc., are in many ways the same challenges as at home," said Anglatin tour guide Fred Smith, who grew up on a tree farm in New York and was a forestland owner in Oregon.

According to the UK Statistics Authority, the area of woodland in the UK in 2015 was estimated to be 3.15 million hectares, or about 13 percent of the total land area in the UK (10 percent of England, and 18 percent of Scotland). About 0.87 million hectares is owned or managed by the UK Forestry Commission; the remainder is privately owned. Conifers account for about half of the UK woodland area, although this proportion varies from about one quarter in England to three quarters in Scotland. Ten thousand hectares of new woodland were planted in the UK in 2014-15, mostly with broadleaved species; 18,000 hectares of were restocked, primarily with conifers.

SAF offered a forestry tour to Germany in 2014 (see "Life, Love, and Forestry: Travels in Germany as a Tribute to Carl Alwin Schenck," *The Forestry Source*, October 2014). Schenck was a German forester who came to the US and opened the nation's first school of forestry, the Biltmore School, in 1898. **FS**



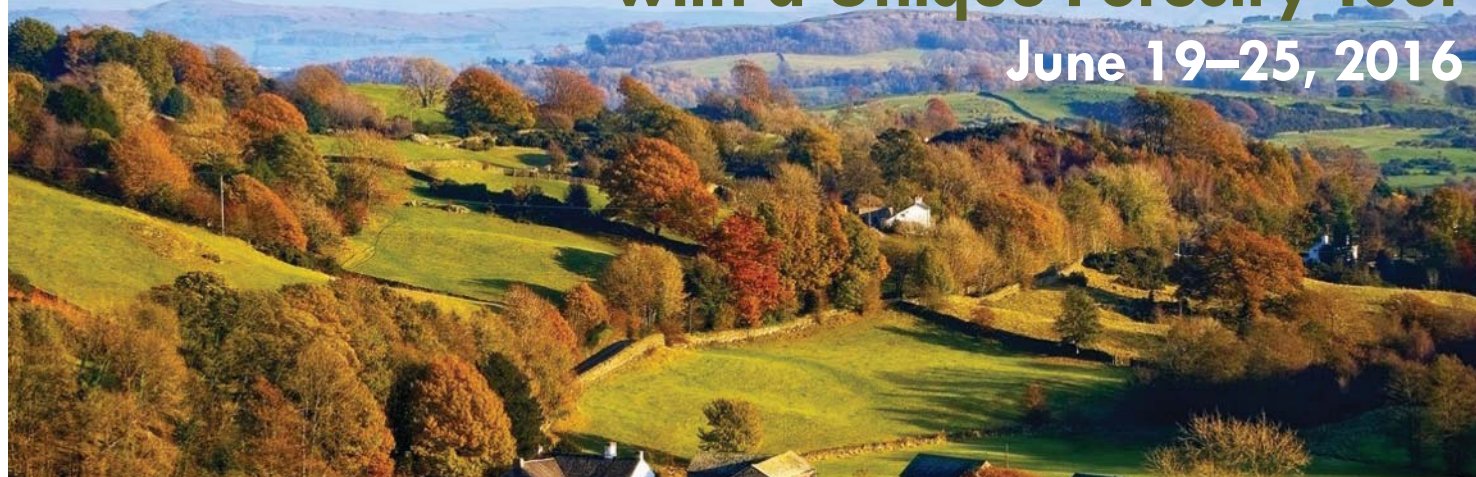
The UK Armed Forces Memorial, located on the grounds of the National Memorial Arboretum, honors those members of the UK's military services who were killed on duty. The Memorial comprises a stone structure 43 meters in diameter with two curved walls and two straight walls containing the names of those honored. Photo: Harriet Mountford, Tala PR, www.talapr.co.uk.



A previous forestry tour in the UK visited this small lumber mill. Photo courtesy of Fred Smith. Anglatin.

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Limited Seating. USD \$2,850. Double occupancy per person.

Register before March 15 at www.eforester.org/calendar/uk_tour.cfm

Specific sites and services shown in this itinerary are subject to change. Alternative sites or services will be similar.

Tour includes:

- Six nights accommodation in tourist superior class hotels
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- Two group lunches
- Seven group breakfasts
- Eleven technical site visits and activities
- Five tourist activities
- All land transportation
- Sightseeing guides
- Technical guide
- Travel and briefing book



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leadership newsletter that describes and discusses the major activities ongoing within SAF. Patricia Adadevoh and other staff members have worked hard to provide useful information to State Society and Chapter leaders online. This includes roles, responsibilities, and duties of various positions as well as a set of tools and techniques for conducting meetings and developing programs.

