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From Smokey Bear to Smoky Air: Wildland Fire Management at a Crossroads

BY JOHN BAILEY AND CHRISTOPHER DUNN

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Changes to an entrenched paradigm generally follow the accumulation of anomalies over time that reflect inconsistencies in system function, challenge the existing system structure, and ultimately lead to crisis or revolution. The current state of wildfires in the West suggests our US fire management system is indeed approaching crisis. We have never been able to extinguish all fires despite essentially limitless suppression funding. Each passing year wildfires are becoming larger and more intense, increasing risk to valued resources as the "perfect firestorm" develops due to a changing climate, accumulated fuels at landscape scales, and the ever-expanding WUI and other human infrastructure.

The emerging paradigm questions whether we should even attempt to extinguish all fires across all ownerships—policy discussions and decisions have largely recognized the ecological role of fire and its usefulness as a management tool, particularly on federal lands. But our current fire management system tends to extinguish potentially "good" fires under modest weather conditions, which would burn more consistent with historic burning patterns and ecosystem effects. It is simply easier to suppress fire under those conditions, and it is the safest decision when viewed singularly and simply as "suppress or not." Ironically, by default, this singular and simple decision tends to create the "bad" fires under extreme weather conditions that have no historic parallels. This is an odd and destructive pathology often referred to as the "wildfire paradox" or "firefighters trap."

Such self-destructive behaviors gradually develop over time and they persist via socio-political inertia until something happens to break the dysfunctional cycle. That break in this specific pathology might be forced by the ongoing changes in our climate, federal budgets, and/or workforce constraints. Nonetheless, we will need to end our reluctance to actively manage/use wildland fire for resource benefit, which necessarily requires the sustainable management of all natural resources that comprise the fuel for fire. The question is whether this fundamental change will precede or follow the ultimate crisis.

There is little doubt about the historic role of fire in forests throughout

PHOTO COURTESY OF JOHN BAILEY

Ponderosa pine forest in Central Oregon with a history of thinning and repeated prescribed fire, demonstrating a contemporary open-forest condition.

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In This Issue: Fuel Treatments

Wildland Fire Management

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North America and much of the world. Fire has been a reality for millennia given natural ignitions; our ancestors recognized this fact, co-existed with fire, and actively managed it to improve their lives for food, water, medicines, and safety. Forest vegetation and animals individually evolved adaptations to fire; the forest as an ecosystem evolved with fire regimes of various frequencies, intensities, and spatial patterns that are fundamental to the development of their structure, composition, and function. For example, ponderosa pine and associated dry, mixed-conifer forests were resistant to fire—historically, these forests burned at least every decade or two as low-intensity surface fires that maintained open forest conditions and grass understories that promoted ensuing fires. A few trees were killed here and there to give room for new individuals to grow into the main canopy, creating a forest that contained many ages…like a multi-generational household. In contrast, lodgepole pine forests were resilient to fire—whole mountainsides burned in spectacular fashion, but the blackened ground was soon covered with seed protected within the parents thereby regenerating the forest in one big wave of children…like a present-day elementary school! Both resistance and resilience are valid strategies, and forests have used these strategies in some mix for millennia.

Euro-American settlement largely put an end to that fundamental relationship between forests and fire. The expansion of towns and agriculture, fragmentation of the landscape, fire suppression, Smokey Bear, and a favorable climate pattern combined to limit fire during much of the 20th century. Fire histories from hundreds of research sites conclusively show this change…and the forests changed with it. Fuels have accumulated in most of our forests, and the structural continuity of those fuels, both horizontally and vertically, has expanded. In addition, many forests have densified and experienced significant shifts in species composition. The role of fire is now changing as it re-exerts itself despite our best efforts to exclude it. Ecological resistance has been lost in many areas and “mega-fires” threaten more resources, more human communities, and more valued resources every year. Expenditures for suppression grow; those efforts continue to be largely successful and therefore tend to promote more human settlement into the wildland interface with false confidence that everything is safe, all the time. This serves to expand risk and thereby drive a call for more and better suppression, but then the fuel hazard grows and the wildfire paradox is perpetuated. All of this comes on the heels of climate projections that suggest wildfires will only increase in extent and effects.

We can’t physically move mountains and alter terrain; we have to cope with the weather we are given and climate change mitigation remains a wicked problem unlikely to be resolved anytime soon. Vegetation will grow, die, and fuel the next fire, and humans are not going to leave the wildland-urban interface—in fact, we are expanding into it. Therefore, there is only one point in this emerging crisis at which to break the positive feedback cycle: the continuity of accumulated fuels. There is a backlog of accumulated fuel that can be viewed as a huge reservoir of fuel—and that fuel reservoir is largely continuing to fill as forest growth outpaces harvests and fires combined (even in recent severe fire seasons).

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Next Issue: Political Implications for the 2016 Elections

A number of collaborative land management groups are attempting to increase the pace and scale of forest restoration treatments to turn this tide, and their efforts are commendable. But those efforts are subsidized because they produce little marketable material for a waning industry and are therefore too scattered and too small to make much of a difference. Large wildland fires have been and will continue to do most of “the work” draining the fuel reservoir. Our choice is between the current fire management paradigm—suppressing all that we can and reacting to minimize the damage when mega-fires occur—or embracing a more complex approach that leverages wildfire’s beneficial side and proactively managing our landscapes. The former continues to fill the reservoir until it sporadically and dramatically drains large quantities of fuel in relatively uncontrolled fashions…our current trajectory. Actively managing beneficial fires offers the alternative for more controlled releases from the reservoir that will conserve more of our forest resources and ecosystem services intact.

PHOTO COURTESY OF JOHN BAILEY

Dry mixed-conifer forest in Central Oregon two years post-fire.

This new paradigm that utilizes wildfire as a tool will build on all existing efforts to accelerate the pace and scale of restoration and fuels reduction treatments in mature forests. This work should include a major increase in the use of manager-ignited prescribed fire outside the wildfire season or during more moderate conditions within each fire season. For plantation forestlands, it should include extensive broadcast burning during site preparation that, when combined with vegetation management and stand density management, reduces the likelihood of ignition/spread in young stands or the amount of tree mortality when exclusion fails. Fine surface fuels must be monitored at all stand ages and fire is the only reasonable way to reduce such fuel loading on a significant scale. Plus, we gain additional, multiple ecological benefits from prescribed fire. Our statewide Prescribed Fire Councils will be engaging with the challenges of smoke management and liability in the coming years.

But most of the burning for the coming decades will still be by wildfire and most acreage will be burned by a small number of those fires. Stand- and landscape-level treatments should therefore be designed with the inevitability of wildland fire firmly in mind and forest management plans need to proactively detail multiple scenarios under which future wildland fire is likely. Then, when the inevitable ignitions happen under moderate weather conditions, we have the option to quickly spread the fire for resource benefit and suppress only at the edges of large planning areas (already prepared for such events). Every one of these new fires will effectively treat the local landscape, drain the fuel reservoir a little, and provide an edge at which to stop future wildland fires as the landscape progressively burns. Fire will behave as it has for millennia and tend toward creating a fire resilient landscape. This is how we mold a future from our understanding of the past; a future where the next generation won’t have to pick up the pieces of a broken system that we left them; a future where they can utilize and enjoy forests as we all had the opportunity to do. Crisis is only inevitable when changes to the old paradigm are deemed impossible. ◆

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New Approaches Needed to Restore Resilience in our National Forests

BY WILLIAM C. ANEY

Our national forests in eastern Oregon and Washington are not in great shape. With every good intention, we tried for more than 100 years to exclude fire from these fire-adapted forests, all the while harvesting the big, old, valuable, fire-resistant trees to provide lumber and jobs for our communities and the country. The result now is forestland dominated by densely-stocked stands of smaller diameter, low value, and fire-susceptible trees.

As with just about every persistent force, Mother Nature eventually has her way. We can put out lightning fires for a while, but this allows the forests to accumulate more biomass, meaning that every fire we put out makes the next fire even more likely—and even more intense.

Recent fire seasons in the Pacific Northwest are good evidence of this and remind us that we are headed for a different forest condition in the future. Since 2011, more than 1.85 million acres (750,000 hectares) of forestland in Oregon and Washington have burned, the most of any 5-year period in the records. In 2015 alone, more than 530,000 acres (215,000 hectares) of national forest land burned in Oregon and Washington.

SOURCE: MELANIE SUTTON, USFS

The projections for the future are even more sobering, with scientists forecasting hotter, drier, and longer fire seasons. Mother Nature is having her way, as she always has, and some may say there is no problem with nature taking its course.

Working with nature

Forest ecologists recognize that fire, insects, and disease are all part of the system, and they have worked together for millennia to create patterns of forest density and composition that can absorb these types of disturbances. Left to its own devices, our forests will indeed change or move to a different state from the current condition. The questions we should ask are: Is this future state something that we, as a society, want from our forests? Are we prepared to live with the effects of these large disturbances on our communities and forests?

One approach to influence this future is to use active management, working alongside natural forces, to restore forests toward the conditions we do want. Active management of the national forests of eastern Oregon and Washington is often focused on reducing fire risk to the things we care about—fire-safe communities, private lands, and healthy ecosystems, including large old trees, high-quality water, diverse and productive fish and wildlife habitat, and desirable places to recreate.

