



## IN THIS ISSUE

### WUI in the South

The southern Group of State Foresters calculates that more than 66 million people in the 13 Southern states are living in wildland-urban interface zones, and more than 92 percent—61 million people—are at moderate to extreme risk from wildfire. Unlike in the West, where the US Forest Service and Bureau of Land Management are often the lead fire-fighting agencies, state forestry agencies are responsible for protecting 94 percent of the total land area in the South from wildfire. **Page 4.**

### Lessons Learned from Bastrop Fires

Fires in 2011 in Bastrop County, Texas, took two lives, destroyed 1,645 homes, and burned 34,068 acres. A recent countywide wildfire-mitigation study analyzed current wildfire risks and developed a risk-assessment map covering both natural and human habitation areas. Data from the study help prioritize mitigation efforts based on where people live, predict fire behavior, and develop fire risk levels for specific locations. **Page 10.**

### Virtual Reality in Forestry

Charlie Houser, CF, shows how to use virtual reality (VR) technology that displays panoramic or spherical imagery in three dimensions so the viewer feels fully immersed in the scene being presented. He writes that “even the average Jane or Joe Forester can get in the act, thanks to our friends at Google. With just a smartphone, a free app (either Android or iOS), and a \$15 viewer, anyone can produce and share VR content.” **Page 16.**

### Pellets and Sustainability in Arkansas

Highland Pellets LLC expects its recently opened pellet plant in Pine Bluff, Arkansas, to reach full capacity in November. The plant employs 68 people, and providing raw material for the pellets is estimated to result in 350 to 400 direct cutting and hauling jobs. **Page 18.**

## DEPARTMENTS

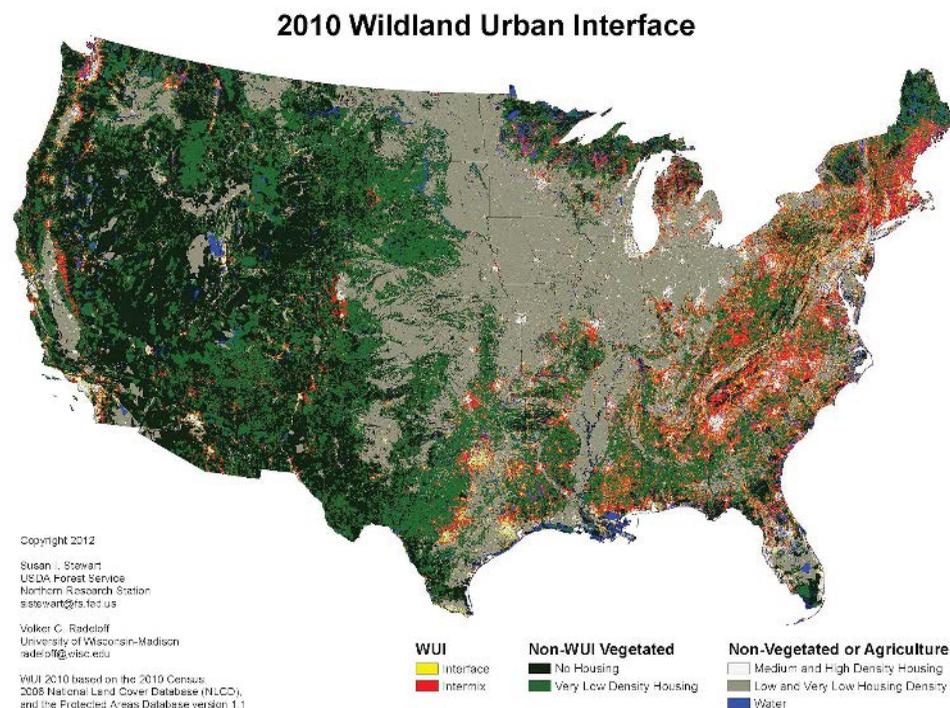
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## The Wildland-Urban Interface: Managing People, Fuels, and Fire

Although at this writing fire season is weeks or months away in much of the western US, other parts of the nation have already seen significant fires—and the loss of homes and other structures. In the Northwest Oklahoma Complex, where more than 780,000 acres of brush and tall grass had burned by mid-March, 31 residences and 108 out-buildings were destroyed. In March, a fire in Logan County, Colorado, burned more than 32,500 acres and took 19 structures, and fires in Florida and Texas burned six and 11 homes, respectively.

The number of homes and other buildings burned in any one fire so far in 2017 may seem insignificant, compared to the 2,460 structures damaged or destroyed by fires last fall in and around Gatlinburg, Tennessee; the 2,400 destroyed in Fort McMurray, Alberta, last year; or the nearly 2,000 burned by the 2015 Valley Fire in California. Of course, to the families and communities that lost those homes, the destruction was disastrous.

In this special edition on the wildland-urban interface (WUI), you'll read about the Southern Group of State Foresters' Southern Wildfire Risk Assessment Portal (page 4); fuel breaks built to protect



From the SILVIS lab at the University of Wisconsin-Madison, [silvis.forest.wisc.edu/maps/wui](http://silvis.forest.wisc.edu/maps/wui).

communities on Alaska's Kenai Peninsula (page 6); the National Fire Protection Association's Firewise Communities Program (page 8); and a recent study that facilitated fire-risk reduction in Bastrop County,

Texas, where fires in 2011 took two lives and destroyed 1,645 homes (page 10). See also the Commentary by Henri Grissino-Mayer on page 12, “What Happened in Gatlinburg, Tennessee?”

## Montana Forest Collaboration Network Works to Build Trust

By Donald Radcliffe

Montana citizens have long recognized federal land-management gridlock as a problem. For more than a decade, they've been forming stakeholder collaboration groups in which parties with different and sometimes conflicting viewpoints join together to find common ground on contentious issues. Today, the Montana Forest Collaboration Network (MFCN) is working to provide communication, support, and a common vision for more than 20 collaborative groups in the state.

Montana is blessed with vast tracts of public land that host rare animals like the grizzly bear, Canada lynx, wolf, wolverine, and bull trout, all alongside an active timber industry in a region with a rich heritage of outdoor recreation. This has arguably made finding agreement on forest-management issues even more difficult for Montanans than it is for most the country.

In the last decade, however, the formation of forest collaboration groups has brought people with a diversity of opinions together. Each of these groups is unique, but many were born from frustration with a shortage of active management on federal lands. The challenge stems

from a historical lack of understanding between timber companies and some in the environmental community, and this has created a culture of obstruction and litigation. Nobody has found this process satisfactory.

“We're trying to build the social license to manage our forests—in other words, trust and support,” said Tim Love, CF, coordinator of MFCN. “The way you gain that trust is by getting people to work together.... It's more of a marathon than a sprint, but we can get there.”

### Origins of MFCN

The Montana Department of Natural Resources and Conservation and the US Forest Service (USFS) recently became interested in building trust by strengthening the role of the many forest collaboration groups in Montana. To do so, they reached out to a group called the Montana Forest Restoration Committee (MFRC), which had been working to find areas of agreement on land-management issues and to develop a set of principles for forest restoration. The agencies asked MFRC to coordinate the collaborative efforts. The committee hired Love, a retired district ranger of 20 years, to do just that.



Tim Love, CF, a retired US Forest Service district ranger, is coordinator of the Montana Forest Collaboration Network. Photo: MFCN.

“I started calling around and, lo and behold, these groups were interested in having a network,” Love said.

About a year ago, the committee responded to that interest by transforming into MFCN. The change was overseen by an advisory council, which hired Love and Debra Foley to administer the network. Foley has valuable experience in working with private landowners in several capacities, including more than 12 years as president of the Montana Forest Owners Association.

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The opinions expressed in articles, commentaries, and letters do not necessarily reflect the policies or views of SAF.

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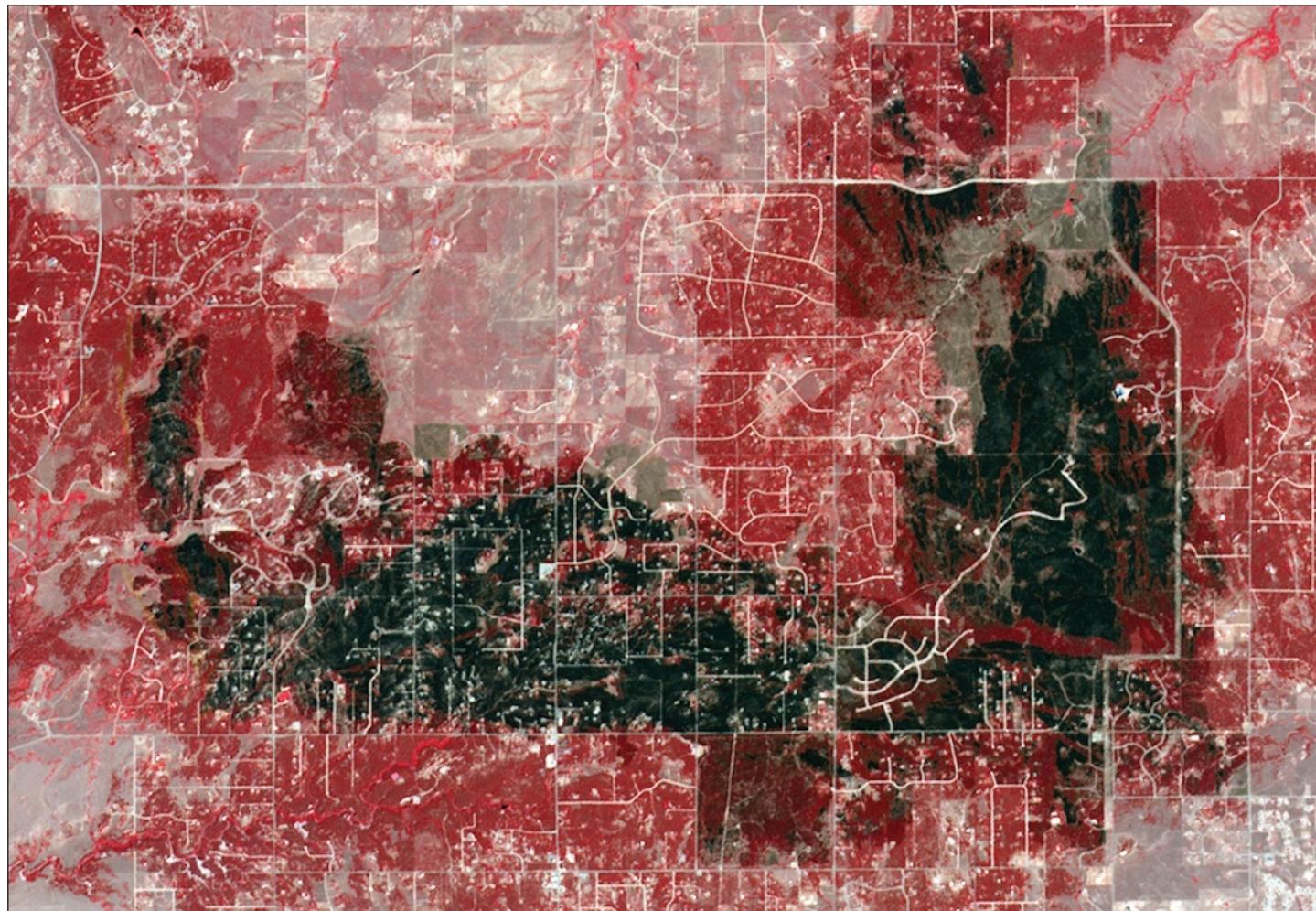
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# Wildland-Urban Interface Fires: It's Not If, but When

By Steve Wilent



The 14,000-acre Black Forest Fire, in a wooded suburb of Colorado Springs, Colorado, destroyed 509 homes and killed two people in 2013. In this June 21, 2013, false-color image, the dark gray and black areas are the most severely burned. Vegetation-covered land is red, patches of unburned forest are bright red, and unburned grasslands are pink. Buildings, roads, and other developed areas appear light gray and white. The image was captured by NASA's Advanced Spaceborne Thermal Emission and Reflection Radiometer on the Terra satellite.

Here on the western slope of the Cascade Range in northern Oregon, the forests are dense with Douglas-fir, western hemlock, western redcedar, red alder, vine maple, and other trees. It's wet here. Very wet. In the 25 years I've lived here, the record for rainfall was the 1996/1997 water year, when a local weather watcher recorded 126 inches of rain—10 and a half feet. It's no wonder that some people say we live in an "asbestos forest." With all that rain, the thinking goes, there's no danger of wildfire.

And yet the evidence of past fires is all around us. Timber harvests on the slopes above my community in the past decade or so have revealed hundreds of huge charred snags, some four to five feet in diameter, the remnants of a fire that burned thousands of acres about 115 years ago. Many other snags are hidden among the regeneration, including on my land; some of the Doug-fir here are well over 160 feet tall. It would have been a roaring, raging crown fire, one that even modern firefighting machines and crews would have little hope of stopping or even slowing. It was not the only fire to burn here since white settlers moved in. Photographs of the area from the late 1800s and early 1900s, now hanging in the post office and area businesses, show wooden homes and buildings with swaths of barkless snags in the background. The asbestos forest.

Our local fire department has urged

local homeowners to create defensible spaces. One summer the firefighters left yellow placards on front doors explaining their assessments of the wildfire readiness of the properties. Some who had narrow, overgrown driveways, yards crowded with trees and brush, and gutters overflowing with debris received notice that firefighters would likely have to write them off in the event of a wildfire. As far as I know, few property owners took any appreciable action. Interest in fire safety was briefly rekindled—pardon the pun—in 2011, when ash and charred fir needles fell all around us, detritus from the 6,300-acre Dollar Lake Fire several miles away just north of Mount Hood. One day, a fire will come closer or perhaps into our community. At least keep your gutters and roof valleys clean during the dry season, I tell my neighbors.

Assisting property owners and communities in preparing for wildfire offers a great opportunity for foresters to reach out to the public, to educate people about forestry, forest health, and how science-based forest management can help safeguard their homes, families, and businesses from fire. As you'll read elsewhere in this edition of *The Forestry Source*, the Southern Group of State Foresters and the National Fire Protection Association (NFPA) provide excellent resources to supplement face-to-face meetings with individuals and groups. On the NFPA's website, take a look at "The Jack Cohen Files" ([tinyurl.com/khavr6r](http://tinyurl.com/khavr6r)), a list of publications by Cohen, the well-known and now retired researcher with the US Forest Service's Missoula Fire Sciences Laboratory.

In any meetings with the public, it may be helpful to use words similar to these, from the back page of *Fire in the South 2: The Southern Wildfire Risk Assessment*, a report by the Southern Group of State Foresters ([www.srs.fs.usda.gov/pubs/34087](http://www.srs.fs.usda.gov/pubs/34087)):

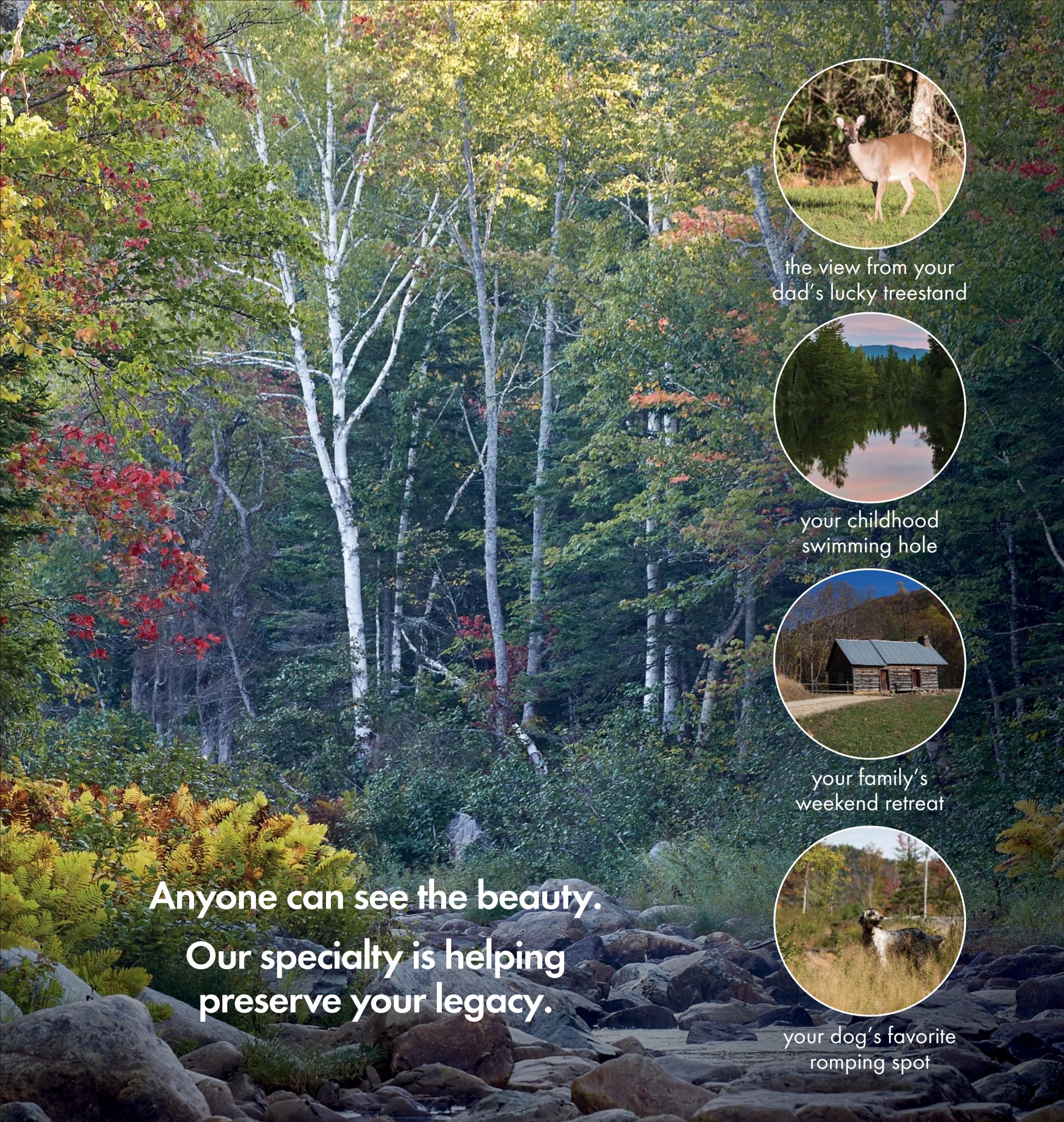
"In the fire-adapted ecosystems of the South, the issue is not whether an area will burn, but when it will burn and at what intensity."

Substitute your state or region for "South," if that's appropriate. And stress that taking action before a fire burns can mean the difference between a close call and a disaster, between life and death. **FS**

Substitute your state or region for "South," if that's appropriate. And stress that taking action before a fire burns can mean the difference between a close call and a disaster, between life and death. **FS**

**Corrected Link for 193 Million Acres Book Contributions**

In the March edition, the link to a call for contributions to a book to be published by SAF: *193 Million Acres: Toward a more healthy and resilient US Forest Service*, became broken after the issue was printed. The correct link is [tinyurl.com/j26nuv8](http://tinyurl.com/j26nuv8). For information, see the ad on page 19 in this edition or contact the book's editor, Steve Wilent, at 503-622-3033 or wilents@safnet.org.