The Board of Directors and staff are also engaged in a continuing discussion about regionalization. This included a major discussion at the May 2015 board meeting, where several SAF Regional Office managers met in person and by phone to discuss their activities and share what is working for them. They agreed to share information that others valued from region to region. The discussion on regionalization is expected to continue in the years ahead.

The SAF Board has been involved with assisting SAF Communications Director Jeff Ghannam in a new “Evolving Forestry” communications strategy that was launched at the convention in Baton Rouge. Over the next year a number of surveys, discussion groups, and workshops will be held to develop this initiative which will address the future of forest management, the forestry profession, and SAFs role in the profession.

Throughout the past year SAF's staff worked hard to improve the website and associated databases, but this effort has encountered major challenges in getting a functional, user-friendly system up and running, adding to the frustration of staff and members alike. Work continues and the current plan is to launch the new system in the spring of 2016.

Priority 2: Retaining current members and recruiting new ones, particularly younger members. Due to Membership Services Director Corey Ruple's hard work, supported by the efforts board members and our State Society colleagues, SAF membership is up more than three percent for 2015. Corey held a number of webinars and phone calls to provide training and support to our volunteer leaders, which has helped with recruitment. While there is clearly more work to do, we are seeing these positive efforts bear fruit. Each of us needs to continue to encourage and invite non-member colleagues to help grow SAF and be part of this great organization.

Priority 3: Continuing our strong policy, education, and science programs. These three programs areas are at the core of SAFs strength, and each one has seen major work and positive results in 2015.

The National Policy Committee, chaired by Dr. Dennis Becker, along with John Barnwell and Danielle Watson, SAFs Government and External Affairs staffers, had another excellent year of developing key position statements, providing written comments of priority federal legislation, including the long-eared bat and wildland fire funding, and helping organize a number of meetings with Congressional staffers and SAF officers. SAF staff also helped

organize and conduct effective field trips for both Congressional and state legislators. Additionally, SAF Vice-president Clark Seely provided oral testimony at a Congressional hearing on the 2016 federal budget for natural resource agencies.

SAFs accreditation program is a major workload, all led by Dr. Carol Redelsheimer, SAFs excellent Director of Science and Education. SAF accredits 72 college and university programs in forestry, including 48 four-year programs and 24 two-year technical programs. In 2015 the Accreditation Committee conducted site reviews at 12 institutions. Several national committees help Carol oversee and provide direction for these key programs.

The Forest Science and Technology Board, co-chaired by Dr. Randy Morin and Katie Manende, also had a major year of work. They helped recruit and review more than 300 abstracts for the 2015 National Convention technical sessions, as well as select the national science awards for SAF. And they help coordinate the activities of the SAF working groups. They also helped Carol develop the “Boots on the Ground” track for the convention technical sessions. And in the area of science communications, both the *Journal of Forestry* and *Forest Science* have included articles during 2015 on “why science matters.” This work is expected to grow into related journal articles in the coming year.

Priority 4: Growing relationships and partnerships with allied professional societies and related organizations. SAF officers, staff and board members have been meeting with a number of these organizations throughout the past year to share information and develop opportunities to work more closely with one another on key issues and activities. Several of these groups have participated in SAF board meetings, and SAF officers and staff have attended board meetings of other professional societies. Two professional societies attended the December 2015 Board meeting: the Canadian Institute of Forestry (CIF) and the Society for Range Management (SRM). We also participated in meetings with state and federal agency executives, working to encourage agency leaders to support active participation of their employees in professional societies. More work is planned in the coming year.

I believe that inviting colleagues from other organizations within the profession and other professional societies has helped make us more aware of the opportunities we have to build relationships and add strength to some of our overlapping policy issues, as well as journal articles, joint meetings and other activities.

Priority 5: Generating new sources of revenue to expand SAFs financial health and stability. The SAF staff, led by CEO Matt Menashes and CFO Jorge Esquerro, has provided excellent support to the Finance Committee, chaired by Greg Hoss, SAF Secretary-Treasurer. This group developed the 2015 budget and effectively managed the current year budget. In addition they prepared the 2016 budget for approval at the December 2015 board meeting. Additionally, they track SAF's investment portfolio and provide needed guidance to the portfolio manager. They also oversee the work of the Revenue



2015 SAF President Bob Alverts was interviewed by reporters from several Baton Rouge, Louisiana, television stations at the start of SAF's National Convention there last year. Photo by Steve Wilent.

Development Sub-committee, which is working on possible new revenue sources for SAF.

SAFs Audit Committee, chaired by Judd Edeburn, effectively provides oversight of the annual audit that is required of our books.

The SAF Founders Circle pledges have reached the \$200,000 level after three years of work, thanks to the generous donations from SAF members and friends of SAF. SAF has also received several major gifts in the past year from several sources, including the estates of deceased members and officers.