Unfortunately, our current rate of planning and conducting active forest restoration work is failing to keep pace with the growing problem and our national forests are losing their ability to persist in the face of natural disturbances. They are losing their *resiliency*.

The Forest Service Eastside Restoration Strategy arose out of the recognition that the time is now to do something different. We need to accelerate the pace of planning our work and restoring these forests if we ever hope to catch up to the pace of forest growth that Mother Nature has set—we have been lapped once, and we're going to get lapped again if we don't do something drastically different.

The timing is right to try some different approaches. There is developing social license to do more work, and in most places in the Pacific Northwest, the infrastructure and workforce is in place to get the work done. The science is also quite clear about what needs to be done.

Enter the Blue Mountains Restoration Team. This inter-disciplinary team of resource specialists is charged with planning restoration projects in the Blue Mountains at a much larger scale and on a very fast pace. The typical forest restoration project on national forests in the Blues covers about 25,000 acres and treats 10-20% of that area, with a plan that takes several years to complete. In contrast, the first project planned by the Blues team was just under 100,000 acres and calls for mechanical thinning on 40-50% of the forested area, and prescribed burning on just about all of it. The planning work was completed in about 21 months, much faster than the national average for a project of this scale.

The team's next project is even bigger. This work starts by evaluating forest restoration needs across the entire 6.0 million acres of the Blue Mountains, and could eventually call for thinning and burning of hundreds of thousands of acres of dry forest in strategically important places for management of fire on all four national forests in the Blues.

To work at this scale, we must think differently about our methods for planning and implementing projects. The Blue Mountains team is an experienced lot, and we have challenged them to experiment with new approaches to

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PHOTO COURTESY OF WILLIAM C. ANEY

Understory thinning and hand piling of small trees and branches can be used to restore resilience to forest stands in the Blue Mountains of northeastern Oregon. Here, a project on the Umatilla National Forest creates shaded fuel breaks along a major forest road so that when a fire does start in the vicinity, crews have a safe place to work at containing the fire by "bringing the fire to the road." This is an example of using active management (thinning, piling, and burning) to complement natural disturbance (fire) to restore fire-prone forests.

PHOTO COURTESY OF WILLIAM C. ANEY

Wildfires burning at a low to moderate intensity in dry mixed conifer forests can play a role in restoring these forests. In this case, the Pole Creek fire on the Deschutes National Forest in 2012 burned pine, mixed conifer, and lodgepole forests on the east slopes of the Cascade Mountains in central Oregon. Ground fire (as shown in this photo) burns through the litter, duff, and logs on the ground, killing young shade-tolerant trees while the larger fire tolerant trees survive—a scenario played out countless times before the era of fire-suppression.

Anticipated Benefits of the Blue Mountains Forest Resiliency Project

• Greater forest and community resiliency to fire.

• Increased amount of open canopied and large tree/old forests.

• Reduced incidences of large pulses of smoke from uncharacteristically severe fires.

• A broad-scale integrated analysis of where active forest management (thinning and managed fire) will contribute the most to forest resiliency.

• Improved wildfire management decision making, incorporating scientific analyses of areas where fire will have desirable versus unwanted effects.

• Jobs and supplemental economic benefits to local communities.

• Resilient forest habitat for high value resources, such as fish, wildlife, native plant species, water quality, air quality, and protected tribal treaty resources.

• Scientifically consistent data and analyses that can be used in other national forest project plans or to support multi-partner planning, implementation, and funding of landscape-scale restoration with adjacent landowners.

PHOTO COURTESY OF ERIC PFEIFER, USFS

Commercial treatment of forested stands is often the first step in restoring fire resilience to these stands and protecting other resources in the landscape. In the center of this aerial photo is a harvest unit of the ToFu Timber Sale on the Walla-Walla Ranger District, Umatilla NF in northeastern Oregon. Above and to the right of the ToFu unit in the photo are canyons of the North Fork Umatilla Wilderness, and below the unit (and off the photo) are the communities of McDougall Camp and Tollgate. The purpose of this treatment is to protect these communities when the inevitable wildfire starts in one of these canyons and burns uphill toward the communities.

collecting and evaluating natural resource data for restoration plans. With respect to large-scale planning tools, methods, and approaches, they aim to discover what is needed, develop what is needed to fill gaps, and demonstrate what it takes to plan at this scale and pace. And they are making progress!

Imagine, for example, models that describe the condition and composition of the forests 80 years into the future as influenced by climate change, fires, insects, and disease (see sidebar on page 7). We can take this further by describing this future forest condition with and without the projects being planned by this team—clearly illustrating to the public and the agency the effect of the agency's work, as well as the effect of doing nothing, on the future of these forests. No easy task, given the complexity of natural systems and the scientific uncertainties involved.

The social license to conduct this work is critical. The Blue Mountains includes five public collaboratives—groups of interested citizens that help the Forest Service understand public demands and needs from the forests. These collaboratives include representatives from local and national environmental groups, timber industry, the ranching community, and other forest

PHOTO COURTESY OF WILLIAM C. ANEY

Understory thinning of both merchantable and non-merchantable material sets stands up for an eventual prescribed fire. Here, contractors thinned a young stand of ponderosa pine on the Malheur National Forest, removing the excess merchantable material and piling the remainder, leaving a stand better prepared for fire.

users, as well as the governmental partners of the Forest Service (Indian tribes, and state and local governments). Not all of these groups, or their individual members, are entirely comfortable with the idea of increasing the pace and scale of restoration in the manner envisioned by the Forest Service's Pacific Northwest Region, so the team is spending a great deal of effort with these groups gaining a mutual understanding of their ideas and concerns and implications of working at this scale.

The science background is also critical and the team is working closely with agency, university, and non-governmental organization scientists to help describe the current condition and desired future condition of the forests in a scientifically credible way.

Do we know whether planning our work at this scale will work? Will it be accepted by the public, including the local workforce that will be implementing this work? We don't know. But the time is right to try something different now.

Albert Einstein is widely reported to have said: "The problems that exist in the world today cannot be solved by the level of thinking that created them." We believe that landscape-scale problems require landscape-scale solutions, and we cannot hope to catch up to the backlog of unhealthy forest conditions by working in the same ways as we have in the past. In the end, the challenge for the Blues team is to figure out if it is possible to plan and implement projects at a much larger scale, resulting in a landscape-scale difference that works with the forces of nature to restore resilience to our national forests. ◆

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Climate-informed Vegetation Models

How can we account for climate change in forest restoration planning?

Vegetation "state-and-transition simulation models" are being used to predict the future for forest vegetation in the Blue Mountains. By starting with the current condition, "growing" the forests into the future, and adding in the influences of natural and human-caused disturbances, the Blues team is able to compare the effectiveness of alternative management approaches, including doing nothing, to restore forest resiliency.

We know that climate is changing, and that climate change will have an effect on the future condition of our natural landscapes. Because of this, the team is considering likely climate change scenarios and their influence on future vegetation. The key questions are: What is the likely future condition, with or without active management, given climate change and future disturbances from insects, disease, and fire? Can our active management of these forests create conditions that are more resilient to climate change? And if we do nothing, what will the forests of the future look like?

This work is a great example of the partnerships the Blues team has developed with the science community. The "climate-informed" state and transition simulation models used by the team were developed by a group of scientists from US Forest Service Pacific Northwest Research Station, the University of Washington, and Common Futures.

Fuel Treatments: A Landscape and Multi-resource Problem

BY THOMAS A. SPIES AND
ANA M. G. BARROS

Thomas A. Spies

Ana M. G. Barros

Efforts to treat forest vegetation in fire-dependent ecosystems must consider large areas and long time frames if they are to be effective in modifying large fire behavior, protecting human values, or restoring ecological processes. While it is well documented that fire behavior (fire intensity severity and spread rate) can be reduced when wildfires encounter recently treated stands or burned patches, the ultimate effectiveness of fuel treatments depends on many factors including the amount, pattern, and rate of treatments across landscapes (e.g., mosaics of vegetation and/or ownership 10,000 to >100,000 acres in size). The frequency of treatments relative to the recovery speed of fuels must be considered because vegetation grows continually. Fuel treatments may only be effective for relatively short periods after treatment, e.g., 10-30 years. Researchers have known for some time that design and implementation of fuel treatment and restoration programs must take a landscape and multi-decadal view, but until recently, we have lacked the analytical tools to explore the outcomes of different management strategies.

When discussing fuels and fuel treatments it's important to set the stage with four key assumptions and facts.

