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COVER BY YINGHAI LU

Connecting People to Forests

BY SCOTT STEEN

AT AMERICAN FORESTS we are deeply interested in the relationship between people and the natural world, particularly the positive effects of experiencing nature firsthand.

Nature sharpens our senses, improves our powers of observation and increases our sense of curiosity and wonder. Simultaneously, being in nature provides a still point in our frantic lives, reducing stress and improving our health.

Happily, even those of us who live in the biggest cities have more access to nature — and its tremendous benefits — than we might think. Some of the most exciting conversations taking place at American Forests' headquarters these days are about how we amplify the benefits of the natural elements that surround us in cities — our urban forests.

"Urban forest" is a tricky term. For many people, it brings to mind wooded areas in big parks. For the forestry community, the term encompasses the entire natural infrastructure of a city — street and yard trees, parks, grass, plants, flower and vegetable gardens, waterways and their surrounding natural buffers and more. Together, urban forests support an extensive network of wildlife and provide us with a surprising number of environmental, health and social benefits.

In a place like New York City, these benefits quickly become tangible. I am always struck by the instant transformation that occurs when you enter Central Park. Within a few seconds, the world gets quieter, the heat and glare fade in the cool shade of huge trees and people walk a little more slowly. You can hear birds singing and children laughing. People are sitting under trees reading and picnicking,

High Line, New York City

friends are playing softball and kids are eating ice cream cones. Your heart slows down, and you take a deep breath. You feel different.

Or, head downtown and climb onto the High Line. While heavily populated by tourists, this former railroad bridge turned park-in-the-sky amply demonstrates the power and appeal nature holds, particularly for city dwellers. People routinely stroll the one-and-a-half-mile linear park through gardens and groves of native perennials, grasses, shrubs and trees. There are musicians playing, garden tours, stargazing nights and nature walks exploring the High Line's animal habitat. It is an amazing park, made even more amazing by the realization that this is all taking place on what was once an abandoned, elevated freight train line.

"Nature sharpens our senses, improves our powers of observation and increases our sense of curiosity and wonder."

Central Park was an innovative marvel when it opened in 1857, elevating the quality of city life in a way that is still true today. The High Line transformed a derelict eyesore into a natural oasis, providing access to nature in the unlikeliest of places. These are examples of the enormous benefit that results when we pay as much attention to green infrastructure as gray infrastructure.

American Forests has been a champion of urban forests for nearly 40 years. In the coming year, we will take this commitment to a new level. Our new urban innovation lab will seek out creative, green infrastructure solutions from around the country with the goal of inspiring leaders and activists to use nature as a primary tool to improve urban life. We will also help design and fund demonstration projects that use nature to address urban challenges in creative ways.

We have already begun this work through our Community ReLeaf program. For example, in Washington, D.C., we are helping create a transitional farm on a three-acre vacant lot in an urban neighborhood. The farm will feature raised-bed crops, a tree nursery for local replanting, aquaponics, a natural playground, an art sculpture and mural and a marketplace.

In Detroit, as part of a broader commitment to help the city use green infrastructure as an asset to revitalization for residents, we are working with local partners to turn a vacant lot where abandoned homes were recently deconstructed in the Osborn neighborhood into an outdoor environmental classroom and park. When completed, the site will be used to provide adult- and youth-oriented classes that help the community better understand the natural environment in a city that has the potential to redefine the urban relationship to nature.

Well-managed urban forests provide all of the environmental functions of wildland forests — cleaning our air and water, cooling the environment and providing habitat for wildlife. They also provide remarkable benefits for humans — significantly reducing violence, lowering stress, improving health, diminishing flooding and raising property values, to name just a few.

While it may be more difficult to bring people to nature these days, the benefits of bringing nature to people have never been clearer. Nature is simply one of our best tools for creating healthy and livable cities.

PHOTOGRAPH BY MIKE PEEL

AMERICAN FORESTS

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American Forests' mission is to restore threatened forest ecosystems and inspire people to value and protect urban and wildland forests.

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Q&A

ASK A CONSULTING ARBORIST

Cottonwood

Splitting bark

Q: I have a very large poplar tree that must be 15 feet or more around the base. I have noticed that the bark is pulling away from the tree and there has been woodpecker activity on this bark. The tree is over 60-feet tall, and I am worried where and when it might come down.

A: The poplar tree you say is over 15 feet in circumference sounds as if it might be a tree also referred to as cottonwood. This tree can get quite large, and loose bark is not a normal condition. Cottonwood trees like lots of moisture, and when full of water, this tall tree is a lightning magnet. If you know it has been struck by lightning, or you see a long vertical crack anywhere on the trunk to suggest a lightning strike, that would signal a potential source of your present health issues. If the tree is stressed or in poor health, it attracts insects. Woodpeckers are attracted to the insects, and all of a sudden you have three contributing factors to poor health. If the tree is within striking distance of a structure or a travel way, such as a path, sidewalk or driveway, it should be inspected by a Certified Arborist. Advice for removal should be taken seriously for safety's sake. Good luck.

Answered by Consulting Arborist David A. Jahn of Des Moines, Iowa; www.davidjahnarborconsulting.com; (515) 244-0044

Sprucing up the family tree

Q: We have a 40-year-old blue spruce that is approximately 25-feet tall. The past year, some of the inner branches have turned brown, and it looks like it is dying. Do you have any suggestions as to what we could do? We live in northern California and have been suffering a drought for several years. Could this be the cause? We try to water as much as possible. Please help us save our family tree!

A: I am glad you sent in this question, as preserving your family tree and a mature specimen is important. In general, the blue spruce is well-adapted to northern California and even to drought conditions. That said, we are having a historic drought here in California, and the lack of water is affecting the health of trees everywhere. This is especially true in landscapes that were irrigated and now are not. Most plants, and many trees, in our landscapes were developed with, and are dependent on, irrigation. Maintaining sufficient water to those plants that are not easily replaced, such as mature trees, is very important.

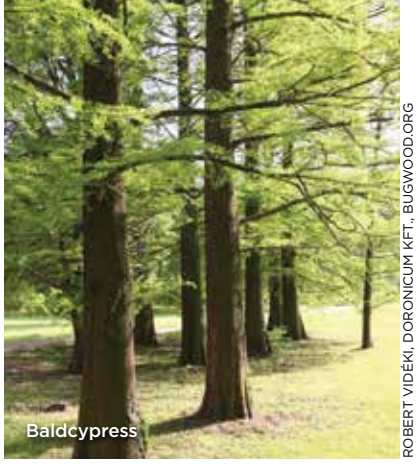
Because this is a mature tree, getting water to the roots is critical for uptake, and that means applying sufficient water to wet the top 24-36 inches of soil and allowing it to dry in between irrigations. A single deep watering is going to wet the soil profile to a greater depth than many surface irrigations. Soaker hoses placed in concentric circles out to the dripline of the tree (and beyond if possible) and allowed to run for extended periods of time will help to wet the soil to depth. Soil moisture can be checked with a shovel or soil probe. The exact length of time will depend greatly on the location, temperature and exposure.

Good luck, and I hope that this has helped you to retain this family tree.

Answered by Consulting Arborist John S. Leffingwell of Pleasanton, Calif.; (925) 484-0211

Blue spruce foliage

LEFT: MIKE PEDRONCELLI (FLICKR) VIA WIKIMEDIA COMMONS; RIGHT: PAUL WRAY, IOWA STATE UNIVERSITY, BUGWOOD.ORG



Baldcypress

ROBERT VIDÉKI, DORONICUM KFT., BUGWOOD.ORG

A soggy situation

Q: I live in Pennsylvania, and I have a very moist area in my yard approximately 30-by-50 feet. I was wondering what would be the best type of tree and how many to plant in that area to help with the moisture?

A: Wet soils are not easy to deal with. Planting trees may help, but much depends on soil conditions, such as depth to the impermeable layer, soil nutrient content and other factors. Some trees can tolerate wet soil for prolonged periods, but they may not really thrive, and they may not actually remove much of the water if it is being constantly replenished.

The first step is to figure out why the area is wet and learn if there is some way to help with drainage. If the problem was created by construction activities, like spreading and compacting subsoils over the surface, it may be possible to break up the hard layer that prevents waste from draining down into the soil, or perhaps a drainage swale, ditch or pipes can be installed.

As to planting trees, you will need to plant species that tolerate and thrive in wet conditions. The best among these is baldcypress *(Taxodium disticum)*. It is an evergreen tree that lives in swamps, often spending most of its life in standing water. It does grow well under dryer conditions, so it's all right if the yard dries up from time to time.

Answered by Consulting Arborist Russell E. Carlson of Bear, Del.; www.tree-tech.com; (302) 832-1911

FAR RIGHT: USDA FOREST SERVICE - NORTHEASTERN AREA ARCHIVE, BUGWOOD.ORG

Bradford pear flowers

Pair of pears

Q: Years ago, we had a Bradford pear that always flowered in the spring. At some point it blew over, and I cut everything down except about a foot of the stump. Sprouts of new Bradford pear trees came up, and I allowed two of them to grow into full-sized trees. Although the two trees came from the same stock, they are much different. One flowers every spring and looks like the parent tree from which it came. The other doesn't flower, its branches twist around more and in the fall this tree is loaded with lots of fruit. So what's going on here? Am I looking at male vs. female trees?

A: This is a great question. The answer is, you have two different trees. The tree you started off with was grafted. This means that when it was first started in the nursery, someone attached a stem from a Bradford pear to the root system of another type of tree, most likely a common type of pear.

When the top broke off, the Bradford pear top grew back on the right, and a portion of the rootstock came up on the left.

Answered by Consulting Arborist Matthew L. Evans of Lenexa, Kan.; www.ryanlawn.com; (913) 381-1505

ABOVE: DAN TENAGLIA, MISSOURIPLANTS.COM, BUGWOOD.ORG

Lichen or mold?

Q: I live in central Illinois. I have two hickory trees that for the past two years have developed a ring of white mold (about 1 ½ inches high from the ground) around the base of the tree. I can scrape it away but it causes the bark to peal off. The trees are about 30 years old. I have many other trees in the yard and none of the others have this problem. What should I do?

A: Your question is an important one. If the visible rings are actually lichen, these can be a welcome sign of tree health. If you are indeed recognizing mold, however, it might be deadly, not only to these trees, but also to nearby trees if spores migrate beyond the present location. There are a number of significant molds, so sight unseen it is not prudent for me to guess its identity. Try using the internet to find a mold photo that most resembles yours. This is just a starting point. You'll want to hire the most experienced Certified Arborist in your community and/or consult your County Extension Office to get to the bottom of the issue. If the signs are visible now, then now is the time for investigation. Don't delay. Your diligence is required to confirm good news or to take action with bad news. Good luck.

Lichens can indicate pollution-free air

Answered by Consulting Arborist David A. Jahn of Des Moines, Iowa; www.davidjahnarborconsulting.com; (515) 244-0044

American Forests thanks the American Society of Consulting Arborists for responding to readers' tree care questions. Ask your questions at www.americanforests.org/consulting-arborists.

FOREST FRONTIERS

Research Social Scientist Dr. Kathleen Wolf

DR. KATHLEEN WOLF is a Research Social Scientist at the College of the Environment, University of Washington, and is affiliated with the U.S. Forest Service, Pacific Northwest Research Station. Dr. Wolf's research explores the human dimensions of urban ecosystems, and her mission is to discover, understand and communicate human behavior and benefits, as people experience nature in cities and towns. Moreover, Dr. Wolf is interested in how scientific information can be integrated into local government policy and planning.

Why did you choose to become a Research Social Scientist?
Looking back, it really wasn't a choice as much as an evolution. I started with a biology degree, and my first job was doing mangrove restoration in Florida. As I continued to learn about the natural world, there was always this nagging question: But what about people? When doing plant selection as a consultant for landscape architects in south Florida, I came to understand that design blends the biophysical and social. So, I went back to graduate school thinking I'd come out as a landscape architect. Without any awareness that the Kaplans, pioneering environmental psychologists, were working at the University of Michigan, I enrolled in their classes. I was hooked!

MARY LEVIN, U OF WASHINGTON

What is your favorite aspect or favorite part of your field?
I am of primarily German descent. After visiting the country several times, I realized that my enjoyment of rational thought and precision (as expressed in research methods and data analysis) is probably culturally hard-wired. I enjoy that moment of clarity when one knows that a research design is solid, or when reviewing statistical output. Also, social science studies about urban topics are totally dependent on partnerships to be successful. There is just no way that I can set up a sampling plot, or contact a study group in isolation (like some of my colleagues that study wildlands). I really enjoy the networking and partnership building that goes with social science, from setting up the research study to collaborating on how to best share results to encourage community change. So, I say thanks to all who read this who may have been a collaborator in my studies, or the studies of colleagues. The social connections are essential!

What is the most surprising thing that you have learned or discovered?
I wouldn't say surprising, I'd say satisfying. When I started this work,

there really wasn't much capacity. Little funding was available for studies of social aspects, urban settings and human interactions with nature. That has changed dramatically, particularly in the last decade. I have really appreciated the ongoing support of the U.S. Forest Service for urban forestry and urban natural resources stewardship. More funding is now available across several agencies. Some of the best young scientists are attracted to the research of socio-ecological systems, particularly to questions about human health and wellness. Really innovative methods and measures are being developed. It is very satisfying, and even a bit surprising, to see how far the field has come along.

Where is your favorite spot to experience nature and why?
At this point in my career, I travel a lot and look for places of nature respite wherever available. Sometimes, I come upon very old, large trees. I'm kind of a tree whisperer — I stop and talk or think about what that tree might have seen in its lifetime — changing surroundings, children grown, increase in paving. I particularly enjoy really old gnarly trees — they are exquisite experiences. One feels drawn in to touch them, or to move into the hollow of their trunk. I realize that arboriculture best practices reduce maintenance costs and liability for tree-related injury, but the well-tended tree doesn't develop personality. There is less and less opportunity for people in the U.S. to experience distinctive, memorable trees in their everyday life. A large gnarly tree gives one pause and takes one to times past and possible futures, imagining what that ancient living thing will continue to experience.

For an extended interview with Dr. Kathleen Wolf, visit www.americanforests.org/magazine.

TOP RIGHT: WHOLE FOODS MARKET; BOTTOM RIGHT: ROBERT MOHLER

Whole Foods Market in Rockville, Md.