SAF staff, under direction of Christopher Whited, Director of membership and Marketing, continues to work hard on additional new sources of revenue.

Priority 6: Continuing to examine SAFs governance structure and developing a new SAF Board Policy and Governance manual. Thanks to the excellent preparation and leadership of SAF Vice-president Clark Seely, and SAF Chief of Staff Louise Murgia, the Board of Directors in its May 2015 meeting approved and adopted the new Board Policy Manual (BPM), which not only provides key direction and guidelines to the board and staff, but it should also help SAF be more efficient and effective in future governance work. A companion document, the Board Reference Book (BRB) is currently in final stages of preparation. Together, these documents capture all the information and components of SAFs former constitution and bylaws, while providing new direction for our future.

The board Governance Committee will continue to provide oversight in the coming year.

Priority 7: Preparing for and delivering a strong national convention in Baton Rouge. Thanks to our Louisiana SAF colleagues, the SAF national convention committee, and the tireless work of SAF staff and volunteers the 2015 SAF national convention was an outstanding event. Several participants commented it was one of the best in recent years. About

1,500 participants were active all week in the complex set of meetings, field trips, and related activities.

Congratulations to all those who worked to make the 2015 so successful!

Priority 8: Identifying and preparing future SAF leaders. We want to play the rookies!

A number of successful regional leadership workshops were held across the nation in the past year. We are working on ways to share the successful examples with other units who want to hold leadership workshops in their areas. While we continue to encourage young members to play an active role in SAF, there is much more work needed to get our young professionals engaged in SAF work. Dr. Kurt Gottshalk, in his March 2015 essay in *The Forestry Source*, spoke to the importance of finding a job for young professionals in SAF and helping them and SAF to “grow the pie.”

Following up on Student Rep. Sam Delano's vision of a new mentoring program for SAF, board member Jim Thinnies is working with Matt and other colleagues to develop tools on mentoring that will be distributed to SAF leaders at all levels in the coming year. We have also appreciated the active participation of Sam Delano and Cheyenne Adamonis, SAF Student Congress Representatives to the board, and discussions of ways to engage students and new graduates in SAF activities.

My year as your SAF President was rich and fulfilling. I will miss outgoing Immediate Past-president Dave Walters, as well as District 3 Board Rep. Jay Lopez, District 6 Rep Andy Hayes, and District 9 Rep Greg Hoss this next year. I am excited about supporting Clark Seely's upcoming year as SAF President, and I welcome Dr. Fred Cubbage, our new vice-president, and new Board Reps. Rick Standiford (District 3), Si Balch (District 6), and Lee Crocker (District 9), as well as Tara King, the new HSD chair. Thanks for all you helped do to make my job fun and working together to help “grow the pie” for SAF in 2015. **ES**



Joey Reuteman

Explore the rich history of forestry, land stewardship, and the connections uniting all who create, manage, use, and conserve forests. Journey to the majestic Wisconsin landscape where forests have inspired generations of foresters and influenced the cultures, traditions, and economies of the region. Madison will welcome you to a robust Midwestern forestry community offering a rich history, a legacy of pioneering forestry environmentalism, and an active contemporary forestry industry.



Sessions will include:

- Biomass, Carbon, & Bioenergy
- Economics
- Education & Communication
- Entomology & Pathology
- Fire & Fuels Management
- Forest Threats
- Remote Sensing Applications
- Harvesting & Utilization
- History
- Measurements
- Policy
- Recreation
- Silviculture & Forest Ecology
- Social Sciences
- Soils & Hydrology
- Urban & Community Forestry
- Wildlife Management

Thought-Shifting Experiences for Inspiring Innovation and Achieving Results

Engage in a program crafted for you. Tools, tips, technology, and training in a collaborative environment filled with people leading the future of forest management.

The Legacy — Consider the challenges and successes by learning from the past and each other. From the policies to scientific discoveries, we will focus how the rich legacy of forestry continues to shape contemporary applications.

The Land — Investigate how global factors impact forests during a time of unprecedented change. Discover how cultural influences generate innovative solutions for land management challenges.

The Future — Encourage your innovative thinking with insights for adjusting forest management. See how this vibrant, relevant profession affects forest management using new technologies or collaborative research and practice across disciplines.

Boots on the Ground — Get on-the-ground lessons for advancing your practice and the conservation of forest resources. Learn about case studies, tips, and research designed to help forest managers achieve diverse forest management and restoration objectives.

Diversity in Natural Resources Research, Practice, and Education — Celebrate the accomplishments of women, people of color, and disciplines enriching our profession. Recognize the barriers and benefits of diversity in natural resource science and management and learn how to create an inclusive community.