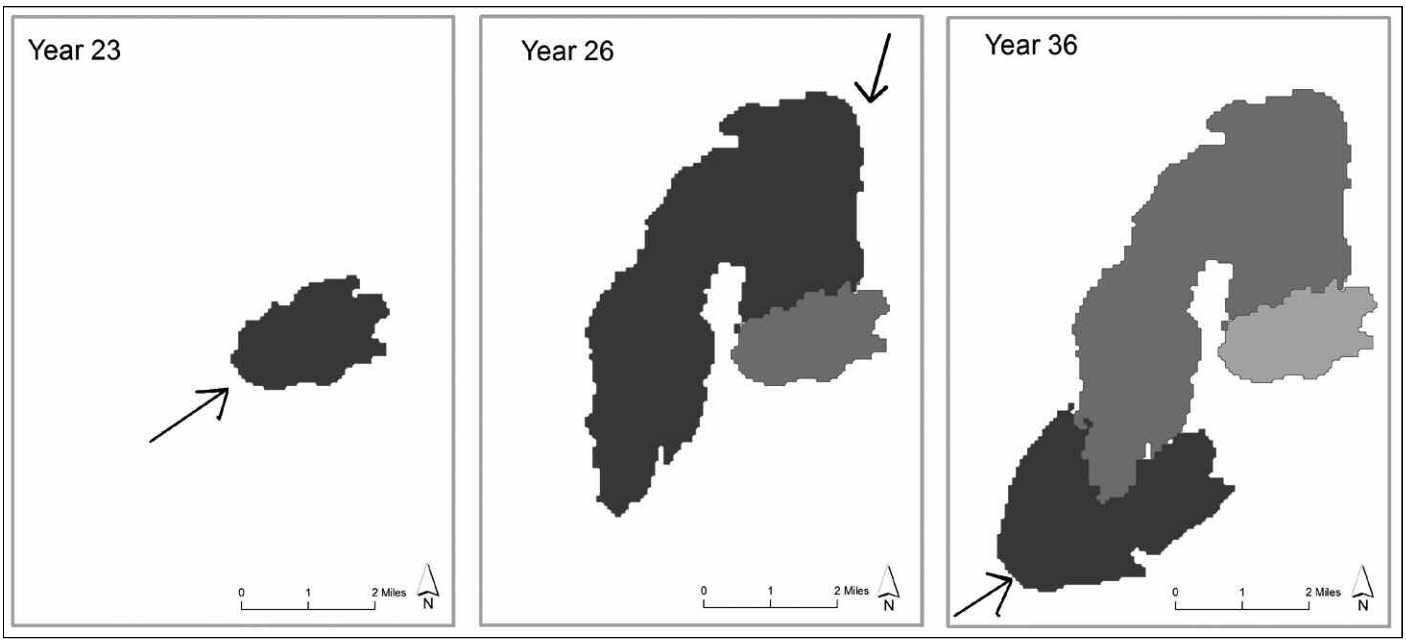
First, fuel treatments, with some notable exceptions, are not typically intended to reduce fire occurrence in an area, but to alter fire behavior in a given area and consequently fire severity—the amount of damage done to vegetation or other values. These direct effects of fuel treatments can facilitate fire suppression, but the ultimate effect is to reduce the amount of high-severity fire and pave the way (especially on federal lands) for using managed and prescribed fire to achieve management goals.

Second, not all fuels are the same and not all management actions have the same impact on fuels and fire behavior. Fuels can be broken down into four major types: ground (duff and roots); surface (dead and down woody material, grasses, herbs and low shrubs); ladder (taller shrubs, small trees, low branches); and crown (overstory trees). Of these, surface and ladder fuels are typically the most important in controlling fire severity. Thinning or other partial harvest for timber can be part of a fuel reduction program, but logging can increase potential for high-severity fire unless logging residues (activity fuels) are reduced.

Third, removing fuels is not necessarily the same as restoring the structure and function or resilience of fire-prone ecosystems. For example, only fire (wildfire or prescribed)—not mechanical treatments—can provide the ecological effects that support fire-prone ecosystems.

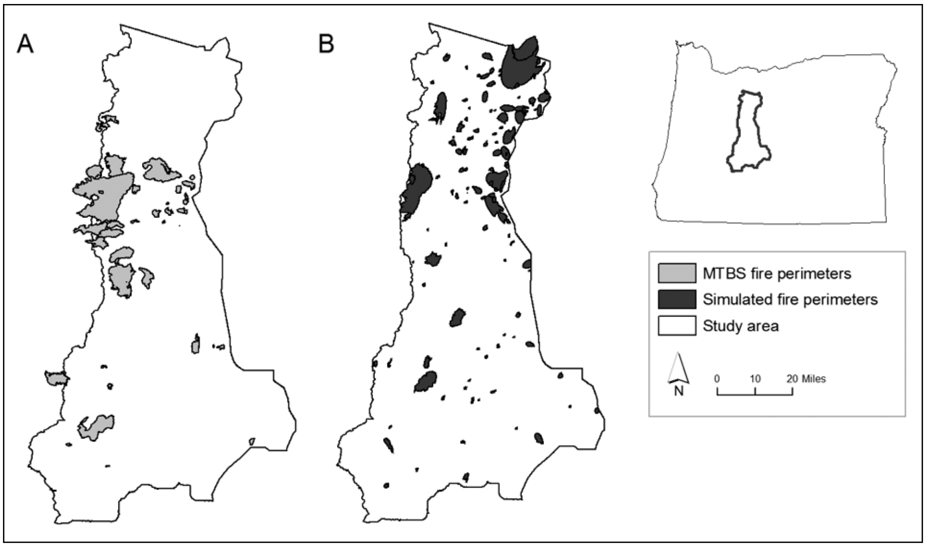
Fourth, wildfires can reduce fuels and modify the behavior of future wildfires (see Figure 1). Thus, wildfires can be managed, where appropriate, to achieve ecological and resource management goals.

Researchers are just beginning to use holistic landscape models to under-



SOURCE: A.M.G. BARROS

Figure 1. Simulated interactions of fires through time on a central Oregon landscape. The year-23 fire spreads from the southwest. In year 26 of the simulation a flank of fire spreading from the north is halted by the lack of fuel in the area previously burned by the year-23 fire Ten years later (year 36) a fire spreading from the southwest flanks around the area of the year-26 fire. Flanking fires tend to spread more slowly and can be easier to suppress.



SOURCE: A.M.G. BARROS AND MONITORING TRENDS IN BURN SEVERITY (MTBS) DATA BASE

Figure 2. A. Boundaries of historical fires greater than 100 acres (1994-2012) in central Oregon, and B. potential future fire boundaries for a 21-year simulated future period from the Envision model.

stand and evaluate the effects of different fuel treatment designs on fire behavior; landscape models that combine fire and forest succession are less than 10 years old and are rapidly developing along with computer hardware and software capabilities (see Figure 2). To advance this active area of science and technology, a group of scientists at the Pacific Northwest Research Station and Oregon State University are engaged in a multi-year project to develop landscape-scale fire and forest models and apply them in an effort to understand how wildfire and forests respond to alternative fuel treatment designs.

The research project, titled "Forest, People, Fire" (FPF) (http://fpf.forestry.oregonstate.edu/home) was started with funding from the National Science Foundation's Coupled-Human and Natural Systems program and is continuing with funding from the PNW Research Station, College of Forestry at Oregon State University, and the Joint Fire Sciences Program. The project is more than an effort to build better landscape forest and fire models. It is really designed to understand how humans, forests, and wildfire interact across space and time in the eastern Cascades of Oregon (initially) and how new understanding from landscape models contribute to the design and implementation of more adaptive strategies for living in and using resources in fire-prone landscapes. The FPF model is unique in that it combines existing models of fire, vegetation, and wildlife habitat with new empirical models of management behavior based on surveys of family forest owners and homeowners, and interviews with corporate, tribal, and federal managers.

FPF has concluded the first phase of using the model to explore how alternative fuel treatments across ownerships might affect fire outcomes (e.g., area burned by high severity fire) as well as other resources (timber, wildlife habitat, carbon). We used the model to simulate how fire might burn over the next 50 years and affect resources on the Deschutes National Forest and surrounding private and public lands under three simple initial scenarios: (1) current management; (2) doubling of the area of federal treatments; and (3) no forest treatments. The scenarios were developed through workshops with stakeholders in the region and the last scenario was considered plausible if mills closed and forest management capacity on federal and private lands were to disappear.

We found several interesting results that are currently undergoing peer review. First, current fuel management programs reduce the expected area burned by future high-severity fire compared with no management (see Figure 3). The effects are small in any given year, but over 50 years the expected cumulative differences in fire

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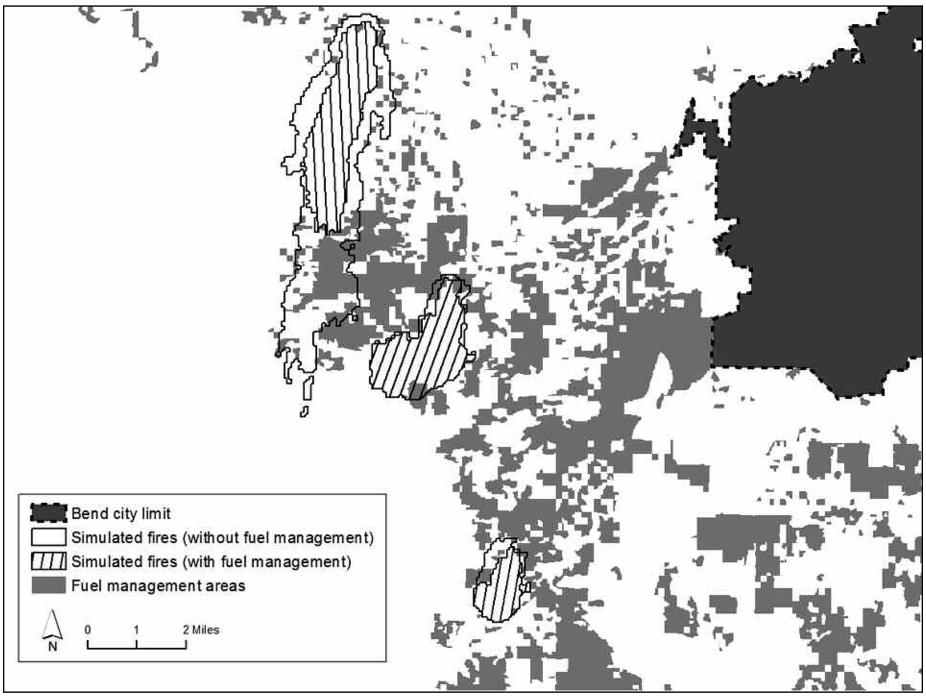