PARTNERS

Together for the Holidays

AMERICAN FORESTS IS DELIGHTED TO WELCOME WHOLE FOODS MARKET® as a new partner. This holiday season, for every Christmas tree sold at one of its stores, Whole Foods Market, will donate to American Forests to help us plant a tree in one of our wildland forest projects. For those who feel the least bit guilty about bringing a real tree into your house, know that you are helping plant a new tree by getting your tree at Whole Foods Market anywhere in the U.S. or Canada. And, also know that the Christmas trees at Whole Foods Markets don't come from forests.

Whole Foods Market's trees come from Christmas tree farms. One of them, the Kirk Company, is a nearly 100-year-old enterprise. When we talked to Kirk's owner, Gary Snyder, and son, Matt, we learned that Whole Foods Market only buys (and sells) premium trees. Just three to five percent of trees grown get to be tagged as premium, which means the trees have met Kirk's discerning standards and those of the Whole Foods Market buyer, based on overall foliage fullness, shape, color, health and a well-tapered top that works well with or without an ornament.


Matt Snyder topping one of Kirk International's Christmas trees

At Kirk's farms in Oregon and Washington State, the trees grown are generally Nordman and Noble firs, whereas their farms in Nova Scotia and North Carolina grow balsam and Fraser firs. The trees are handled with care from the time their seeds are selected to when the trees are harvested. Seeds are planted in the best-possible soil, raised in ideal field conditions and nurtured and pruned for the six to eight years it takes to grow a 6-foot tree!

The Kirk Company also participates in programs in Oregon to give back to the community, including donating seedlings to the Clackamas River Basin Council to be planted along the river to help curb erosion and shade the banks to cool the water for fish and wildlife. This is similar to watershed restoration work that American Forests does in Oregon and many other states.

We are delighted to have the support of Whole Foods Market in planting a tree for each full-size Christmas tree sold, but also to learn that the people who grow these trees are also environmentally concerned and committed.

Carl Casey standing next to the sugar pine co-champion

BIG TREE SHOWCASE

Sugar Pine

SPECIES NAME: sugar pine, *pinus lambertiana*

LOCATION: Yosemite National Park, near Crane Flat

CIRCUMFERENCE: 337 inches

HEIGHT: 205 feet

CROWN SPREAD: 65 feet

TOTAL POINTS: 558

NOMINATED: 2014

NOMINATED BY: CARL CASEY

"On a cold Veterans Day in 2011, I traveled to the Crane Flat forest. Along the way I saw many large trees of various species, but none that were champion-sized. All of a sudden, through the cool, mist-shrouded air, I spotted the base of a really big pine! I glanced up and saw that it was a sugar pine. It was the largest sugar pine I had seen in Yosemite since the demise of the Yosemite Giant near Hodgdon Meadow (previously the tallest pine tree in the world at 268' high). After the national champion Pickering Pine and Whelan Pine trees died, the Crane Flat sugar pine was suddenly a contender for champion. I nominated it, and the tree is now co-champion with a sugar pine in Oregon nominated by Michael Taylor, a well-known and accomplished big tree hunter on the west coast." – *Carl Casey*

Note: Recently, Carl found and nominated a larger sugar pine in Calaveras Big Trees State Park, which will be eligible for the American Forests Champion Tree register in 2016. Details of his exciting adventure are available on the Loose Leaf blog.

RICHARD MESSIER

GLOBAL RELEAF SHOWCASE

Empowering the Defenders of Nature

WHEN IT COMES TO successfully restoring threatened forest ecosystems, two vital pieces must be accomplished: replanting what has been tragically lost in the past and teaching those in the community about preservation for the future. The fusion of these two elements sets the foundation for an exponentially more beneficial project, and this has certainly been the case in Juruti, Brazil and the surrounding areas.

In the fifth year of our partnership with Alcoa Foundation, we are working with Instituto Vitoria Regia, a Brazilian nonprofit, to help restore a region of the Amazon Rainforest which has suffered substantially in recent years due to deforestation. Appropriately referred to as our Defenders of Nature ReLeaf project, over the course of the year these efforts will produce more than just the planting of 20,000 native trees species, including some near extinction, and the restoration of 25 acres of forest cover. The Defenders of Nature project also focuses on educating the local community, particularly children.

In many regions surrounding the Amazon, government entities are encouraging communities to cut down forests to allow for economic development, including the addition of more palm oil plantations. Not only does this result in more deforestation, but it also increases emissions polluting the surrounding environment. Preserving our forests provides unrivaled benefits, including supporting biodiversity, absorbing carbon and producing oxygen, filtering water, regulating climate and providing a myriad of physical and mental health benefits.

To reverse this trend, our Defenders of Nature project is fostering a relationship between local communities and the land that supports them through environmental education within schools. Children in the community will have the opportunity and responsibility to grow the saplings that are planted, which include economically important species, such as cocoa, palmheart and native fruit trees, allowing them to understand the valuable resources the forests provide.

By educating children and their families on land preservation and enlisting them to share a role in the process, they will be empowered to make a difference for their environment — positively impacting forests, wildlife and even their water sources — in addition to helping control their own economic growth and contributing to their community's well-being.

As a new reverence for forests and all they provide is instilled in the local community, our hope is that future generations will take the reins, planting more trees across more acres, on a journey toward more sustainable forest management and defending the nature off which they thrive.

SLRTDM VIA WIKIMEDIA COMMONS

The increased demand for palm oil plantations, like this one just east of Juruti, Brazil, is a leading cause of deforestation in the Amazon Rainforest

CORRECTIONS On page 29 of Vol. 121, No. 2 (Spring/Summer 2015), the coast redwood found by Mario Vaden has not yet been nominated due to pending confirmation of measurements.

FROM THE FIELD

WEBSTER GROVES, MO.

Matthew Boyer, Vice President of Individual Giving

TWO YEARS AGO, I received a phone call from American Forests' former board chair, Lynda Webster. Her husband, Judge William H. Webster, was turning 90 years old, and she wanted to celebrate this incredible milestone.

Judge Webster has had a very distinguished career. Among his long list of accomplishments, he is the only American to serve as both the director of the CIA and the FBI. As you can imagine, his list of friends is long, and his family consists of many. Lynda wanted to honor Judge Webster's birthday but also pay tribute to his very special friends and family.

The Websters love trees, and Judge Webster is very proud of his hometown of Webster Groves, Mo. So, planting trees through American Forests in Judge Webster's childhood home seemed like the perfect tribute. Lynda made a very generous contribution to pay for the trees, and American Forests' program team got to work managing the logistics.

Lynda and Judge William H. Webster

Lynda sent a letter to Judge Webster's closest friends and family letting them know of the birthday gift. Many of them stepped forward to contribute as well to expand the number of trees planted in honor of this extraordinary man.

With Lynda leading the charge, they collectively planted 300 trees in a park, along streets and even in the backyards of Webster Groves residents. A bench was also placed in the park with a small plaque that lovingly reads: "To commemorate the 90th birthday of native son Judge William H. Webster, former director of the FBI and CIA, these trees were planted by American Forests and his most special friends." These trees will live for generations and will provide shade, beauty and wildlife habitat for all of Webster Groves' residents.

If you would like to make a Gift of Trees in someone's name, please visit www.americanforests.org/gift-of-trees or contact Jillian Hanelly at 202.370.4514. A grove of trees is the perfect birthday, anniversary, wedding or memorial gift to honor those you love.

DESCHUTES COUNTY, ORE.

Jami Westerhold, Director of Forest Restoration

SITE VISITS ARE BY FAR the best part of my job. They allow me to see first-hand the impact that American Forests and our partners are having and hear about the history of the land from the locals. My trip to Deschutes National Forest had all of this and more. I was accompanied by the U.S. Forest Service (USFS) and Tiny Prints — a partner supporting our work in the Deschutes — to shoot a video highlighting the project.

To set the scene, more than 25,000 acres of national forest system land was devastated by the Pole Creek Fire in 2012. We know that fire plays a vital role in maintaining a diverse and healthy forest; however, when a forest burns too intensely, it negatively impacts the forest

ALL PHOTOS, PAGES 10-12: AMERICAN FORESTS

The crew on site in Deschutes National Forest filming a video to highlight the project

ecosystem. It is estimated that 10,000 acres burned at such a high severity it left little or no surviving forest cover. We were hiking through 10,000 acres, or 7,575 football fields, of dead forests; it was devastating.

American Forests and the USFS target severely impacted areas for restoration since they are unable to regenerate on their own. Part of this work is completed by the Central Oregon Intergovernmental Council, an alternative high school program that provides opportunities to learn while restoring and caring for forests. While there, we met up with this crew and heard about the work they have accomplished. I believe capturing their perspective is essential to the story of restoration work in the Deschutes.

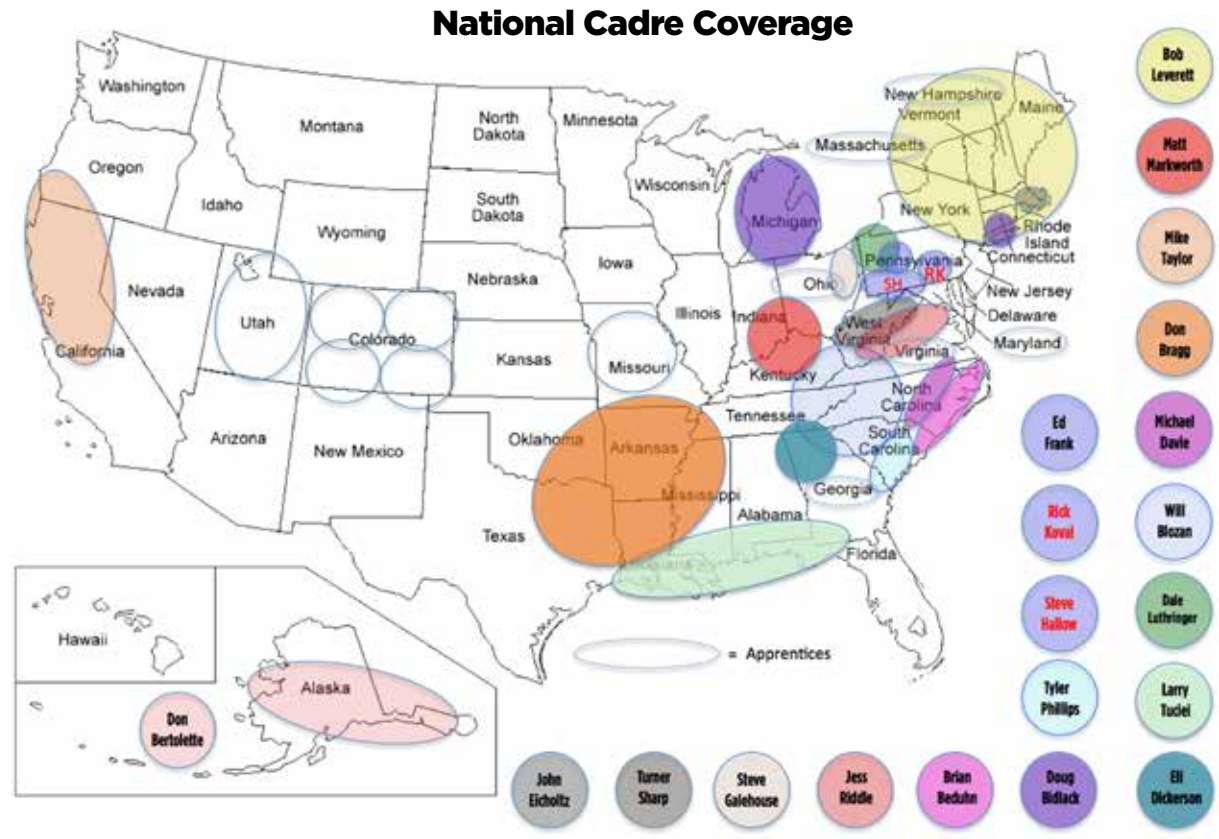
As if the student's stories weren't enough, we reached a particularly high point where we had a view of three of the five tallest peaks in Oregon, the Three Sisters Mountains. These volcanic peaks are in the Cascade Range, exceed 10,000 feet in elevation, and are nothing short of spectacular. We could clearly see the extent of the fire's destruction, but also noted heathy forests and the start of our reforestation activities. I will return. And, when I do, I hope to see a thriving ecosystem from the work and support of the partnership between American Forests, the USFS, and Tiny Prints.

WASHINGTON, D.C.

Bryant Smith, Manager, Urban Forests Programs

IN 2013, American Forests asked a team called the Measuring Guidelines Working Group (MGWG) to upgrade the methods used in measuring champion trees, so that our Champion Tree database would better align with the needs of scientific research. We completed the American Forests Tree-Measuring Guidelines handbook in 2014, thanks in greatest part to the extraordinary efforts of Don Bertolette and Bob Leverett. American Forests' earlier three-page public guidelines grew to an eye-popping 86 pages of detailed instructions, designed to cover every measuring eventuality.

The next task was to recruit advanced measurers capable of meeting the challenges. For decades, timber managers have measured trees for commercial volume, but the methods used are inadequate for the kinds of complex forms that characterize national champions. A new breed of measurer was needed. Throughout the summer of 2013, Don and Bob strategized. Don proposed the formation of a National Cadre whose members would be competent in all methods presented in the Measuring Guidelines. Cadre



Each member covers a geographical area, which could be as small as a municipality or as large as a multi-state region

members would function like a corps of special forces to be called on to certify champion trees that presented special problems.

The Cadre, with 21 full members and as many apprentices, was initially formed from individuals in the Native Tree Society and several state coordinators who had developed advanced measuring skills. Each recruit agreed to cover a geographical area, which could be as small as a municipality or as large as a multi-state region.

American Forests' goal is to establish a Cadre presence in all 50 states. This will necessitate upgrading the measuring capabilities of state big tree coordinators, which will eventually supply most of the Cadre members.

The Cadre is empowered to certify trees nominated to the National Register and to assist state coordinators when requested. Beyond competency with all measurement methods in the guidelines, some Cadre members also function as trainers through workshops, distance-learning courses and one-on-one training. The MGWG are the principal method engineers and are responsible for updates to the handbook.

Our goal is to make the American Forests Champion Trees national register, celebrating its 75th anniversary this year, the model for other countries to follow. The National Cadre will be a primary vehicle for implementing this vision.