Madison, Wisconsin
November 2-6, 2016

See full event details at www.safconvention.org

CONTINUING EDUCATION CALENDAR

More Events at www.eforester.org/calendar/index.cfm

These are the continuing education events in the United States for **March** and **April 2016**. SAF Continuing Forestry Education credits are available at all events. For details on these events and others in Canada and Mexico, visit the Continuing Education Calendar at www.eforester.org/calendar/index.cfm.

CALIFORNIA

3/28–31/2016, Forest Vegetation Simulator Training

FLORIDA

3/9–11/2016: 2016 Florida Exotic Pest Plant Council Conference
3/16–17/2016: FRA Southeastern Region Spring Meeting & Field Tour

GEORGIA

3/7–8/2016: Introduction to ArcGIS
3/8/2016: Map Making: The Basics
3/9/2016: Aerial Photogrammetry Refresher
3/9/2016: Online Mapping Services for Foresters
3/10/2016: GPS for Beginners
3/10/2016: Pest Manager Training/Recertification training
3/15/2016: Log Truck Regulations for Georgia Companies
3/29/2016: Applied Forest Finance
3/30–31/2016: Arborist Certification Review Class

IDAHO

3/1/2016: Inland Empire Reforestation Council Annual Meeting
3/2/2016: IETIC: Advances in Tree Improvement
3/28–29/2016: Family Forest Landowners & Managers Conference & Exposition
3/29/2016: Intermountain Forestry Cooperative Meeting
4/9/2016: Forestland Grazing
4/14/2016: Growing Forest Mushrooms
4/16/2016: Forest Edibles
4/15/2016: Non-Timber Forest Products

INDIANA

3/1–3/2016: Crane Hardwood Workshop
3/1–2/2016: Indiana Species on the Edge
4/1–3/2016: Challenges to Ecological Restoration in the 21st Century

KENTUCKY

3/3/2016: Bats & Forest Management in a Changing Environment

LOUISIANA

3/3/2016: 2016 Ark-La-Tex Forestry Forum
3/11/2016: Florida Parishes Forestry Forum
4/26–27/2016: 2016 Western Gulf Forest inSight Conference

MAINE

3/4/2016: Invasive Forest Pest Workshop
3/14/2016: NERCFE - Bats, Bugs & Things in the Forest
3/15/2016: NERCFE - Silviculture & Markets for Forest Products

3/17/2016: Invasive Forest Pest Workshop
3/23/2016: Invasive Forest Pest Workshop
3/24/2016: Forest Health Issues in Maine
3/31/2016: Forestry Night
4/2/2016: Invasive Forest Pest Workshop
4/6/2016: Invasive Forest Pest Workshop
4/19/2016: Invasive Forest Pest Workshop

MASSACHUSETTS

3/2/2016: Principles and Fundamentals of Weed Science
3/3/2016: Introduction to Prescribed Fire
3/8/2016: Community Tree Conference: Work Safe, Stay Safe
3/9/2016: New England SAF Winter Meeting (Day 1)
3/10/2016: New England SAF Winter Meeting (Day 2)
3/11/2016: New England SAF Winter Meeting (Day 3)
3/15/2016: State Regulations Pertaining to Invasive Plant Management
3/22/2016: The Invasive Plan Issue and Invasive Plant Identification
3/31/2016: Spring Kickoff: Sustainable Landscapes Management
4/9/2016: Mass Forest Alliance Annual Meeting
4/13/2016: Developing an Invasive Plant Management Plan
4/23/2016: Willows
4/25/2016: Scouting for Landscape Pests and Problems

MICHIGAN

3/14/2016: Private Forest Land Workshop
3/15/2016: Private Forest Land Workshop
3/16/2016: Private Forest Land Workshop
3/29/2016: Private Forest Land Workshop
3/30/2016: Private Forest Land Workshop
3/31/2016: Private Forest Land Workshop
4/13/2016: Technical Service Provider Workshop: NRCS Practices for the Forested Landowner

MISSISSIPPI

3/16/2016: 2016 Manufacturing Summit

MISSOURI

3/8–10/2016: Missouri Community Forestry Council
3/15/2016: Insect and Disease Update Webinar
3/22/2016: Tree Health Update Seminar
4/1–2/2016: Missouri Chapter of the Walnut Council Spring Meeting