SOURCE: A.M.G. BARROS

Figure 3. Simulated cumulative effects of 10 years of fuel treatments on fire size for an area west of Bend, Oregon. Fire boundaries marked with diagonal lines represent potential fire areas when fuel treatments (gray areas) (<10 years old) are present. Fire boundaries outside the diagonal lines represent fire areas that would occur if no fuel treatments were present. Diagonal lines represent wind direction of the fires. The northern most fire is considerably smaller when fuel treatments are present.

between management and no management were significant (about 25%). Interestingly, in simulated years with abundant fire, fuel treatments were more effective in reducing high-severity fire than in years with less fire. This result is logical and points to a key consideration for landscape-level fuel treatments—there must be enough of the landscape treated (or enough fire) for treatments and fire to intersect. A rule of thumb for landscape treatments is that at any one time **at least** 20 percent of large areas must be in recently-treated (10-15 years) conditions to have an effect on fire behavior. However, this simple rule does not necessarily apply to all landscapes—individualized landscape fuel treatment designs are needed.

A second interesting result is that the effort to accelerate the pace and scale of fuel treatments on the landscape may eventually run into limits in availability of acres of a given land allocation and/or forest condition. About 50 percent of the Deschutes National Forest area is available for treatment (e.g., outside of Wilderness and other land allocations) and some of what is available may not be ideally suited for treatment because of vegetation conditions (e.g., tree size, cover, and species of trees) or other considerations such as economics, accessibility, or wildlife habitat. Eventually, as more and more of a landscape is treated, managers will need to manage previously-treated areas that will have less timber volume (which can subsidize fuel treatments) and require only removal of surface fuels and regeneration—this situation is already occurring in some areas.

We also have found that fuel treatments result in tradeoffs among fire, timber, carbon, and wildlife habitat. As the area of treatments increases on the landscape the amount of high severity fire goes down, but so too does the area of dense forest habitats (e.g., for northern spotted owls or northern goshawks) despite additional losses from wildfire. In addition, the amount of carbon sequestered in the forest declined with treatment compared to the no-management scenario (wildfire occurred in both scenarios). These findings indicate

PHOTO COURTESY OF TOM SPIES

A recently treated older ponderosa pine stand on the Deschutes National Forest. The stand was thinned first (note small stumps) to remove ladder fuels and then burned with prescribed fire to reduce surface fuels.

PHOTO COURTESY OF TOM SPIES

A young ponderosa pine stand on the Deschutes National Forest that was recently treated with prescribed fire.

that different landscape-scale approaches to fuel treatments will lead to different outcomes in terms of risk of high severity fire, restoration, smoke, and other resource objectives that might be dependent conditions with relatively high fire hazard.

What we are learning from all these simulation studies is that landscape patterns and rates of forest management can have a strong effect on wildfire and other resource objectives. Fuel treatments do not exist in isolation in space, time, or in social-ecological systems. While general objectives of "all lands" strategies such as those delineated in the Cohesive Wildfire Management Strategy are valid and important, successful implementation of such approaches requires a thorough understanding of the spatial context of ownership, ecological conditions, and fire regime and how it changes over time. One-size-fits-all approaches are very unlikely to be successful, particularly in complex landscapes where fire hazard is shared among multiple ownerships and land allocations with very distinct objectives and capacities to manage. ◆

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Fuel Breaks in Alaskan Boreal Forest Save Lives and Property

BY NATHAN LOJEWSKI, CF

PHOTO COURTESY OF USFWS

Firefighters conduct a burnout operation on a portion of the shaded fuel break during the 2014 Funny River Fire.

Alaskans take a slightly different approach to fire management than our lower 48 counterparts. Our boreal forest ecosystems are vast, remote, and largely intact and unmodified from pre-European settlement. Wildfire is alive and active as it has been for millennia. In these ecosystems, wildfires are typically of the dramatic stand-replacing type, which is one of the primary means to restart forest succession. These fires are critical in providing early successional habitat for moose and other species that are heavily relied upon for subsistence food. While fire plays an important ecological role across the landscape, limited access to much of the state makes fire suppression a costly challenge. Since the 1980s, the concept of point protection has been practiced where specific values at risk, such as communities, cabins, or cultural resources, are the focus of protection. Fires that do not threaten an important value at risk are monitored and only suppressed when and where a value at risk warrants protection.

In the last several decades Alaskans have seen both an increase in fire activity across the state and population growth and expansion of the Wildland Urban Interface (WUI). Four of the largest fire years have occurred in the last 12 years (since 1940), and at the same time both federal and state budget reductions have limited capacity to fight fire. Additionally, many climate scientists predict that future fire seasons will be longer and larger if current climate warming trends continue. In the face of larger and longer fire seasons with fewer firefighting resources and continuing expansion of the WUI, what are Alaskans to do? I would suggest we increase our efforts to build strategically placed fuel breaks, thus making our point protection strategy more effective.

In the last two decades the construction of fuel breaks around some of our vulnerable communities has become more common. These fuel breaks come in different types and configurations, but all are designed to give firefighters a safe and defensible space to base fire suppression operations from. For example, fuel breaks can be plumed with fire hose and sprinklers to hold a fire, used as a starting point for backfires and burnout operations, or used as a contingency fire line. Simply put, a fuel break will save time and money by giving a fire incident commander more options and providing a defensible location to base fire suppression activities from.

In Alaska, after installing a fuel break around a remote village or community, firefighters can be confident that they can hold the fire at the fuel break and protect the community. In a village with a fire break and firefighers on site, a nearby fire may be monitored and only suppressed if it reaches the fuel break, a strategy that utilizes fewer firefighting resources. In the last five years fuel breaks have been used successfully in fire suppression operations during the Shanta Creek Fire (2009), Eagle Trail

Fire (2010), and the Funny River Fire (2014).

In Alaska, our greatest success story utilizing a fuel break occurred during the Funny River Fire. The Funny River fuel break is located along Funny River Road in Soldotna. The project was initiated by the Kenai National Wildlife Refuge that manages a large tract of land directly south of Soldotna and the neighboring communities. Fire managers were concerned that a fire that started on the refuge could move to the north, impacting the residential areas adjacent to the Kenai River. The refuge began construction of a 6.5-mile-long shaded fuel break in 1999, and with the assistance of the Alaska Division of Forestry, constructed a 3.5-mile-long masticated fuel break in the winter of 2012-2013. The first test of the fuel break was during the 2009 Shanta Creek Fire where the shaded fuel break was utilized as a contingency fire line. Ultimately, the fire did not reach the fuel break.

The human-caused Funny River Fire was started on May 19, 2014. The fire ignited south of the Funny River fuel break and was pushed south by strong winds. The fire ran approximately 7 miles south by the end of the day. The south winds eventually shifted, allowing the fire to move north toward Soldotna residential areas and the fuel break. Early in the morning on May 21 the fire hit the shaded fuel break and was held by firefighters. Three days later the fire hit the masticated fuel break and was again checked by firefighters. Incident Commander Rob Allen said, "The shaded fuel break along Funny River Road helped firefighters stop the fire on the road and buy some time to get crews and hose in place on the masticated fuel break south of the community of Funny River. Without these two fuel treatments it is highly likely homes would have been lost on the northern flank."

Chena Hotshots Superintendent Oded Shalom said: "We were scrambling, behind the curve. Resources were limited and there were other priorities; it depended on which way the wind 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, set us up to do what we did. We didn't have time to set up defensible lines."

It is clear that the Funny River fuel break was a success and that fuel breaks are effectively used in Alaska, but how do we quantify their value? The US Fish and Wildlife Service conducted a brief analysis specific to the Funny River fuel break and found the cost of construction was $1,549,327 and the value of taxable property protected to be $254,817,000, clearly money well spent. However, a 2014 Joint Fire Science Program funded research project titled "Duration and cost effectiveness of fuel treatments in the Alaska boreal region" (project id 14-5-01-27) aims to study this question in greater detail across Alaska. The project is an interagency collaboration led by the University of Alaska Fairbanks. The research team is evaluating the cost of fire suppression with and without fuel breaks, and quantifying the avoided loss to life and property because of a fuel break. Fire suppression expenditures, local property tax assessments, and vegetation data are being utilized to complete the analysis. I look forward to learning what the research team's findings are and the value they put on a fuel break.