CADRE MEMBER LIST:

1. Don Bertolette (Alaska)
2. Bob Leverett (New England)
3. Will Blozan (North Carolina, Tennessee, and other areas)
4. Don Bragg (Arkansas and other areas)
5. Michael Davie (North Carolina and Tennessee)
6. Eli Dickerson (Georgia)
7. Ed Frank (Pennsylvania)
8. Steve Galehouse (Ohio)
9. Dale Luthringer (Pennsylvania)
10. Matt Markworth (Ohio, Indiana, part of Kentucky)
11. Tyler Phillips (South Carolina)
12. Jess Riddle (Georgia, South Carolina)
13. Turner Sharp (West Virginia, part of Virginia and Maryland)
14. Michael Taylor (Northern California and southern Oregon)
15. Brian Beduhn (North Carolina)
16. Doug Bidlack (E. Massachusetts, Rhode Island, S. Connecticut, Michigan)
17. Larry Tucei (Mississippi)
18. Rick Kovall (eastern Pennsylvania)
19. Steve Hallow (western Pennsylvania)
20. Sam Stoddard (New Hampshire)
21. John Eichholz (western Massachusetts, southern Vermont)

FROM LOOSE LEAF

THIS THREE-PART BLOG SERIES explores the roles that insects play in our various forest ecosystems. Insects are vital to our forests' health in many ways, yet can be disastrous when their roles are altered. In this series, readers will take a look at an example of how an insect's relationship with the forest can go wrong, see why insects are so integral to forests' health and examine how scientists are using insects' relationships to fight disaster on the east coast. Read the series at **americanforests.org/InsectsAndForests.**

TIM GAGE/FLICKR

Trees can appear green and outwardly healthy for up to a year after initial infestation before turning a rust color

ANTRANIAS/PIXABAY

From pollination to decomposition, insects play many roles that our forests could not do without

PART 1

In "The Mountain Pine Beetle's March across Canada," see how climate change has helped to exacerbate one of the most dangerous pest outbreaks of our time. The western United States and Canada have both been devastated by the mountain pine beetle and Canada's Alberta province is now looking like the next victim. As the beetle is moving into the boreal forest, its future is unpredictable, and Canada is trying its hardest to contain it.

PART 2

Remind yourself why our forests couldn't exist without insects in "The Good, Besides the Bad and the Ugly." As pesticide use in forestry expands, it's important not to interfere with some of insects' core functions in forest ecosystems, including decomposition, pollination, and their role in the food chain.

NICHOLAS A. TONELLI/FLICKR

The hemlock woolly adelgid's presence is easily detectable by the small tufts of what appears to be cotton along the branches of hemlocks

PART 3

To wrap it up, discover how a fly could be the answer to our eastern hemlock's troubles in "It's a Bug-Eat-Bug World." The hemlock woolly adelgid is responsible for the death of large numbers of hemlock trees from the Carolinas to New England, and it's causing lots of problems. Researchers are introducing a natural predator from the west coast to see if it can help turn the tide.

AMERICAN FORESTS

NEW ONLINE

New Video!

WE'VE TEAMED UP with partner IKEA to create an educational video that's fun for the whole family! This interactive video helps teach kids about the amazing benefits of trees and the important role of our forests. Plus, you can play along next time you're at a participating IKEA Småland play area. You can watch our video at **youtube.com/AmericanForests.**

The Resilient Federal Forests Act of 2015 includes a provision that would allow access to the Disaster Relief Fund if wildfire suppression costs exceed the 10-year average

WASHINGTON OUTLOOK

Five-Year Report for CFLRP

IN MARCH, the U.S. Forest Service released the five-year report for the Collaborative Forest Landscape Restoration program (CFLRP), established in 2009. The program was designed to foster collaborative, science-based restoration of America's forests, support ecological, economic and social sustainability and reduce the costs of wildfire management. The program has 23 projects underway, tackling challenges that no single agency or organization can address. The report outlines the program's progress, accomplishments and the challenges it still faces.

Progress to date includes:

- Treated more than 1.45 million acres to reduce the risk of devastating fire (with an expected benefit of 2 to 3 times the treatment cost)
- Treated more than 84, 570 acres of forest land to achieve healthier conditions through timber sales
- Improved more than 1.33 million acres of wildlife habitat
- Treated more than 73,600 acres for noxious weeds and invasive plants
- Generated $661 million in local labor income and an average of 4,360 jobs per year

All CFLR projects have different ramp-up periods while groups continue to build community relationships and overcome unanticipated events, such as wildfires in program areas. While the program has made substantial progress, it expects to see more accomplishments in the next five years than it has seen in the first five.

JAMI WESTERHOLD/AMERICAN FORESTS

The Collaborative Forest Landscape Restoration program was designed to foster collaborative, science-based restoration of America's forests, support ecological, economic and social sustainability and reduce the costs of wildfire management

Land and Water Conservation Fund Reauthorization

THE LAND AND WATER CONSERVATION FUND (LWCF) is set to expire September 30, 2015. The fund, created in 1965 through offshore drilling royalties, is the keystone federal program to conserve irreplaceable lands and improve outdoor recreation opportunities. The program works in partnership with state and local efforts to acquire land and protect our national, state and local parks, national wildlife refuges, national forests, national trails, and Bureau of Land Management areas. But, the program has been chronically underfunded leading to a number of missed opportunities for investing in important areas.

In both the Senate and the House, bills have been introduced to reauthorize and fully-fund (at $900 million) LWCF (S.338, H.R. 1814). Additionally, the Senate Energy and Natural

Resources committee advanced a bipartisan agreement to permanently authorize LWCF as part of a bipartisan energy bill from Chairman Sen. Lisa Murkowski (R-AK) and Ranking Member Sen. Maria Cantwell (D-WA) (S.890).

USFWS

CHUCK FAZIO

The Land and Water Conservation Fund works in partnership with state and local efforts to acquire land and protect our national, state and local parks, national wildlife refuges, national forests, national trails, and Bureau of Land Management areas

Wildfire Policy Update

AMERICAN FORESTS continues to urge Congress to find a lasting solution for wildfire suppression funding. Currently, wildfire suppression is funded at the 10-year average. When suppression costs exceed the budget, the U.S. Forest Service and the Department of the Interior are forced to transfer from other accounts to pay for fighting fires, preventing the implementation of critical programs that would help reduce fire risk and costs.

The Wildfire Disaster Funding Act of 2015 was introduced in January with bipartisan support in both the House (H.R. 167) and the Senate (S. 235). If passed, this bill would treat the most catastrophic wildfires like natural disasters. Seventy percent of wildfire suppression costs would continue to be funded through the normal appropriations process, while the most extreme fires will be funded like other natural disasters through the Disaster Relief Fund.

This summer, the House passed H.R. 2647, The Resilient Federal Forests Act of 2015, sponsored by Rep. Bruce Westerman (R-AR). This bill includes a provision that would allow access to the Disaster Relief Fund if wildfire suppression costs exceed the 10-year average. This would end the practice of fire transfers, but it does not address the stress that the rising 10-year average has put on the U.S. Forest Service's budget.

Appropriations FY2016

BELOW ARE HIGHLIGHTS of American Forests' priorities in comparison to the appropriations bills put forth by the House and Senate Subcommittees on the Interior, Environment and Related Agencies.

Rebecca Turner writes from Washington, D.C., and is American Forests' senior director of programs and policy.

Sarah Davidson was American Forests' summer 2015 policy intern and is completing her master's degree at the University of Virginia.

FY16 Appropriations Comparison

PROGRAM/AGENCY	FY15 ENACTED	FY16 AMERICAN FORESTS' PROPOSAL	FY16 HOUSE INTERIOR BILL	FY16 SENATE INTERIOR BILL
FOREST SERVICE				
State and Private Forestry				
Forest Health	$104.6 m w/ $45 m for coop lands	$111 m w/ $48 m coop lands	$99.60 m w/ $40.68 m coop lands	$102.378 w/ $40.94 m coop lands
Urban and Community Forestry	$28.04 m	$31.30 m	$23.68 m	$23.68 m
Forest Legacy	$53 m	$100 m	$50.66 m	$59.80 m
Forest and Rangeland Research	$296 m	$303 m	$277.50 m	$291.904 m
Forest Inventory and Analysis	$70 m	$83 m	$70 m	$80 m
National Forest System				
Collaborative Forest Landscape Restoration	$40.0 m	$60.0 m	$40.0 m	$40.0 m
NATIONAL PARK SERVICE				
National Park System	$2.096 b	$2.335 b	$2.148 b	$2.323 b
FISH AND WILDLIFE SERVICE				
National Wildlife Refuge System	$474.202 m	$508.20 m	$483.054 m	$477.218 m
LAND AND WATER CONSERVATION FUND	$306 m	$900 m (full funding and permanent reauthorization)	$248 m	$306 m

Spotting the Silent Survivor

Spotted owl swooping in to take mouse offered by Kelso

MARSHA SLOMOWITZ

One researcher's work to protect the spotted owl throughout Washington State's Olympic Peninsula

BY BETSY HOWELL

THE MEDIUM-SIZED OWL with the spotted breast and big, chocolate eyes arrives without a sound. Feathers on the leading edges of its wings are broken up by small serrations that allow air to quietly flow through rather than over the top, which creates turbulence, or noise. This silent flight is the bird's key to successful hunting, or to remaining invisible for other reasons. However, this female northern spotted owl now perched above me and Debaran Kelso, a researcher with a long-term owl demography study on Washington State's Olympic Peninsula, has come immediately to Kelso's soft hoots.

"Last week," Kelso tells me, as she grabs a mouse she has brought to feed the bird, "I found the female and two owlets. One owlet was dead at the base of the nest tree, likely from accidentally being bumped off the too-small nest platform. The other owlet was still perched in the branches of the nest tree." She adds worriedly, looking around, "I don't see the survivor yet."

The first mouse is quickly eaten by the female. During the next half hour, the bird caches another two proffered mice in the upper canopy for later meals. She makes no attempt to call to her remaining young, or to take the mice to it. None of these are good signs, yet Kelso says she's been fooled before.

"If she has just fed the owlet, it may not be interested in any more mice from me, so it might not call to be fed. However, generally, she makes at least some attempt to show the prey to her young."

Sunlight filters through the forest above us in a kaleidoscope of shapes and yellowish hues. This particular stand is almost 300 years old and had a fire rage through it more than a century ago. The trees are not classically large, being on average 30 to 40 inches in diameter, and fairly uniform in appearance. Consequently, the owls' nest is in an unlikely

Above: Dungeness Watershed in Olympic National Forest; center: Kelso searching for spotted owls

tree, an even smaller 23-inch diameter Douglas-fir where the top had broken off and created a small shelf. In subsequent years, new tops grew up around this shelf, providing at least some protection for the site. It's not a very protected residence against predators or the Olympic Peninsula's rainy spring weather.

We spend the next few hours searching for the owlet. Unfortunately, we find nothing to indicate its demise or continued survival. The female follows us for awhile, perhaps expecting more mice, then vanishes back into the forest. She hasn't called once, and her leaving is as undramatic as her arrival. In the early days of spotted owl research, the birds' willingness to answer human vocalizations, in addition to their lack of wariness, made them a relatively easy animal to study. However, more than three decades after intensive study of northern spotted owls began, the game has changed. In Kelso's study area, the birds have become quieter over the years, their comings and goings during surveys less predictable. This has possibly occurred in response to now having to share space with their more aggressive cousin, the barred owl.

"Sometimes," Kelso says, "I'll see a sign, either pellets or prey remains, and I'll know they're here, yet I'll call and call without any answer. I can search all around their nest tree and roost trees, but won't see them anywhere. Eventually, I just have to wait for them to either fly in or call and give their location away."

Debaran Kelso has been studying northern spotted owls (*Strix occidentalis caurina*) since 1987. Many biologists, including myself, began careers with the U.S. Forest Service on spotted owl survey teams, though few of us continued with the rigorous night work year after year. In the late 1980s, the conflict over how to manage Pacific

TOP: US FOREST SERVICE; CENTER: MARSHA SLOMOWITZ

In the early days of spotted owl research, the birds' willingness to answer human vocalizations, in addition to their lack of wariness, made them a relatively easy animal to study. However, more than three decades after intensive study of northern spotted owls began, the game has changed.

Northwest forests was at its peak, and tensions ran high between the environmental community, the timber industry and land managers.

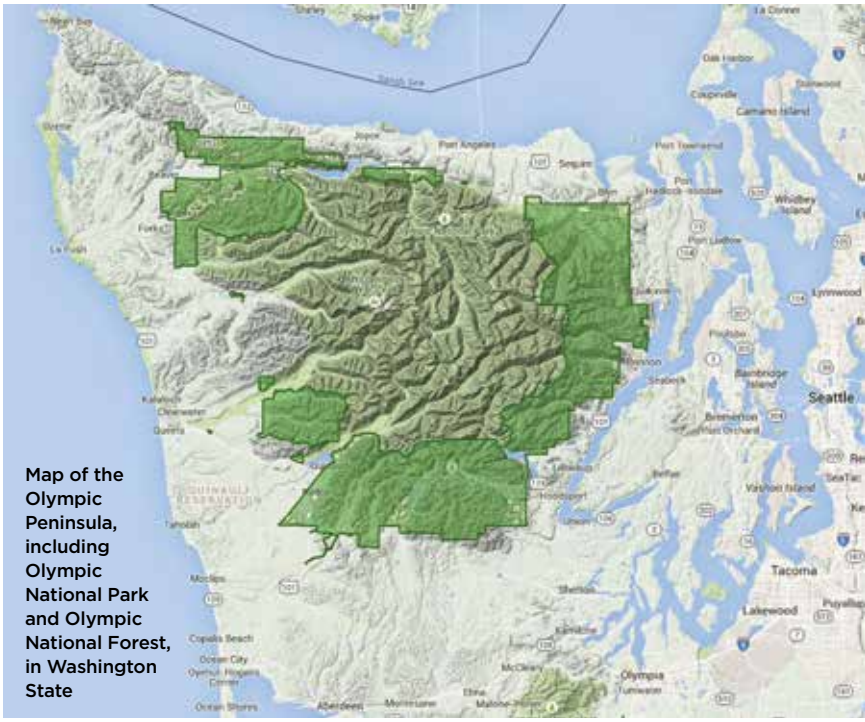
"It was a bit unnerving," Kelso recalls of her early work on the Olympic Peninsula. "We'd be leaving the woods at 3:00 a.m. from a night of surveying, and the log trucks would be going in. They all knew, of course, why we were out there. I never told anyone what I did."