MONTANA

3/15/2016: 2016 Montana Economic Outlook Seminar

3/16/2016: 2016 Montana Economic Outlook Seminar

NEVADA

3/5–10/2016: Wildland Urban Interface Conference

NEW HAMPSHIRE

3/1/2016: The Emerald Ash Borer
3/1/2016: Understanding Bobcats in the Granite State
3/1/2016: Winter Wildlife Tracking Workshop
3/3/2016: Winter Wildlife Tracking Workshop
3/15/2016: The Scoop on Ticks & Tick Borne Diseases
3/22/2016: Bats in New Hampshire
3/28/2016: Logger and Forester First Aid, CPR and AED
3/29/2016: Logger and Forester First Aid, CPR and AED
3/29/2016: What's Bugging New Hampshire's Moose
3/30/2016: Logger and Forester First Aid, CPR and AED
3/31/2016: Logger and Forester First Aid, CPR and AED
4/4/2016: Logger and Forester First Aid, CPR and AED
4/5/2016: Logger and Forester First Aid, CPR and AED
4/6/2016: Logger and Forester First Aid, CPR and AED
4/23/2016: Northern Red Oak Management
4/30/2016: Extreme BMP; Late Winter Closeout

NEW YORK

3/15–16/2016: RISI Forest Investment Conference
4/8/2016: Production Technology in Logging
4/16/2016: Production Technology in Logging

NORTH CAROLINA

3/1/2016: Urban Forestry
3/1/2016: Farm & Forest Transition Planning
3/2/2016: Farm & Forest Transition Planning
3/3/2016: Farm & Forest Transition Planning
3/22/2016: NC ProLogger Mod 16
3/30/2016: NC Urban Wood Group Workshop
4/12/2016: NC ProLogger Mod 16
4/14/2016: NC ProLogger Mod 16

OHIO

3/2/2016: 2016 Ohio Woodland, Water & Wildlife Conference
3/9–10/2016: 2016 Ohio Forestry Association Annual Meeting
3/16/2016: Introduction to QGIS

OREGON

3/1–2/2016: Changing Dynamics of Asia-Pacific Wood Trade
3/3/2016: Starker Lecture Series-Lecture & Field Trip
3/3/2016: 2016 Starker Lecture Series #2
3/8–9/2016: Fire ecology & fuels management in riparian areas of the Klamath-Siskiyou
3/8/2016: Umpqua Chapter Meeting
3/9/2016: Fish Passage & Habitat Workshop
3/9/2016: Oregon Forest Pest Detector Training
3/10/2016: Oregon Forest Pest Detector Training
3/10–11/2016: US Forest Carbon Projects
3/14/2016: Tillamook-Clatsop Chapter Meeting
3/15–16/2016: Six Skills for Career Development and Profitable Business Management in Forestry and Natural Resources
3/31–4/1/2016: Pacific Northwest Timberlands Management
4/4–8/2016: Variable Probability Sampling
4/7/2016: Oregon Forest Pest Detector Training
4/8/2016: Oregon Forest Pest Detector Training
4/14/2016: Oregon Forest Pest Detector Training
4/15/2016: Managing Visual Quality and Operational Considerations for Harvesting in the Doug-fir Region
4/21/2016: Oregon Forest Pest Detector Training
4/27–29/2016: 2016 OSAF Annual Meeting
4/27/2016: Easements & CCRs in Oregon

PENNSYLVANIA

3/12/2016: 19th Annual Forestry and Wildlife Conference
3/23/2016: 35th Pennsylvania Forest Health Meeting

SOUTH CAROLINA

3/1/2016: Your Land, Your Legacy
3/3/2016: Your Land, Your Legacy
3/3/2016: Trees SC Spring SCAW
3/9–10/2016: SC Chapter - The Wildlife Society
3/10/2016: Indian Creek Woodland Savanna Restoration
3/15/2016: Resurrection of the American Chestnut Tree
3/23–24/2016: Coyote Trapping and Management Workshop
4/14/2016: SC Chapter - Association of Consulting Foresters
4/30/2016: Bird-Friendly Forestry Recommendations for Bottomland Forests in the Carolinas

CALENDAR

■ From Page 22

TENNESSEE

3/19/2016: TN Healthy Hardwoods Forestry Field Day
4/23/2016: TN Healthy Hardwoods Forestry Field Day
4/30/2016: TN Healthy Hardwoods Forestry Field Day

TEXAS

4/28–29/2016: 26th Annual Outlook for Texas Land Markets

VERMONT

3/9/2016: Forest Pest First Detector Training
4/28/2016: NH Timber Harvesting Law

VIRGINIA

3/9/2016: The Risky Business of Trees: Care and Planning for a Health Future

WASHINGTON

4/6-8/2016: Intermountain Logging Conference

WEST VIRGINIA

3/24/2016: Moorefield Community Pruning Workshop
3/22/2016: 51st Annual Appalachian Vegetation Management Association Meeting
3/23/2016: 51st Annual Appalachian Vegetation Management Association Meeting
3/24/2016: 51st Annual Appalachian Vegetation Management Association Meeting
3/29/2016: State Forest Stakeholders Meeting

WISCONSIN

3/1/2016: Emerald Ash Borer Field Workshop
3/2/2016: Emerald Ash Borer Field Workshop
3/3/2016: Emerald Ash Borer Field Workshop
3/7–9/2016: MFL Certified Plan Writer Training
3/17–18/2016: 2016 Spring County Forest Administrators Meeting
4/4/2016: Wisconsin Initiative on Climate Change Impacts Forestry Roundtable
4/5/2016: Wisconsin Initiative on Climate Change Impacts Forestry Roundtable
4/6/2016: Wisconsin Initiative on Climate Change Impacts Forestry Roundtable
4/21/2016: 12th Annual Sustainable Forestry Conference

New Address, Same Place

SAF's national headquarters hasn't moved, but it has new address: 10100 Laureate Way, Bethesda, MD 20814. All other contact information remains the same.