I believe it is critical to enhance our point protection fire suppression strategy by strategically placing fuel breaks to protect communities and values at risk from wildfire. Fuel breaks have successfully protected life and property in Alaska and have been effective in the lower 48 states too. Fuel breaks take up a relatively small amount of the landscape and the cost of constructing one is much less than that of landscape-scale fuels treatments and forest restoration efforts that are occurring in the lower 48 states. In an environment where fuel treatment funding has been declining and our capacity to suppress wildlife is limited, we must be strategic, and a well thought out fuel break is a smart choice for all involved. ◆

Nathan Lojewski, CF and SAF member, is forestry manager for Chugachmiut in Anchorage, Alaska. He can be reached at 907-562-4155 or nathan@chugachmiut.org.

Want More Fire Images?

Several NASA satellite photos were taken of the Funny River Fire in 2014. Visit http://tinyurl.com/nppvblt for a look on the second day of the fire on May 20.

For a view on May 27 after the winds shifted north, visit http://tinyurl.com/o3c6o4s.

PHOTO COURTESY OF CHENA INTERAGENCY HOTSHOT CREW

A firefighter manning a burnout in the masticated fuel break during the 2014 Funny River Fire.

Fire Realities and Next Steps in O&C Lands from a Westside Private Landowner's Perspective

BY PHIL ADAMS AND MARK WALL


Phil Adams


Mark Wall

An integral component of managing private timberlands for timber production in western Oregon is Oregon's Complete and Coordinated Fire Prevention and Suppression system (FP&S). This unique statutory and landowner participation system underwrites all decision making, silvicultural activities, and long-term investment risk profile assessments when it comes to investing or managing timberlands in "people time" for timber production. For most private timberland owners, particularly those with sizable holdings, it motivates long-term investment and stewardship, thus helping to ensure working forests continue to be managed as working forests under sustained yield principles. Healthy, green and growing forests supply ecosystem services such as clean water and clean air while timber harvesting provides jobs that help maintain the economic vitality of our rural communities. Conversely, black and dead forests from catastrophic fire events represent economic, environmental, and social value loss with little redeeming value in people time if left unsalvaged and passively restored.

On the westside, there should be no doubt that our predecessors using this above rationale and people-time thinking justifiably established a network of Forest Protective Associations (FPAs) in the early 1900s based on the principles that fire does not respect property lines and that an organized and cohesive fire prevention and suppression approach protects landowner economic and social values inherent in the green and growing forest. In Oregon, FP&S has evolved over the past century from these initial FPA organizations financed solely by private timberland owners to today's complete and coordinated system administered by the Oregon Department of Forestry (ODF). Today's FP&S protects not only private timberlands, including rural residential landowners, but state and federal Bureau of Land Management (BLM) timberlands as well.

With funding provided by multiple private, federal, and public assessment revenue streams, along with significant in-kind contributions from timberland owners, there can be no denying the shared value perspective and commitment of the landowner community to healthy, green and growing forests versus black and dead. The system has been so successful for Oregon that other states have taken notice as they try to solve or improve their own needs. Timberlands that fall under Oregon's FP&S, particularly those on the westside, represent some of the most productive timberlands in the Pacific Northwest region. The westside private timberland asset is highly desirable, and with an internationally recognized FP&S in place, there is no reason to believe that this position will change significantly. Or is there?

Regarding state-protected lands (including O&C Lands, see sidebar), review of the historical record reveals that drought cycles, extreme fire seasons, and large fire events are all part of the natural order. Put in perspective, this current cycle of increased fire activity over the past three fire seasons, while not unprecedented, has severely impacted private timberland owners and BLM management plans, and has stress tested Oregon's FP&S almost to the breaking point. Above-average fire costs and acres lost has intensified local and regional discussions around large fire prevention, fire suppression funding, and both pre- and post-fire recovery plans/actions including salvage logging and post-fire restoration activities.

This reaction is appropriate, and this year we will see numerous steering committee and workgroups organized under ODF charter working hard to understand and recommend improvements to the now three major components of large fire management: policy, organizational structure, and mitigation. Understandably these groups have been organized around a wide range of agency, landowner, legislative, and associated interest group stakeholders with considerable experience and expertise. The first two components, policy and organizational structure, are the traditional due diligence pieces. Carrying on in the proud tradition that is Oregon's FP&S legacy, the current trustees of the system will no doubt conclude their work and deliver smart and focused continuous improvement recommendations for policy makers to consider and implement.

The third component, mitigation, on the other hand, is the newcomer to the conversation and is worth further discussion. In the view of most private landowners, the idea of mitigation as a subject area for a workgroup is a direct result of changing federal policy and the unintended consequences of those policies creating significant divergence in FP&S's original intent and function.

Simply put, and emphasizing the O&C lands conundrum, most westside private timberlands and timber types adjacent to BLM lands are being managed in people time for economic, social, and environmental values, and generally under sustained yield principles consistent with and in alignment with FP&S's intent. Private landowners now managing primarily second-growth timber types are mindful of the fuel loads and fuel types being developed on their ownership through active management. Most landowners are increasingly implementing targeted and tactical fuels reduction actions above best practices during both the harvesting and post-harvest site preparation phases to reasonably lower both residual fuel loads and future fire risk while maintaining long-term soil productivity objectives. Utilizing best science and investments in seedling and establishment technologies, most landowners are managing for lower density stands that rely less on precommercial density control actions generating surface fuels. FP&S is built for this fuel type regime, and landowners, fire managers, and ODF agree annually on and budget for an adequate level of protection to meet the needs of FP&S and the upcoming fire season.

BLM lands, on the other hand, for the past 20-plus years since implementation of the Northwest Forest Plan (NWFP) in 1994, are no longer actively managed for sustained yield. The revised Resource Management Plans (RMPs) and the land-use allocations of Late Successional Reserve (LSR), Connectivity, and Matrix lands associated with those RMPs has resulted in the majority of BLM timber types being managed in "forest time" with a primary directive of late succession habitat recruitment and development, passive silvicultural management, and minimal fuels management. Utilizing landscape-level principles curiously applied to square mile (or less) O&C checkerboard ownership parcels, older timber types (80-years-old+) are not being harvested and are generally given no targeted fuels reduction treatments to address progressing ladder and surface fuel accumulations associated with growth and fire suppression. In the current 25- to 50-year-old managed stands (developed during the BLM's sustained yield era), significant volumes of fuels are incrementally generated through precommercial habitat development prescriptions in LSR. FP&S is not built for the prospects of this perpetual heavy unmitigated fuel type regime over the long term. The ramifications of defining and then providing for the required adequate level of protection to address this divergence are just now being reviewed and discussed.

This divergence threatens to tear apart Oregon's FP&S by putting many acres of private lands adjacent to BLM lands at risk to large fire loss due to the difficulty of suppressing fires in unmanaged heavy fuel types that increasingly dominate BLM lands. The reality of the unintended consequences of this firefighting paradox manifests itself when fire hits the landscape at the wrong time. Red flag day firestorm events as

(CONTINUED ON NEXT PAGE)

What are O&C Lands?

"O&C lands" is the local term for the over 5 million acres of combined federal forestlands intermingled with private timberland in an alternating pattern of one square mile sections in western Oregon.

When looking on an Oregon ownership map, you will notice the characteristic "checkerboard" look associated with the O&C. Search the words "O&C lands" and read the fascinating history of how these lands were originally granted to the Oregon and California Railroad in lieu of payment for constructing a railroad connecting Portland, Ore., to Sacramento, Calif., and revested to the federal government in 1916 after the deal went bad, then reverted to BLM administration for sustained yield forest management through the O&C Lands Act of 1937.

witnessed in southwest Oregon in 2013 and 2015 are memorable to say the least and illustrate very well the divergence of fuel types and the outcomes and challenges encountered suppressing these fires.

Better minds have already stated that the overarching goal of creating a fire resilient landscape through smart collaborative fuel mitigation reduction plans do not exist solely spatially or temporally, but rather mixed into the socio-political arena. Large fires the past three wildfire seasons in southwestern Oregon O&C lands have placed private timberland owners like Roseburg Forest Products (Roseburg) reluctantly front and center in this challenging environmental policy arena and provides a good case study for some of the complexities private land managers, and for that matter the FP&S, face going forward as we seek to maintain and increase fire resiliency in the green and growing forest while reducing risk of fire loss exposure to adjacent black and dead forests.

The new reality

The post-fire reality and lessons learned by Roseburg is that with over 17,000 acres of large fire loss exposure in adjacency to BLM lands, over $30 million dollars in lost timberland appraised market value, and the burden of $6-7 million in unscheduled capital costs required just to protect and restore our lost asset and to get the land back into production, our risk profile is more exposed than ever before. The overall consensus from fire managers visiting the sites post fire has been that there is too much dead standing and dead downed large fuel on BLM lands, and if not removed, the likelihood of another large fire occurring is significantly increased. Moreover, the assessment from a firefighter safety perspective that future large fires will see limited ground attack tactics due to snag density is sobering.

What Roseburg has learned is that the least desirable process to effectively advocate for active management and fire resiliency in the O&C is reactively after a large catastrophic fire involving BLM lands. The socio-political arena is brutal and the NEPA process is frustrating. Reasonable and compelling input was presented by Roseburg, other landowners, industry and community groups, and protective associations encouraging BLM to recognize and collaborate on reasonable restoration plans in LSR that include fuel mitigation. However, the final plan directives as executed through NEPA influenced by interagency consultation and internal litigation risk management assessment have to be characterized, in our opinion, as passive and divergent from historic FP&S goals and objectives. While fire prevention, suppression, risk of future large fire, potential firefighter safety issues, and most shockingly, adjacent landowners concerns, are viewed by the agency as reasonable concerns, the final conclusion is federal goals trump all and passive restoration plans after large fire is the acceptable if not preferable management pathways in LSR, Connectivity, and significant portions of Matrix land-use allocations.