The stories of anti-owl sentiment are well known in the Northwest: rubber chickens tied to posts with "spotted owl" written across their bodies; bumper stickers that read, "I love spotted owls...fried;" and boxes of "Spotted Owl Helper" for sale in the restaurants of small, logging towns (still available in 2015 in some places). Yet, for all that, Kelso wasn't deterred.

"I took the job initially because that's where the funding was," she says. "However, I quickly fell in love with the owls. There aren't many wildlife species that are so curious about humans and aren't actively distressed in our presence. There also was an element of urgency in finding the birds and protecting them and their habitat that wasn't there with other species."

As the seasons went by, her affection grew. In 1990, the owl was listed as a federally threatened species, and in 1992, after having been on other owl crews, Kelso began working on the demography study, an effort focused on monitoring population trends of the species on federal lands. The demography work takes place in 11 study areas across the owl's range, including three in Washington State: the Olympic Mountains, Mt. Rainer National Park and the Cascade Range near Cle Elum, a small, but growing city along Interstate 90. Throughout the '90s, Kelso, in conjunction with other researchers working on the study,

Spotted owl perched in tree



Map of the Olympic Peninsula, including Olympic National Park and Olympic National Forest, in Washington State

TOP RIGHT: DEBARAN KELSO; BOTTOM RIGHT: US FOREST SERVICE

Kelso and her dog, Rocket

found and banded birds in Olympic National Forest, a rough doughnut of land that surrounds Olympic National Park. As she became more a part of the owls' world, the Northwest Forest Plan came into existence. This document, finalized in 1994 under President Bill Clinton, became the overarching guide for management of National Forests within the range of the owl. With the adoption of the Plan, most of the Olympic National Forest was designated "Late-Successional Reserve," where the primary emphasis would be maintenance of older forest habitats. This change resulted in drastically reduced levels of old-growth timber harvest on federal lands. In that sense, the species has been helped tremendously. However, the scientific and management communities didn't foresee the dramatic role that barred owls would play in the recovery of spotted owls.

Finding a barred owl in the 1980s was considered a novelty, says Kelso. They would respond to a surveyor's hoots just as readily as spotteds, and they look quite similar, the main differences being a slightly larger size, striped breast and white barring on the back of the head. However, behaviorally, they are quite distinct. Barred owls are far more wary of humans, and their scientific name, *Strix varia*, reflects the diversity in their diet and habitats occupied. Once a resident of only the eastern United States, the barred owl has expanded its range westward in numbers and speed matched only by similar movements of European migrants in the 19th and early 20th centuries. In fact, the creation by western settlers of small forested patches around homesteads and towns across the prairie, as well as the suppression of fires that helped maintain the plains' ecosystem, may have been partially responsible for making the landscape more appealing to the generalist barred.

"Barred owls are cool birds," says Kelso, "and it is a wondrous thing to see them. But, they are having a devastating impact on spotted owls."

Debaran Kelso is a bit owl-like herself. She admits to having become rather reclusive over the years and remains largely nocturnal even when not surveying. Her home is a "tree house for adults," as she describes the four-story, cedar building nestled in a second-growth stand of Douglas-fir, madrone and western hemlock. On the top floor, you're eye level with the birds of the forest canopy: robins, warblers and kinglets that fly, nest and forage all a few feet away. Kelso has lived in many places, including Alaska, Chile, Mexico, England and Namibia, and she did her

LEFT: BETSY HOWELL; RIGHT: MARSHA SLOMOWITZ

Kelso waiting with noosepole to band owls

Generally, in wildlife research, failing to find an animal doesn't prove its absence, and obviously these birds were not entirely gone, however, where they were during that period is anybody's guess.

undergraduate work at the University of Colorado, where she began as a psychology major before switching to ecology.

"I'm really intrigued by people," she says, "but I also loved animals and loved being outdoors. The question was could I make a living in the environmental field? In the end, I just decided to do what I loved best."

That end took her to Alaska and research projects studying wolves and wolverines, as well as Pilanesburg National Park in Southern Africa, where she completed a master's degree looking at resource partitioning in eland and kudu. Yet, by 1986, Kelso was tired of having her life tucked away in boxes; she wanted to find a home. With friends in Washington State, she made her way to the Olympic Peninsula in the spring of 1987.

Northern spotted owl

Apart from Eric Forsman, a well-known U.S. Forest Service research biologist who began studying spotted owls in the 1960s and has served as the research lead for four of the demography studies, few have worked with the species as long as Kelso. She has seen many changes over the years and has come to know individual owls well. Each bird that she finds, she marks with a unique set of leg bands for later identification. At a different territory I visited with Kelso, we searched for a pair originally banded in 1996. This female, now more than 18 years old, is very reliable and, if around, will come to Kelso's calls. The male, a new mate for the female and only just banded in 2014, has been more wary.

We didn't find either bird on this day.

In another area, Kelso found a pair in 2005 and banded both the female and male. The next year, she didn't find them, and the following year was the same. Not until 2013 did both of the same birds reappear. In 2014, the pair successfully fledged two owlets. For eight years, the owls had disappeared, or so it seemed. Generally, in wildlife research, failing to find an animal doesn't prove its absence, and obviously these birds were not entirely gone, however, where they were during that period is anybody's guess. Given Kelso's familiarity with the species and the landscape, she would have the best insight of anyone.

"Where were they?" she shrugs. "I have no idea."

In 2015, in addition to the Northwest Forest Plan coming up for revision, the U.S. Fish & Wildlife Service will also begin a review to consider upgrading the spotted owl's federal listing status from threatened to endangered. During this time, much new scientific information about the species will be considered. Apart from the demographic data and the effects of the barred owl, the long-term demography studies have also yielded new insights into how long spotted owls live. Earlier estimates placed an owl's life span in the wild at approximately 15 years or less; now, it's known they can live over 20 years. The oldest

MEG AMOS

Kelso cradling an owlet

MARSHA SLOMOWITZ

animal Kelso knew was a male she banded in 1991 as a juvenile. She found this bird most years in its territory, but the last time she saw him was in 2012. The following season, the female was alone. In 2014, the old female was gone as well, and a new pair had arrived in the area.

"The new birds were much sneakier than the old pair," Kelso explains. "There was a lot of evidence they were around, but they wouldn't respond to my calls. Finally, I saw the male flying. After catching him later in the season, he turned out to be a juvenile I'd banded in 2004 at a site four miles to the north. I hadn't seen him in ten years."

Kelso acknowledges the general, grim consensus that researchers are documenting the demise of the northern spotted owl species. Yet, she also remains hopeful. The birds are doing better in some parts of Olympic National Forest, and perhaps they can survive in certain refuges. Additionally, she's seen the owls return to sites and observed their behavior change in ways that may be aiding their survival. In areas where barred owls have been experimentally removed in northern California, spotteds have returned to historic nest trees and territories. Whether a two-tiered management strategy of barred owl removal (which is not yet proposed for the Olympic Peninsula) and older forest preservation can buy enough time for spotted owls to recover is uncertain.

"There are many questions," Kelso admits, "and the landscape is vast. When I can't find the birds, I can search their favorite places, but if they aren't vocalizing..." she shakes her head. "Well, they melt right into the trees, and you'll never see them."

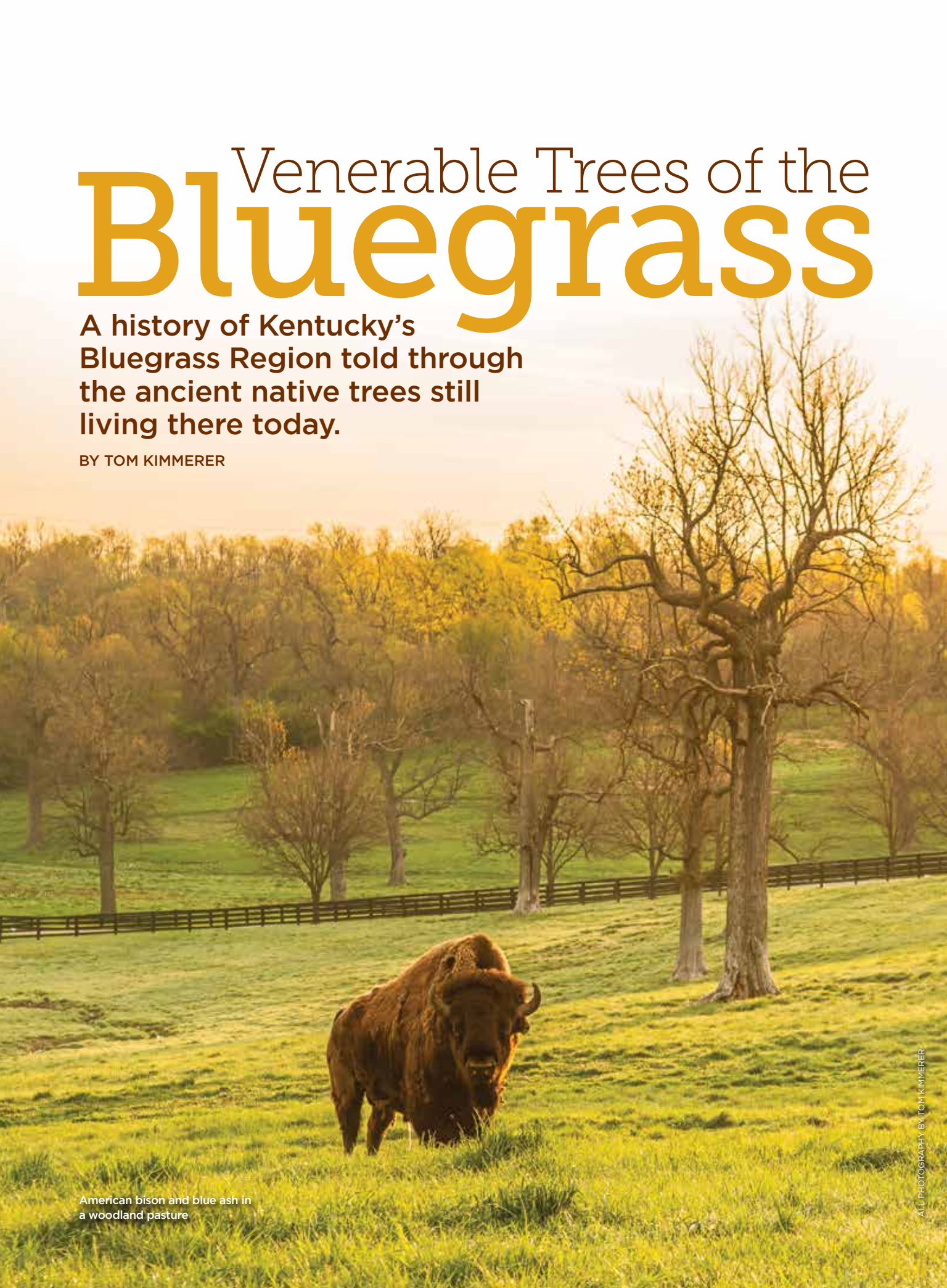
Kelso returned twice more in 2014 to the site where we searched for the owlet, but found nothing. Either it had died like its sibling, or it was already learning that survival depended on a silence as deep and as old as the forest itself.

Betsy Howell is a wildlife biologist with the Forest Service currently working in Olympic National Forest in Washington State.

Venerable Trees of the Bluegrass

A history of Kentucky's Bluegrass Region told through the ancient native trees still living there today.

BY TOM KIMMERER



American bison and blue ash in a woodland pasture

ALL PHOTOGRAPHY BY TOM KIMMERER

THE INGLESIDE OAK STANDS A FEW FEET AWAY FROM HARRODSBURG ROAD, a mile from the center of Lexington in the heart of Kentucky's Bluegrass Region. The ancient bur oak has been here for at least 300 years, perhaps as long as 500. Thousands of cars whoosh by every day, but few people notice the tree.

The tree is not alone. The Bluegrass is home to thousands of trees that were here long before Europeans arrived in the region. I believe that there are more ancient, pre-European settlement trees in the Bluegrass than in any other settled region of North America. Bur, chinkapin and Shumard oaks, blue ash and kingnut (also called shellbark hickory) are all long-lived trees that have been here for hundreds of years. While the Bluegrass is home to many other trees, especially black walnut, hackberry, black locust and Kentucky coffeetree, none of them are as long-lived as our venerable, ancient trees.

WOODLAND PASTURES

The Ingleside Oak is not a forest tree and never was. Instead it is part of a woodland pasture, a group of open-grown trees shading grass and livestock. For over 100 years, Ingleside Manor was a thriving farm on the edge of downtown Lexington, raising cattle, sheep and horses in the shade of ancient trees. Eventually, development swallowed the farm, leaving behind the Ingleside Oak and a few other ancient trees.