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# Southern State Foresters Tackle WUI Preparedness

By Steve Wilent

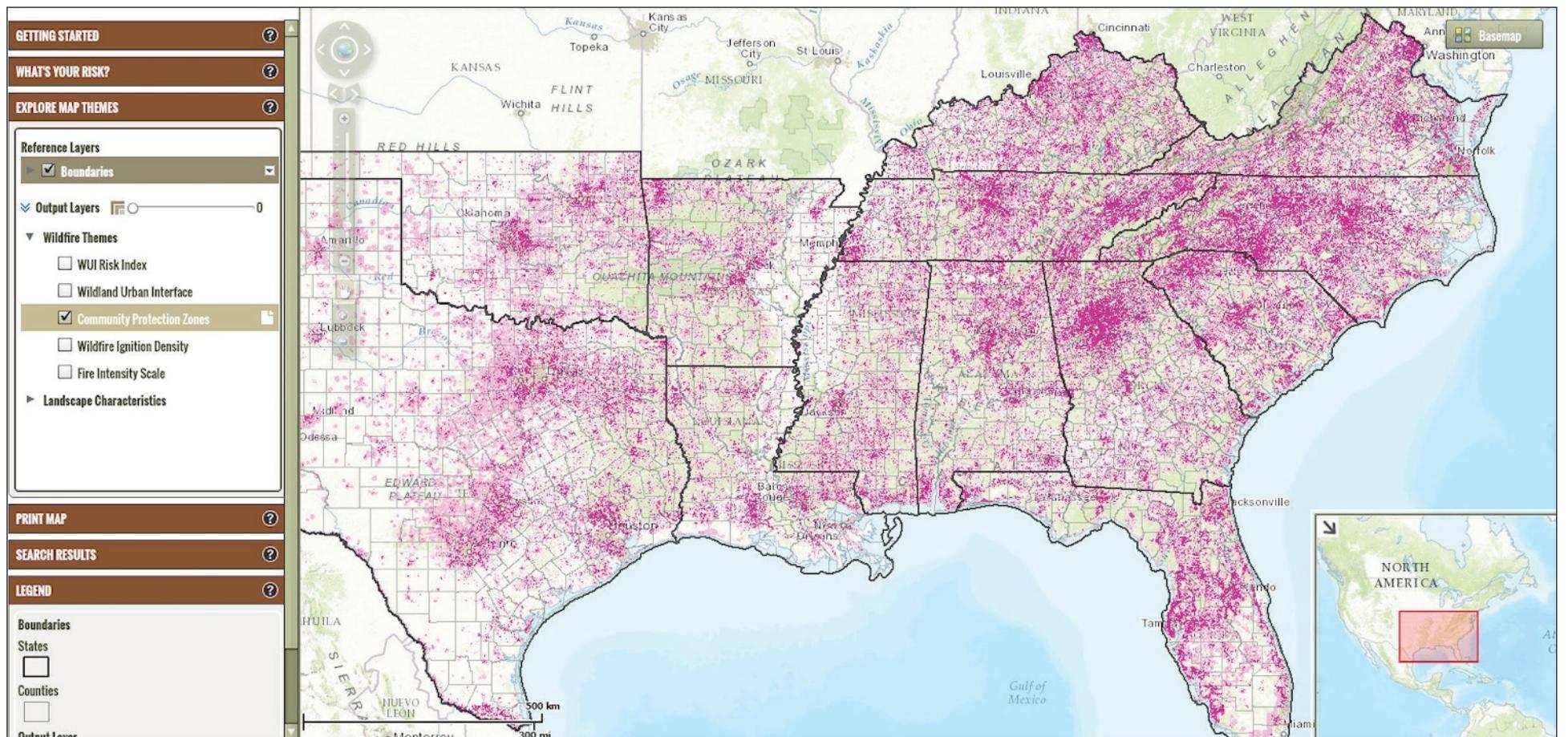


Figure 1. A map of community wildfire-protection zones from Southern Wildfire Risk Assessment Portal (SouthWRAP, [www.southernwildfirerisk.com](http://www.southernwildfirerisk.com))

Geography quiz: In which region of the US will you find the most wildland-urban interface (WUI)? According to the US Forest Service, 9.9 percent of the conterminous United States is considered to be WUI—a whopping 771,000 square kilometers, or nearly 298,000 square miles. Of that, about half is in the 13 southern states. The top three states, in terms of the area of WUI, are all in the South: North Carolina, Texas, and Georgia. North Carolina's 54,236 km<sup>2</sup> of WUI is twice California's 27,255 km<sup>2</sup> (see [www.nrs.fs.fed.us/pubs/48642](http://www.nrs.fs.fed.us/pubs/48642)).

So it is no surprise that the Southern Group of State Foresters ([www.southernforests.org](http://www.southernforests.org)) has a keen interest in reducing the risk of and limiting the damage caused by WUI fires. The group calculates that more than 66 million people in the region are living in the WUI, and more than 92 percent—61 million people—are at moderate to extreme risk from wildfire. And, unlike in the West, where the US Forest Service and Bureau of Land Management are often the lead firefighting agencies, state forestry agencies are responsible for protecting 94 percent of the total land area in the South from wildfire.

Wib Owen, the group's executive director and an SAF member, said the Southern Wildfire Risk Assessment Portal (SouthWRAP, [www.southernwildfirerisk.com](http://www.southernwildfirerisk.com)) is the cornerstone of the group's WUI risk-reduction education and outreach efforts. The interactive website offers a wealth of data and maps that anyone can access, from homeowners to wildland-fire and land-management professionals (see Figures 1 and 2).

"SouthWRAP is one of the most effective tools for reaching a wide group of folks. Not only is it a tool for state agencies, but the public can also use it to understand the risks to their homes and property and

how they can take action to reduce that risk. Local fire departments can assess the hazards in their response area, and local planners and leaders can do the same for their jurisdictions," Owen said.

Compared to the western US, the Southeast is highly fragmented, a factor that makes outreach more complex, said Jim Prevette, the group's fire director.

"Out there you have a heck of a lot of federal land and relatively little private [forest] land," Prevette said. "Here in the Southeast the majority of the forestland is owned by private nonindustrial landowners, and very little is owned by the federal agencies. And the Southeast is very diverse—a lot of people have moved in from other parts of the country who haven't necessarily been big proponents of prescribed fire, but we try to push our education and outreach efforts to promote the wise use of fire."

These education and outreach efforts stress that all fire, even the wise use of prescribed fire, produces smoke, an issue of much concern in communities throughout the region.

"We try to ensure that we do a good job of managing our smoke, so that we have less of an impact on air quality," Prevette said. "Our biggest selling point is that it's better to put up with a little bit of smoke for a short period of time from a controlled burn than it is to put up with a whole lot of smoke being emitted from a wildfire for a long period of time."

Prevette acts as liaison between the southern states and the federal agencies that deal with wildfire, especially the US Forest Service. He is a member of the Southern Area Coordinating Group, an interagency organization that represents all land ownerships within the 13 southern states and Puerto Rico.

Gary Wood is the Southern Group's

Southeast regional coordinator for the National Cohesive Wildland Fire Strategy; he represents the same states encompassed by the US Forest Service's Southern Region (Region 8). The strategy is designed to help the region meet the three main goals of the strategy: resilient landscapes, fire-adapted communities, and efficient and effective responses to fire. Wood works to ensure that the Southeastern Regional Action Plan and its 153 action items are implemented and completed; overall, the plan's goal is "transforming wildland-fire management in the Southeast through collective action." In addition to working with state forestry, natural-resources, parks, and other land-management agencies, Wood also coordinates planning and activities with communities and nongovernmental organizations such as The Nature Conservancy.

"The biggest tool we have in the region is our ability to conduct controlled burns—to use prescribed fire," Wood said. "Most of the ecosystems in the Southeast are fire-dependent, and fire is a very important part of maintaining healthy forests across the landscape. We work with various entities to promote the use of prescribed fire as much as we can, to get the landscapes back into the condition they're supposed to be in. Man came in and removed a lot of the fire from the forest, and not all fire is bad."

Much of Wood's effort goes into helping communities and property owners prepare for living with fire.

"I work a lot with communities and their planners, and with individual homeowners to promote the fire-adapted communities concept, which encompasses the Firewise concepts that have been so widely promoted over the past 20 years, and the Ready, Set, Go! program. We encourage homeowners to get out and take charge around their homes and in their communities

to reduce the risk of fire."

The Ready, Set, Go! program was launched in 2001 and is managed by the International Association of Fire Chiefs ([www.wildlandfirersg.org](http://www.wildlandfirersg.org)). The program helps fire departments teach people who live in WUI zones how to prepare themselves and their properties for fire.

## Fire in the South

Although prescribed fires are generally well accepted by the public throughout the region, the Southern Group's Good Fires website ([www.goodfires.org](http://www.goodfires.org)) reinforces the utility of fire as a forest-management tool. Nonetheless, many people in the South still have misperceptions about the role of fire in forests.

"Folks in the Southeast don't necessarily think that we have much of a wildfire problem," Wood said. "Part of that can be attributed to the exclusion of the fire from much of the landscape. The state forestry agencies and local fire departments that are responsible for suppressing fires on private lands do an outstanding job of initial attack, of keeping fires small. They're also invaluable in reaching out to private landowners. It's not uncommon to find community events where you've got a collaborative outreach effort among those state agencies and local fire departments, as well as federal agencies such as the Forest Service and Fish and Wildlife Service, to promote fire safety."

Although large, destructive fires have occurred in the South in the past, the fires in and around Gatlinburg, Tennessee, last fall offered a stark reminder of the risks they pose.

"Until last year, and in some other years that people have forgotten about, we haven't had widespread devastation to homes and communities like we did across the southern Appalachians last fall,"

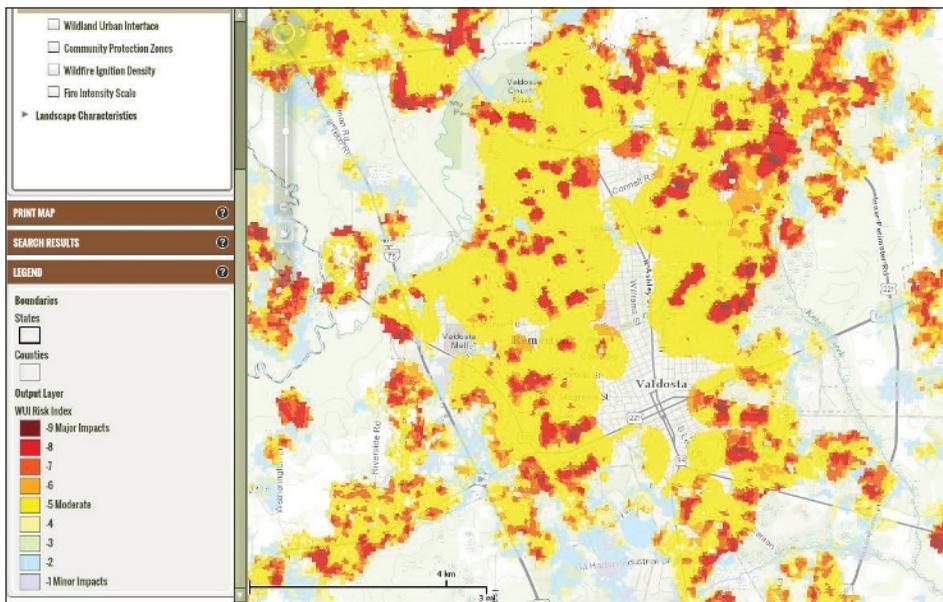


Figure 2. Wildland-urban interface fire risk near Valdosta, GA, shown in SouthWRAP.

said Wood. “These fires have definitely heightened the awareness of the risk that is present across the Southeast, particularly in the southern Appalachians. There have been a lot more inquiries from people throughout the region as to what they can do to prevent that from happening in their areas. Tennessee has had a very strong, long-standing program, and particularly in east Tennessee, of promoting the Firewise and Ready, Set, Go! programs. But sometimes, regardless of how good a job you do [in promoting such programs], you’re still not going to win. When you got hurricane-force winds and drought and steep terrain.... It was a true disaster and a miracle that more people didn’t lose their lives.

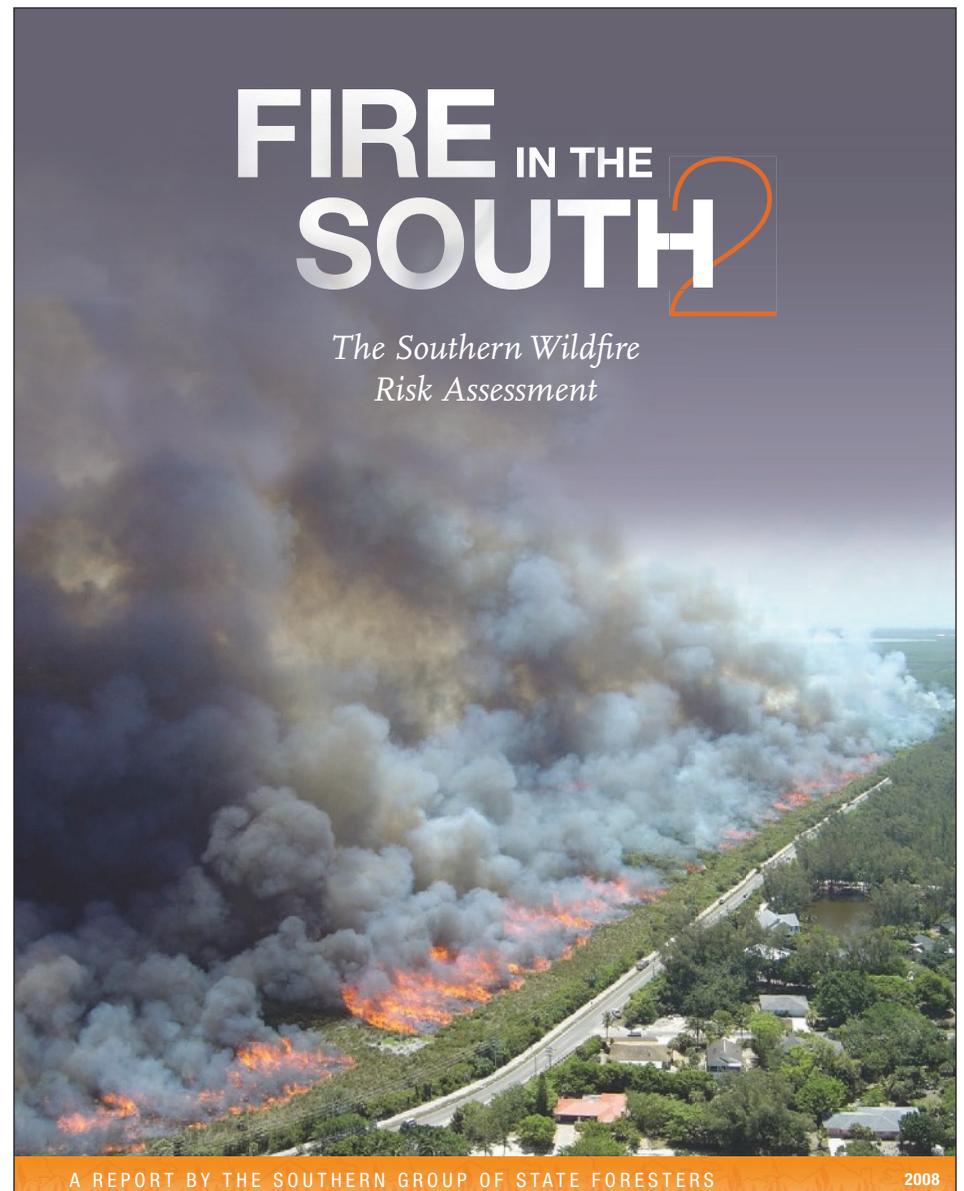
“On the national news, people see

fires that occur out in California or Colorado or other states out west, but they don’t think we have the same problems here,” added Wood. “But the Southeast as a whole has more wildfires annually than any other region in the US. So a big part of our outreach effort is letting people know that we need them to become part of the solution instead of continuing to contribute to the problem.”

Collaboration among the local, state, and national agencies and organizations that work to reduce the risks of WUI fires is vital, Owen said.

“The collaborative efforts and inter-agency relationships that can be built be-

PREPAREDNESS ■ Page 21



According to *Fire in the South 2*, a 2008 publication by the Southern Group of State Foresters, more than 118,083 communities in the region are at risk of wildfire damage ([tinyurl.com/jqz57gk](http://tinyurl.com/jqz57gk)).

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# Alaska Fuel Break: WUI Protection, Wildlife Habitat Enhancement

By Andrea Watts



Chena Interagency Hotshots maintain the Funny River Shaded Fuel Break. Photo: Alaska Fire Service.

Alaska's Kenai Peninsula may only boast 3.4 people per square mile within its land base of 21,664 square miles, but the majority of its nearly 60,000 year-round residents live within wildland-urban interface (WUI) zones. On the wildland side is the Kenai National Wildlife Refuge, the Chugach National Forest, tribal corporation-owned forestland, and trust lands. On the urban side are communities such as Sterling, Funny River, Soldotna, and Kenai. And with spruce species such as white, black, and Lutz (a hybrid of Sitka and white spruce) being the predominant forest cover on the peninsula, the WUI conditions are all the more potentially deadly.

"Black spruce is extremely flammable and has really low live-fuel moisture values," said Nathan Lojewski, an SAF member and forestry manager with the Chugachmiut, a tribal nonprofit that serves the seven tribes in Alaska's Chugach Region. "It's a problem fuel type in Alaska."

Michael Hill, assistant fire management officer for the US Fish and Wildlife Service, seconds that assessment: "When [black spruce] goes, it's quite dramatic."

Hill oversees the fuels programs for four national wildlife refuges in southern Alaska and is stationed at the Kenai refuge. Kenai is where it's all happening, he said, in regards to fire management: "It's because of the population here, and the amount of wildland-urban interface we have here."

The Kenai National Wildlife Refuge accounts for 150 to 180 miles of WUI along its border, the result of private land, such as the community of Sterling, jutting into the refuge. What's more, the refuge hosts two million visitors a year.

Concern over the risk of fire in the WUI began during the late 1990s as a result of a spruce-beetle outbreak that killed

more than 1.2 million acres of spruce across borough, tribal-corporation lands, and federal lands on the peninsula. At the time, it was the largest recorded spruce-beetle outbreak of its kind. As residents and officials realized the increased wildfire risks posed by dead spruce, coupled with a fire return interval of 80 years, efforts were undertaken to assess the peninsula's wildfire threat. Communities wrote wildfire-protection plans and created vegetation maps, while agencies also conducted their own wildfire assessments. One of the first major projects was the construction of the 200-foot-wide and nearly three-mile-long fuel break on the border of the Kenai National Wildlife Refuge near the community of Funny River in 1996.

Out of these efforts was borne an interagency policy committee, the Kenai Forest, Wildland Fire and Fuels Management Coordinating Committee, in 2003. In 2004, the first All Lands/All Hands Action Plan was developed to "employ a 'from the back porch out' philosophy of fuel reduction and restoration in the defensible space zone around structures and work outward from there." Agencies that signed on included the US Forest Service, the State of Alaska Division of Forestry, the US Fish and Wildlife Service, the US Bureau of Land Management, the National Park Service, the Bureau of Indian Affairs, the Kenai Peninsula Borough, and Chugachmiut.

With the Alaska Division of Forestry being the protection agency for much of the lands on the Kenai Peninsula, it was also a proponent of the collaboration.

"A good way to simplify [our] job is to make these fuel breaks provide decision space in the event of a wildfire to buy us a few options," said Hans Rinke, an area forester with the division.