The proactive pursuit of increased fire resiliency in the O&C as currently structured will be an uphill battle. One might anticipate the mitigation workgroup will realize existing federal policy is likely to remain in place in the short term, quickly grasp that landscape-level actions don't fit mixed non-topographical ownership arrays under divergent objectives, and acknowledge the primary large fire drivers on the westside (heavy surface fuels and the significant merchantable sized in-growth and understory ladder components of BLM old wood timber types).

One reasonable recommendation is to advocate for deploying an open and robust mix of active management tools including the combination of physical removal (yes, by salvage logging and mechanical treatments) followed by targeted and collaborative cross ownership basin-level broadcast/pile burning designs using logical topographical control points. Private landowners would rally behind this concept, but unfortunately, it will take a fair amount of work to get the left side of the political and environmental community on board.

Leveraging the Roseburg experience as a guide, it's clear that the evolving FP&S needs to push hard for implementation of this collaborative pre-catastrophic fire fuels management and mitigation program framework with projects tailored to the realities of the O&C. The key point of emphasis specific to the O&C lands from a practitioner's point of view is that the emerging one-size-fits-all concepts being advocated by some are concerning. The ideas of applying prescribed fire and only prescribed fire to federal parcels due to its preferable ecosystem functionality and lower risk of litigation is completely non implementable in the O&C. Developing large unilateral landscape-level broadcast burn plans for federal parcels leveraging opportunistic weather patterns might work well on the Deschutes National Forest as an example, but has no applicability in the checkerboard ownership pattern that is the O&C.

Westside private landowners in the O&C will continue to implement the fuels management programs and projects we can control on our lands, actively participate in FP&S, engage in continuous improvement processes, and look forward to a day of increased discretionary collaboration with the BLM implementing smart fuels reduction programs and projects across the landscape. ◆

Phil Adams is the Land and Timber Manager for Roseburg Forest Products in Roseburg, Ore. He can be reached at 541-430-8602 or PhilA@rfpco.com. Mark Wall is the Forestry Manager for Roseburg Forest Products. He can be reached at 541-430-8659 or MarkW@rfpco.com.

Forest Thinning Reduces Crown Fire Behavior in Interior Alaska

BY ERIC MILLER

Forests in Interior Alaska are often vast and empty places where 300,000-acre fires seldom make the news. Alaska also has its share of communities set in fire-prone ecosystems subject to the same interface issues seen in the rest of the states. Recent interface fires include the 2010 Eagle Trail, 2013 Stuart Creek II, 2014 Funny River, and just last year, the Card Street, Sockeye, Nulato, and Spicer Creek Fires, exposing urban and rural communities—on the road system and off—to wildfires involving evacuation and property loss. Anticipating the hazard of people increasingly mixing into lands that burn, managers have installed miles and acres of fuel treatments and have sought to learn from them when challenged by fire. As fuel manipulations gained attention in the 2000s, managers began to question whether treatment prescriptions designed for temperate ecosystems would work in Interior Alaska. As the locals are fond of stating, "Alaska is different," and in many ways they are correct. The ground is underlain in places by ice-rich permafrost prone to soil subsidence. Black spruce is described as "Gasoline on a stick," a notoriously short and thick, on/off crown fire ecosystem that burns more like a shrubland than a forest. The carrier fuel is often living feather mosses underlain by deep, organic duff layers.

While many researchers have investigated the effectiveness of thinning treatments using simulations and models, Scott Rupp (University of Alaska Fairbanks), Roger Ottmar and Bob Vihnanek (USFS PNW Research Station), and Bret Butler (USFS Missoula Fire Lab) proposed a more empirical approach: running prescribed crown fires through experimental fuel treatment blocks to see what would happen. The project was collectively funded by state, federal, and private programs and agencies in 2006.

The researchers installed two burn units of replicated, 150m x 150m thinnings with a nominal 8-foot bole spacing and 4-foot prune height. The thinning blocks and surrounding control forests were measured for vegetative and fuel bed attributes. Above-ground fuels were quantified to determine the structure and loading of surface and canopy fuel layers. Weather was logged inside and outside the thinnings over two seasons.

By just about any measure, thinning removed much of the canopy. Bole spacing increased from about 4 feet to 6.9 feet. Stem removal decreased stocking from >2,500 black spruce per acre to <1,000. Pruning raised the overstory canopy base height from about 7.2 to 11 feet. Canopy fuel loading went from about 2.5 to about 1 kg/m^2. Canopy bulk density, a measure of the mass of fuel per volume of canopy space, was reduced from about 0.56 to 0.24 kg/m^3.

The cover of feather mosses, considered to be the primary carrier fuel in black spruce forests, was no different between the thinning and the adjacent forest. Shrubs, mostly labrador tea, blueberry, and lowbush cranberry, responded to thinning with increased cover. Abundance of horsetail, thought to retard surface spread, also increased.

The thinning resulted in some changes in microclimate. The moisture content of fine dead fuels was higher in the thinning at night but negligibly different from the control during the day, particularly during the afternoon burn period. The thinning was windier at all hours of the day.

In 2009 a burn window opened and Butler and his crew installed fire-behavior sensors and video cameras. Their instruments allowed measurement of spread rate, fireline intensity, convective air temperature, and mass flow rate. Unit A was brought to an active crown fire by a combination of hand lighting and aerial plastic sphere ignition. Unit B could not be burned the following day because of unfavorable winds. Weather windows were not available in 2010, 2011, and 2012. Poor weather coupled with multi-year funding issues shelved the project. Peer-review journals were reluctant to accept the results because of lack of replication. In 2015 replication occurred in the form of a wildfire that consumed Unit B and interest in the project was reinvigorated. Despite a lack of instrumentation and on-the-ground observation, much can be concluded from looking at post-fire effects.

My own interest in the project lies in

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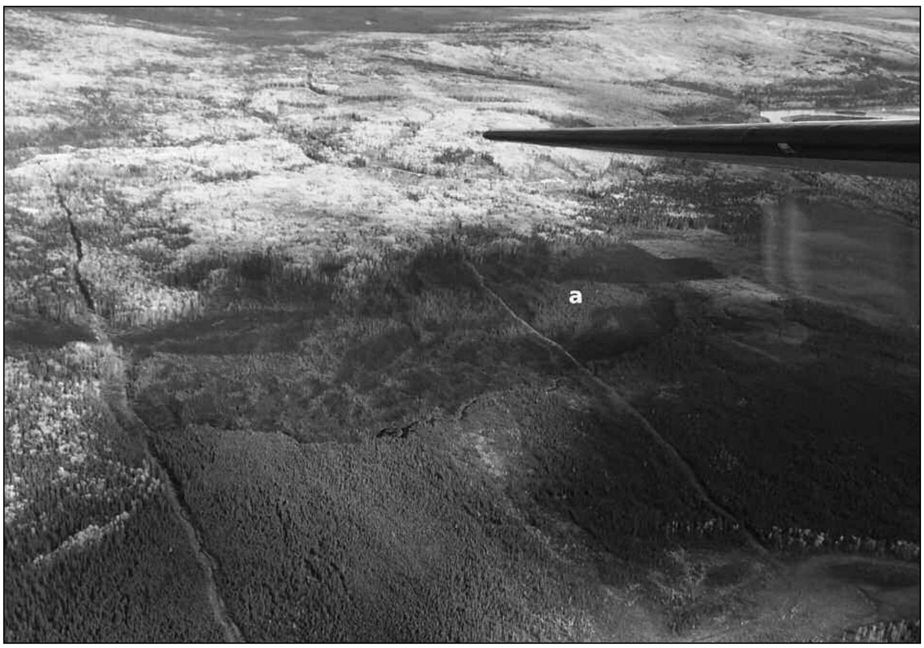

PHOTO COURTESY OF BLM ALASKA FIRE SERVICE

Aerial image of the 2015 wildfire that burned left to right; "a" indicates the thinning treatment in Unit B.

answering several questions: How great of a crown fire can be dropped to the surface by a thinning treatment? What is the mechanism? And is the mechanism unique to boreal forests?

The 2009 prescribed fire in Unit A resulted in an active crown fire. Flame lengths were much greater than the canopy height of 23 feet. Fireline intensity was 39 MW/m and spread rate was 40 m/min (131 ft/min). Mass flow rate, the rate at which the canopy "flows" through the flame front, was about 23 kg/m^2-min, a value fairly typical of measured crown fires in North America. In contrast, the 2015 wildfire in Unit B was a passive crown fire at the point it contacted the thinning, resulting in a mix of unburned, scorched, charred, and consumed tree crowns. The mass flow rate of passive crown fires seldom exceed approximately <3 kg/m^2-min.

The project investigators were somewhat surprised at the ability of the thinnings to not only drop the crown fire out of the canopy but to stop the surface fire as well. Following the two fires each thinning appeared as a spot of green in a swath of black. The passive crown fire was not able to penetrate the thinning at all while the active crown fire dropped out of the canopy within 8.5 feet on average. Both thinnings experienced zones of canopy scorch caused by convective and radiational heating from the adjacent crown fire. Surface fire penetrated into the thinning 72 and 259 feet for the active and passive crown fires, respectively, before failing. Penetration in the surface fuels was due to the ember shower thrown ahead of the fire front, surface flaming, and residual smoldering.