CLASSIFIEDS

From the SAF Career Center

For the complete listing of these and other ads, visit <http://careercenter.eforester.org>

Forester

Employer: Trout Mountain Forestry
Location: Corvallis, Oregon
Job ID: 26964435
Posted: February 19, 2016
Min Education: BA/BS/Undergraduate
Min Experience: 5–7 Years

Service Forester

Employer: South Dakota Department of Agriculture; Resource Conservation and Forestry
Location: Lead, South Dakota
Job ID: 26930793
Posted: February 17, 2016
Entry Level: Yes

Assistant/Associate Professor, Deer Ecology and Management

Employer: The University of Georgia, Warnell School of Forestry & Natural Resources
Location: Athens, Georgia
Job ID: 26863531
Posted: February 12, 2016
Min Education: PhD

GIS Analyst

Employer: Resource Management Service, LLC
Location: Birmingham, Alabama
Job ID: 26822220
Posted: February 10, 2016
Min Education: BA/BS/Undergraduate

Associate Dean/Director for Research

Employer: College of Forestry, Oregon State University
Location: Corvallis, Oregon, 9733
Job ID: 26809768
Posted: February 9, 2016
Min Education: PhD

Assistant/Associate Professor of Forestry (2 Positions)

Employer: New Mexico Highlands University
Location: Las Vegas, New Mexico
Job ID: 26758632
Posted: February 3, 2016
Min Education: PhD

Assistant/Associate Professor

Employer: University of Maine at Fort Kent
Location: Fort Kent, Maine
Job ID: 26738053
Posted: February 1, 2016
Min Education: Master's Degree

Wood Procurement Forester

Employer: Decorative Panels International
Location: Alpena, Michigan
Job ID: 26677807
Posted: January 28, 2016
Min Experience: 3–5 Years
Required Travel: 50–75%

Assistant Regional Director Appalachian Region/Southern Region

Employer: The Forestland Group LLC
Location: Abingdon, Virginia
Job ID: 26650550
Posted: January 26, 2016
Min Education: BA/BS/Undergraduate
Min Experience: 5–7 Years
Required Travel: 25–50%

Consulting Forester/Forestry Technician

Employer: Bay State Forestry Service
Location: Northfield, Massachusetts
Job ID: 26946846
Posted: February 18, 2016
Min Education: BA/BS/Undergraduate

Assistant Professor in Quantitative Forest Management

Employer: School of Natural Resources, West Virginia University
Location: Morgantown, West Virginia
Job ID: 26946761
Posted: February 18, 2016
Job Type: Full-Time

Lands Regional Operations Chief

Employer: Idaho Department of Lands
Location: Boise, Idaho
Job ID: 26862545
Posted: February 12, 2016
Entry Level: No
Min Education: Associate's Degree

Forest Management Lands Resource Specialist

Employer: Idaho Department of Lands
Location: Deary, Idaho
Job ID: 26809829
Posted: February 10, 2016
Min Education: BA/BS/Undergraduate
Min Experience: 2–3 Years

Timber Management Job Opportunities & Fire Management Job Opportunities

Employer: Idaho Department of Lands
Location: Boise, Idaho
Job ID: 26822192
Posted: February 10, 2016
Job Type: Temporary

Wildlife and Forestry Technician

Employer: Michigan California Timber Company
Location: Yreka, California
Job ID: 26776350
Posted: February 8, 2016
Min Education: BA/BS/Undergraduate

Forest Economist I

Employer: Texas A&M Forest Service
Location: College Station, Texas
Job ID: 26738749
Posted: February 1, 2016
Min Education: Ph.D.
Required Travel: 10-25%

Economist

Employer: GreenWood Resources
Location: Portland, Oregon
Job ID: 26964323
Posted: February 19, 2016
Min Education: Master's Degree
Min Experience: 3–5 Years

District Forester

Employer: Colorado State Forest Service
Location: La Vita, Colorado
Job ID: 26947168
Posted: February 18, 2016
Min Education: BA/BS/Undergraduate
Min Experience: 5–7 Years