During the 2000s, the US Fish and Wildlife Service leveraged additional funding to expand the 200-foot shaded fuel break on its lands along six miles of the Funny River Road. In summer 2012, the Alaska Division of Forestry received grant funding from the US Fish and Wildlife Service to create another fuel break adjacent to the Kenai National Wildlife Refuge, but this time on lands owned by the refuge's neighbors. An agreement reached by the Alaska Division of Forestry, the Kenai Peninsula Borough, and Cook Inlet Region Inc. (CIRI) allowed for the construction of a four-and-half-mile-long and approximately 250- to 300-foot-wide masticated fuel break that totaled approximately 150 acres. It took more than a year to complete the project, and Chugachmiut's 20-person Type 2A Yukon Fire Crew was hired to perform the maintenance work of removing regenerating spruce from the fuel break. May 19, 2014, was the first test of their mitigation work.

"The [Funny River Fire] started right near the fuel break," recalled Lojewski. "The fuel break was on the north side of the fire, and the wind was coming out of the north. The fire ran 13 miles south [in one day] until it hit Lake Tustumena, which is a really big lake. Then the wind shifted, and it came back north. If the crews didn't have that fuel break there, we don't know what would have happened."

When the fire was declared over, a total of 195,000 acres had burned. When it came to fighting the fire, Oded Shalom, leader of the Chena Interagency Hotshot Crew said, "We were scrambling, behind the curve. Resources were limited, and there were other priorities; it depended on which way the winds blew. If we didn't have those fuel treatments, I don't think we could have done what we did. They

pretty much saved the day."

With the fuel break proving its worth, and the realization that the Funny River Fire rapidly maxed out the available fire-fighting resources, the All Lands/All Hands collaboration assessed the next potential risk. "We took care of the [refuge's] south side, but what happens if we have a fire start on the north side?" said Lojewski. "There's nothing to stop a fire from running right into Sterling."

## Fire in the Kenai Ecosystem

One of the challenges posed by managing the WUI on the Kenai Peninsula is that there are benefits to allowing wildfires to burn.

"We did raise the question of 'Why?' when we joined this collaboration," said Sue Rodman, SAF member and program coordinator with the Alaska Department of Fish & Game's Division of Wildlife Conservation. "But once we sit and talk about it, people agree that the concept makes sense. Even our biologists are supportive of this idea."

The Division of Wildlife Conservation is charged with enhancing moose habitat through two federal aid grants, and this habitat is declining because of wildfire suppression. Following fires in 1947 and 1969, there was a surge in regeneration of such hardwood species as aspen, willow, and birch, which are ideal moose habitat, and the moose population responded.

"The intensive management objectives for this game management unit [15A] were established in 2000, with a population objective of 3,000 to 3,500 moose and a harvest objective of 180 to 350 [moose]," Rodman said. "The moose population in Unit 15A was below this objective well before the objective was established and has never met objectives to date. The reported

harvest in this unit has also been below the objective in most of the years since 2000. It's clear that habitat is the limiting factor for any increase in moose abundance."

Which is why the Alaska Department of Fish & Game joined the collaboration and brought funding to the table: The fuel breaks provide the option to allow for a return of large-scale wildfires while protecting the public.

"Using fire as a management tool, whether prescribed or wildland fire, is really the only way we can effectively manage habitat at the landscape level, because otherwise it's just too expensive to go in and do mechanical treatments," Rodman said.

"The refuge has gotten out of the business of trying to make moose food with fuels treatments," Hill explained. "It's roughly a two-million-acre refuge, and what we've discovered is that we can't make a big enough impact with small-scale fuel treatments, whether it's harvesting or even small-scale prescribed fire. Even a thousand acres at a time is not landscape level."

A fuel break near the community of Sterling was deemed the next undertaking of the All Lands/All Hands collaborative. The final design called for a 12-mile fuel break that traveled across seven different ownerships: three Native-corporation lands, State of Alaska land, the Kenai National Wildlife Refuge, the Alaska Mental Health Trust Authority, and the Kenai Peninsula Borough.

Hill said the reason why the Kenai National Wildfire Refuge supported build-



**Before and after views of a completed stretch of the Sterling fuel break. A crew with the Alaska Department of Forestry masticated the spruce. Photograph courtesy of Howie Kent.**

ing the Sterling fuel break is because "our number one objective is to protect the people of Sterling, but ultimately, all who live on the Kenai Peninsula. To be responsible land managers, we owe it to the taxpayers to make sure that we're doing what we can to protect them. And, hopefully, we engage the public. They see what we're doing and take action on their land."

Work on the Sterling fuel break began in April 2016. The Yukon Fire Crew was hired to work on the border of the Kenai National Wildlife Refuge, while a mastication crew from the Alaska Division of Forestry tackled the five-and-a-half-mile stretch on tribal corporation lands, Kenai Borough land, and on Mental Health Trust lands. Rinke said their work entails

masticating the 40-foot-tall black spruce with two-to-six-inch root-collar diameters that regenerated after a stand-replacing fire in 1947.

"We've done some fire behavior modeling, and we recognize that this isn't a fuel

# WILDFIRE COMMUNITY PREPAREDNESS DAY

## MAY 6, 2017

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# Firewise: NFPA Works to Boost WUI Preparedness

By Steve Wilent

Most foresters have heard of the Firewise program, and many have worked with communities in wildland-urban interface zones to help them become Firewise Communities. The National Fire Protection Association's (NFPA) Firewise Communities Program, which is cosponsored by the US Forest Service, the US Department of the Interior, and the National Association of State Foresters, "teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent losses."

NFPA, a nonprofit organization established in 1896, is devoted to preventing death, injury, and property and economic losses due to fire, electrical, and other hazards. It is widely known for its mascot, Sparky the Fire Dog, and its safety codes and standards—of which it has published approximately 300. Several of these relate to wildland-urban-interface fire, including the Standard for Reducing Structure Ignition Hazards from Wildland Fire (NFPA 1144) and the Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas (NFPA 1141).

The Firewise program was initiated after the 1985 fire season, when wildfires burned nearly 1,400 homes in the United States, including 600 in Florida alone. The following year, NFPA, the Forest Service, and the Department of the Interior launched an effort to address the "wildland-urban interface" problem, and the resulting program would be christened Firewise a few years later. Since then, nearly 1,400 communities have adopted the Firewise protocols for protecting themselves from brush, grass, and forest fires. NFPA is actively recruiting other communities to join up through such events as National Wildfire Community Preparedness Day, to be held on Saturday, May 6. The Firewise website has information about the event, as well as a wide range of education materials ([firewise.org](http://firewise.org)).

I recently spoke with Michele Steinberg, NFPA's wildfire division manager, to learn more about Firewise and the association's work to make living in wildland-urban interface zones less hazardous.

## Tell me more about Firewise.

We try to make everyone in a community aware of the risks to life and prop-

erty of living in the wildland-urban interface. Lots of other agencies and entities are involved with forest health and land management—and, of course, foresters are integral to that work—and watershed management, wildlife management, and so on. Our focus is protecting people and their homes, and we try to do that in concert with our land- and resource-management partners. Our message to communities is that wildfire is a natural part of the environment, and that message is really important, because there's a very strong societal perception that wildfire is bad, that we should put them all out and never let them burn. Of course, that's not realistic. We know that fire is preventable to some degree, but ultimately, if you live in a fire environment, you're going to have fire at some point. We try to show people how they can live safely with fire, that there are things they can do to make their homes safer and more fire resistant, that they can choose locations that are less risky for certain kinds of development, and that there ways to build roads and driveways that make access by firefighters easier.

According to the US Forest Service, about

**32 percent of housing units in the US are in wildland-urban interface zones. Reaching out to that many people must be a huge challenge.**

We're faced with what we call the "98 percent problem." Only about 2 percent of the building stock at any given time in the United States is new, so we have a lot more opportunities to look at what's already in harm's way—the 98 percent of structures and properties that are already on the landscape. We work with people who live on the landscape and people who have authority to make certain decisions in their communities, so that they understand the hazards of wildfire. If you live in a beautiful forested area, you might have to make some trade-offs, such as talking to a professional forester about thinning and the health of the landscape you're living on. You definitely need to have a good roof, and you definitely need to do maintenance around your property to keep it in what we call a "Firewise condition," so that any fires that do come across the landscape do not threaten your home through large flames, surface fire, or embers. Getting that kind of message across can be a challenge, but there is plenty of science

## A Firewise® Home

### FIREWISE LANDSCAPING

#### 1. Home Ignition Zone

Keep leaves and needles off your roof and deck. Create a fuel-free area within 3-5 feet of your home's perimeter. From 5 feet to a minimum of 30 feet out, thin and space vegetation, remove dead leaves and needles, prune shrubs and tree limbs. Keep areas around decks, sheds, fences and swing sets clear of debris and vegetation.

#### 2. Landscaping and Firewise Plants

To prevent fire spread, trim back branches that overhang structures and prune branches of large trees up to 6 to 10 feet from the ground. Remove plants containing resins, oils, and waxes; make sure organic mulch is at least 5 feet from structures. Choose Firewise plants – find lists at [www.firewise.org](http://www.firewise.org) or from your local Cooperative Extension service.

### BE PREPARED

#### 3. Disaster Plan

Develop, discuss and practice an emergency action plan with everyone in your home. Include details for pets, large animals and livestock. Program cell phones with emergency numbers. Know two ways out of your neighborhood and have a pre-designated meeting place. Have tools such as a shovel, rake, axe, handsaw, or chainsaw available, and maintain an emergency water source. Always leave if you feel unsafe – don't wait to be notified.

#### 4. Emergency Responder Access

Identify your home and neighborhood with legible, clearly marked street names and numbers. Make your driveway at least 12 feet wide with a vertical clearance of 15 feet and a slope of less than 5 percent to provide access to emergency vehicles.

### FIREWISE CONSTRUCTION

#### 5. Fire-Resistant Roof Construction

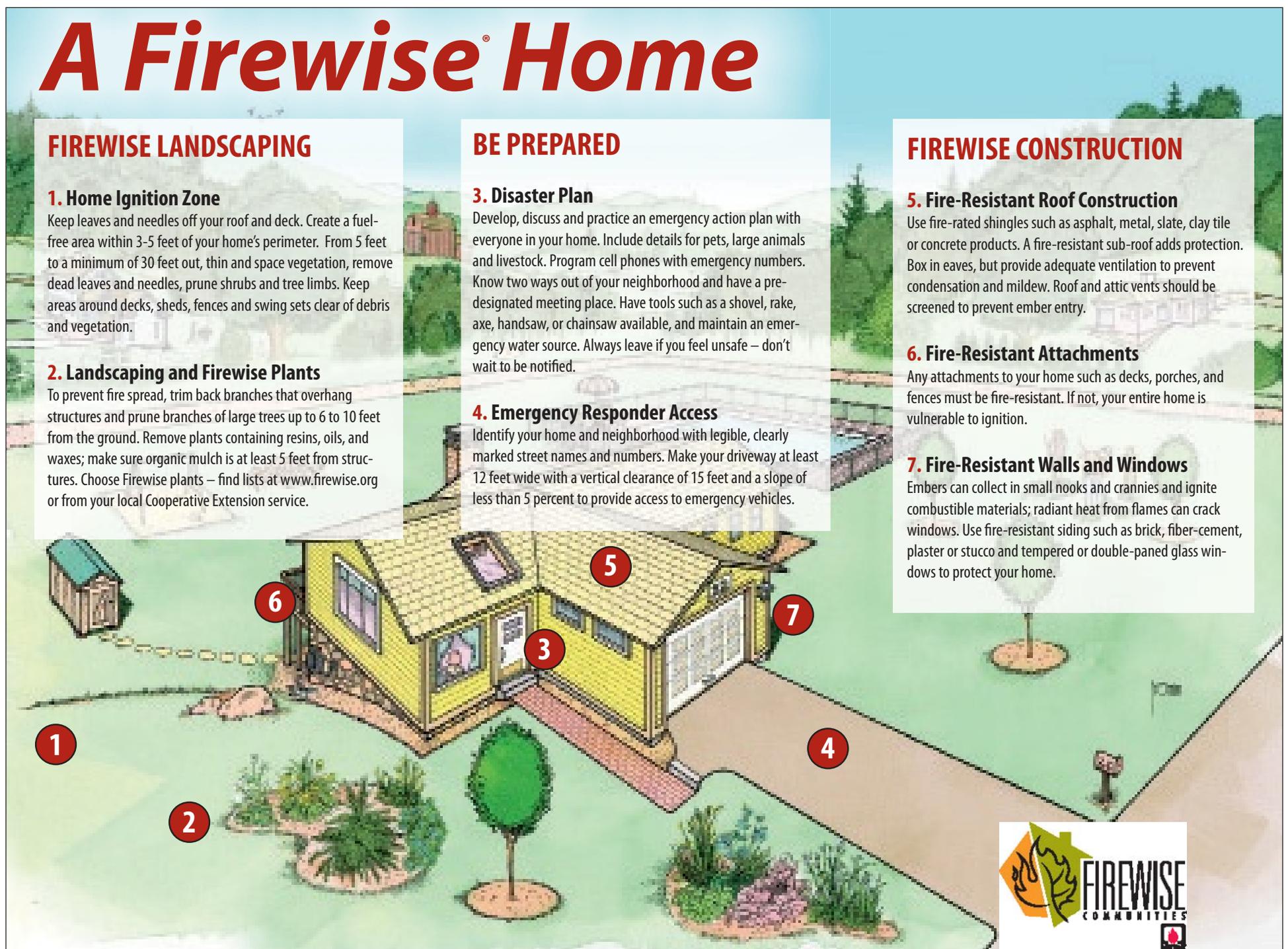
Use fire-rated shingles such as asphalt, metal, slate, clay tile or concrete products. A fire-resistant sub-roof adds protection. Box in eaves, but provide adequate ventilation to prevent condensation and mildew. Roof and attic vents should be screened to prevent ember entry.

#### 6. Fire-Resistant Attachments

Any attachments to your home such as decks, porches, and fences must be fire-resistant. If not, your entire home is vulnerable to ignition.

#### 7. Fire-Resistant Walls and Windows

Embers can collect in small nooks and crannies and ignite combustible materials; radiant heat from flames can crack windows. Use fire-resistant siding such as brick, fiber-cement, plaster or stucco and tempered or double-paned glass windows to protect your home.



Making a Firewise home starts with clearing flammable vegetation and other materials from around the structure ([firewise.org](http://firewise.org)).

that shows there are things people can do to their homes and within about 100 feet around them that can make a significant difference.

That's the meat of our whole mission: helping everyone who is at risk understand that they can do something to minimize that risk. We have the science and the tools, but it's up to property owners and communities to take action.

**Actions that individual landowners can take, but also that communities can take collectively.**

Right. If you've got a single home on a lot and you've done everything right to reduce the potential of ignition, but you've got a neighbor 50 feet away whose house and property look like a tinderbox, then you've still got trouble, because that's another fuel source. About 15 years ago, we started a community recognition program that we now call Firewise Communities/USA Recognition Program, where we provide a simple set of criteria for going through a process of assessing community risk. Assessments can be done by local foresters, state forestry agency officials, fire departments, and so on, who look at an area and explain to communities that when a fire occurs, this is what it's going to look like, here are some of the risks that we see to your community, and these are the things you can do to reduce those risks. If the community accepts that assessment, they put together an annual action plan and document what they do to become prepared for wildfire. We ask them to track the dollar value of the actions that

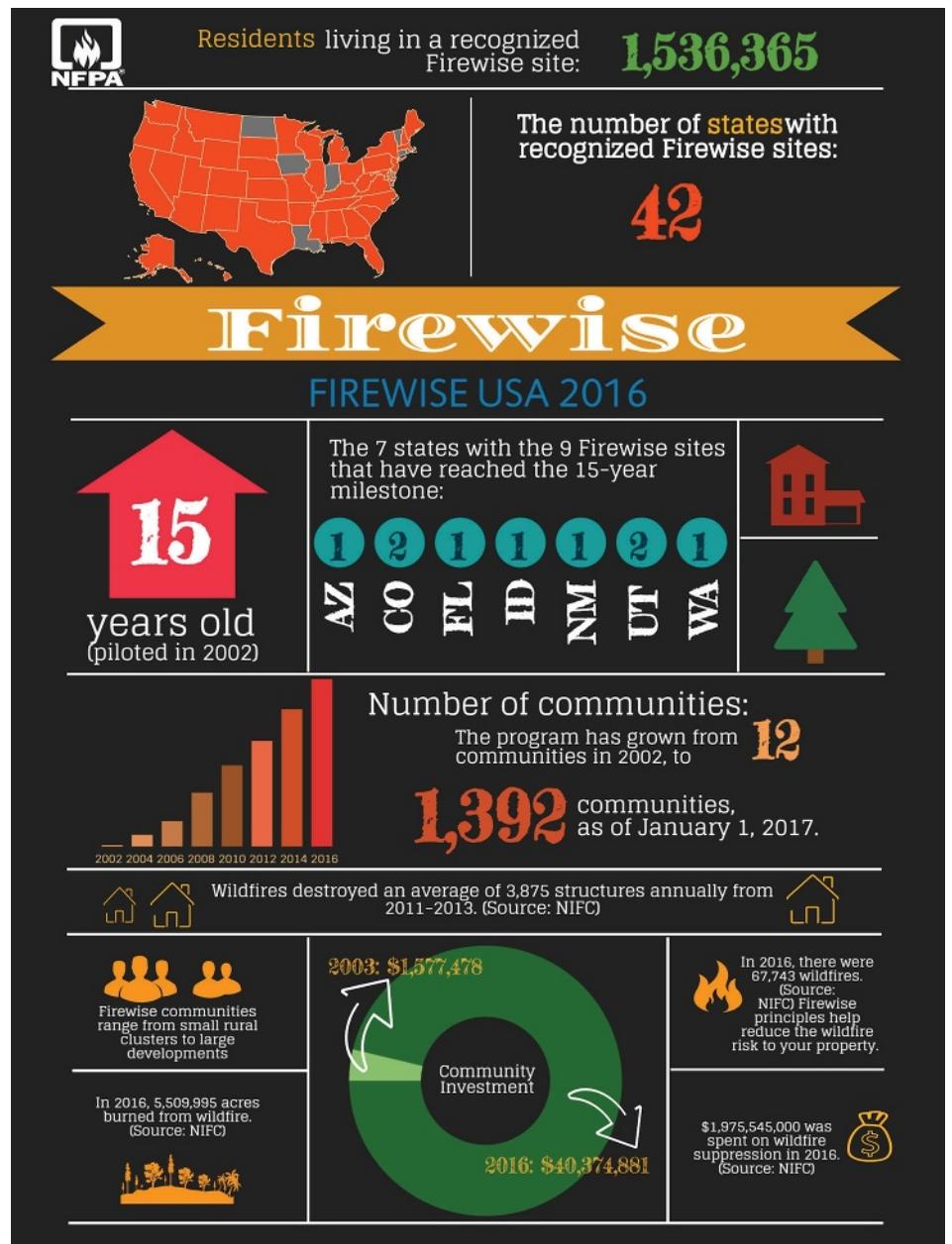
they take, even if they rely on volunteers, because it shows them that they have some skin in the game and can give them a sense of pride for the work they accomplish. We ask them to hold some kind of an event that brings the community together to focus on Firewise activities.

Today we have more than 1,400 communities in 42 states actively participating in the program.

**Do you have a success story about Firewise that you'd like to share?**

I remember visiting a North Carolina community years ago when we only had a handful of communities involved with the program. The man who was the community's leader had a very clear Long Island, New York, accent—he certainly wasn't a native of North Carolina. I talked to him after the meeting. I said, "You're a city guy, and you've moved down here early in your retirement. Why are you so gung ho about wildfire?" And he said there were two things. First was that they'd had a wonderful person from the state forestry agency come out to talk to them about the Firewise program, and they really trusted him. And second was that he had been a Boy Scout and he just wanted to do the right thing.