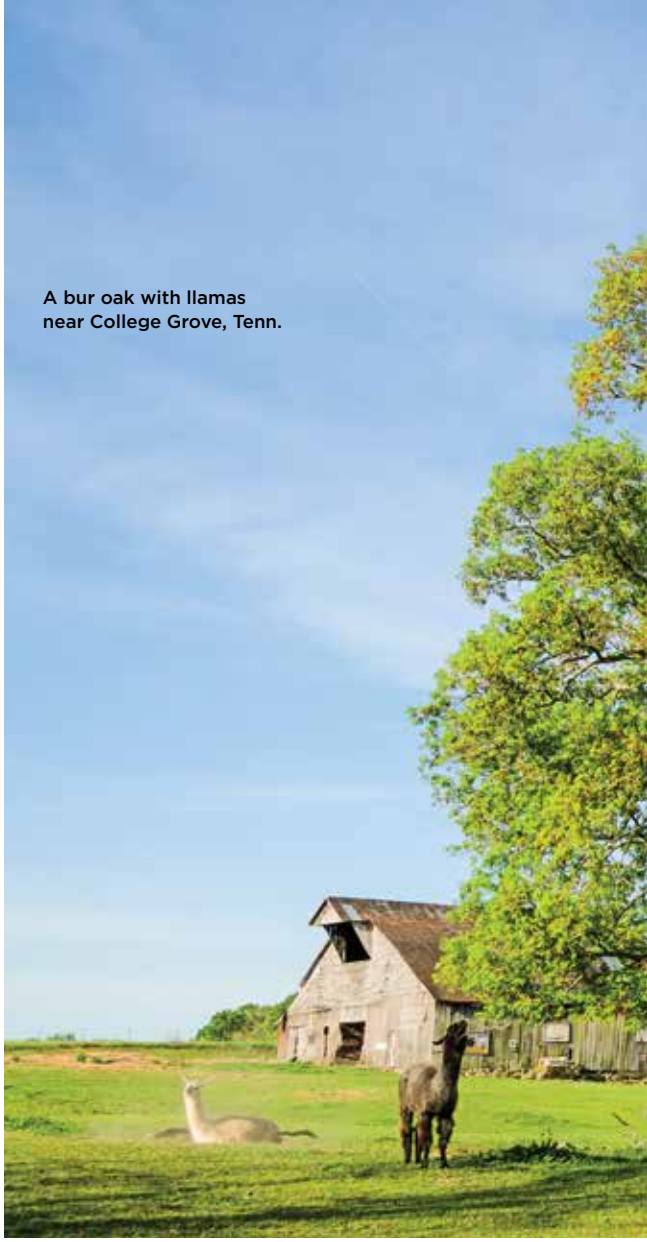
The Ingleside Oak is much older than the farm. Long before the settlement of Lexington or the founding of the United States, the trees were here. The farmers who established Ingleside Manor simply moved into a habitat that was already present. When the Ingleside Oak was younger, it shaded a buffalo trace, a path used by vast herds of bison to commute from grazing lands to water. Today, the buffalo trace is a busy road used by people commuting to work.

The first European explorers of the Bluegrass found extensive woodland pastures of open-grown trees shading grasses and giant cane, covering many square miles, mixed with denser forests and stands of pure cane along the creeks. This astonishing landscape was unlike anything the explorers, accustomed to slow travel through dense forests, had ever seen. News of this fine land well suited to farming quickly brought settlers.

In 1779, a party of travelers arrived after a long journey from the east. I like to think that they came up the buffalo trace and passed the Ingleside Oak, but whatever route they took, they set up camp on a spring-fed stream called Town Branch. About a mile north of the Ingleside Oak, a young Virginian named Josiah Collins felled a huge bur oak. Collins and his companions built a small blockhouse from the oak, and then a group of small cabins from oak, ash and walnut. This was the beginning of Lexington.

The new town grew quickly as farmers settled in with their cattle and sheep. They were able to graze livestock without the immense labor of clearing forests. Some of the trees were felled for buildings, but many were left to shade the pastures. The giant cane and native grasses were quickly grazed down and replaced by non-native grasses. Ironically, the most important grass brought by farmers is now known as Kentucky Bluegrass, although it was originally from Europe or Asia.

What explains the presence of woodland pastures of open-grown trees, grass and cane? This landscape exists in only two places in North America, the Bluegrass of Kentucky and the Nashville Basin of Tennessee. E. Lucy Braun, the renowned forest ecologist, called this "the most anomalous vegetation in North America."



A bur oak with llamas near College Grove, Tenn.

The Ingleside Oak

Woodland pastures do exist elsewhere in the world, in England, Russia and especially in Romania, where they have been maintained by traditional livestock agriculture. Thanks to the work of scientists, such as Oliver Rackham, Frans Vera and Tibor Hartel, we know a lot about the history of European woodland pastures. The most important thing we know about them is that they were originally created and maintained by vast herds of grazing mammals, including wisent (European bison), aurochs (ancestral cattle) and horses. Early farmers took advantage of this habitat, driving off or domesticating the native mammals and raising livestock and crops.

This appears to be what happened in the Bluegrass. Although we think of American bison as western animals, there were herds numbering in the thousands in the Bluegrass, grazing on the rich grass and cane, and wandering along the buffalo traces in search of water. The intermittent grazing of bison, feeding intensely in one area and then leaving for long periods, allowed the woodland pasture habitat to flourish, just as it did in Europe thousands of years earlier.

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Drought has always played a role in the Bluegrass. Although our soils are rich and thick, they lie atop deep Ordovician limestone with fractures, caves and sinkholes. Our rainfall is abundant but percolates quickly through the limestone. Most of our creeks dry up soon after a rain. A prolonged period of drought from around the year 600 to 1100, known from tree rings, may have brought bison to the region from the more drought-stricken west and established the first woodland pastures. A series of droughts in the 18th century just before Europeans arrived coincides with the age of many of our ancient trees. One of the characteristics of our

Woodland pasture on a horse farm, Fayette County, KY

The biggest threat to the future of woodland pastures is that the trees are unable to reproduce.

trees is that they are deeply rooted into the fractured limestone, with access to water that is not available to other plants. The woodland pastures of the Bluegrass were created and maintained by drought and bison, not by humans.

These natural woodland pastures are not savannas, which form a transition from forest to prairie and are maintained by fire. We do not find fire scars on old trees or logs. Indians hunted seasonally in the Bluegrass but did not live there permanently. It may not have been possible for Indians to establish settled villages in the presence of vast herds of bison. Early European settlers tell of thousands of bison flattening gardens, stockades and cabins. It took rifles and horses to eliminate the threat from bison.

The Nashville Basin has a similar history of limestone, drought and bison and is the only other place in North America where woodland pastures were common, though they are now mostly gone. The Nashville Basin has a different land-use history from the Bluegrass, with few large horse farms and more intensive farming. Today, there are many individual, large trees remaining as testament to what were once extensive woodland pastures.

Soon after the settlement of the Bluegrass, wealthy farmers came from the east to establish today's horse farms. They built English-style manor houses, locating them in the middle of the instant landscaping provided by our open-grown trees. Farming consisted merely of surrounding the existing woodland pastures with plank fencing and replacing the native grasses and cane with more familiar forage crops.

Today, there are thousands of trees in the Bluegrass that were standing before Josiah Collins cut that first bur oak. Many of these trees are still shading pastures that form Horse Country, the emerald ring of farms around Lexington that is the heart of the world's Thoroughbred industry. The magnificent farms of stately houses, plank fences, horses and cattle, and rich pasture would look barren and forlorn without the huge old trees.

It is likely that the farms of Horse Country today look more like they did prior to European settlement than any other landscape in North America. Replace the bison with horses and cattle, add plank fences and elegant barns, and you convert an ancient habitat into modern farms.

LOSING GROUND

Unfortunately, today, the trees and woodland pastures are disappearing. The rapid growth of Lexington and surrounding towns has consumed many of the horse farms. In Fayette County, about

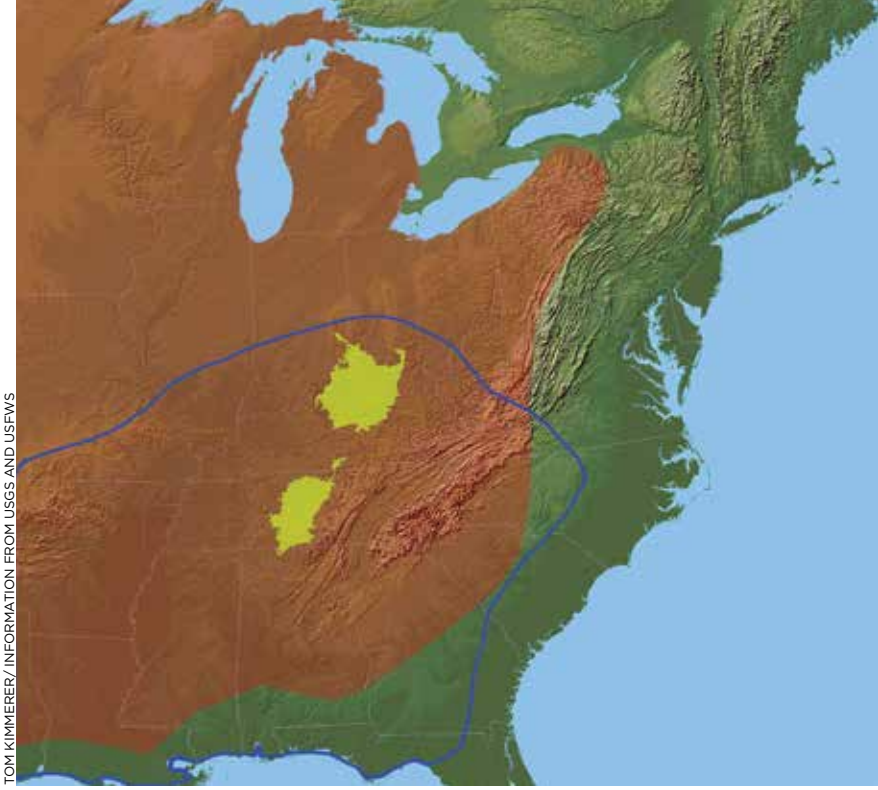
90 percent of the bur oaks have vanished in only 60 years, mostly due to development.

In 2006, the Inner Bluegrass was placed on the World Monument's Fund Watch List of Endangered Sites. Strict land-use rules, focusing future development inside the existing urban area of Lexington, is slowing development. Many farm owners, working with county governments and nonprofit organizations, like the Bluegrass Conservancy, are permanently protecting their farms with conservation easements. While these measures may protect the farms, they will not protect the woodland pastures. Many of the trees are declining, as natural aging is accelerated by soil compaction from heavy farm equipment and constant livestock grazing. Lightning strikes, though rarely fatal, take their toll as well.

The biggest threat to the future of woodland pastures is that the trees are unable to reproduce. Constant grazing and mowing leaves little room for natural reproduction. It is rare to find any natural regeneration of our ancient trees. As the trees decline and die, they are being replaced by short-lived ornamental trees planted by humans, most of them not native to the region. Trees that normally live for hundreds of years are being replaced by trees that will live a few decades at most.

Natural regeneration of our ancient trees is possible if we create processes that mimic the intermittent grazing of the bison. In Griffith Woods, a wildlife management area in Harrison County, a huge kingnut is surrounded by her progeny, ranging from tiny seedlings to tall saplings. At the Julian Farm, a nature preserve in Frankfort, young oaks, blue ash and kingnuts are scattered throughout the woodland pasture. At the Huskisson Farm, on the edge of the Kentucky River in Woodford County, blue ash seedlings are thriving. These three locations share a common history: they were intensely grazed, and then livestock were removed for a long period of time. However, if grazing is not reintroduced, the trees will quickly be swallowed by forests and will give way to more shade-tolerant trees. As the European experience has shown, it is not possible to maintain woodland pasture for long periods without a grazing mammal.

Lightning scar and top loss in an old blue ash



TOM KIMMERER/ INFORMATION FROM USGS AND USFWS

Location of the Bluegrass and Nashville Basin (yellow), the approximate original range of American bison (red), and the approximate original range of giant cane (blue)

The farms of Horse Country are too valuable for the production of horses and cattle to allow the setting aside of large tracts of land. The use of tree pens, small enclosures of ¼ to 2 acres, within a grazed pasture could allow natural regeneration or at least provide space for planting native trees. Although many horse farms use tree pens today, they are almost always planted with non-native ornamentals that will not survive long.

URBAN TREES

As the Ingleside Oak shows us, development of housing and commercial property may have eliminated the woodland pastures, but not all the individual trees. Throughout the cities and towns of the Bluegrass and Nashville Basin are many huge old trees. They can be found in parking lots, suburban yards, parks and industrial areas.

Clockwise from left: Blue ash tree; The St. Joe's Oak; Old bur oak on the University of Kentucky campus

While many of these trees in the Bluegrass are badly neglected, others are carefully tended and prized. Ball Homes, a housing developer, has preserved a magnificent bur oak as the icon of a new housing development. At St. Joseph Hospital, a parking structure was built around a large bur oak. A large housing and retail development is home to dozens of the largest trees in the region, including all the original woodland pasture species. I call this area the Hamburg Giant Grove because of the impressive size of the trees. Many of these trees are in detention basins where flood control precludes further development.

There are hidden treasures throughout Lexington, Nashville and many smaller towns in the region waiting to be found. For a long time, I thought that the Ingleside Oak was the lone survivor of the original woodland pasture, but there are about a dozen other ancient trees in back yards and empty lots in the neighborhood that are the original companions of the Ingleside Oak. Finding a single old tree can set off a hunt that reveals many more.

However, the population of these ancient urban trees is declining. Although some of the decline is simply due to old age, modern lawn care is probably accelerating the process. Heavy mowing equipment compacts the soil and wounds stems and roots. Use of lawn chemicals, including fertilizer and herbicide, is likely to be a major cause of decline. One commercial property with an intact woodland pasture was carefully maintained for decades with minimal lawn care. When a new owner created a high-maintenance lawn of dark green grass with no weeds, the old trees began to decline and many are now dead.

It should be possible, through careful planning and planting, to replace our native trees as they age. These trees require large spaces and are not suitable street trees. There are many large landscapes, from college and industrial campuses to schoolyards and church grounds, which provide ample room to establish groups of native trees. The challenge, both for urban and farm landscapes, is to find adequate, locally-sourced planting stock.

Bur oak from local seed sources is available from some nurseries. Shumard oak is widely available, but the Texas Shumard oaks common in the nursery trade are very different in their growth pattern and drought tolerance from the Bluegrass and Nashville Basin Shumard oaks. Further analysis may show that these are actually separate species or subspecies. It is very hard to find chinkapin oak, kingnut or blue ash in nurseries. Central Kentucky is in the middle of the emerald ash borer outbreak, and many green and white ash trees are dying. Blue ash so far seems to be unaffected.

The establishment of local nurseries using locally-collected seeds could provide adequate planting stock. Reforest the Bluegrass, one of the largest volunteer planting programs in the country, is restoring some of the woodland pasture species along the edges of riparian areas with seedlings produced by the Kentucky Division of Forestry. In most of our urban areas and farms, though, our ancient native trees are being replaced with short-lived ornamental ones.

A FORMIDABLE FUTURE

We cannot discuss the future of very long-lived trees without addressing the challenge of climate change. The next hundred years, a fraction of the lifetime of our trees, will see dramatic changes in climate. Regional models show that we should expect longer growing seasons, milder winters, increased rainfall intensity but also more frequent drought. We are already seeing changes in the length of the frost-free season and perhaps increased rainfall intensity. Whether our native trees will be able to tolerate these changes is not yet known, but they are likely to have an advantage over most ornamental species. The greatest climate threat to trees is drought. Few ornamental trees are drought tolerant, but the deep rooting and tremendous drought tolerance of our native trees may allow them to tolerate climate change better than some other species.

