

Northwest Woodlands

A Publication of the Oregon Small Woodlands, Washington Farm Forestry, Idaho Forest Owners & Montana Forest Owners Associations

LIVING WITH FIRE

**Why Are
Large Wildfires
More Common?**

**Working Together
to Mitigate Risk**

**Evaluation of
Prescribed Burn
Effectiveness**

**Fuel Reduction
Without Fire**



NEXT ISSUE . . . The Business of Growing Trees

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Successful, landscape-scale prescribed burning can lead to a future with fewer large, destructive wildfires and controlled smoke rather than unplanned, choking smoke. Washington's Okanogan Fire in 2015. Photo courtesy: Tom Reichner on Shutterstock (wildfire) and Heather Heward (prescribed fire).

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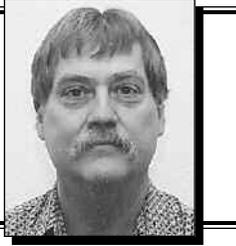
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PRESIDENT'S MESSAGE



DAVID A. EASLEY



Living with Fire

Your forest is vulnerable to fire in high summer. None of us wants to deal with a wildfire in our forest. It is not only devastating but very frightening to watch the fire leap from tree to tree on land that you live, work or play on.

But, as the saying goes, "With wildfires, it is not if it will happen, but when it will happen." For forestland owners, we all live with fires in the forest as a fact of life. It is hard enough to deal with the fires that nature starts, let alone the careless or intentional fires people start.

The trees and the buildings on our property are the primary things we are probably trying to save. You can improve your chances of reducing the impact of fire on your assets. You do not want the wildfire to consume your home, nor a house fire destroying your forest. Let us look at some

ways we can diminish the impact when a wildfire occurs.

- The first step is placing a green zone around your buildings. This protects them from the surrounding lands and your surrounding forest from your buildings. A minimum of 100 feet between each building and the forest is recommended. This is an area with no major trees, bushes or tall grass for the fire to burn. You do not want to have bushes right up against your house.

- Metal and ceramic are two of the better materials to prevent embers from igniting the roof. The fire resistance of the roofing is lost if there is a buildup of 6 inches or more of pine or fir needles on the roof. A key point is to keep your roof clean.

- Siding and decking are also important. Fire-resistant siding is a must. Decks are fun and functional

but be careful about construction materials. A western redcedar deck is nice, but it is kindling next to your house in a fire.

- Thinning your forest is one of the most important things you can do to help decrease the spread of wildfire. If you have large acreage, then start with the perimeter and work in. When you thin your forest, it gives the fire less fuel and decreases the rate it will spread. Pruning the lower limbs from your trees will help tremendously. This keeps the fire on the ground and keeps the fire from climbing into the crowns of the trees.

- Another way to decrease fire danger is to get rid of dead and dying trees; this is fire fuel, pure and simple. Do not forget to leave a few dead trees for wildlife habitat purposes, but you do not want acres of dead or dying trees.

We all live with the possibility of fire. The best we can make of it is to decrease the impact of the fire when it happens. Forethought and work will make a difference when the fire comes. ■

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PRESIDENT'S MESSAGE



MIKE BARSOTTI



A Wet Side Issue Too

On May 8th this year, there was a sudden call for landowners north of Lapine to evacuate. I believe one home was destroyed, and a second was damaged. I wonder how many of us have a plan on what to take with us when the sheriff is at the door telling us it's time to leave. That is a bad time to think about what is most important—what can't be replaced. Having those items identified and easy to gather can get you out of danger sooner and help

restore your life if fire does destroy your home.

I know I should have this figured out but haven't gotten around to it. Living west of the Cascades has made it easy for me to list wildfire threat as a minor issue, less of a threat than wind, ice or snow.

My wife and I live on our forestland, which is on a ridge in the west Cascade foothills. We are very fortunate to have a farmer below us on the south side of our property who

manages his fields for hay and grazing, minimizing the risk of a wildfire coming onto us from below. But I know it's no excuse to not do all I can to reduce the risk and be prepared. Western Oregon has had large fires, such as the Tillamook Burns of 1933, 1939 and 1945, the Oxbow fire in Lane County in 1966 and the Sardine Creek fire in Marion and Linn Counties in the early 1950s. These were Western Oregon fires that largely destroyed everything in their paths.

Wildfires have been more frequent and larger these past few years. Dealing with a wildfire is becoming a greater risk for all of us, not just for those in the drier climates.

On average in Oregon, 37 percent of wildfires are caused by landowners. Only 4 percent are related to harvest operations; the remaining 33 percent are caused by backyard burning, mowing and other activities where the landowners should know better.