I'm always fascinated by what motivates people to become involved in the Firewise program. An individual might really believe in the program, but it takes some effort to rally the community to the cause and take action. It always impresses the heck out of me when I meet those folks. **FS**



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# Mitigation Study Follows Destructive Bastrop Wildfire

By Holly Campbell, Chris White, Mike Fisher, Blake Clampffer, and Rich Gray

Three years after the 2011 Bastrop County Complex Fires in Bastrop County, Texas, took two lives, destroyed 1,645 homes, and burned 34,068 acres, the county commissioners court approved \$250,000 to conduct a county-wide wildfire-mitigation study. Paid for with disaster recovery funds, the goal of the study was to analyze current wildfire risks to minimize future wildfires. The study cooperators developed a risk-assessment map covering both natural and human habitation areas. Data from the study can be used to prioritize mitigation efforts based on where people live, predict fire behavior, and develop fire risk levels.

Multiple assessments were conducted to derive the data necessary to predict fire behavior and risk levels for different areas of the county. For fire behavior, remote sensing techniques were used to generate detailed fuels models. This was accomplished by processing weather data from local remote automated weather stations (RAWS) with data from the federal FlamMap program, a fire-behavior mapping and analysis program that computes potential fire-behavior characteristics (spread rate, flame length, fire-line intensity, etc.). Measurements and analysis began from the first day of the Bastrop Complex and were also used to generate an average weather scenario. This produced two distinct fire-behavior maps that enabled comparisons between a worst-case

and average wildfire scenario. Once fire behavior was calculated, additional analyses were conducted, including:

- Distance from a community to potential crown fire.
- Distance from community to the nearest fire station.
- Parcel density within a community.
- Distance from community to nearest water source.
- The percentage of burnable fuel within a community.
- The average slope, aspect, and elevation of a community.
- Predicted fire frequency.
- Ember zones for areas adjacent to burnable fuels.

Fire-behavior predictions were integrated with these additional analyses into the framework of Anchor Point's National Wildfire Hazard and Risk Assessment (No-HARM) modeling tool.

No-HARM is a nationwide data set that provides a composite risk rating for all areas of the US and is used to support cities, counties, and communities in ef-

fective risk-based mitigation planning. The tool provides an overall wildfire hazard and risk spatial layer and utilizes a user-friendly format for displaying risk data (See Figure 1).

After the analysis and modeling were complete, the county was divided into "fire plain" and "fireshed" management units (See Figures 2 and 3). Fire plains contain the same slope, aspect, and anticipated fire behavior and can be thought of as very small-scale (approximately 150-acre) watersheds. Each fire plain was given a composite hazard and risk rating.

Firesheds are meso-scale planning units that divide the county into larger planning areas. Analyzing these two areas together allows data to be queried at multiple scales, thus yielding landscape-level prioritization information. The final No-HARM ratings were used to rank and analyze high-priority areas throughout the county.

An in-house, geospatial map interface was then created to house and visualize the data from the study. The web map provides a visual format for emergency managers to run multiple "what if" scenarios and for educational purposes. The

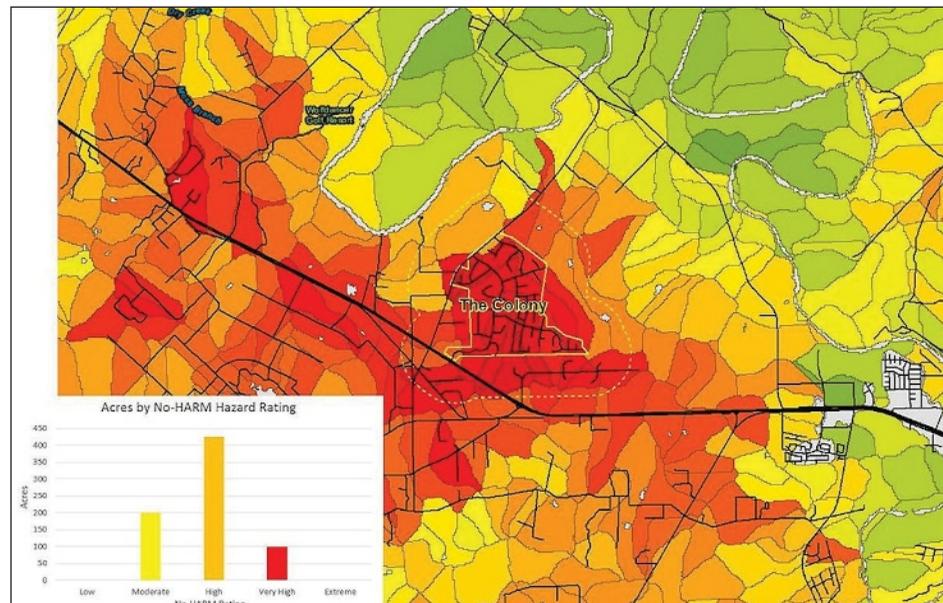


Figure 1: This map displays the overall No-HARM hazard and risk ratings, calculated for a half-mile radius around the Colony community in Bastrop, Texas. Map created by Anchor Point, Boulder, Colorado.

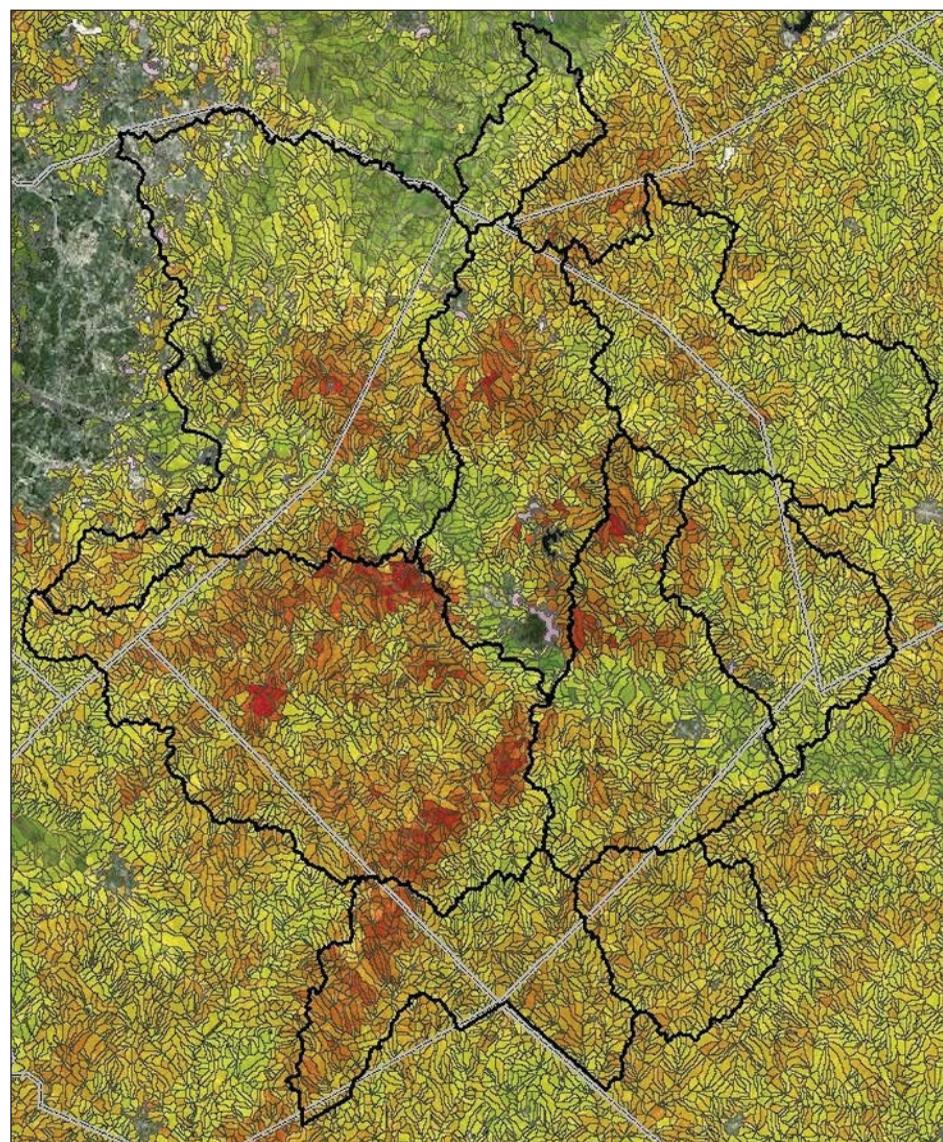
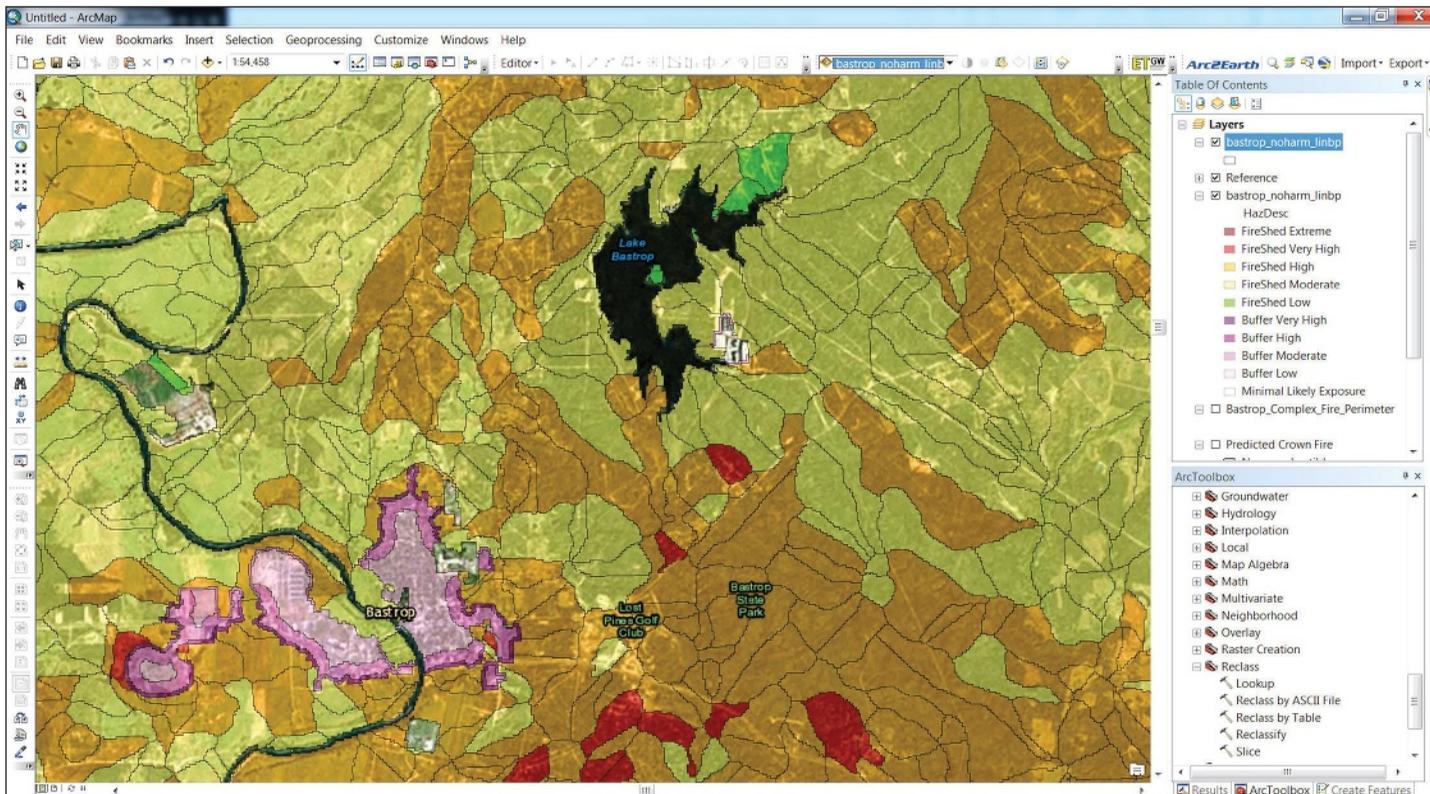


Figure 2: This map display fire plains, small units outlined in grey and containing unique colors, such as red or yellow, and firesheds, larger units outlined in black that encompass multiple fire plain units. Map created by Anchor Point, Boulder, Colorado.



**Figure 3:** Map displays fire plain ratings (areas outlined in grey have the same slope, aspect, and anticipated fire behavior). Orange and red areas indicate high and very high fire hazards, respectively. Purple shaded areas show buffer zones. Map created by Anchor Point, Boulder, Colorado.

study's final products also provide developers the potential hazard of a proposed development site and suggest appropriate mitigation techniques based on modeled fire behavior.

### Cohesive Strategy

The Bastrop County Wildfire Mitigation Study directly or indirectly addresses all three national goals of the National Cohesive Wildland Fire Management Strategy:

1. Resilient landscapes
2. Fire-adapted communities
3. Safe and effective wildfire response

The analysis defines areas of most significant fire behavior. This leads to a prioritization of the entire landscape and facilitates the utilization of fuels reduction and prescribed fire to create a resilient landscape. Second, by clearly understanding hazard and risk associated with each community, appropriate and cost-effective mitigation can be determined, based on scientifically based analytics to move toward fire-adapted communities. Lastly, although the main focus of the study was not on the response [by firefighters and others], data layers derived from this project will be used to provide situational awareness to first responders and may be leveraged in future projects to create geospatial incident response plans.

### Collaboration Is Key

A key to the project's success was engagement with multiple stakeholders. Collaboration with local fire managers and Anchor Point was one of the primary partnerships instrumental in this project. Additionally, collaboration between Anchor Point and local and state-level fire and emergency managers ensured that local knowledge was integrated into fire modeling. Multiple draft models were produced and refined in collaboration with local and state managers. County emergency management, state forestry, and park agencies were fully engaged with the project.

The project received input from a re-

gional county emergency managers organization, the Capital Area Homeland Security Task Force, and the Bastrop County Lost Pines Recovery Team (LPRT). LPRT is a diverse group of ecology subject-matter experts formed to advise the project on ecosystem recovery and other forestry and environmental matters. This group closely monitors the federally endangered Houston toad (*Bufo houstonensis*) that exists in the county. Significant consultation with the US Fish and Wildlife Service and area specialists must occur before fuels-reduction projects are approved. A Houston toad habitat layer was provided for this project and was integrated into the web map interface as an overlay zone of concern when considering the feasibility of fuels projects. Practical collaboration, with functional application such as this type of data sharing, was the norm throughout the project.

### A Model for Other Communities

The methodology utilized for the Bastrop County Wildfire Mitigation Study is scalable to a regional level and can be utilized by other communities and landscapes. The ability to prioritize on a regional scale, utilizing equivalent assessment methodology, is essential in ensuring that budgets and grants are appropriated in a scientifically based and logical manner. The primary challenge to other jurisdictions conducting such work is access to grants before a disaster; much of the Bastrop funding was post-disaster.

Local, state, and national news coverage has highlighted the Bastrop mitigation study and other ongoing projects in Bastrop County. The Federal Emergency Management Agency (FEMA) also covered the projects under its "Nontraditional Wildfire Mitigation in Bastrop County, Texas" article in its Best Practices Portfolio (see [tinyurl.com/j2vdkag](http://tinyurl.com/j2vdkag)). **FS**

*Authors: Holly Campbell, Southern Regional Extension Forestry; Chris White, Anchor Point Group LLC; Mike Fisher and Blake Clampffer, Bastrop County Office of Emer-*

*gency Management; Rich Gray, Texas A&M Forest Service*

### Project Credits

The National Cohesive Wildland Fire Management Strategy is a collaborative effort that addresses wildland-fire management challenges through three primary goals: restoring and maintaining landscapes, developing fire-adapted communities, and improving wildfire re-

sponse. The Cohesive Strategy Success Story project highlights southeastern US wildland-fire accomplishments that support implementation of the strategy. Learn more at: [www.southernwildfire.net](http://www.southernwildfire.net).

Anchor Point Group LLC works to develop sound wildland-fire solutions through an integration of expertise, technology, and collaboration. Learn more at: [www.anchorpointgroup.com](http://www.anchorpointgroup.com).

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**Partners:** Bastrop County Commissioners; Anchor Point Group, LLC; Bastrop County Emergency Management; Texas A&M Forest Service; Texas Parks and Wildlife Department; Sanborn Map Company; US Fish and Wildlife Service; Capital Area Homeland Security Task Force; Bastrop County Lost Pines Recovery Team; local and state-level fire managers.

### Journal of Forestry, Forest Science Archives

Gold, Platinum, and Student SAF membership includes access to the current edition and archives of the *Journal of Forestry* and *Forest Science*, as well as the archives of the three regional journals prior to 2014, when they merged with *Forest Science*. See [www.eforester.org/publications](http://www.eforester.org/publications).

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## What Happened in Gatlinburg, Tennessee?

By Henri Grissino-Mayer

On November 28, 2016, the unthinkable happened. A human-set wildfire on a remote, rocky mountain called Chimney Top in Great Smoky Mountains National Park began what can only be described as an unprecedented northward race that only lasted several hours but covered 5.5 miles, until eventually reaching the border of the national park. Unfortunately, this particular portion of the park border happened to be occupied by the scenic mountain village and well-known tourist destination and ski resort of Gatlinburg, Tennessee. Beginning at 5:00 p.m., the wildfire would march uncontrolled through and around Gatlinburg, burning more than 1,700 structures, including private residences, businesses, resorts, and churches.

But the wildfire did not stop in Gatlinburg. The fire jumped farther northward, burning the landscape around the scenic parkway that led to Pigeon Forge, home of Dollywood family amusement park. Neighborhoods along the southern periphery of Pigeon Forge were all but consumed, adding another 300 structures to the total. The final toll of the 2016 Gatlinburg wildfire and other nearby fires was more than 2,400 buildings destroyed and 14 lives lost, with some estimates of damage by insurance companies totaling more than \$500 million to date. Some insurance experts are predicting that the covered costs of the damage from this wildfire could rival the still-increasing recovery costs associated with Hurricane Katrina in 2005.

Why was this wildfire so unusual? The wildfire started on November 23 on the south slope of Chimney Top, a well-known hiking trail destination for visitors to the national park. For three days, an inversion kept the wildfire fairly localized due to cooler temperatures and higher humidity near the ground surface, which also created a fairly stable atmosphere and little chance for fire growth. By November 26, the fire had reached only about six acres in size. This was nothing to worry about, because such innocuous fires are fairly commonplace in the park. On November 27, however, the inversion lifted, bringing warmer temperatures, lower humidity, and a more unstable atmosphere, which caused the fire to expand to 35 acres. At this point, visitors to the park took notice of the wildfire and the large amount of smoke being produced, and users of social media were soon posting photos of the wildfire. An incident management team (IMT) brought in three helicopters to begin bucket drops, but they had to fly considerable distances to find water sources, and this eventually proved ineffective at preventing the spread of the wildfire. An order also was placed to bring in firefighters and engines to be-

gin attempts at containing the wildfire. By nightfall, the wildfire was still within the containment area, still so uneventful and unspectacular that no firefighting staff was charged with monitoring it overnight.

Then things changed again. On the morning of November 28, the wildfire was still located in this more remote location of the park, although it had spotted outside the containment area a half mile to one mile to the north. The IMT took action. Firefighters and engines were sent to protect structures within the park in close proximity to the wildfire. Nearby fire departments outside the park were alerted to monitor for additional spot fires and wind-blown embers. Air support was suspended because of increasing winds and poor visibility. But the real danger was fast approaching in the form of a weather system from the west, and with this weather system would come a shift to southerly, warmer, drier winds with wind speeds predicted to be 40 to 50 mph.