I have spent more than 30 years getting to know our woodland pastures and ancient trees and have intensively studied them for the last few years. It is surprising to me how few people, even those born and raised here, are aware of the incredible number of ancient trees that we live among and of the historical importance of our woodland pastures.

The Ingleside Oak and the other ancient trees of the Bluegrass and Nashville Basin are slowly disappearing. Without our efforts to maintain the existing trees and to plant and tend replacement trees, this unique landscape will vanish. The only way that we can ensure a future for the woodland pastures of our farms and the ancient trees of our cities is to be sure that people know about, value and venerate our native trees.

Few ornamental trees are drought tolerant, but the deep rooting and tremendous drought tolerance of our native trees may allow them to tolerate climate change better than some other species.

Old bur oak in a woodland pasture

This article is based on Venerable Trees: History, Biology and Conservation in the Bluegrass by Tom Kimmerer, 2015, University Press of Kentucky.

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LAND OF THE BRAVE

How conservation efforts on Army land support a symbiotic relationship between forests and soldiers.

BY: AMANDA PRICE

THE UNITED STATES DEPARTMENT OF DEFENSE (DoD) manages approximately 30 million acres of land, covering a wide array of climates and ecosystems. The mission of the bases that occupy these lands is to train soldiers in realistic outdoor settings that will prepare them for the diverse environments they may encounter on the battlefield. With this in mind, Army forest management efforts focus on creating sustainable training environments that ensure soldier readiness both today and far into the future. In addition to providing a realistic training landscape, proper forest management offers installations additional benefits such as reduced risk of lost training days due to wildfire, a visual barrier for installation neighbors, a habitat for threatened and endangered species, ecosystem sustainability, and outdoor recreation opportunities such as hunting, fishing, hiking, and bicycling. As a result of their focus on providing realistic training environments, military bases often contain excellent examples of their region's native landscape and wildlife habitat.

Fort Stewart/Hunter Army Airfield is no exception.

ALL IMAGES COURTESY U.S. ARMY UNLESS OTHERWISE NOTED

Fort Stewart/Hunter Army Airfield

MANAGING THE LAND

Occupying a land area of more than 284,000 acres, Fort Stewart/Hunter Army Airfield is the largest Army installation east of the Mississippi River. Located near Savannah, Ga., the Installation is home to the 3rd Infantry Division. With a total of 274,637 acres of training land, Fort Stewart alone provides soldiers with unrivaled training opportunities such as maneuver spaces large enough to allow an entire brigade combat team of approximately 5,000 soldiers to operate simultaneously in a tactical field environment.

While Fort Stewart's primary mission is to train and deploy combat-ready soldiers, the Installation maintains a strong focus on environmental stewardship and the belief that effective training can occur while protecting the environment. However, managing such a vast area of land that must be able to withstand the rigors of military training is no small task. As the largest forestry program in the Army and one of the largest in the DoD, Fort Stewart's forestry staff manages 139,700 acres of pine forest, 74,000 acres of forested wetlands, 58,300 acres of forest clearings and 9,600 acres of hardwood management areas. All management activities are coordinated with and in support of the military mission and soldiers' ability to train to the highest possible standard.

In order to uphold the Installation's legacy of excellence, Fort Stewart's Forestry Branch maintains a strong forest management strategy that supports full, unrestricted use of lands for military training. As a result, Fort Stewart boasts immensely valuable timber resources and is home to one of the largest remaining tracts of the

After logging operations are completed in an area, forestry staff brings in their equipment and sends the leftover debris through a wood chipper.

Above: Forestry staff use a terra torch, which dispenses ignited gelled fuel, to assist in getting the burn started and to facilitate lighting a baseline along the road. The terra torch is a beneficial tool because it can reach areas of dense vegetation that would otherwise be inaccessible.

longleaf pine-wiregrass ecosystem in Georgia, which serves as an ideal habitat for many federal- and state-listed threatened/endangered species. It also provides a landscape that is extremely conducive to military training.

TRICKS OF THE TRADE

Maintaining this valuable ecosystem requires the use of numerous strategic management practices. The Forestry Branch maintains a proactive prescribed burning program that is known by fire experts to be one of the largest in the world. Prescribed burns reduce the risk of unwanted wildfires, while offering benefits to natural resources, including: protecting from extreme fires, removing threats to the ecosystem, and recycling nutrients into the soil, among others. Of the 267,000 acres on Fort Stewart that are available for burning, 258,691 acres have been burned at least once during the last five years. As a result, units training on Fort Stewart have not lost a single day of training due to wildfires or wildfire suppression since 2000. Furthermore, Fort Stewart's prescribed burning efforts played a large role in the Installation reaching recovery status for its population of the federally endangered red-cockaded woodpecker in 2012.

In addition to its prescribed burning program, Fort Stewart's Forestry Branch also maintains the largest commercial timber program in the DoD, harvesting 5,000 to 6,000 acres each year. In accordance with federal law, Fort Stewart's timber revenue must be used to fund future forest management activities. Therefore, benefits provided by timber harvests in regards to military training, ecosystem management and threatened and endangered species habitat are incurred at little cost to the Army. The local economy also gets a boost by the Army providing high-quality wood products on a steady basis to the region's wood buyers, loggers, forest product mills and related businesses.

With each timber harvest, there is a large amount of debris left behind. Working with Fort Stewart's central energy plant (CEP), the Forestry Branch developed an initiative that provides unsellable logging debris to the CEP for steam generation. After each timber harvest, the Forestry Branch uses a wood chipper to turn the leftover debris into chips that can be burned in the CEP's wood-fired boiler. The energy that's generated from burning the wood chips produces steam for the CEP. Through this initiative, Fort Stewart has developed a renewable, sustainable energy resource from materials that would otherwise have been wasted.

With a focus on continual improvement, the Forestry Branch is always looking for new/better ways

Of the **267,000 acres on Fort Stewart** that are available for burning, **258,691 acres have been burned at least once** during the last five years. As a result, units training on Fort Stewart have not lost a single day of training due to wildfires or wildfire suppression since 2000. Furthermore, Fort Stewart's prescribed burning efforts played a large role in the Installation reaching recovery status for its population of the federally endangered red-cockaded woodpecker in 2012.

Prescribed burn at Fort Stewart/Hunter Army Airfield

to conduct its daily operations. Forestry personnel travel to other installations and attend conferences in order to learn from other forest managers and stay abreast of innovations within the industry. Furthermore, the program is passionate about sharing its success with certain techniques/procedures and often conducts training classes and/or tours for forestry personnel from other installations and organizations.

As the largest forestry program in the Army and one of the largest in the DoD, Fort Stewart's forestry staff manages **139,700 acres** of pine forest, **74,000 acres** of forested wetlands, **58,300 acres** of forest openings, and **9,600 acres** of hardwood management areas.

TRAINING MORE THAN SOLDIERS

While proactive management practices and a philosophy of continual improvement have led to numerous accomplishments for Fort Stewart Forestry, the overall success of the program can also be attributed to its dedication to public outreach. As public awareness plays a vital role in supporting the military's training mission as well as sustaining the environment, the branch's outreach efforts target those living and/or working on-post as well as the surrounding communities. Information regarding the various efforts of the Forestry Branch is disseminated through newspapers (both on- and off-post), various organizational newsletters, Fort Stewart's website, social media, local television stations, as well as community and school events. In addition, daily controlled burn notices are distributed through various channels both on and off the Installation. Through these efforts, the Forestry Branch is able to reach an audience far beyond the Installation's boundaries.

Fort Stewart's expansive forest is beautiful, serene, and furnishes a lush habitat for countless creatures. However, the towering pines and stately hardwoods also provide an unrivaled training landscape capable of training thousands of soldiers simultaneously while ensuring they are prepared for any obstacle they may encounter while protecting our country. Though the management of these lands requires a team comprised of various directorates and organizations (both on- and off-post), the majority of the responsibility lies with Fort Stewart's Forestry Branch. Their day-to-day operations are the driving force that will ensure the Installation's training environment is able to support both current and future mission requirements, while upholding the legacy of environmental excellence for which Fort Stewart/Hunter Army Airfield is known.

Amanda Price is part of the Fort Stewart/Hunter Army Airfield Environmental Division.

Red-cockaded woodpecker (*Picoides borealis*)

BOTTOM RIGHT: USDA FOREST SERVICE SOUTHERN RESEARCH STATION ARCHIVE, USDA FOREST SERVICE, SRS, BUGWOOD.ORG

2015 TREES PLEASE PHOTO CONTEST WINNERS

GRAND PRIZE WINNER

"Checking out the Redwood Forest"

PHOTOGRAPHER: Yinghai Lu (CA)

LOCATION: Bull Creek Flat in Humboldt Redwoods State Park, Calif.

ABOUT THE PHOTO:

The photo "Checking out the Redwood Forest" was taken during a hike in Humboldt State Redwoods Park, Calif., last winter. Humboldt State Redwoods Park is a magical place to Yinghai, more so in winters because there are less visitors and it is more lush due to the rain. During Yinghai's hike in the Bull Creek Flats with his buddy Max Forster, they were by themselves the whole time, enjoying the serenity and beauty that the old-growth forest can offer. It was cold and wet. Yinghai was leading the way and turned back, seeing Max, with camera and tripods on his shoulder, standing on a huge log and scouting the forest. Yinghai felt it would make a good photo to show how gigantic these trees are with Max as a reference. So, he opened

Checking out the Redwood Forest

the shutter, and this is how this photo came to be. Max and Yinghai have been exploring old-growth redwood forests for quite some time and feel blessed to be able to see these giants, which is only five percent of what used to be before logging. They maintain a Facebook page "Redwood Photograph" (www.facebook.com/redwoodsphotos) to share with people what they see in the forest from time to time.

ABOUT THE PHOTOGRAPHER:
Yinghai Lu is originally from Shanghai, China. After obtaining his PhD in electrical engineering, he moved to the United States and currently is a software engineer in the San Francisco Bay Area. Yinghai loves forests, especially old-growth redwood forests. He spends lots of time with his friend, Max Forster, exploring the redwood forests in northern California. Seeing these giants who are thousands years old makes him feel humble, and he finds it to be therapeutic.

WHY WE LOVED IT:
"We were captivated by the way this image unfolds in layers. There is so much going on. First you see the magnificent vertical tree trunks and the spray of cool green leaves, then the understory plants and the decaying fallen tree, which will nourish the trees above it. There is something about the composition and colors — greens, oranges and browns — that make you feel the dampness and stillness of the place and imagine the peaty smell of earth. Then, you see the man, standing in for all of us, tiny and insignificant against the ancient and astonishing redwoods. In so many ways, this picture tells the story of this forest — its lifecycle, its sense of place and its grandeur."

— Scott Steen, CEO, American Forests

HONORABLE MENTIONS

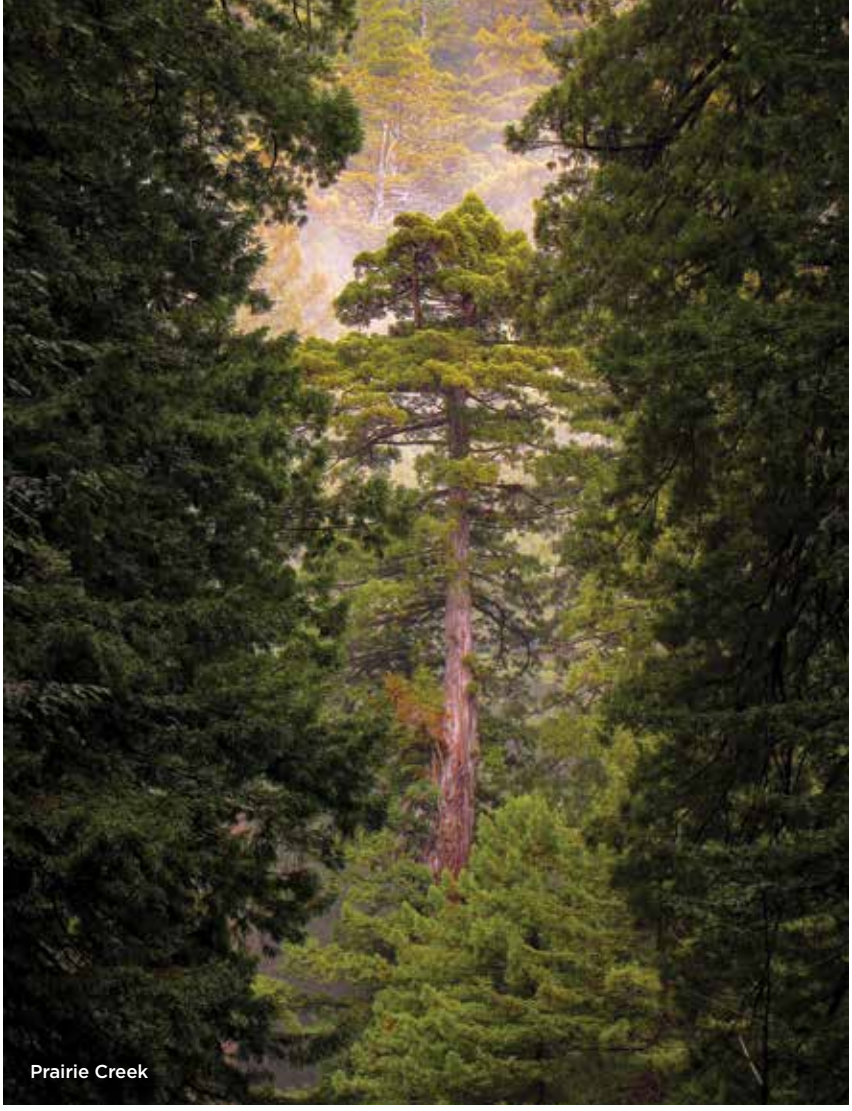
"Independence I"

PHOTOGRAPHER: Jason Liske (CA)
LOCATION: Sierra Nevada, Calif.

ABOUT THE PHOTO:
Exploring the less traveled Sierra Nevada foothills, one discovers California history hidden in grasslands and watched over by valley, interior live and blue oaks — California history without fanfare and in plain sight. Oaks, and this oak in particular, are markers of time — time larger and outside of our human span. It stands stoically, marking time, alone, yet of the landscape.