PHOTO COURTESY OF BLM ALASKA FIRE SERVICE

Looking west down the north boundary of the thinning (left) following the 2015 wildfire.

How did thinning and pruning accomplish this? Butler's *in-situ* video footage shows short-distance spotting, radiant heating, dehydration, and pyrolization of feathermosses, evergreen shrubs, and flaky tree bark, followed by nearly simultaneous ignition of the entire fuel bed from the ground to the tree tops. The thinning appeared to break up the subcanopy fuels and heat linkage between the surface and crown fire. Without pre-heating by the crown fire, the relatively moist carrier fuels on the surface could not sustain flaming combustion. Such co-dependence is most likely to occur where the bulk of the fuel complex is composed of living fuels at high moisture content. The individual fuel components are surprisingly resistant to ignition. Collectively, however, they can produce far more energy than they absorb, given enough activation or "seed" energy from an adjacent flame front. In this respect a thinning that is successful in Alaska may not be similarly effective in stand types where much of the fuel bed is composed of primarily dead rather than live fuels. ◆

Eric Miller is Fire Ecologist, BLM Alaska Fire Service in Fort Wainwright, Alaska. He can be reached at 907-978-2890 or eamiller@blm.gov.

Calendar of Events

Cable Logging, Jan. 25-28 in Coeur d'Alene, ID, or Feb. 23-26 in Corvallis, OR. Contact: FEI.

Facilitation Skills for Environmental Professionals, Jan. 26-27, Tigard, OR. Contact: NWETC.

ArcGIS 10: An Introduction to Environmental Applications, Jan. 26-28 in Seattle, WA, or Mar. 22-24 in Bellingham, WA. Contact: NWETC.

CESCL: Erosion and Sediment Control Lead Training, Jan. 27-28, Eugene, OR. Contact: NWETC.

Mapping the Course, Jan. 28, Heathman Lodge, Vancouver, WA. Contact: WFCA.

Sawmilling 101: Introduction to Softwood Sawmill Operations and Financial Performance, Feb. 2, Coeur d'Alene, ID. Contact: WFCA.

15th Annual Foresters Forum, Feb. 3-5, Coeur d'Alene Resort, Coeur d'Alene, ID. Contact: Jennifer Childers, 208-660-2158, info@forestersforum.com, www.forestersforum.com.

WSSAF/OSAF Leadership Conference, Feb. 4-6, DuPont, WA. Contact: John Walkowiak, 253-320-5064, jewalkowiak@harbornet.com, www.forestry.org/washington/leadership-conference/2016/

CESCL Training, Feb. 9-10, Mar. 15-16, Apr. 26-27, or May 17-18 in Bellevue, WA. Contact: NWETC.

Inland Empire/Montana SAF Leadership Conference, Feb. 26-27, Lubrecht Forest Lodge, Greenough, MT. Contact: Gary Ellingson, nwmanagemt@nmi2.com.

Unit Planning and Layout, Feb. 29-Mar. 3, Corvallis, OR. Contact: FEI.

Inland Empire Reforestation Council, Mar. 1, Coeur d'Alene, ID. Contact: WFCA.

Changing Dynamics of the Asia-Pacific Wood Trade, Mar. 1-2, World Forestry Center, Portland, OR. Contact: Sara Wu, swu@worldforestry.org, http://logtradetrends.worldforestry.org/.

Six Skills for Career Development and Profitable Business Management in Forestry and Natural Resources, Mar. 15-16, Portland, OR. Contact: WFCA.

Visualizing and Analyzing Environmental Data with R, Mar. 15-16 in Anchorage, AK, or Dec. 7-8 in Tigard, OR. Contact: NWETC.

Basic Road Design, Mar. 21-24, Corvallis, OR. Contact: FEI.

Mass Timber Conference, Mar. 23-24, Portland, OR. Contact: Tom Waddell, 406-546-5977, www.masstimberconference.com.

Inland Empire SAF annual meeting, joint with Idaho Forest Owners Association, Mar. 28-29, University Inn, Moscow, ID. Contact: Bill Love, loblollylove@hotmail.com.

SER Northwest Regional Conference: Monitoring Ecological Restoration, Apr. 4-8, Portland, OR. Contact: Rolf Gersonde, rolf.gersonde@seattle.gov, http://restoration2016.org/.

5th International Fire Behavior and Fuels Conference, Apr. 11-15, Portland, OR. Contact: Mikel Robinson, execdir@iawfonline.org, http://portland.firebehaviorandfuelsconference.com/.

Alaska SAF annual meeting, April 21-23, Southcentral Alaska. Contact: Eric Geisler, ericSgeisler@yahoo.com.

Management and Remediation of Contaminated Sediments, Apr. 28-29, Tigard, OR. Contact: NWETC.

Montana SAF annual meeting, joint with Montana Forest Owners Association, Apr. 15-16, Red Lion Colonial Inn, Helena, MT. Contact: Gary Ellingson, nwmanagemt@nmi2.com.

Oregon SAF annual meeting, Apr. 26-29, Mill Casino, Coos Bay, OR. Contact: Shaun Harkins, 541-267-1855, shaun.harkins@plumcreek.com.

Washington State SAF annual meeting, May 12-14, La Conner, WA. Contact: Paul Wagner, pwagner@atterbury.com.

Collaborative Negotiations and Conflict Management for Environmental Professionals, May 17-18, Bellevue, WA. Contact: NWETC.

Backpack Electrofishing: Principles and Practices, June 7-9, Anchorage, AK. Contact: NWETC.

Celebrating 75 Years of Sustainable Forestry celebration, American Tree Farm System, June 18, Montesano, WA. Contact: Loren Hiner, loren.hiner@montesano.us.

Environmental Forensics—Site Characterization and Remediation, July 26-27, Bellevue, WA. Contact: NWETC.

COFE annual meeting, Sept. 19-21, Vancouver, BC, Canada. Contact: http://cofe.org/.

Contact Information

FEI: Forest Engineering Inc., 3895 NW Lincoln Ave., Corvallis, OR 97330, 541-765-7558, office@forestengineer.com, http://forestengineer.com/.

NWETC: Northwest Environmental Training Center, 1445 NW Mall St., Suite 4, Issaquah, WA 98027, 425-270-3274, https://nwetc.org.

WFCA: Western Forestry and Conservation Association, 4033 SW Canyon Rd., Portland, OR 97221, 503-226-4562, richard@westernforestry.org, www.westernforestry.org.

Send calendar items to the editor at rasor@safnwo.org.

Northwest Members Honored at SAF National Convention

SAF National recognized several members for their contributions to SAF, the community, and forestry at the SAF National Convention held November 3-7, 2015, in Baton Rouge, LA. Award winners were recognized Louisiana-style as attendees followed the Second-Line Band in a parade from the convention center to the convention hotel for food, fun, and flair.

PHOTO COURTESY OF BRITTNEY BUSH BOLLAY

2015 SAF Vice President (president in 2016) Clark Seely (left) congratulates Steve Tesch on receiving a national award.

Carl Alwin Schenck Award—Steven D. Tesch

This award recognizes devotion and demonstrated outstanding performance in the field of forestry education. Steve is the director of research for the OSU College of Forestry. He is active in helping young faculty get off to a strong start in research, encouraging the involvement of undergraduates in research, and working to expand research and international opportunities for graduate students. He is well respected by his peers and students and strives to listen to new ideas while acting in the best interests of his students. He has devoted his career to providing students with a quality education, and considers it the highest of honors to give back to the forestry community as a teacher and academic leader.

A full list of national award winners appeared in the August issue of the *Forestry Source*: www.nxtbook.com/nxtbooks/saf/forestrysource_201508/index.php#/0.

PHOTO COURTESY OF STEVE WILENT

SAF members toured the Bluebonnet Swamp Nature Center, a 103-acre cypress-tupelo swamp in Baton Rouge, which offers more than a mile of gravel paths and boardwalks that link swamp habitat with beech-magnolia forests and meadows. Prior to the construction of levees along the Mississippi River, the area had been a bottomland hardwood forest. The levees and development in the area around the preserve caused water to collect, forming a swamp and altering the forest type.

Field Foresters of the Year

SAF honored one member from each voting district with the Presidential Field Forester of the Year award. This award recognizes those who have dedicated their professional careers to the application of forestry on the ground using sound scientific methods and adaptive management strategies.

Loren Hiner was recognized as Field Forester of the Year in District 1, which includes Washington State, Inland Empire, and Alaska. Loren has served as the city forester for the City of Montesano since 2007.

Dave Cramsey, who was not able to attend the convention, was honored as District 2 (Oregon) Field Forester of the Year. He has worked for Roseburg Forest Products since 1997.

Other Field Foresters of the Year who were honored include:

- District 3: Don Dukleth
- District 4: Ron Cousineau
- District 5: Jeffrey Kante
- District 6: Bruce Breitmeyer
- District 7: Donna Davis
- District 8: Robert Franklin
- District 10: Derek Dougherty
- District 11: Neal Alan Van Valkenburg

2015 Fellows

One of the highest honors for members of the Society is that of Fellow. This exceptional recognition is bestowed upon a member by their peers for outstanding contributions and service to the Society and the profession.