Between noon and 1:00 p.m. on November 28, the winds shifted direction and increased dramatically in speed, causing the wildfire to literally race northward downslope toward Gatlinburg, following the Newfound Gap Road (Highway 441). The fire soon reached the Twin Creeks area of the national park, just 1.5 miles from Gatlinburg. By 5:00 p.m., the fire had reached the southern city limits of Gatlinburg near Minatt Park. Within the next hour, homes and businesses began burning as the winds drove the fire into the city, ultimately burning the slopes and neighborhoods to the east and west of downtown Gatlinburg. Even by 8:00 p.m., however, many residents were still unaware the wildfire had reached the city. No evacuation warnings were sent by emergency personnel via television or cell phones, and residents soon found themselves opening their front doors only to be confronted with fast-moving flames that were already consuming their neighbors' houses.

By 10:30 that evening, fires had erupted near Pigeon Forge and several other locations, again catching residents off guard. By about 2:00 a.m., as the weather system kept approaching, light rains began and would eventually help in containing the wildfire, but not until after 90 percent of Gatlinburg had been burned off the face of the Earth and 14 residents and visitors had lost their lives. In total, more than 17,100 acres would be consumed by this one wildfire, an amount of acreage comparable to the total acres burned in the entire state of Tennessee during a more-intense year of fires.

Drought was certainly a contributor to this high-intensity wildfire. Be-



A home destroyed by a wildfire in Gatlinburg, Tenn., in November 2016. Photo by Henri Grissino-Mayer.

ginning in March 2016, the Southeast had seen one month after another with little rain and increasing drought conditions, which helped dry out fuels in all size classes. By September, wildfires were breaking out in many locations throughout the southeastern US, eventually burning a total of 119,000 acres across eight states. By October 2016, the Southeast was in "exceptional" drought conditions, with a drought index of -3.8. By November, the drought index had precipitously dropped to -4.06, but drought experts also knew that worse droughts had occurred as recently as 2007 and 2008 in the Southeast with even lower drought index values (e.g., -5.15 in November 2007). Curiously, the fall fire season in 2007 was not particularly noteworthy. Southeastern forests also have a reputation among fire experts as being fairly resistant to high-intensity wildfires because of the generally wetter conditions and prevalence of what many call "temperate rainforests" in the national park. No one could have predicted the speed and intensity with which the Gatlinburg wildfire spread. This wildfire literally caught everyone, including the expert fire ecologists and highly trained firefighting incident teams, by surprise. In the short-term picture, little could have been done to present this level of destruction.

### Future WUI Fires

But what about the long-term picture? Gatlinburg and Pigeon Forge exist in what is perhaps the best example of the wildland-urban interface (WUI) in the southeastern United States. The city limits of Gatlinburg are literally bounded by the National Park Service's Great Smoky Mountains National Park. In fact, Gatlinburg is nearly surrounded by the park, which means that the surrounding forests are replete with fuels ready to burn. Residents of these two

tourist destinations must understand that they are surrounded by forests that burned repeatedly up until the 1930s, when the park was established and fire suppression became the norm. These fires were ignited by both humans and lightning, but the conversion of more than 500,000 acres into a national park meant completely different fire-management plans for these forests. Because no widespread fires have occurred since the 1930s, the federal lands around Gatlinburg have had more than 80 years for fuels to build up on the forest floor, for trees to increase densities to unprecedented levels, and for flammable understory shrubs (such as rhododendron) to grow and expand spatially across all portions of the landscape.

What does this mean? It means that the wildland areas around these mountain villages are now more contiguous with fuels, both vertically and horizontally, stretching from the highest elevations of the park to its drier, lower elevations. This literally forms a direct line of fuels to the urban interfaces, what I call the "fuels railroad," and with the right long-term climate conditions and the right short-term weather conditions, the urban areas at the interface will face increasing risks from wildfires.

Can anything be done in the meantime, before the next wildfire? (And yes, there will another wildfire in the near future.) The people of Gatlinburg and Pigeon Forge must become better educated about the risk of wildfire—as must the residents of other WUI communities throughout the region and the nation. The risk is real, and it is increasing with each year in which ever-warmer temperatures globally will contribute to drier fuels and longer fire seasons.

City planners and administrators should be thinking about changing

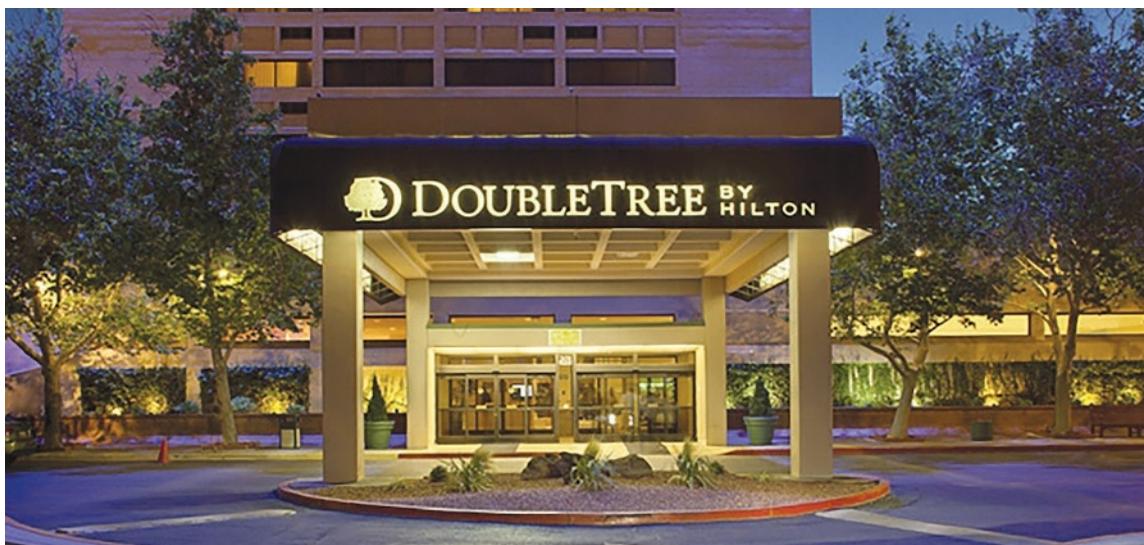
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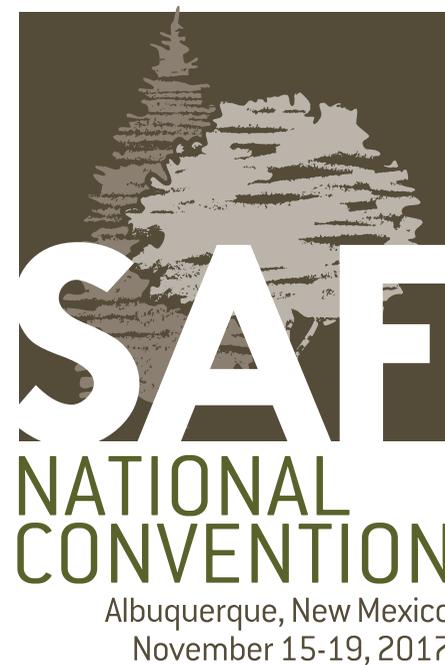
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## NETWORK

■ From Page 1

MFCN held a kickoff conference in December 2016, and 19 Montana forest collaborations came to discuss common interests and learn from one another's experiences. During the second day of the conference, network members broke out into small-group discussions to talk about priorities MFCN should adopt. They unanimously identified five goals for the network:

- Internal communication: offering information to collaborative groups
- External communication: promoting collaboration across Montana
- Generate tools, techniques, and workshops to support best practices in collaboration
- Improve coordination among local organizations
- Advocate for funding for collaborative groups

MFCN believes that achieving these goals will result in better on-the-ground management, making for a healthier environment alongside stronger communities. It is building on many strong projects in Montana, such as the Blackfoot Clearwater Stewardship Project.

### The Clearwater Collaboration

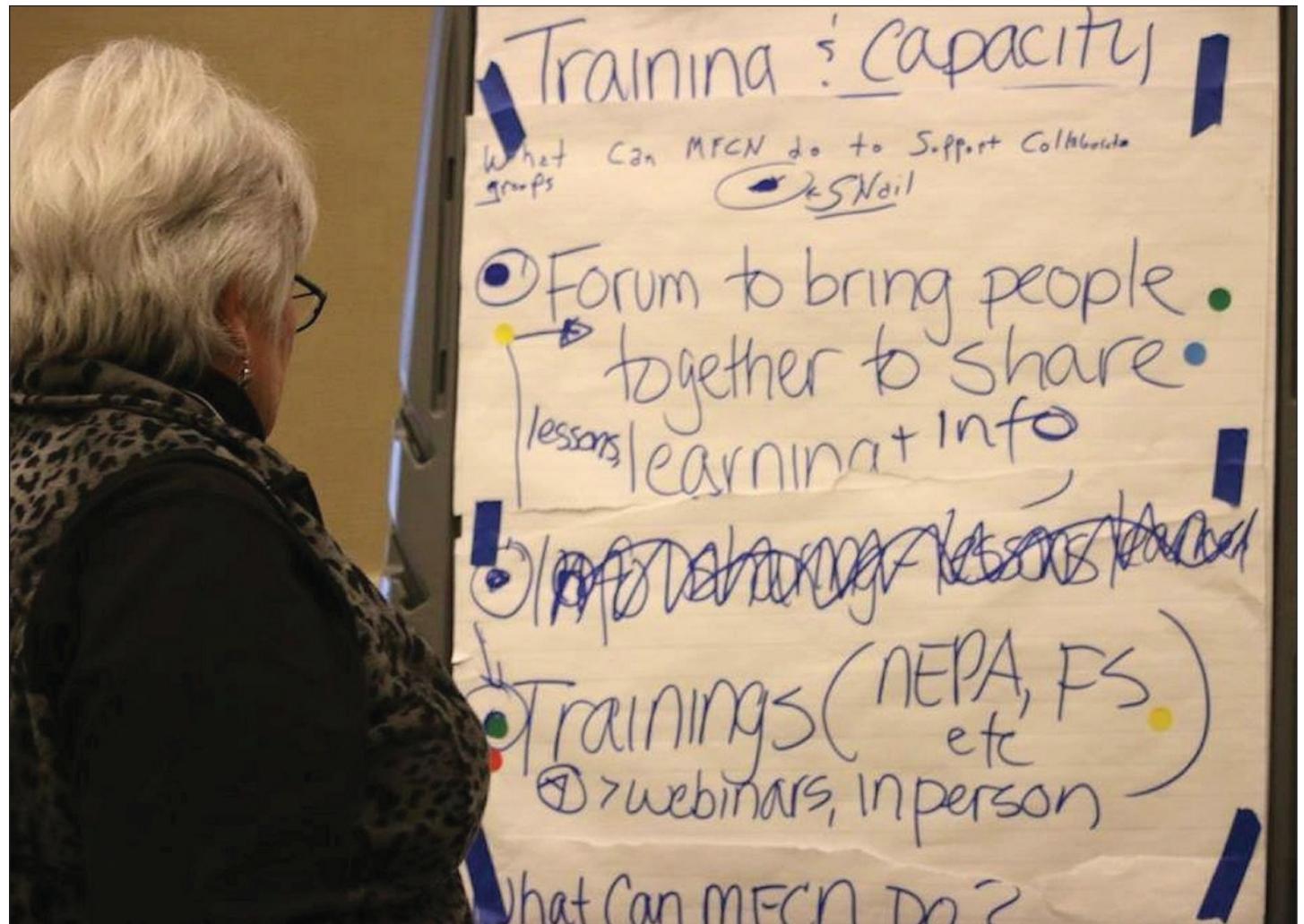
For more than 20 years, Gordy Sanders, CF, has worked as the resource manager for Pyramid Mountain Lumber Inc., in Seeley Lake, Montana. He previously served as chair of MFRC and now chairs MFCN. He got involved with these groups because he has a long history of working with multiple stakeholders.

"At Pyramid, we don't own any of our own land, so we depend on working with others," Sanders said. "We know that we can get more done working with others than we can working on our own."

Pyramid dived into the collaboration process when it took on the stewardship contract for the Blackfoot Clearwater Stewardship Project on the Lolo National Forest. It was primarily a fuel-reduction and forest-restoration project, but there were many other objectives to be met. For example, Pyramid worked to protect and enhance grizzly bear and lynx habitat; both animals are listed as threatened under the Endangered Species Act.

At the time, Tim Love was the district ranger for the Forest Service in Seeley Lake. Sanders and Love worked together for countless hours, listening to diverse stakeholders and trying to craft a plan that fit everybody's needs. Pyramid thinned trees and milled the wood, and instead of paying stumpage, it completed some much-needed infrastructure projects for the Forest Service, such as upgrading campgrounds, building bridges, and closing unnecessary roads that disturbed core grizzly habitat.

The project became known as "trees for toilets," because Pyramid oversaw the installation of 18 heavy-duty concrete pit



A scene from a recent meeting of the Montana Forest Collaboration Network. Photo: MFCN.

toilets as part of the contract. Some environmental groups originally used this label to publicly disparage the project, but as those groups watched the project progress, they began to appreciate the value of the work Pyramid was doing. They saw that the health of the forest was being improved, along with its recreational value. In the process, they got to know a locally owned company that cared about the land.

"That's what collaboration is all about," Sanders said. "The broader your network, the greater your perspective."

Pyramid Lumber had forecasted a profit on the project, but it lost money on the deal, because market values changed during the project. However, Sanders said that the company still came out ahead, because it mastered the stewardship contracting process and generated a lot of good publicity. It began to brand itself as "The Stewardship Company," and was awarded Sustainable Forestry Initiative fiber-sourcing certification. That's helped it earn several new project opportunities with the federal government, which has been good for the bottom line.

### Benefits of Collaboration

Success stories like the Blackfoot Clearwater project are becoming abundant in Montana. Brian Kahn is a Montana public radio host, writer, and lawyer. He's a former president of the California Fish and Game Commission and has served as director of the Montana Nature Conservancy. His weekly radio show, *Home Ground*, broadcasts in-depth discussions about a wide variety of contentious issues that affect Montana. He has spent years facilitating the beginnings of forest collaboration groups and being politically active in many other ways.

"The collaborative process is the only one where I've seen people actually change their overall perspectives," Kahn said. "They don't change their core beliefs, but rather their awareness expands about other points of view, and they realize that there are overlapping values. But you have to be sitting there looking someone in the eye; you can't learn that from a book."

The power of a collaboration comes from forming relationships between people who normally might not talk to each other often—people like elk hunters and bird-watchers, or loggers and mountain bikers. Communication fosters mutual understanding, widens the middle of opinion spectrums, and improves the creativity of those involved. And it builds trust by helping different groups realize they have a lot in common. Trust helps improve efficiency in planning projects, which ultimately leads to more work getting done on the ground.

### Challenges in Collaboration

Yet inefficiency remains the biggest frustration for many concerned Montana citizens. For example, the Forest Service often takes five years or more to move a project from planning to action, because there are mountains of reports necessary to satisfy National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and National Forest Management Act (NFMA) requirements. The resulting lag time causes many stakeholders to lose momentum in following through on their work.

"It's like [the Forest Service] has to write a PhD dissertation every time they do a project," Sanders said. "And you just can't meet every month for five years if there's no progress on your project."

Many stakeholders hope that buy-in from the environmental community will reduce the litigation power of obstructionist groups, so USFS doesn't have to spend as much time and money trying to cover every contingency in its reports. Only time will tell if collaborations can reduce the amount of resources the Forest Service spends on warding off lawsuits.

A related issue, according to Kahn, is the scale of projects.

"Large landscapes are ecologically essential and economically essential," he said. "To me, the biggest obstacle to forest collaborations thus far has been the inability to get projects done on a meaningful scale."

These issues of inefficient implementation and small project scales can be solved by investing long-term effort in a collaboration, and giving people in a group enough time to deeply get to know one another's interests. Again, leaders need to treat collaboration as a marathon, not a sprint.

"You have to spend a lot of time up front getting to know the interests of everybody in the room," said Bill Avey, supervisor of the Helena-Lewis and Clark National Forest. "Some people view that as inefficient, but to me that's time well spent."

Avey went on to say that Montana is starting to see the results of collaboration groups all across the state.

"The tenor of land management is far more productive than it ever used to be," Avey said. "Today, we have more of the conservation community supporting active forest management, which we didn't have 20 years ago. And we have industry folks supporting potential wilderness designations, which we didn't have 20 years ago."

Jim Burchfield, a retired professor of forest social sciences at the University of Montana, has identified some keys to forming lasting forest collaborations that have achieved these results in Montana. For these collaborations to stay effective in the long term, he said, they need to be very inclusive to new members, represent every stakeholder fairly, make the rules very clear to all members, and maintain effective communication.

Acting as an “old boys’ club” and keeping some groups on the fringes is a recipe for disaster, he said. And poor communication is a sure way to undermine a group’s mission, whether it’s poor within the group or with the general public.

### Promise for the Future

The Montana Forest Collaboration Network is now working on integrating the lessons its members have learned into several communication projects aimed at empowering collaborations to achieve success on a larger scale and longer time frame.

“Showing these groups how to better engage and be more effective—that can help us all accomplish at a bigger scale,” Love said.

The first step is an overhaul MFCN’s website, [montanaforestcollaboration.org](http://montanaforestcollaboration.org). Love and Foley are working to add webinars and podcasts about successful collaboration.

They’re also working on example timelines for what to expect in the Forest Service planning process—for example, that groups should expect the Forest Service to take at least four and a half years to complete an Environmental Impact Statement on a proposed project. However, the agency can obtain a Categorical Exclusion in some cases, which may shorten the planning process to only a few months. That kind of information can give groups the foresight needed to successfully anticipate and endure the planning process.

And MFCN is just getting started. It’s less than a year old, so there are many new opportunities to build on the lessons from success stories like the Blackfoot Clearwater Stewardship Project, and from the experience of Montana forestry leaders like Love, Sanders, Kahn, Burchfield, and Avey.

“I think we can engage on a landscape scale, and we’re starting to do so,” said Love. “Collaboration groups are starting to help shape [National] Forest plans, and that’s landscape-level. When they engage up front like that during the initial stages of the planning process, that’s when we see real results.”

In a field and a region that have been mired in gridlock for several decades, that’s some welcome good news. Montana collaborations are pushing through the beginning stages of their marathons, and MFCN hopes it can help them to the finish line. **FS**

For more information, visit MFCN’s Facebook page, [facebook.com/MontanaForestCollaborationNetwork](https://facebook.com/MontanaForestCollaborationNetwork).

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## ALASKA

### ■ From Page 7

break in the sense that it literally breaks up the fuel—it’s not a fire break,” Rinke said. “[Instead] we recognize that this will provide better access for us.”

Although the public recognizes the value of the fuel breaks, there are still misgivings about their presence on the landscape because of their aesthetics.

The Funny River masticated fuel break design was “based on one-and-a-half times the available fuel height and what we projected to see for flame lengths/heights and spotting distance potential, knowing that wasn’t going to stop every firebrand lofting up into the air,” explained Howie Kent, a fire management officer with the Alaska Division of Forestry.

The Sterling fuel break is designed to accommodate aesthetics concerns. In portions of the fuel break on CIRI land, crews are leaving islands of trees and other visual barriers. Crews will return this summer to thin and prune the islands.