ABOUT THE PHOTOGRAPHER:
Photographer Jason Liske's passion for visual storytelling leads him to explore spaces in depth. He strives to capture moments where humans and nature intersect, his photographs reflecting his appreciation for bold forms and

Independence I



Prairie Creek

scapes that resonate in their surroundings. Jason has been shooting landscapes and gardens professionally since 2003. He has collaborated with some of the leading garden and landscape design firms in the western U.S. to capture and express their projects and identity within the digital medium.

WHY WE LOVED IT:
"There is something spectacular, almost breathtaking in this serene, yet simple, image of a lonely tree. The tree silhouetted against the horizon makes a delicate explanation point that arrests the motion of the wind driven grasslands below and the wispy cirrus clouds above. In the vastness of the photograph's space, we sense the beauty, strength, vitality and, yes, fragility too, o f this lonely tree. It's a photograph you can look at for a long time and just let your imagination go."

— Lou Mazzatenta, Former National Geographic Photographer

"Prairie Creek"

PHOTOGRAPHER: Mario Vaden (OR)
LOCATION: Prairie Creek Redwoods State Park, near Orick, Calif.

ABOUT THE PHOTO:
This photo was taken about two hours before finding the world's tallest known hemlock, a tree called Tsunami. The hemlock find and photographing of this coast redwood were on a visit that coincided with tsunami conditions in northern California from the 2011 earthquake in Japan.

ABOUT THE PHOTOGRAPHER:
Mario is an Oregon-based certified arborist with over 30 years of experience in horticulture. He is also a professional portrait and fine art print photographer in Oregon and northern California. Mario is married to Jan Vaden, with four children, four dogs and two Green Cheek Conure Birds.

WHY WE LOVED IT:
"This image immediately draws you in at first glance. The dark trees on the sides guide your eye directly into the bright-green tree in the center and makes it feel like a sudden, surprising discovery during a walk in the forest. The hint of fog just above the tree adds additional depth to an already rich and beautiful scene. Overall, it feels like a celebration of this magnificent, ancient tree — the thrilling climax after a long hike. From a technical and stylistic perspective, the photographer has carefully controlled the contrast, white balance, sharpness, and composition to help create a masterful image."

—Brad Latham, Designer, American Forests *magazine*

"Horse Chesnut at Dawn"

PHOTOGRAPHER: Diana F. Fraser (MD)
LOCATION: Family farm in Maryland

ABOUT THE PHOTO:
This beautiful horse chestnut tree is at least 100 years old and stands over 75 feet tall. It is located in front of Diana's house on her small Maryland horse farm. The photo was taken one October morning when the sunrise shone through the mist. A family member was having surgery that day, and Diana took this lovely scene as a sign that everything would go well (and, it did!). Every fall, Diana and her family hear the "clunk, clunk, clunk" of the chestnuts dropping on the porch roof. Needless to say, it is a very popular tree with their squirrel population.

ABOUT THE PHOTOGRAPHER:
Diana F. Fraser is an amateur photographer who specializes in photographing nature and wildlife, horses and agriculture. Fraser has earned recognition for her work in various competitions, including being named the Grand Prize winner in the 2010 Pennsylvania Farm Show photo contest and the third-place winner in 2014. Her photograph of Havre de

Grace, Md., won the Towns and Cities category of the *Maryland Life* magazine 2009 annual photo contest, and her photograph, "Christmas Snow," was a finalist in the Tractor Supply Company 2008 photo contest, to name only a few. Fraser works in marketing and communications at the corporate headquarters of a national health care system. She lives on a horse farm in Carroll County, Md., with her husband.

WHY WE LOVED IT:

"The tonal range in this image is remarkable, from the total darkness of the silhouetted tree to the piercing highlight of the sun, she takes it literally and figuratively from 0 to 100 and everything in between. Look how she captures the sun's rays backlighting, thus, making the leaves glow. Look how the sun is perfectly placed so that even pointing straight into the camera, it doesn't blow out anything near it. But, what brings the image to the exceptional category for me is the mist. The mist diffuses the sun's intensity, and it's what gives the entire image its golden glow. That glow forms the background that really makes the silhouette pop. And,

Tree Love in Vermont

I like how it causes the fence in the back to gently disappear to the center of the frame. This is a terribly complex image that easily would have been a challenge for most pros to pull off."

—Chuck Fazio, Artist-in-Residence, American Forests

PEOPLE'S CHOICE WINNER

"Tree Love in Vermont"

Horse Chesnut at Dawn

PHOTOGRAPHER: Madeline Ligenza (VT)

LOCATION: Mt. Philo, Vt.

ABOUT THE PHOTO:

The minute Madeline saw this tree she knew it was magical. It is on Mt. Philo, Vermont's oldest state park, created in 1924. As you hike up to the tree, you always notice that the sun shines on it with such pride & beauty. Madeline believes this beautiful old maple tree is a "Mother Tree." There is a separation all around it from the younger trees in the forest, perhaps out of respect for an elder. Madeline honors this magical tree every time she hikes up beautiful Mt. Philo.

ABOUT THE PHOTOGRAPHER:

Madeline Ligenza is an amateur nature-loving photographer living in Vermont. The youngest of seven, nature gave her a special place where she could always find peace for herself outside the busy home. Madeline's late uncle Tony was an artist, film editor and fellow photographer who was an inspiration for her journey into photography. She is an avid animal lover and her other hobbies include: hiking, kayaking, gardening, cooking, craft beer, metal detecting and collecting crystals. In her photos she loves to capture the energy she feels from her love and respect of mother nature. Madeline always feels free while in nature, so she decided to name her company "Nature Is Free Photography." You can view more of Madeline's work at www.natureisfree.com.

WHY WE LOVED IT:

"People loved this photo, and they told us so! They described the tree as an old soul, regal, undulating bark, the epitome of ancient strength and more; about the photo, they praised it as a well-balanced image with excellent detail. The photographer captured the pureness that is nature! To me, it is an artful view of the tree's aged fingers stretching into the sky, playing tunes in the wind."

— Lea Sloan, VP of Communications, American Forests

A Final Return to Nature

BY JILL DRAPER

TAKING ROOT, touching sky, towering above us. Trees have long been a special symbol to mankind and a central part of most creation stories told around the world. They're also a part of death, gracing cemetery lawns and standing as a living link between heaven and earth.

There's a growing movement to strengthen and celebrate that link as people look for more natural ways to remember their loved ones and to plan their own last rites.

This movement is being embraced by all generations, but baby boomers approaching their senior years are in a position to lead the way. They changed the world in terms of music, society and politics. Will they also change conservation groups and the funeral industry?

Joe Sehee thinks so. As founder of the Green Burial Council, he's helped guide a series of incremental steps in the last decade as increasing numbers of people opt for natural graves over metal caskets and concrete tombs. Now, he says the movement is poised to take a giant leap.

"Boomers are starting to think about their last act and legacy," Sehee says. "They're looking for a personal expression in line with their core values. Using burial to facilitate landscape-level conservation — not just to protect 30 acres, but 30,000 acres — is a real possibility."

With the United States population expected to increase by almost 50 percent from the year 2000 to 2050, new subdivisions will continue to press against forests and farmland, expanding urban development at a rate, estimated in a 2002 USDA report, of more than 3 million acres a year. Seehee suggests that these tracts of land be encircled by green burial sites, and lately he's been talking with the Texas Parks and Wildlife Department and other state agencies about how this idea could protect large swaths of land as habitat in perpetuity.

The Memorial Garden at Powell Gardens in Kansas City, Mo.

CITY OF LAWRENCE, KAN.

Conservation organizations and the funeral industry have been reluctant to approach this topic, he says, even though many people are not comfortable with conventional options and find solace in a natural forest landscape. Still, he cautions about viewing green burial as a do-it-yourself opportunity.

"There's a stewardship component that's very critical — otherwise it's not doing much for the planet," Sehee says. "It's a really interesting time, and there's a lot of potential for positive outcomes if we do this properly."

Sehee acknowledges that, for some, green burials are a personal expression of their values, but, personally, he became involved from a conservation and restoration standpoint.

"We've demonstrated that this concept can work with a certain level of accountability," Sehee says. "That's why the Green Burial Council was established as a nonprofit organization."

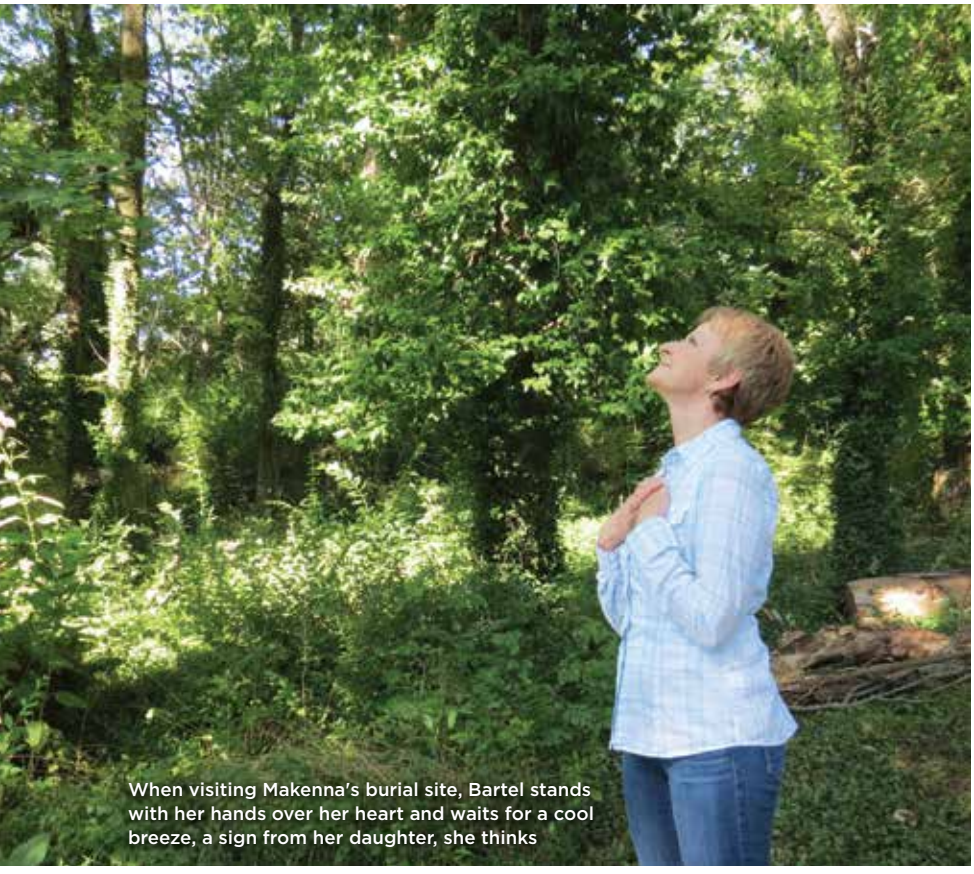
There's a lot of work that can be done at the intersection of funerals, cemeteries and conservation, he says.

RESTING IN A MAGICAL FOREST

The city of Lawrence, Kan., looked to the Green Burial Council for guidance when officials voted in 2008 to become the first municipality to create a natural burial site at a public cemetery. Only cardboard, wooden or other eco-friendly caskets may be used, and no embalming, artificial flowers or figurines are allowed. Flat rocks or boulders may be engraved to serve as tombstones.

Mitch Young, cemetery supervisor, says the city has already sold 60

Cindy Bartel visiting her daughter's burial site with fresh red gladiolis



When visiting Makenna's burial site, Bartel stands with her hands over her heart and waits for a cool breeze, a sign from her daughter, she thinks

percent of the plots in a 100- by 200-foot section of Oak Hill Cemetery and is considering doubling that space.

"Very few cemeteries have wooded areas, but ours just happens to back up to undeveloped city property," Young says. The site is mowed only once a year and contains elm, Osage orange, oak and redbud trees.

Cindy Bartel drives there from the Kansas City area at least once a week. Her daughter, Makenna Rose Heaney, died two years ago on Earth Day at age 28 and lies buried beneath a redbud tree. Bartel often takes fresh flowers and her daughter's favorite coffee drink, an iced vanilla latte. She looks for butterflies near the milkweed she planted, and

"It doesn't feel like I'm visiting a cemetery... It feels like I'm a part of this peaceful, magical forest, and that helps a lot. I can just imagine her here."

— CINDY BARTEL

sometimes she notices large areas of weeds and grass matted down where deer have rested at night. She thinks Makenna would love that.

"It doesn't feel like I'm visiting a cemetery," Bartel says. "It feels like I'm a part of this peaceful, magical forest, and that helps a lot. I can just imagine her here."

A natural burial was the final wish of her daughter, who researched possibilities online after being diagnosed with a rare form of cancer. When death came, her mother, sister and best friend washed her body with rose-scented water and wrapped it in a linen shroud with sewn-in straps and handles. A special pocket near the heart held biodegradable notes, pictures and mementos. Family members, including her father and husband, lowered the body into a pre-dug grave and used Oak Hill shovels to fill it back with soil. Afterward, they talked and told stories.

In the end, Bartel was so comforted by the process that she purchased plots for her entire family.

"It's totally different than a conventional funeral, and much more personal," Bartel says. "It helped so much that we could do this, and I'm so glad we did."

ASHES IN THE WIND

A peaceful forest setting is also the attraction of a new memorial garden for scattering or burying cremated ashes east of Kansas City. The site is located at the 970-acre Powell Gardens, a Midwestern-style botanical garden with rolling hills, nature trails and various display gardens. Situated between a meadow and an oak-hickory woodland, the space features a paved path that

PHOTOS, PAGES 42 AND 43: JILL DRAPER

Oak Hill Cemetery director Mitch Young tending to the grounds

Oak Hill Cemetery in the city of Lawrence, Kan.

meanders to a stone wall and a small, bubbling fountain. A prairie-style chapel designed years earlier by architect E. Fay Jones serves as a unique backdrop.

The concept of placing a memorial woodland within a botanical garden drew much interest when Eric Tschanz, executive director of Powell Gardens, described the project at a recent meeting of the American Public Gardens Association.

"It's a service, but also a development tool," Tschanz says. And, unlike the display gardens that need constant maintenance, the memorial garden was lightly designed with natives and wildflowers. "We feel the natural beauty of the site is all you need here."