District Forester

Employer: Colorado State Forest Service
Location: Grand Junction, Colorado
Job ID: 26947154
Posted: February 18, 2016
Min Experience: 5–7 Years

Forest Practices Operations Specialist—NRS3

Employer: Department of Natural Resources
Location: Olympia, Washington
Job ID: 26946863
Posted: February 18, 2016
Job Type: Full-Time

Timber Management/Fire Management Jobs

Employer: Idaho Department of Lands
Location: Boise, Idaho
Job ID: 26822192
Posted: February 10, 2016
Job Type: Temporary

Graduate Research Assistantship in Forest Resource Economics and Management

Employer: Mississippi State University
Location: Mississippi State, Mississippi
Job ID: 26125296
Posted: February 5, 2016
Job Duration: 1–2 Years
Min Education: BA/BS/Undergraduate
Min Experience: 0–1 Year

Forest Economist I

Employer: Texas A&M Forest Service
Location: College Station, Texas
Job ID: 26738749
Posted: February 1, 2016
Min Education: PhD
Required Travel: 10–25%

Forest Manager

Employer: Mendocino Redwood Company
Location: Fort Bragg, California
Job ID: 26650292
Posted: January 26, 2016
Min Education: BA/BS/Undergraduate
Min Experience: 3–5 Years
Required Travel: 25–50%

Where Do I Send It?

Employment Ads

All job announcements in the Classifieds are drawn from the SAF Career Center web site, careercenter.eforester.org. Information about posting employment ads is available on SAF Career Center web site. Space is limited. Publication of employment ads in *The Forestry Source* may be subject to posting date limits.

News Briefs: Public Supports Federal Land Management

A bipartisan poll of 28,000 registered voters in seven Western states (AZ, CO, MT, NV, NM, UT, and WY) reveals agreement for policies related to the management of public lands and support for safeguarding the environment when drilling and mining is allowed. For the past six years, the Colorado College Conservation in the West survey has polled voters to assess their views on “on key public lands issues affecting the region, including proposals to designate new national monuments in the West, establish new environmental and safety standards for oil and gas drilling, and prioritize renewable energy production on public lands.”

Across all the states, voters opposed transferring control of national public lands to state government. However, the level of opposition varied by state. In Utah, 47 percent of voters were opposed, compared to 65 percent in Arizona, which also reported the highest number of voters opposed to a transfer.

“Charges of government overreach from the ideological fringes are making headlines, but in reality most Westerners in this poll favor greater protection and sensible use of the open lands and national treasures that define the region,” said Eric Perramond, professor in the Southwest Studies and Environmental Programs at Colorado College, and the Faculty Director of the State of the Rockies Project.

For more about the survey, see tinyurl.com/z4gza7c.

California “Good Neighbor” Agreement
California is the latest state to sign a Good Neighbor Authority master agreement with the US Forest Service. This means that work undertaken by entities within the California Natural Resources Agency can complement US Forest Service restoration work. The agreement is good for 10 years.

“Having this agreement in place will enhance our collaboration with the Forest Service to restore habitat, sequester carbon, and improve the ability of California’s forests to cope with climate change,” said John Laird, California Secretary for Natural Resources. “I’m excited about the new opportunities this agreement will create for Natural Resource Agency departments including CAL FIRE, the Sierra Nevada Conservancy, and the California Conservation Corps.”

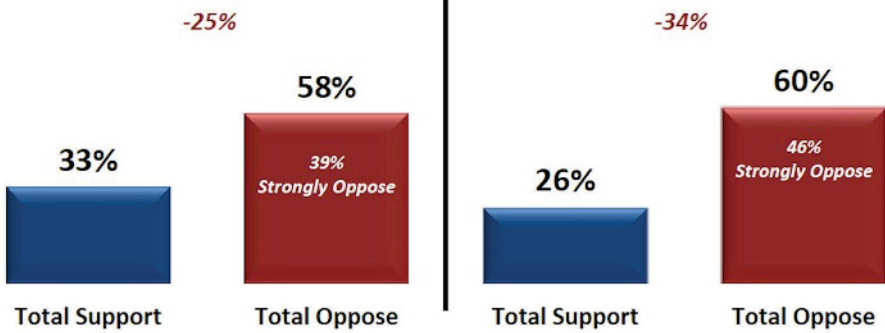
In addition to streamlining conservation work, the agreement also facilitates “protecting and restoring California’s watershed, implementing project that reduce greenhouse gas emissions and secure long-term carbon storage.”

Success of Conservation Cooperatives
Earlier this year, the National Research Council released a report reviewing the progress achieved through the five-year-old Landscape Conservation Cooperatives (LCC) program (lccnetwork.org). The US Fish & Wildlife Service is responsible for coordinating the 22 LLCs. The report found that, because there is a need for a landscape approach to conservation, the

Majorities of voters reject both the sale of significant holding of public lands and state transfers.