Although the fuel break has proven its worth when it comes to slowing fires, the question of whether moose habitat will return to the landscape remains. The wildland-fire protection level is set by the land manager, in the case of the Kenai National Wildlife Refuge, and may include critical, full, modified, and limited response options. With the fuel break now on the landscape, the limited option may be used for remote areas, which would allow a wildfire to continue burning while providing a measure of safety.

The Alaska Interagency Wildland Fire Management Plan defines the options as:

- Critical: gives the highest priority to suppression action on wildland fires that threaten human life and inhabited property.

- Full: protects cultural and historical sites, uninhabited private property, and high-value resource areas.
- Modified: lands receive the same level of protection as those in the Full management option in the early fire season; after July 10, a Limited response is considered.
- Limited: this option is used when the fire is remote, the lands are difficult to protect, or they have lower resource value.

“Of course, we can’t guarantee an increase in moose abundance from this work specifically, and that’s something we’ve made clear with our stakeholders and the Board of Game,” said Rodman. “But the hope is that we’ll be able to use prescribed and wildland fire in the future. Because those prescribed burn plans aren’t set up for implementation at this time, we need to figure out this fuel break component first. It’s going to be a number of years before we get a significant chunk of the landscape treated that will make a difference for moose.”

As part of the fuel break work, studies are underway to measure their impact. The Alaska Department of Fish & Game is monitoring the moose movement through the area. The regional fire ecologist for the Fish & Wildlife Service designed a monitoring treatment of 67 plots that were measured pretreatment and will be remeasured at one, three, five, and 10 years following post-treatment.

### Collaboration

Because many residents’ backyards literally end at the fuel break, another aspect of the Sterling fuel break project is encouraging them to protect their own property. “This work is more effective when it’s

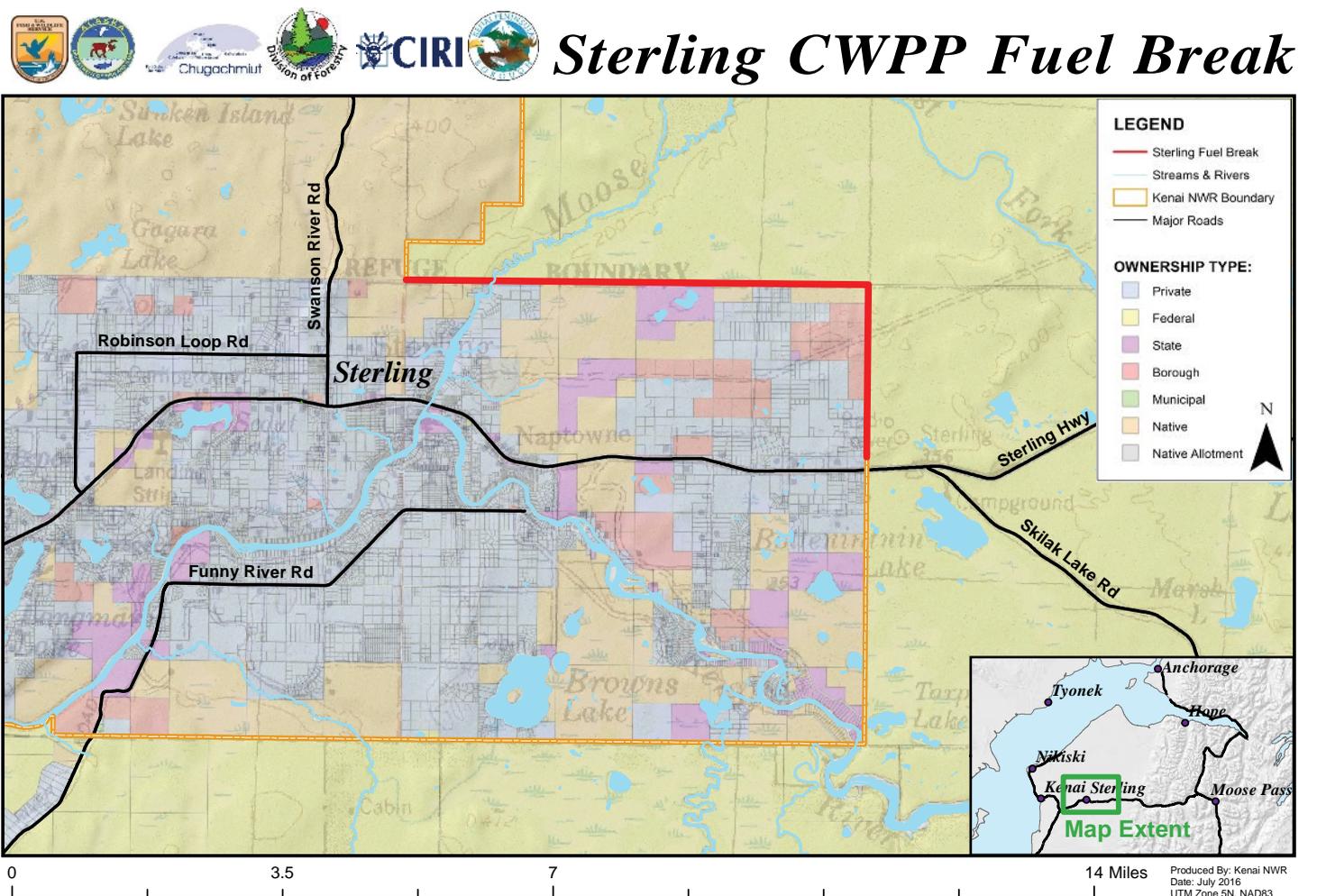
done in big blocks. Having all those individual homeowners firewising their properties and having that meet up with [the] fuel break really gives you a good defensible spot to suppress the fire,” Lojewski said. (See [firewise.org](http://firewise.org).)

Rinke said that this year his department will begin outreach efforts to engage the nearly 100 residents adjacent to the fuel break to consider Firewise treatments. “A lot of times we’re asking landowners to do the work while agencies are perceived to be doing little or no work,” Rinke said. “It helps when we lead by example.”

As All Lands/All Hands approaches its planned five-year plan revision, what is evident among the agency personnel involved is that the emphasis on collaboration has made the difference in accomplishing the necessary wildfire mitigation work. Agencies have contributed funding and staff; the Alaska Department of Fish & Game will have contributed more than \$1 million through fiscal year 2019, while the Kenai National Wildlife Refuge contributed the masticator.

“The fuels program in the Fish and Wildlife Service has been greatly impacted by our ability to accomplish our objectives for the refuge,” Hill explains. “It has forced us to cooperate with our partners, which is a good thing. We’re designing a new approach to meet the challenges we face. It forces us to leverage our resources with our partners.”

When the Alaska Department of Fish & Game decided to join the collaborative, it was “stepping outside our paradigm here at Fish & Game,” Rodman said. “I think it’s been a real benefit to find new ways for how we can accomplish multiple objectives. Fish & Game has been partnering with all the agencies for decades, but now we’re doing something new in these partnerships—we’re building fuel breaks.” **FS**



The 12-mile fuel break protecting Sterling, Alaska, is on state, federal, private, and native lands and will be completed later this year. Map courtesy of Michael Hill.

## Virtual Reality: Bringing the Forest to Classrooms, Homes, and Offices

By Charlie Houder, CF

Foresters have long faced the challenge of explaining their work to decisionmakers, the public, and even peers who are far removed, physically or culturally, from the woods. Increasing urbanization exacerbates the problem; some residents of urban and suburban areas may have a “nature deficit disorder,” an affliction described by Richard Louv in his 2005 book, *Last Child in the Woods*. How sustainable can our forests be when the population has no direct experience with them or even a frame of reference to understand their benefits and importance? Communication, the great catalyst, can transmit knowledge, facilitate understanding, and even spur action, but traditionally, we foresters haven’t been very good at telling our stories. We need all the help we can get to gain the public’s attention and to make our message understood.

Not all communication media are created equal. Graphs and tables are powerful tools for conveying certain types of information among professionals, but they will never capture the full complexity of a forest system. A well-written narrative or essay can capture the heart and stir the imagination, but attention spans are becoming ever shorter and people are gathering information in smaller, graphically presented bites. Foresters, along with everyone else, must learn to use the new tools of communication now available.

One tool that is finally getting off the ground is virtual reality (VR), technology that displays panoramic or spherical imagery in three dimensions so the viewer feels fully immersed in the scene being presented. The computer-generated imagery (CGI) in modern computer games is at the forefront of VR, but even the average Jane or Joe Forester can get in the act, thanks to our friends at Google. With just a smartphone, a free app (either Android or iOS), and a \$15 viewer, anyone can produce and share VR content. This is a rapidly evolving area of development for the company, so the shelf life for the details to follow may be short. Still, the technology has come far enough to warrant some experimentation, and it is probably wise to become familiar with it at this early juncture, so as to stay ahead of the curve.

The most accessible region of Google’s VR ecosystem is known as Cardboard ([vr.google.com/cardboard](http://vr.google.com/cardboard)). I became aware of it when a pre-cut piece of cardboard with two plastic lenses inserted showed up in my Sunday *New York Times*. Following the directions, I folded the cardboard and the two lenses into a stereo viewer that can hold a cell phone. I then used my phone to access a website with links to VR content, including CGI and other imagery based on photography or video. With the phone in the viewer, I explored the VR samples, complete with sound played through the phone’s speaker. This



A smartphone, a Google Cardboard app, and the Google Cardboard viewer let you capture and view three-dimensional imagery. Photo: Google.

was an entertaining novelty to be sure, but I could also see the potential for a more substantive use of the medium.

The Google Cardboard app lets you capture and share your own 3-D panoramas. Basically, you launch the app, select Cardboard Camera, aim, and then turn in place to capture the image of what’s around you. Once the Cardboard app converts the imagery to stereo mode, you place the phone in the viewer and experience the VR version of your surroundings.

While Cardboard Camera can certainly take vacation photos to a new level, it also seems like an excellent mechanism to capture and convey the sights and sounds of the forest. It’s easy to imagine students peering into the viewer to learn about redwoods or the rainforest. But could it also provide a valuable tool for resource professionals? In my own specialty of natural community restoration, I envisioned managers being able to visually compare their sites to reference communities documented in VR. It would not be a substitute for quantitative measures, but it does offer a way to convey details about a site that text and numbers cannot.

### VR in the Woods

To test Cardboard, I took my Samsung Galaxy S7 smartphone to the woods, first holding it by hand at arm’s length and turning in place. As might be expected, the finished image, while mostly clear,

had waves where the app’s image-stitching software could not compensate for my erratic movements. To correct this, I bought an inexpensive (\$15) phone mount and placed it on my Promaster XC525 tripod; the tripod has a built-in level, which ensures the images are level. The tripod helped, but I wondered whether rotating the phone on top of the center point would affect the stereo image. It does. Subsequent trials confirmed that the 3-D effect depends on rotating the phone at some distance from the center point.

There may be more elegant solutions, but I chose the forester’s path by creating an arm for my tripod using a three-foot piece of 1-inch by 1-inch poplar. I drilled a 1/4-inch hole through it about one inch from the end and ran a 1.5-inch-long, 1/4-inch-diameter stainless steel bolt through the hole near the end of the stick. To this bolt I attached the small ball head from a TrekPod monopod and then attached the phone mount. The ball head is necessary because the phone mount holds the phone horizontally, whereas the Cardboard Camera requires the phone to be held vertically for image capture. I drilled another hole 25 inches from the first and ran a second bolt through a quick release plate for my tripod before inserting it through the hole and securing it with a wing nut. I then attached the assembly to the tripod using the quick release plate and finally set the phone in the mount at

the end of the arm. Enough of the poplar stick extended behind the tripod to provide a handle that helped me rotate the phone while shooting.

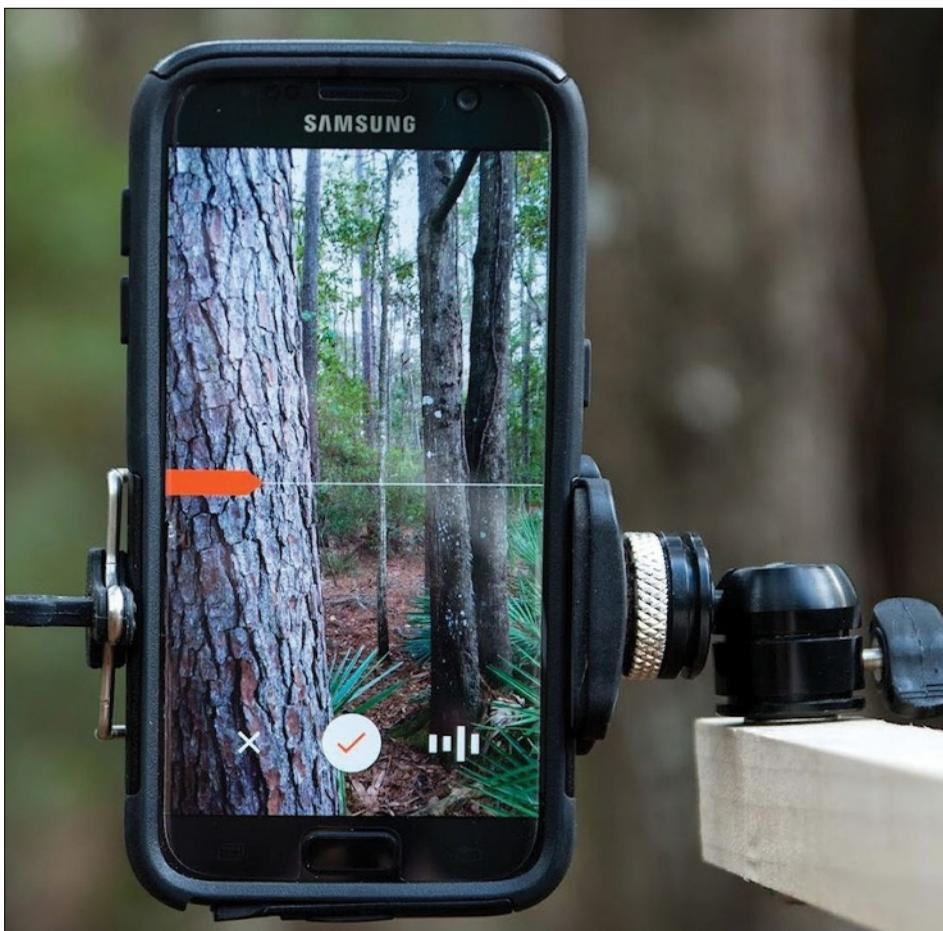
From my relatively brief experience, here are a few of shooting tips:

- Consider sky conditions before venturing out. When full sun would produce too much contrast, an overcast sky may help even out an exposure. Some of the worst results seem to come when shooting toward backlit clouds.
- The Cardboard app has an exposure lock setting that is supposed to minimize banding in the image. However, disabling the exposure lock lets the camera adjust as it is turned toward or away from the sun.
- Typically, photographers are told to avoid the flat light of midday, but for VR panoramas, the sun must be high enough to be out of the field of view. Otherwise, the flare will wash out sections of the image.

As mentioned, there are a variety of ways to share VR images. Social media are immediate and built for mobile technology, but posting VR images on a website provides a stable platform that is accessible to everyone and searchable. This ties back to the idea of having a visual catalog of reference sites for natural communi-



This simple wooden arm, mounted on a camera tripod, lets the author collect high-quality imagery that's later processed by the Google Cardboard app into three-dimensional imagery. Photo: Charlie Houder.



A smartphone with Google Cardboard app, ready for shooting.

ties. The Florida Natural Areas Inventory has begun such a catalog, and VR images would be a valuable addition. It's easy to envision a number of similar applications.

The images from the Cardboard Camera are saved in a vr.jpeg format. Normal

image editing software seems to remove the file information that enables the VR. Therefore, the image files must be copied and saved without alteration. Images are shareable from within the app, but may be handled quite differently depending on



A portion of a 3D panorama from the author's website ([treeware.com/?page\\_id=1222](http://treeware.com/?page_id=1222)).

the mode and target of delivery.

A note about posting vr.jpeg to web pages: these images are displayed as flat images by standard web browsers, unless they are processed before posting. Google provides a drag-and-drop image conversion utility to produce a stereo-capable panorama for the Web. The converter works in Chrome, but not Safari. (I have not tested other browsers.) Once posted to a website, the image is accessed using a JavaScript API called VR View. The script can be called on Google's server, but may not always function properly. Therefore, it is recommended that users host it on their own server. This is relatively straightforward for those with experience with web hosting, although much of the available scripting quickly exceeded my coding abilities.

My experimentation with VR tech-

nology is still in its early days. You'll find some examples on my personal website ([treeware.com/?page\\_id=1222](http://treeware.com/?page_id=1222)). On a desktop computer, click on the full screen icon at the lower right of any of the images; in full screen mode, click, hold, and drag to either side to view the panoramas. On a phone with Google Cardboard installed, you can launch the stereo image for 3-D viewing.

I'm certain that VR will become easier to produce and more integrated into all forms of media. The trick will be to capture and present engaging images that will increase our understanding of and appreciation for our forests. **FS**

*Charlie Houder, CF, is forester and real estate sales associate with Natural Resource Planning Services Inc., which has offices in Florida and Georgia ([nrpsforesters.com](http://nrpsforesters.com)).*

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## Biomass Sustainability in Arkansas

By Katie Fletcher

Highland Pellets LLC ended 2016 on a high note by successfully producing a test batch of wood pellets at its flagship pellet plant in Pine Bluff, Arkansas, on New Year's Eve. The first few weeks of 2017 were spent making minor adjustments before the first of four 150,000-ton-capacity production lines were fired up in early February. Each line will be commissioned sequentially, with subsequent lines turned on every three months. On this schedule, the company hopes to reach full capacity in November.

Project developers chose the 209-acre Pine Bluff site because of the area's deep fiber basket and strong logistics chain to the Port of Greater Baton Rouge, Louisiana. Southern yellow pine from managed forests serves as the plant's feedstock source, with most coming from forest thinnings, in addition to tree tops, low-grade trees without an end market, and mill residuals. Although the pellets Highland produces with this raw material will service Drax Power Ltd.'s power station in the UK, the company recognizes what the pellet operation brings to US soil. Highland Pellets' founder, Tom Reilley, and his team believe wood pellets are an important new market for sustaining working forests.

"We are big fans of the industry, and we think it's really important that the sustainability story is told," Reilley says.

Sustainably sourcing raw material for the plant is estimated to result in 350 to 400 direct cutting and hauling jobs, which are in addition to the bookkeeper, tire salesperson, gasoline attendant, spare parts manufacturer, banker, and others beyond the forest. According to Reilley, construction of the plant resulted in up to 900 jobs on top of the plant's 68 direct employees.

### Strong Logistics

At full production, Highland could receive 160 truck deliveries of roundwood thinnings and mill residuals each day.

"All of our feedstock will come from recognized sustainable sources through our procurement agent, Weyerhaeuser," says Rob McKenzie, Highland's managing director. The company has built solid relationships with local foresters, such as Bobby Taylor of Shelby Taylor Trucking, as well as the Arkansas Forestry Association, of which Highland is a member.

Sustainability is key for the company's operation, and it's currently undergoing certification through the Sustainable Biomass Partnership. Highland uses a track-and-trace system that is able to record the GPS location and contract number of every delivery of fiber brought to the site.

"The truck driver provides the weigh bridge with a ticket that has a bar code, so we can quickly scan all the data into our system to check that the fiber has been sourced from legal and sustainable land according to our contracts," McKenzie explains. "If the truck does not have a cor-



Wood pellets are unloaded at Drax Biomass's storage facility in Baton Rouge, LA, from which they will be shipped to the UK. Photo: Drax Biomass.

rect ticket, then it does not enter our site."