Trees planted at the Pentagon in Washington, D.C. in memory of those who lost their lives on September 11, 2001

Wildflowers growing in Powell Gardens

Roy and Lois Lovin of Lee's Summit, Mo., were among the early backers of the new garden and have arranged to have their ashes scattered there when the time comes. Simple bronze plaques with their names and dates of birth and death will be placed on the stone wall.

"We like the rural woodland setting," Roy Lovin says. "It's peaceful and away from the hubbub of the city."

But, his wife points out that their pre-arrangements go beyond an appreciation of flowers and trees.

"We fell in love with Powell Gardens 25 years ago and have watched it grow," Lois Lovin says. "We're happy to pay for the privilege of using the memorial garden — it's just one of the benefits of being supporters."

TREES IN MEMORIAL

Supporting reforestation efforts is another memorial option. When Marilyn Zawoyski's cousin died at age 67, she bought a tree for every year of his life as a memorial gift. It was an affordable act because the trees were seedlings purchased for a dollar apiece through the American Forests Trees in Memory Program.

Zawoyski, an American Forests member in Pittsburgh, has been doing this for nearly a decade after discovering American Forests while searching online for memorial trees. When a friend or relative passes away, she writes this message on a sympathy card: "The gift of trees lives on like the memory of a person."

"I find trees to be a nice memorial gift instead of sending flowers, Zawoyski says. "And, when I found that quote, that's what really touched me. I always get a good response from the people I send them to."

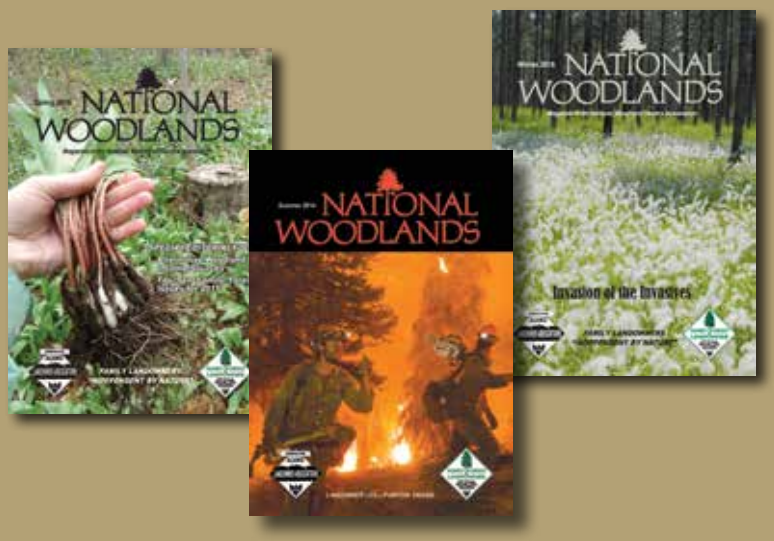
LIFE AFTER DEATH

"We all like the idea of a tree; we like connecting death to life," sums up Sehee, a former Jesuit lay minister, who says the purpose of end-of-life rites is "creating space to honor the dead, heal the living and invite in the divine."

There are more than 76 million boomers in the U.S. entering their final decades. He urges them to think on a grand scale. "Let's be very visionary in deciding we want for a final resting place. The big question is what can our death do for the living?"

Jill Draper is a freelance writer at jilldraperfreelance.wordpress.com. She lives in Kansas City, Mo.

TOP: RICH RENOMERON/ FLICKR; LEFT: CITY OF LAWRENCE, KAN.



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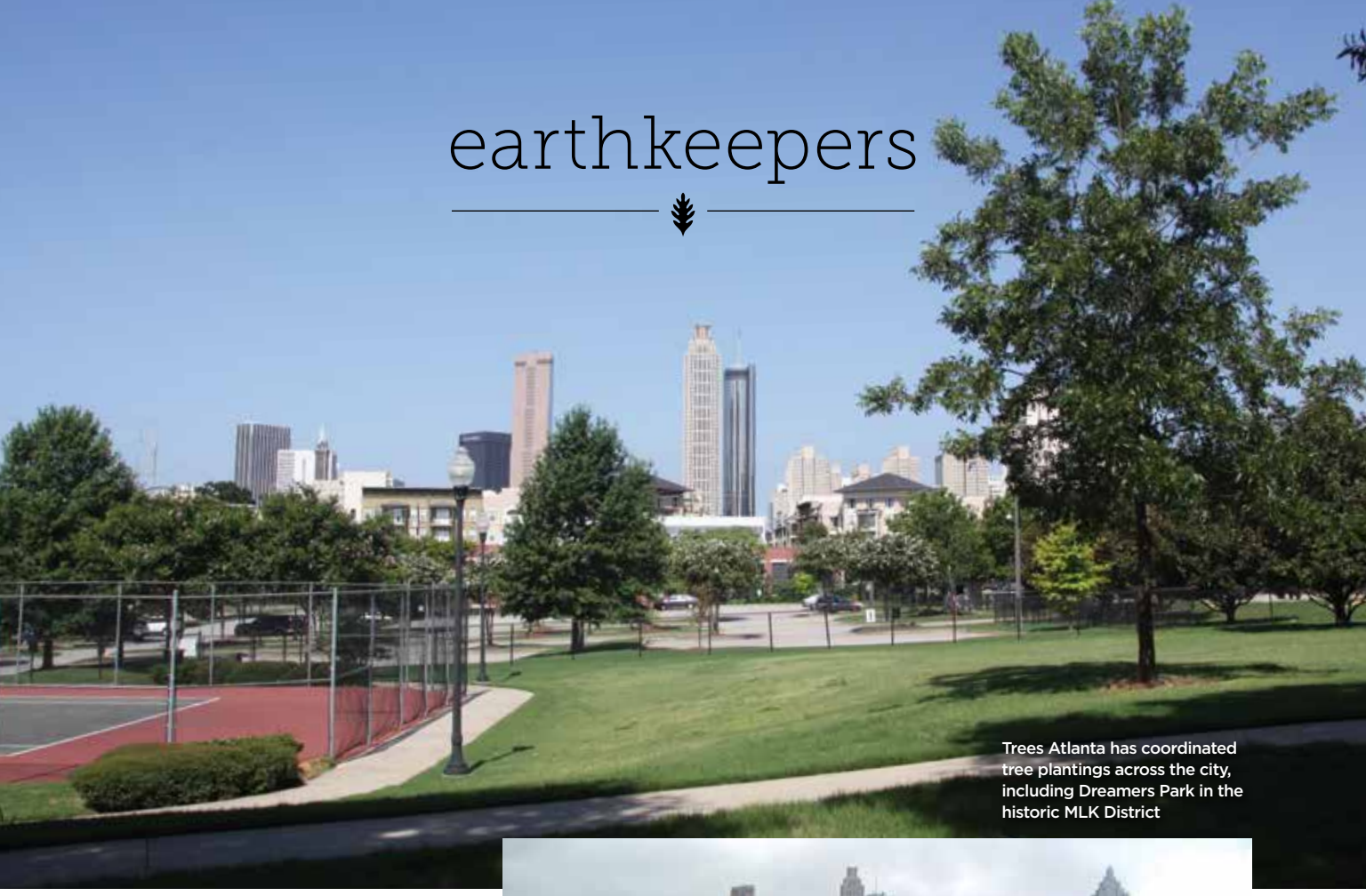

Trees Atlanta has coordinated tree plantings across the city, including Dreamers Park in the historic MLK District

Becoming the City in a Forest

BY DAVID MAY

Before Trees Atlanta's planting project at Dreamers Park

IT TOOK SOME HUNDRED YEARS for anyone to think of Atlanta as "The City in a Forest." But today, beyond the downtown skyline, trees dominate the landscape, making it easy to see how Atlanta has the most tree cover of any major city in the United States. However, this beautiful distinction is not easily maintained. Constantly growing suburbs and pressure for more streamlined construction have threatened the presence of the abundant dogwoods, oaks and southern pines that pervade the city.

Marcia Bansley is among the city's chief defenders of the canopy. An Atlanta native, Marcia worked to protect the metro area's natural resources with various organizations before helping create the area's largest urban forestry nonprofit, Trees Atlanta, which has grown to significant distinction. As the founding executive director, she spent 26 years growing the organization.

Marcia's infectious enthusiasm for local activism started long before Trees Atlanta. In the early-1970s, she joined Friends of the River, an organization started through the Junior League of Atlanta to protect the Chattahoochee River. Marcia saw the importance of the river and growing public awareness, because "people don't realize it, but the watershed isn't very big and we are dependent on it." Atlanta was experiencing astounding growth, and, after several studies showed the need for action, Marcia worked tirelessly with lawmakers to create the Chattahoochee River National Recreation Area.

Marcia managed a law firm for some time while with Friends of the River, and she then went on to protect the Chattahoochee with the Legacy Foundation before returning to Emory University to finish her law degree. While pursu-

ALL PHOTOS: TREES ATLANTA


Marcia Bansley

ing her law degree, she interned with Senator Samuel Nunn in Washington, D.C., for almost a year, an experience she found invaluable in her later efforts to rally political support.

Founded in 1985, Trees Atlanta is dedicated to protecting Atlanta's forests, creating new green space and fighting tree loss. For eight years she was the only employee, and jokes that "people said Trees Atlanta was an answering machine." The office space was donated, and her entire salary was covered for two years by Georgia-Pacific. Despite these challenges, she managed to initiate change through great volunteers and her breadth of experience in nonprofit management.

"I knew how to persuade talented people to volunteer their professional talents and skills to help with our work," she says, pointing out that this was made easier by showing them the change they could make in their own community.

Marcia knew that downtown Atlanta needed more natural beauty to keep it thriving, and, when the city was chosen to host the 1996 Olympics, she saw the perfect opportunity. The area needed trees, so she set off to determine how to make downtown green again. With a team of landscape architects and contractors, she worked for months to mark every new tree's spot. Eventually, in late 1990, a $5 million price tag was set for the job, an intimidating figure for a one-person organization.

With little attention from the city government, Marcia gathered support for the project wherever she could find it. In order to receive a match through the Forest Service, she had to raise $500,000, and it didn't look promising. But, just when she thought it might fall apart, the Woodruff Foundation gave her $1 million. She couldn't believe her luck, saying she was "non-functional for three days." Soon after, Marcia found her once-obscure project in the spotlight and was able to raise the rest of the money to complete the amazing transformation.

"I'm really proud of Atlanta," Marcia says. "We have leadership who care and people who've grown up here, or haven't grown up here, putting a lot of effort into it."

Although Marcia was extraordinarily involved locally, she was also instrumental in facilitating the growth of urban forestry on a national level.

During the George H.W. Bush administration, Marcia was part of the National Urban and Community Forestry Advisory Council, advising the Secretary of Agriculture on urban forestry policy for more than three years. And, it didn't stop there. Recognizing the importance of collaboration, Marcia helped to create the Alliance for Community Trees. The organization was incorporated in 1993 as a nationwide coalition of grassroots urban forestry groups, a way for local organizations to share their recipes for success, which Marcia found to be a solid support system.

"Part of it is the emotional support," she says. "When you're an executive director, you've got to have some help from somewhere."

The Olympics planting was a transformative project for Trees Atlanta. The organization emerged much larger, better funded and increasingly relevant in the local conservation movement. The staff grew to include a variety of passionate individuals who helped steer the organization, and Marcia was able to step down as executive director after 26 years, confident that Trees Atlanta was in good hands. She couldn't have done it without people like Connie Veates, the president of the board for many years who helped with complex issues and "gave sage advice on running [the] organization." Connie took on the role of co-executive director with Greg Levine, and they have continued to guide Trees Atlanta with a variety of programs that benefit the Atlanta metropolitan area, including education programs for both kids and adults as well as planting projects in underserved neighborhoods.

Marcia remains committed to her community, now with the Georgia Advisory Board for the Trust for Public Land, and you can see her enthusiasm hasn't faded one bit.

"I'm really proud of Atlanta," Marcia says. "We have leadership who care and people who've grown up here, or haven't grown up here, putting a lot of effort into it."

And, although there's always progress to make, it's important to recognize the progress that's already been made. The visionary signature of Marcia Bansley will long be visible in not only the neighborhoods of Atlanta, but also in the field of urban forestry as a whole.

David May was American Forests' summer 2015 communications intern and is a junior at Elon University in North Carolina, studying marketing and environmental studies.

Reactions to your favorite Trees Please People's Choice Nominees

THIS YEAR, AMERICAN FORESTS HELD OUR FIRST ANNUAL TREES PLEASE PHOTO CONTEST. In addition to our Grand Prize Winner and three Honorable Mentions, we took to Facebook for the People's Choice award to find out which photo stole your heart and why. Here are some of our favorite reactions. See the photos for yourself by visiting **www.facebook.com/AmericanForests**.

"The dependable, magnetic evergreens. They draw you to them with their welcoming shape, uplifting your spirit as they poignantly rise to the sky like a big bushy arrow. Beautiful, bountiful greens, everlasting in the coldest of nights, bring a most enjoyable scent to my heart's delight!"

MARTI WINFIELD ON "BACKYARD"

"I chose this because it represents beauty in darkness. When one's life seems filled with darkness others need to be there to help guide the person to see the beauty that surrounds him or her."

MARSHEL MORRISON ON "BACKYARD"

"Perfect picture to show our nation's pride! The history behind the DC cherry blossoms is fascinating!"

JEN LAZUR TRUE ON "CHERRY BLOSSOMS"

"I have always loved old trees. This to me is the epitome of ancient strength. It is a well-balanced image with excellent detail."

LORRIE BENZING ON "TREE LOVE IN VERMONT"

"OMGoodness. THIS is my #1 choice. I can only imagine how old this tree is and how many storms it has weathered to still be standing there offering a home to multitudes of creatures. This one is most definitely a beauty and has earned its place on this list."

PATRICIA GRIFFIN ON "CARMANAH WALBRAN SITKA SPRUCE GIANT WITH SATCH"

"It looks so vast and dry. But there's this beautiful tree...just trying."

MARY TAYLOR ON "RED ROCK TREE"

"The challenges of life are in the furrowed, undulating bark, and the many branches needed to survive through time."

TONY DEININGER ON "TREE LOVE IN VERMONT"

"I love the fall when all the trees begin to turn beautiful colors. Kids playing in the falling leaves and going on hay rides and of course craving pumpkins. Love the barn and countryside..."

FREDA SMITHERS ON "FALL BARN"

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