Giving state government control over national public lands, such as national forests, national monuments, and national wildlife refuges in its borders. The state government would decide the future management of the lands, but state taxpayers would pay all costs, including the cost of maintenance and preventing and fighting wildfires.

Sell significant holdings of public lands like national forests to reduce the budget deficit



From the Conservation in the West Poll 2016, a survey commissioned by Colorado College.

“the Department of the Interior is justified in addressing this need with the Landscape Conservation Cooperatives.”
The committee also concluded that:

- The individual LCCs have made progress toward high-level goals related to addressing conservation strategy, developing collaborative conservation, and advancing science for conservation.
- The LCC Network should improve its evaluation process to better capture the contributions made by all partner agencies or groups toward common objectives.

- Establishment of metrics at the individual and network-wide scales should become a high priority.

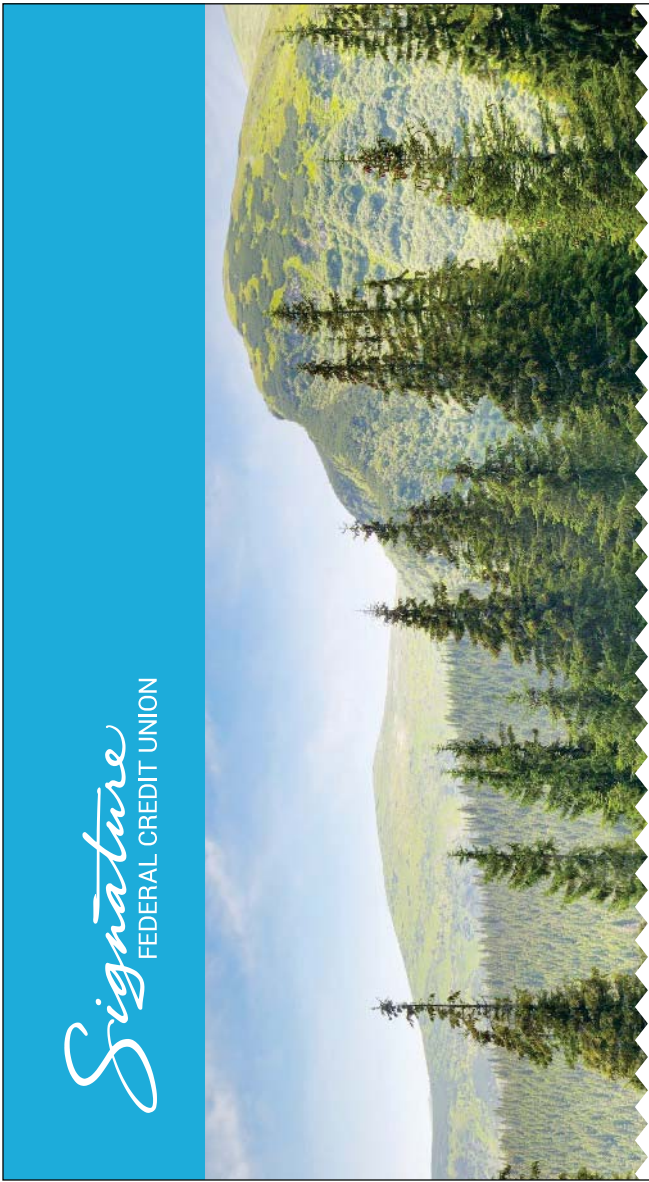
In its conclusion, the committee reported that because the program is only five years old, “it is too early to expect ‘measurable improvements in the health of fish, wildlife and their habitats.’” And while the committee provided specific recommendations for improving the LCC Network’s ability to achieve its conservation goals, it also concluded “that the LCC Network has the required elements to contribute and add value to the nation’s conservation challenge at the landscape scale.”

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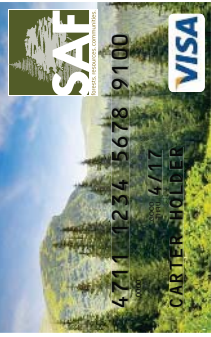
Join your SAF Credit Union

Signature FCU has partnered with the Society of American Foresters to offer its members the opportunity to join Signature FCU. Now you can benefit from lower loan rates and financial products to help meet your goals.

Some of our products include free checking accounts, student loans, a suite of low-rate and high-rewards Visa cards including the special SAF member Visa shown here (coming soon), as well as personal and business loans for

vehicles, mortgages, and home equities. Our mobile app and online account access put it all at your fingertips, complemented by a national network of ATMs and shared branches.

SAF Visa coming soon!



Experience the Signature difference. Join today at SignatureFCU.org (use code SAF2016).

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cu@mail@signaturefcu.org
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