Once the raw material arrives at the site, there will be different storage areas for the fiber, as well as for the final product after it's produced. "We have five dedicated silos that are each capable of holding 1,000 metric tons," McKenzie says. "We are also able to store pellets in spare rail cars."

Pellets for shipment are loaded into 5,700-cubic-foot enclosed rail cars by an overhead hopper. Each car will be able to hold about 89 metric tons.

"We will then use Union Pacific main-line rail to transport the pellets directly to the Port of Greater Baton Rouge using unit trains that will be 80 to 100 cars in length, with six to seven trains per month at full capacity," McKenzie says.

The cars are unloaded by gates below each car into a rail dump at the port before returning to Pine Bluff.

"The total turnaround time for each train will be four to five days, depending on train length," McKenzie says. "We will have enough rail cars to fill two trains, so as soon as the train returns to our site, we will have the cars loaded to dispatch the next unit train."

### Bullish Long-Term

Beginning in May, Highland will ship

pellets to Drax via Supramax or Panamax vessels, depending on the delivery schedule. Drax Biomass owns the storage domes and loading equipment at the port. According to Reilley, Highland's delivery of pellets to the port, combined with Drax's existing pellet infrastructure, has been a huge success story. "This has led the port to commit to expanding the rail infrastructure at the port to enable delivery of longer trains," he says.

Highland Pellets also plans on expanding.

"Now that our business model has been proven, we are excited to explore other sites in Stephens, Arkansas, and in Enterprise, Mississippi," Reilley says. The company is currently pursuing the requisite permitting requirements.

If built, Reilley says, these would be 600,000-plus-metric-ton pellet facilities, similar in design and contract chain to the facility at Pine Bluff. Highland is targeting Stephens as its next site, and, if developed, it would supply the Port of Greater Baton Rouge with an additional 600,000 metric tons of pellets. Reilley says the company is in discussions with other European and Japanese customers regarding supply from the south Arkansas and Enterprise development sites, but which will be utilized, and when, depends on securing an offtake

contract, and the customer preference for which port is used for export.

As project developers and partners know, developments such as Pine Bluff take considerable time. In fact, the facility saw a delay from its original March 2016 completion date, due to the successive number of regulatory and political developments that increased market uncertainty and prevented buyers from being able to commit to an offtake. These included the European Commission's lengthy state aid investigation into the UK government's award of a contract for difference for a Drax unit conversion; the end of renewable obligation certificate grandfathering; a UK election outcome that raised significant questions about the country's future energy policies; the end of renewable exemption from the UK Climate Change Levy; and a Levy Control Framework budget overspend, which led to widespread reduction in subsidies for some renewable technologies.

"The industry needs periods of political and regulatory stability in order to be able to make significant long-term investments," Reilley says. Another consideration for project development, he adds, has been the local workforce. "Our experience with the people of Pine Bluff has been inspiring and uplifting."



An engineer peers into a biomass boiler's combustion chamber at Drax Power's electricity generating station near Selby, North Yorkshire, England. Much of the wood-pellet fuel used at the station comes from the southern US. Photo: Drax Power.

Highland is long-term bullish about the future of the market, and so are its industry partners, including Andritz Inc., Astec Inc., Wagner Construction, Nexus Program Management Group, Weyerhaeuser Services, Entergy Arkansas, and Union Pacific. Mike Curci, North American capital sales manager for Andritz, which supplied the Highland plant with pellet mills and ancillary equipment such as conditioners and lubrication systems, says Andritz expects the Highland and pellet industry to continue to grow for several more years in regions throughout North America and abroad.

"We look forward to see what the future has for many years in the space, and continue in development and process improvement," Curci says. "Also, we continue to work on improving the machinery to reduce the operational cost and production of pellets."

Astec, which helped design the Pine Bluff plant, hopes to continue working in the industry, using its success story with Highland as leverage.

"The whole industry is in a little bit of a lull at the moment, but those in the industry who should know are saying it will be a short-lived lull," says Astec president Malcolm Swanson. "We're working on proposals for projects that other companies are currently planning to put together." **FS**

*A longer version of this article was published in Biomass Magazine on February 21, 2017. It appears here with the publisher's permission.*

## Drax Seeks Pellet Plants in Texas and Louisiana

Drax Biomass, the US arm of Drax Power Ltd., which is based in England, recently announced that it is seeking to acquire the operating assets of Texas Pellets in Woodville, Texas, and Louisiana Pellets in Uruania, Louisiana. German Pellets, builder of both plants, filed for bankruptcy protection in February 2016.

The Louisiana plant, commissioned in early 2015, has a reported production capacity of 578,000 metric tons, and although German Pellets reported plans for an expansion project to double its capacity, this expansion was not completed. The Texas plant, which began operating in 2013, has an annual production capacity of about 500,000 metric tons.

Drax Biomass owns two pellet manufacturing plants in the US: Amite BioEnergy in Gloster, Mississippi, and Morehouse BioEnergy near Bastrop, Louisiana. It also owns a port facility in Baton Rouge, Louisiana. If Drax acquires the distressed plants, its total US pellet production would provide 20 to 30 percent of Drax Power's fuel supply.—from *Biomass Magazine*

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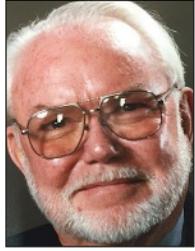
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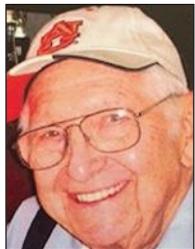
<http://careercenter.eforester.org>

**George Wesley Bengtson Sr.**, 86, of Auburn, Alabama, died on February 19, 2017. He served in the US Air Force during the Korean conflict. Focusing on forestry and soil sciences, Bengtson earned a bachelor's degree from Louisiana State University in 1951, a master's from Duke University in 1955, and doctorate from Yale University in 1961. He began his forestry career as a research forester and plant physiologist with the US Forest Service in Olustee, Florida, where his research involved the development of intensive silvicultural practices to increase growth and oleoresin production in slash and longleaf pine. He moved on to become a research forester with the Tennessee Valley Authority, where he conducted some of the earliest studies on fertilization materials and practices. He later served as an associate dean of the Oregon State University College of Forestry, focusing mainly on extension programs; and later became director of the US Forest Service's Center for Forested Wetlands Research in Charleston, South Carolina. He retired in 2001 after a decade as associate dean of the Auburn University School of Forestry and Wildlife Sciences, with responsibility for the school's education and extension programs. Bengtson was a Golden Member of SAF; he was named a SAF Fellow in 1985. He received SAF's John A. Beale Memorial Award in 1990. For more information, see [tinyurl.com/lstkhxs](http://tinyurl.com/lstkhxs).



**George Wesley Bengtson Sr.**

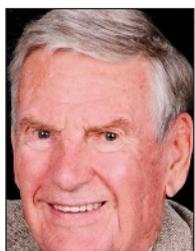
**Young Wood Rainer**, 91, of Abbeville, Alabama, died on Tuesday, February 14, 2017. He served in the a US Army Air Corps during of World War II. A Golden Member of the Society of American Foresters, Rainer graduated from the School of Forestry and Wildlife Management at Auburn University. For more information, see [tinyurl.com/jgzewcw](http://tinyurl.com/jgzewcw).



**Young Wood Rainer**

**Wilfred R. Woods**, 97, died on February 18, 2017. Woods, former publisher of the *Wenatchee (Washington) World*, was an honorary SAF member. For more information, see [tinyurl.com/jxm9wlg](http://tinyurl.com/jxm9wlg).

**Edwin John "Swede" Young**, 90, of Tellico Village, Tennessee, died on February 22, 2017. Young served in the US Army Air Forces during World War II. He earned a bachelor's degree in forestry from the University of Michigan in 1951. His 35-year forestry career took him to Wisconsin, Indiana, Virginia, and North Carolina. Although he retired in 1988, he kept busy as



**Edwin John Young**

a registered consulting forester for years, while also managing his own 25 acres. He established a Certified Tree Farm and took great satisfaction growing and selling cut-your-own Christmas trees in Youngsville, North Carolina. For more information, see [tinyurl.com/kjtf68](http://tinyurl.com/kjtf68).

## Hagenstein Lectures Return to World Forestry Center



**Eric Farm, coastal operations and marketing manager at Barnes and Associates Inc., was one of several speakers at the inaugural Hagenstein Lectures at the World Forestry Center in Portland, Oregon, on October 9, 2016.**

The 2017 Hagenstein Lectures will be held at the World Forestry Center in Portland, Oregon, on Sunday, October 15. Featuring the work of professional foresters under age 45, this entertaining and thought-provoking public program will continue to showcase emerging voices in forestry from around the world. Free tickets will be available in June.

Presented by the World Forestry Center and Society of American Foresters, the Hagenstein Lectures were established in 2015 to honor the life and career of professional forester W. D. "Bill" Hagenstein, who passed away at age 99 in 2014. Hagenstein was a founder of the World Forestry Center and served as president of SAF from 1966 to 1969.

If you missed the 2016 event, be sure to visit the new Hagenstein Lectures YouTube channel, [www.hagensteinlectures.org/video/](http://www.hagensteinlectures.org/video/). The new video presentations are great tools to share with students enrolled in forestry and natural-resources programs.

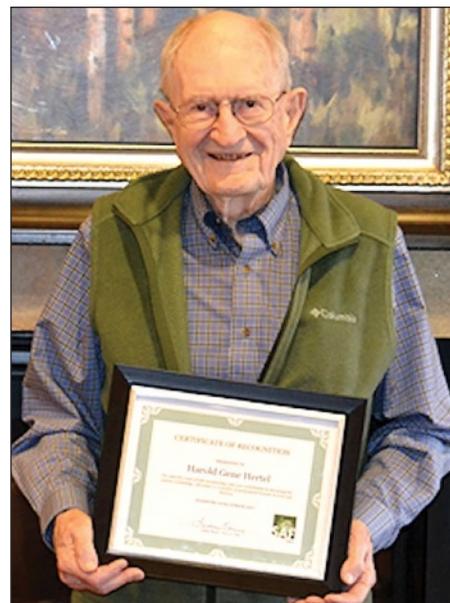
To recommend a qualified speaker, please contact Rick Zenn, Senior Fellow, World Forestry Center, [rzenn@worldforestry.org](mailto:rzenn@worldforestry.org) or 503-488-2103.

### Camp: 80 Years in SAF

At 107 years of age, Harry W. Camp Jr., of St. Paul, Minnesota, is the oldest active member in Minnesota Society of American Foresters. He's been a member of SAF since 1937—joining during Franklin D. Roosevelt's first term in office, at the height of the Civilian Conservation Corps and Works Progress Administration era. To give some perspective on what it means to be a member for 80 years, one need only look at his membership number—it is under 500. Camp is truly one of forestry's and SAF's pioneers.

Although he was not able to attend the recent Minnesota SAF meeting in the Twin Cities area, he did have contact with the current chair, Ginger Kopp, who reported that he is doing well for his age. Congratulations, Harry, on reaching yet another milestone!—Submitted by Greg Russell, CF, 2017 chair of the House of Society Delegates.

### Hertel: Iowa SAF's Best-Kept Secret



**Harold Gene Hertel recently received a certificate honoring his 65 years as a member of Iowa SAF.**

I recently had the great pleasure of meeting Iowa SAF's best-kept secret: Harold Gene Hertel, a member of SAF for 65 years. Hertel grew up in the tiny town of Van Cleve in Marshall County, Iowa. Like many of us, his interests in forestry stemmed from spending his time outdoors as a child. After graduating from high school, he served in the US Merchant Marine from 1943 to 1946, then returned to Iowa and received a bachelor's degree in forestry from Iowa State University in 1950. After graduating, he worked for the Iowa Conservation Commission (now the Iowa Department of Natural Resources), starting as a district forester out of Adel and then as nursery manager for 11 years for the Iowa State Forest Nursery in Ames. Hertel was promoted to assistant state forester in 1964 and then served as state forester for 17 years. He served on the executive committee of the National Association of State Foresters and became president of the organization in 1976. He was active in Iowa SAF, serving as chair in 1974; he also served as chair of the Iowa Chapter of the Soil Conservation Society. Hertel received Iowa SAF's Frudden Award in 1978 and was named a SAF Fellow in 1986. He was also active in the Gama Sigma Delta Honor Society of Agriculture.

With all these accomplishments, I couldn't help but ask him for advice in running our state society and National SAF. On a national level, he said that it is very important for SAF to maintain its influence on forest policy and its influence on the management of forest resources. On a local level, he enjoys the camaraderie and exchange of information that state SAF meetings provide. He is happy to see how active our state society remains, and he encourages us to work more closely with woodland owner groups.

Please join me in congratulating Gene for all of his years of public and SAF service, and for his continued membership in our organization.—Submitted by Lindsey Barney, chair, Iowa SAF

### Oregon SAF: Forestry Professionals

The recently adopted position statement of Oregon Society of American Foresters, "Forestry Professionals as Stakeholders in Forest Issues, Policy, and Management," reads as follows:

"The Oregon Society of American Foresters (OSAF) strongly encourages policy and decision makers, and the interested public, to recognize the valuable perspective that trained and experienced forestry professionals can provide to better understand and address forest resource issues and related policy and management concerns. To be most objective and effective, this input should be provided by professionals independent of their employers' or clients' focus and interests. With its diverse membership, service-to-society mission, current science, and requisite adherence to a detailed code of professional ethics, OSAF is ideally positioned to assist policy and decision makers in dealing with important issues on public and private forest lands throughout Oregon."

Public agencies and other groups often seek input and advice from stakeholders as they evaluate forest-resource issues and develop related policies and management plans. Forestry professionals sometimes are among these participants through their affiliation with commonly recognized stakeholder groups (e.g., industry, landowners). However, a professional perspective independent of employer or client interests can provide more complete and candid input about important forest issues. Such input also provides a vital voice for those who must deal directly with policies and plans that are still too often shaped without substantial input from the independent, professional forestry community.

With these concerns in mind, OSAF recently developed and adopted the preceding new position statement to call attention to the need for decisionmakers to more consistently tap valuable professional forestry expertise and experience as they seek stakeholder input on forest-resource issues. Although relatively simple and brief, it is expected to be helpful in promoting wider recognition of SAF as a unique and vital voice in forest issues and policymaking. For more information, see [www.forestry.org/oregon/policy/current/](http://www.forestry.org/oregon/policy/current/). Contact: Paul Adams, OSAF Policy chair, [adamspaulw@gmail.com](mailto:adamspaulw@gmail.com).

## PREPAREDNESS

■ From Page 5

fore there's a wildland-urban-interface fire are critical," he said. "Many years ago, it was looked at as kind of an 'us versus them' problem—it's that agency's problem, not our problem. Now it's everybody's problem. It takes a huge collaborative effort to have a strong, strong awareness program in any community or any county. Having working relationships between agencies, so that you know one another before the smoke gets in the air, has got to be the biggest benefit and the big success that I know of in the Southeast."

Despite the close collaboration and success of the various education and outreach efforts, much remains to be done, said Prevette.

"There's so much work to be done with landowners to get the message out, to be prepared for wildfire, because we're going to have fires, and not just in the Appalachians," he said. "It's a matter of where drought hits next. When we have severe or extreme drought, we know we're going to have fires. We've always struggled to reach landowners, and that's true nationwide, but especially in the Southeast, where most of the land is controlled by private landowners. Some of them are eager to be contacted and want to respond, and some of them just want to be left alone. Some of them are absentee landowners. We continue to work to figure out new and better ways to engage landowners and get them to raise their hands and say that they want to be part of the solution." **FS**

## COMMENTARY

■ From Page 12

building codes and teaching the public better ways for living in a fire-prone landscape. Unless this happens, both towns will continue to build structures close together—I call them "fire dominoes." The homes and businesses will be rebuilt with the same flammable wooden materials as before, whereas fire-resistant composite building materials are commonplace and strongly recommended. Education is key here. Everyone must know more about the forests in which they live, play, and work, and the role wildfire has played in them for millennia. Unless this happens, and happens soon, both Gatlinburg and Pigeon Forge soon may see a repeat of what happened on November 28, 2016. **FS**

*Henri Grissino-Mayer is a professor in the Department of Geography at the University of Tennessee. His primary area of research involves studying the history of fire by examining fire scars on and in trees.*

*Editor's note: According to officials with Great Smoky Mountains National Park, an interagency review of the fire is underway and may be completed this month. The review team will include representatives from the US Fish and Wildlife Service, the US Forest Service, the National Park Service (from outside the GSMNP), and a local fire agency. Look for information about the report in a future edition of The Forestry Source.—Steve Wilent*



# What's That I Hear?

## SAF Podcasts Take You Beyond the Articles

SAF's podcasts extend the life of journal articles and take listeners behind the scenes with the leading voices behind the literature. Podcasts for select articles published in *Forest Science* and the *Journal of Forestry* are posted open access alongside the parent article. Use them in the classroom or on a hike to lend more mileage to complex scholarly content, making it more accessible to the practicing or future forester.



[www.eforester.org/Main/Library/JOF/Podcasts.aspx](http://www.eforester.org/Main/Library/JOF/Podcasts.aspx)

## Call for Contributions of Essays for:

# 193 Million Acres:

## Toward a more healthy and resilient US Forest Service

### A book to be published by the Society of American Foresters

This collection of essays by a wide range of observers will examine the state of the US Forest Service from a variety of viewpoints and propose solutions to the challenges the agency faces. Overall, the book will look at the internal policies and management strategies of the agency itself, including its National Forest planning regulations, as well as the role

of Congress and the executive branch, existing federal laws, legal challenges to resource management, economic opportunities and challenges within and outside the agency, social and political support for the agency, the need to adapt forest management as the climate changes, and other topics. The purpose of the book is not to criticize the agency,

but rather to offer concrete proposals for how, ultimately, the agency's operations might be made more efficient and effective and its land-management activities maintained, expanded, and improved. In short, the objective of the book is to examine paths toward a more healthy and resilient US Forest Service. Projected release: August 2018.



## Deadline to submit proposals for essays: May 1, 2017

To submit a proposal for an essay or for more information, contact the editor:

Steve Wilent  
Editor, *193 Million Acres*  
503-622-3033  
wilents@safnet.org

Project Manager: Jennifer Kuhn  
SAF Director of Publications  
301-897-8720, x170  
kuhnj@safnet.org

New link to the call for proposals and schedule: [tinyurl.com/j26nuv8](http://tinyurl.com/j26nuv8)

# CONTINUING EDUCATION CALENDAR

More Events at [tinyurl.com/gnd78jh](http://tinyurl.com/gnd78jh) ([www.eforester.org](http://www.eforester.org))

Continuing education events for **April** and **May 2017**. SAF Continuing Forestry Education (CFE) credits are available at all events. Visit SAF's Continuing Education Calendar at [tinyurl.com/gnd78jh](http://tinyurl.com/gnd78jh) for more information on these events and others that may have been recently added to the list.

**CFE Providers:** To obtain pre-approval of Continuing Forestry Education credits for an event, complete and submit the CFE Provider Application Form on the Certification & Education/Continuing Education page at [eforester.org](http://eforester.org) (or [tinyurl.com/z2zqc3o](http://tinyurl.com/z2zqc3o)). Submittal instructions are included on the form.

**CFE Post Approval for Individuals:** If an event was not preapproved for CFE credit, SAF will evaluate the meeting on an individual basis. This service is available to members and SAF-certified professionals at no cost; non-members are assessed an annual fee of \$30. To apply, complete and submit the CFE Post Approval Form on the Certification & Education/Continuing Education page at [eforester.org](http://eforester.org) (or [tinyurl.com/z2zqc3o](http://tinyurl.com/z2zqc3o)). Submittal instructions are included on the form.