The following Northwest members were elected Fellow in 2015:

- Phil Aune, Inland Empire
- Ellie Lathrop, Washington State
- Marc Vomocil, Oregon

Congratulations to all. ◆

Election Results Are In

The ballots have been tallied and results are in for national and state elections.

Steve Pilkerton

In Oregon SAF, Steve Pilkerton, forest engineer/operations manager for the OSU College Forests, moves into the chair position for 2016. Werner Kruger, a field forester for the Roseburg District BLM Swiftwater Resource Area, was elected chair-elect for the year; he will advance into the chair position in 2017. Lisa Ball, a forester on the Mount Hood National Forest, was elected delegate-at-large.

Werner Kruger

Lisa Ball

Oregon SAF members also voted on three position statements as part of the SAF 2015 national ballot. Results follow:

- Landslides on Forest Lands, approved by 98.1% of OSAF members who voted.
- Thinning on Public Lands in Oregon, approved by 98.6% of OSAF members who voted.
- Managing Riparian Forests, approved by 98.1% of OSAF members who voted.

In Washington State SAF, John Walkowiak, a conservation operations manager for Tacoma Power, will serve as chair in 2016. Wendy Sammarco, a senior environmental analyst for the Cedar and Tolt Watersheds, Seattle Public Utilities, was elected chair-elect. She will move into the chair position in 2017.

Wendy Sammarco

WSSAF members also voted on the Federal Forest Management position statement, which was approved by 92.8% of WSSAF members who voted.

Alaska SAF has two-year terms for their leadership. Brian Kleinhenz, a silviculture and quantitative forester for Sealaska Corporation, begins his second year in the chair position. Jeremy Douse, a forester for Tanana Chiefs Conference, is the chair-elect. He will slide into the chair position in 2017.

Brian Kleinhenz

In the Inland Empire SAF, Bill Love is serving as chair. He works part-time as a consulting forester with Inland Forest Management, Inc. The chair-elect position is in progress.

On the national level, Bob Alverts from Oregon SAF moves to the past president position of SAF. Clark Seely, formerly of Oregon SAF now residing in Florida, is president. Fred Cubbage, professor in the Department of Forestry and Environmental Resources, North Carolina State University in Raleigh, was elected vice president.

Three Board (formerly Council) members were also elected: Richard Standiford for District 3; Sidney "Si" Balch for District 6; and Lee Crocker for District 9. Board members serve three-year terms, elected on a staggered basis. Keith Blatner enters his second year as board member for District 1 representing Washington State, Inland Empire, and Alaska. Ed Shepard is serving his third and final year on the board for District 2 (Oregon). ◆

Policy Scoreboard

Editor's Note: To keep SAF members informed of state society policy activities, Policy Scoreboard is a regular feature in the Western Forester. *The intent is to provide a brief explanation of the policy activity—you are encouraged to follow up with the listed contact person for detailed information.*

OSAF Members Endorse Updated Position Statements. The SAF fall 2015 ballot for Oregon chapter members included individual ballots to support or oppose three updated position statements on "Landslides on Forest Lands," "Thinning on Public Lands in Oregon," and "Managing Riparian Forests." The OSAF Executive Committee adopted these positions earlier, but OSAF takes the extra step of a member vote to help raise awareness among members of OSAF positions and to clearly assess their support for the statements. The ballot results showed very high (98-99%) support for the three position statements. The online ballot system does not allow for comments by voters, so the reasons for the few negative votes are unclear. Interestingly, some years ago when hard copy ballots were used and allowed for comments to be included, some voters said they opposed a position statement because it did not go far enough in establishing a strong viewpoint. OSAF has nine active position statements on important forestry issues and members are encouraged to review these statements (www.forestry.org/oregon/policy/position/) and use them to articulate a professional perspective when discussing forest resource issues with people outside the profession. Contact: Paul Adams, OSAF Policy chair, adamspaulw@gmail.com.

Update of OSAF Position Statement on Old-growth Forests Expected Soon. Under SAF policy guidelines, unit position statements have a 5-year lifespan and OSAF's position on "Managing Mature and Old-growth Forests" has recently been the focus of a review and update to remain current. Although the OSAF Executive Committee has not yet voted on an updated version of the position as of this writing in early December, such a vote is expected by early 2016. Old-growth forest management remains an especially relevant and timely issue for state and federal forestlands where interest in diameter-, age- and location-based harvest restrictions persists. OSAF continues to advocate for active management by forestry professionals to achieve diverse benefits from older forests, versus arbitrary and inflexible directives that prohibit the effective application of local professional expertise and experience. Some newer issues and concepts that the updated position is likely to incorporate include the need for active management to address the effects of climate change on older forests, and the use of percentage targets for various successional stages of forests (versus fixed locations) that better mimic natural landscape patterns and changes. Contact: Paul Adams, OSAF Policy chair, adamspaulw@gmail.com.

New Riparian Rules Coming to Western Oregon. On November 5, 2015, the Oregon Board of Forestry voted (4-3) to increase management restrictions in riparian areas on private forestlands in western Oregon. The decision was made nearly 4 years after the Board initiated the rulemaking process after a study (RipStream) of operational timber harvests under the current rules showed some stream temperature increases that exceeded a state water quality standard for fish habitat. Refinement of the final rule language is expected to add about another year before the rules must be applied on the ground. The new rules will apply to small and medium fish-bearing streams that provide habitat for salmon, steelhead, and bull trout (the Oregon Dept. of Forestry has maps) in the western georegions, except for the Siskiyou georegion in Jackson and Josephine counties. The Riparian Management Area (RMA) widths on these streams will increase by 10 feet, i.e., to 60 feet on small streams and 80 feet on medium streams.

Forest owners with such streams may apply either of two major rule options. One option is that the RMAs are no-cut areas, including the upstream non-fish-bearing reaches that are within a planned harvest unit. The other option maintains the current inner 20-foot no-cut zone, but increases the required tree basal area retention in the RMAs to 112 sq. ft. (now 40) along small streams and 183 sq. ft. (now 120) along medium streams, with an allowance for counting hardwood basal area. There are additional requirements for distributing the basal area throughout most of the RMAs, as well as allowance for emphasizing basal area on the south side of east-west oriented streams. The Regional Forest Practices Committees are expected to help refine the final rule language and further information about such relevant committee and board meetings and decisions can be found via www.oregon.gov/ODF/Board/Pages/default.aspx. Contact: Paul Adams, OSAF Policy chair, adamspaulw@gmail.com. ◆

Head to the South Coast for the OSAF Annual Meeting

BY TIM KEITH

The 2016 Oregon SAF annual meeting will be held at the Mill Casino in Coos Bay on Tuesday, April 26 through Friday, April 29. The theme for this year's meeting will be "Water, Trees, and Transportation."

Festivities will start with the OSAF executive meeting Tuesday afternoon and the general session will kick-off Wednesday morning. Field tours—part of your registration fee—will be held Thursday afternoon. Tour topics as well as presentations will center around the theme, capitalizing on Coos County's opportunities and logistical challenges that include rail and marine transportation. The meeting will conclude Friday.

A special treat is being arranged for registrants. A tour of the bay on the water will be held Friday afternoon and will feature a bay perspective of the chip terminal, log export yard, the scenic McCullough Bridge, and beautiful Coos Bay. There will be no additional cost to registrants for the bay tour.

A block of rooms for the 2016 OSAF Annual Meeting has already been reserved at the Mill Casino's fine hotel—please contact them at 800-953-4800 or on the following link: http://tinyurl.com/gpcqu9f. Government per diem rates will be available for government employees. The Mill Casino hotel is the recipient of TripAdvisor's 2015 Certificate of Excellence Award. The facility also has an RV park.

We'll see you in Coos Bay this coming April! ◆

Tim Keith is the publicity chair for the 2016 OSAF Annual Meeting. He can be reached at tim.keith@oregon.gov.

LaConner Site of WSSAF Meeting

The Washington State SAF annual meeting will be held in LaConner on May 12-14. Hosted by the North Puget Sound Chapter, we will take advantage of geographical location and invite Canadian Institute of Forestry members.

Program planning is underway, and although not confirmed at this writing in early December, will likely focus on forest issues of today including forestland ownership changes and patterns, the politics of change, Canadian and CINTRAFOR panel on markets, technology, and forest health.

Stay tuned for further details. We look forward to seeing you this May in LaConner. ◆

Cafferata Named OTFS Inspector of the Year

PHOTO COURTESY OF MIKE BARSOTTI

Steve Cafferata was recognized as the Oregon Tree Farm System, Inc., (OTFS) Inspector of the Year at the Oregon Tree Farm System awards luncheon held November 23 at the World Forestry Center in Portland, Ore. As one of four district winners, he is eligible for the national Inspector of the Year award.

Steve, a longtime Oregon SAF member and state treasurer, completed eight inspections and one new certification in 2015. He has been involved in the professional forestry community for over 50 years and willingly shares his knowledge with landowners, providing expertise that translates into field results. In addition to his work with SAF, he is a member of the State Emergency Fire Cost Committee, Oregon Natural Resources Education Fund, and is the manager of significant Boy Scouts of America forest property. ◆

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