## FUTURE SAF NATIONAL CONVENTIONS

**2017:** Albuquerque, New Mexico, November 13–19

**2018:** Portland, Oregon, September 30–October 7

**2019:** Louisville, Kentucky, October 29–November 3

**2020:** Providence, Rhode Island

### Webinars

4/4/2017, Drought and Forest Ecosystems

4/11/2017, Soil Health for Non-Operator Land Owners

4/27/2017, Neonicotinoid Insecticides: Efficacy and Best Management Practices

### Alaska

4/4–6/2017, Opportunities to Apply Remote Sensing in Boreal/Arctic Wildfire Management and Science, Fairbanks

### Colorado

4/19–21/2017, 2017 Colorado Wildfire Conference, Pueblo

### Connecticut

4/5/2017, Vernal Pools and Timber Harvesting, Barkhamsted

### Florida

4/11/2017, Florida Division SAF GIS Working Group Workshop, Gainesville

4/21/2017, Invasive Exotic Species and Control Workshop, Ocala

### Georgia

4/6–7/2017, Georgia Vegetation Management Association 2017 Annual Conference, Savannah

4/11/2017, Longleaf Pine Management & Production Field Day, Millen

4/19–20/2017, Georgia Master Timber Harvester Introductory Workshop, Waycross

### Guam

4/3–7/2017, 2017 Pacific Islands Forestry Professionals Workshops, Tamuning

### Idaho

4/17/2017, Landscaping for Fire Prevention, St. Maries

4/25/2017, Hazard Tree Recognition and Management, Hayden

4/27/2017, Growing Forest Mushrooms, Coeur d'Alene

4/28/2017, Forest Edibles, Coeur d'Alene

### Louisiana

4/26–27/2017, 2017 Western Gulf Forest inSight Conference, Pineville

### Maine

4/5/2017, Invasive Forest Pest Workshops, Farmington

### Massachusetts

4/11/2017, Live Webinar: Massachusetts Plant Communities

4/21/2017, The Origins of New Shade and Ornamental Trees, Amherst

4/22/2017, Tree Time Walkabout with Michael Dirr, Amherst

5/6/2017, Plant Identification Tools and How to Use Them, Framingham

### Michigan

5/11/2017, Forest Health & Invasive Species Workshop, Wetmore

5/13/2017, Invasive Species Workshop, Scottville

### Minnesota

4/11/2017, Native Plant Community Field Guide Training–EBF Province, Hastings

4/18/2017, Weed 'Em Out Workshops, Morris

5/3/2017, Weed 'Em Out Workshops, Baxter

### Mississippi

4/25/2017, Tree Pests and Disease Control for Homeowners and Landscape Managers, Vaiden

4/25/2017, Alternative Sources of Forest Income, New Albany

4/26/2017, Tree Pests and Disease Control for Homeowners and Landscape Managers, Hattiesburg

### Missouri

5/19–22/2017, Deer Steward Workshop, Kirksville

### Montana

4/21/2017, 2017 Montana Forest Landowner Conference, Helena

### New Hampshire

4/3/2017, Logger and Forester First Aid, CPR, and AED, Hillsborough

4/4/2017, Wildflowers of New England, Hillsborough

4/6/2017, Logger and Forester First Aid, CPR, and AED, Ossipee

4/12/2017, Logger and Forester First Aid, CPR, and AED, Lancaster

4/14/2017, Logger and Forester First Aid, CPR, and AED, Ahern

4/18/2017, NH Timber Harvesting Law, Hillsborough

4/21/2017, Soil Genesis, Concord

4/25/2017, Fundamentals of Forestry, Springfield

4/27/2017, Fundamentals of Forestry, Lancaster

4/28/2017, Understanding the Basis and Use of Wetland Evaluation, Manchester

5/3/2017, Safe and Productive Felling, Springfield

5/4/2017, Soil Classification / Taxonomy, Concord

5/4/2017, 27th Annual Mud Breakfast, Berlin

5/5/2017, US Army Corps Wetland Delineator Methods (day 1), Portsmouth

5/12/2017, US Army Corps Wetland Delineator Methods (day 2), Portsmouth

5/19/2017, US Army Corps Wetland Delineator Methods (day 3), Portsmouth

5/26/2017, US Army Corps Wetland Delineator Methods (day 4), Portsmouth

5/31/2017, Grasses for Beginners, Portsmouth

### New Jersey

5/15–16/2017, Vegetation Identification for Wetland Delineation; North, Basking Ridge

### North Carolina

4/4/2017, Forest Products, Chapel Hill

4/6/2017, Sandhills Chapter Meeting, Fuquay Varina

4/6/2017, Forest Products, Elizabethtown

4/11/2017, Loblolly to Longleaf Conversion, Elizabethtown

4/13/2017, Forest Products, Clyde

4/27/2017, National Firewood Workshop, Stateville

5/12/2017, NC ProLogger Mod 17, Granville

5/23/2017, Enhancing Prescribed Fire Opportunities, Oxford

### Ohio

4/5/2017, 2017 Annual Forest Health Meeting, Jackson

### Oregon

4/3–7/2017, Variable Probability Sampling Workshop 2017, Corvallis

4/12/2017, 2017 Starker Lecture Series, Corvallis

4/18–19/2017, Reviewing a Timberland Appraisal for Accuracy and Credibility, Wilsonville

4/26–28/2017, 2017 OSAF Annual Meeting, Tigard

5/18/2017, GPS: Using Your Mobile Device for High-Precision GPS Forestry Data Collection, Springfield

5/19/2017, UAV: Do-It-Yourself Accurate Drone Mapping in Natural Resources, Springfield

5/25/2017, Access, Easements, Rights-of-Way and Timber Trespass: What Every Forest Manager, Springfield

### Pennsylvania

4/11/2017, Monthly PA Forests Web Seminar (webinar)

4/20/2017, Erosion Control in Our Forests, Brynedale

5/5/2017, Tree and Forests, Lancaster

5/9/2017, Monthly PA Forests Web Seminar Center (webinar)

### South Carolina

4/13/2017, Bird-Friendly Forestry Recommendations for Bottomland Forests in the Carolinas, Jackson

4/27/2017, Practical Technology for Practicing Forestry, Columbia

5/3/2017, Growing Our Future, Leesville

5/13/2017, Conservation Easements Another Management Tool For Working Forests, Edgefield

### Tennessee

4/22/2017, Tennessee Healthy Hardwoods Field Days, Henderson

5/20/2017, Tennessee Healthy Hardwoods Field Days, Oak Ridge

### Vermont

4/6/2017, Forest Soils in the Hogback Ecoregion (lecture 1), Bristol

4/8/2017, Forest Soils in the Hogback Ecoregion (field trip 1), Bristol

4/8/2017, VWA Annual Meeting, Randolph Center

4/12/2017–5/3/2017, Introduction to GIS and GPS (four four-hour classes), Williston

4/12/2017, Tree Risk Assessment and Management Training, Woodstock

4/15/2017, Forest Soils in the Hogback Ecoregion (field trip 2), Bristol

4/20/2017, Forest Soils in the Hogback Ecoregion (lecture 2), Bristol

4/22/2017, Forest Soils in the Hogback Ecoregion (field trip 3), Bristol

### Washington

4/5–7/2017, Intermountain Logging Conference, Spokane Valley

5/15/2017, Using Your Smartphone/Tablet for High-Precision GPS Data Collection in Forestry

5/16/2017, Do-It-Yourself Accurate Drone Mapping in Natural Resources, Olympia

### West Virginia

4/13/2017, First Aid, CPR, & Blood-borne Pathogens Training for the Forest Industry, Parkersburg

### Wisconsin

4/19/2017, BMPs for Water Quality, Richland Center

4/20/2017, 13th Annual Sustainable Forestry Conference, Florence

5/3/2017, 2017 NCASI Northern Regional Meeting, Wausau

5/17/2017, BMPs for Invasive Species, Wisconsin Rapids

5/18/2017, BMPs for Water Quality, Wisconsin Rapids

## From the SAF Career Center

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

### Director, Nebraska Forest Service/ Nebraska State Forester

Employer: University of Nebraska – Lincoln  
Location: Lincoln, Nebraska  
Job ID: 33738294  
Posted: March 20, 2017  
Min Education: Master's Degree  
Min Experience: 5–7 Years

### Assistant Professor of Forest Health and Fire Protection

Employer: Alabama A&M University  
Location: Normal, Alabama  
Job ID: 33591806  
Posted: March 9, 2017  
Job Type: Full-time

### Forester

Employer: American Forest Management  
Location: Chehalis, Washington  
Job ID: 33503686  
Posted: March 7, 2017  
Min Education: BA/BS/Undergraduate  
Min Experience: 2–3 Years  
Required Travel: 10–25%

### Director Forestry & Wood Products

Employer: The Nature Conservancy  
Location: Arlington, Virginia  
Job ID: 33220300  
Posted: March 1, 2017  
Min Education: BA/BS/Undergraduate  
Min Experience: More than 10 Years  
Required Travel: 25–50%

### Procurement Forester

Employer: WestRock  
Location: Cottonon, Alabama  
Job ID: 33209751  
Posted: March 1, 2017  
Min Education: BA/BS/Undergraduate  
Min Experience: 1–2 Years  
Required Travel: 50–75%

### Forestry Programs Manager

Job Function: Urban Forester  
Employer: Forest ReLeaf of Missouri  
Location: Saint Louis, Missouri, 63108  
Job ID: 33165375  
Posted: February 28, 2017  
Job Type: Full-time  
Min Education: BA/BS/Undergraduate  
Min Experience: 5–7 Years  
Required Travel: 10–25%

### Area CE Advisor – Forestry/Fire Science and Natural Resources

Employer: University of California Agriculture and Natural Resources  
Location: Yuba City, California  
Job ID: 33166304  
Posted: February 28, 2017  
Min Education: Master's Degree  
Required Travel: 25–50%

### Forester

Employer: Itasca Woodland Services Inc.  
Location: Grand Rapids, Minnesota

Job ID: 33044936  
Posted: February 22, 2017  
Job Type: Full-time  
Min Education: Associate's Degree  
Min Experience: 1–2 Years  
Required Travel: 50–75%

### Forester

Employer: Campbell Global LLC  
Location: Mississippi  
Job ID: 33015898  
Posted: February 21, 2017  
Min Education: BA/BS/Undergraduate  
Min Experience: 2–3 Years

### Production Specialist

Employer: Weyerhaeuser  
Location: Magnolia, Arkansas  
Job ID: 33007958  
Posted: February 21, 2017  
Job Function: Resource Forester  
Job Type: Full-time  
Job Duration: Indefinite  
Min Education: Associate's Degree

### General Manager / Executive Manager

Employer: Tima Capital Inc.  
Location: Wilmington, North Carolina  
Job ID: 32480850  
Posted: January 24, 2017  
Min Experience: 2–3 Years

### GIS Analyst

Employer: Gelbert, Fullbright & Randolph Forestry Consultants, PLLC  
Location: Raleigh, North Carolina  
Job ID: 32470129  
Posted: January 23, 2017  
Job Type: Full-Time  
Job Duration: Indefinite  
Min Education: BA/BS/Undergraduate  
Min Experience: 0–1 Year

### Management Forester (Field Position)

Employer: Gelbert, Fullbright & Randolph Forestry Consultants, PLLC  
Location: Southside, Virginia  
Job ID: 32469838  
Posted: January 23, 2017  
Job Type: Full-time

### M.S. Graduate Research Assistant in Forest Ecology

Employer: West Virginia University, Division of Forestry and Natural Resources  
Location: Morgantown, West Virginia  
Job ID: 33688825  
Posted: March 14, 2017  
Job Duration: 1–2 Years  
Min Education: BA/BS/Undergraduate

### PhD Assistantship: Basic and Applied Ecology of Gambel Oak Woodlands

Employer: Colorado State University  
Location: Colorado  
Job ID: 33675567  
Posted: March 13, 2017  
Job Type: Full-time

### Forester

Employer: New York City Department of Environmental Protection (DEP)  
Location: New York  
Job ID: 33543848  
Posted: March 8, 2017

Min Education: BA/BS/Undergraduate  
Min Experience: 1–2 Years

### PhD Assistantship

Employer: University of Georgia  
Location: Athens, Georgia  
Job ID: 33077923  
Posted: February 24, 2017  
Job Type: Part-time

### Log Quality Supervisor

Employer: Rosboro  
Location: Springfield, Oregon  
Job ID: 33016089  
Posted: February 21, 2017  
Min Education: HS Diploma/Equivalent  
Min Experience: 5–7 Years

### Research Scientist

Employer: University of Missouri  
Location: Columbia, Missouri  
Job ID: 33005155  
Posted: February 21, 2017  
Min Education: PhD  
Min Experience: 2–3 Years  
Required Travel: 10–25%

### Director, Forest Policy

Employer: Minnesota Forest Industries (MFI)  
Location: Duluth, Minnesota  
Job ID: 33004640  
Posted: February 21, 2017  
Job Type: Full-time  
Required Travel: 10–25%

## The Davey Tree Expert Company

These are a small selection of the employment ads by The Davey Tree Expert Company in the SAF Career Center.

### Consulting Utility Forester

Location: Leominster & Fitchburg, Massachusetts  
Job ID: 33781848  
Posted: March 20, 2017

### Consulting Utility Forester

Location: Gardner & Worcester, Massachusetts  
Job ID: 33781826  
Posted: March 20, 2017

### Consulting Utility Forester

Location: Akron & Cleveland, Ohio  
Job ID: 33781822  
Posted: March 20, 2017

### Consulting Utility Forester

Location: Fort Worth, Texas  
Job ID: 33711568  
Posted: March 16, 2017

### UVM Technician

Location: Corpus Christi, Texas  
Job ID: 33681636  
Posted: March 14, 2017

### Consulting Utility Forester/TGE Specialist

Location: San Mateo, California  
Job ID: 33665469  
Posted: March 13, 2017

### Consulting Utility Forester/Senior Consulting Utility Forester

Location: Tulelake, California  
Job ID: 33665433  
Posted: March 13, 2017

### Consulting Utility Forester

Location: Oakland, California  
Job ID: 33665409  
Posted: March 13, 2017

### Consulting Utility Forester

Location: Muscle Shoals, Alabama  
Job ID: 33649244  
Posted: March 12, 2017

### Contract Vegetation Program Manager

Location: Santa Cruz, California  
Job ID: 33631554  
Posted: March 11, 2017

### Consulting Utility Forester/Senior Consulting Utility Forester

Location: Mt Shasta, California  
Job ID: 33631550  
Posted: March 11, 2017

### Consulting Utility Forester

Location: Alpharetta & Atlanta, Georgia  
Job ID: 33611748  
Posted: March 10, 2017

### Consulting Utility Forester

Location: Davenport, Iowa  
Job ID: 33571410  
Posted: March 9, 2017

### Consulting Utility Forester

Location: Clarksville, Tennessee  
Job ID: 33571323  
Posted: March 9, 2017

### Consulting Utility Forester/Senior Consulting Utility Forester

Location: Rawlins, Wyoming  
Job ID: 33570852  
Posted: March 9, 2017

### Consulting Utility Forester/Safety & Quality Auditor

Location: Philadelphia, Pennsylvania  
Job ID: 33570785  
Posted: March 9, 2017

### Quality Auditor/Consulting Utility Forester

Location: Baltimore, Maryland  
Job ID: 33570694  
Posted: March 9, 2017

### Consulting Utility Forester

Location: San Luis Obispo, California  
Job ID: 33174281  
Posted: March 1, 2017

### Consulting Utility Forester/Senior Consulting Utility Forester

Location: Corvallis, Oregon  
Job ID: 33174241  
Posted: March 1, 2017

### Quality Auditor/Consulting Utility Forester

Location: Bel Air & Towson, Maryland  
Job ID: 33048934  
Posted: February 23, 2017

# Forestry News from across the Nation

## Latest Good Neighbor: Washington

Washington State is the latest state to sign a Good Neighbor Authority agreement with the US Forest Service. Of the signing, Commissioner of Public Lands Hilary Franz said, "This agreement is an important tool that brings these issues together and makes problem-solving through collaboration possible. We can get further by working together than apart."

Washington State has five national forests, along with the Mount St. Helens National Volcanic Monument. These national forests encompass 9.3 million acres, or approximately 44 percent of the state's total forestland.

"The agencies, along with help from local collaborative groups, are willing to roll up their sleeves and work on tough forest-management issues that cross boundaries," said State Forester Gerry Day. "We rely heavily on partnerships with public and private landowners to help rural communities, reduce wildfire risk, improve forest health, and address important habitat issues. Formal agreements like this will further strengthen our partnership with the Forest Service and provide a tool to boost land stewardship and rural communities."

## Great Lakes Bird Partnership

The US Forest Service awarded the Western Great Lakes National Forest Bird Monitoring Group (Group) with its 2017 Wings Across the Americas Research Partnership Award and the Partners in Flight Investigations Award, in recognition of the group's 30 years of work to inventory the birds in the western Great Lakes

region. The group's membership comprises several hundred volunteers, the University of Minnesota, the University of Wisconsin, the US Forest Service Eastern Regional Office, and the USGS Patuxent Wildlife Research Center.

"In the early 1990s, we knew little about trends for most forest birds," said Gerald Niemi of the University of Minnesota-Duluth's Natural Resources Research Institute. "The monitoring program has greatly improved our knowledge of their trends and ecology and has resulted in improved management for many of these species. The challenge ahead is to continue to measure the pulse of Great Lakes bird species trends, plus identify causes and suitable conservation actions for the declining species."

Last year the group's research was published by the US Forest Service as General Technical Report NRS-159 ([www.nrs.fs.fed.us/pubs/52029](http://www.nrs.fs.fed.us/pubs/52029)).

## \$33M Denver Forest Restoration

A new round of investment into the From Forest to Faucets partnership will enable Denver Water to treat more than 40,000 acres of critical watersheds over the next five years. Denver Water will distribute \$16.5 million to the US Forest Service, Colorado State Forest Service (CSFS), and the Natural Resources Conservation Service (NRCS); each agency will provide matching funds, resulting in a total investment of \$33 million.

"The link between healthy forests and clean water is nowhere more evident than in Colorado, where we provide water for 19 states," said Mike Lester, state



Researchers attribute an increase in tree mortality across Alabama to the recent drought and bark-beetle infestations. Photograph courtesy of the Alabama Forestry Commission.

forester and director of CSFS. "That is why this partnership is so critical to providing both resilient forests and sustainable water supplies for residents of Metro Denver and the Front Range."

From Forest to Faucets started in 2010 to address the costly impacts of wildfires to the area's watersheds over the past 20 years. This next phase of the project involves CSFS and NRCS performing restoration projects on private ownerships, along with forest restoration projects on eight watersheds.

## Beetles Damage Forests in Alabama

Natural-resources agencies are bracing themselves for what may potentially be a devastating year for Alabama's forests.

The combination of a recent drought and bark-beetle infestations has resulted in increased tree mortality. The Alabama Forestry Commission (AFC) and the Alabama Forestry Association hosted a meeting in March to address this issue, and attendees included the US Forest Service, the Auburn University School of Forestry & Wildlife Sciences, and the NRCS.

An aerial survey of eight counties earlier this year found 187 locations with nearly 14,300 infested trees. A ground survey found that *Ips* bark beetles and southern pine beetles are among the pests killing the trees. AFC plans to conduct aerial and ground-detection surveys throughout the state in the coming months.

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