With the nice warm and dry early May and a home already destroyed by wildfire this year, it appears that we may again have a long fire season. Being more prepared and smarter when working in the forest reduces my fire risk. I don't want to be in that 33 percent. We all live with the risk of wildfire. ■

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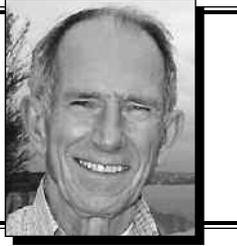
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PRESIDENT'S MESSAGE



MIKE CHRISTIANSON



To Burn or Not to Burn

Living with fire has become the new mantra espoused by various writers and speakers regarding forest fires. This mantra has morphed into the concept of “let it burn” and “fire is good.” The current message is to let forests burn unless structures or lives are threatened. Some who espouse “let it burn” treat this as a brilliant discovery which will go a long way toward preventing future catastrophic fires. Ironically, “let it burn” is the opposite of Smokey the Bear’s position. Could Smokey have been that wrong for decades?

Practical issues have already arisen regarding “let it burn.” First a “let it burn” fire cannot always be stopped when man decides to turn the fire off. We have experienced fires, which could arguably have been extinguished at the onset, grow to fires which could not be extinguished without loss of property. Fire fighters who have followed “let it burn” and allowed fires to burn to private property lines, resorted to back burns which damaged private properties, to the chagrin and ire of private forest owners.

The point is this: Although “let it burn” may be appropriate in certain situations, it appears to be an illusion for us to expect “let it burn” to be a game changer. We all want a quick fix, but often that fix is elusive.

We still have the tried and true methods to mitigate fire catastrophes:

1) clearing the forest floor, 2) reducing ladder fuels, 3) thinning trees, 4) creating open areas and 5) creating access roads to adjoining federal, state or neighboring lands. Also, we can interface with our local fire personnel, pointing out the access roads and water sources and providing maps of our property.

There is some good news on the horizon. The 2014 Farm Bill introduced the Good Neighbor Authority (GNA) tool to the states. In 2019, the Montana legislature passed HB34 to create a statutory appropriation for GNA agreement income. This allowed a jumpstart of the GNA program in Montana with private contributions for three years, becoming a self-sustaining program starting year four. The forest products industry agreed to contribute \$150,000. Idaho Forest Group (which recently purchased Tricon Timber’s stud mill at St. Regis, Montana) agreed to contribute \$100,000 per year for three years. Further, conservation partners and businesses have contributed \$95,000. Using these startup funds, the Montana Department of Natural Resources and Conservation is issuing contracts to start work on federal lands. Income will be used for new contracts. Hopefully this will be one additional step toward reducing overstocked forests that so often force us to live with fire. Safe summer to you. ■

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PRESIDENT'S MESSAGE



Washington

VIC MUSSELMAN



Deducting a Fire Loss

There are many risks in owning forestland, of which the worst is having a fire burn up your timber and/or reproduction. Fortunately, the IRS may allow you to take a deduction for the damage as a casualty loss on your federal income tax depending on the form of your forest investment. Under the Tax Reform Act of 2017, the calculation of your deduction as a casualty loss depends on whether you own your forest as an investment or for personal use (recreational or residential).

Losses on forest investment property may be deducted up to the adjusted basis of the timber lost only if the damage renders the forest growth unfit for use, or results in it being sold for less value than it was appraised for prior to the fire. The loss is calculated as the smaller amount between the adjusted basis for the property and the market value of the loss at the time of damage, with adjustment for any amount received from salvage or any other monetary recovery. Any expenses

incurred to mitigate the immediate potential for further damage, such as planting grass seed to prevent soil erosion, can be added to the damages already calculated.

For an example, Betty Bigmoney purchases a 40-acre forest as an investment, of which 20 acres is 45-year-old merchantable timber and 20 acres is 15-year-old, well-stocked young growth. Betty's basis for the merchantable timber is \$7,000 per acre, or \$140,000 total. Her basis in the young growth is \$2,500 per acre for a total of \$50,000. Five years after the purchase, a wildfire overruns Betty's tree farm and destroys it. Immediately after the fire, Betty gets an appraisal of the damages that reports the market value of the merchantable timber as \$300,000 immediately before the fire and \$50,000 after the fire. The resulting damage valuation is \$250,000. Betty also contracts with a logger to harvest what timber can still be marketed. The net salvage income she receives is \$30,000, which reduces her damages to \$220,000. The sum of \$220,000 is greater than Betty's basis in the merchantable timber of \$140,000 resulting in an apparent tax deduction of \$140,000. Betty will report this amount as a deduction on her tax return for that year. The salvage income received is eligible to be treated as capital gains under Section 631 of the IRS codes. The appraisal also reports that the 20-year-old young growth is a total loss at a market value of \$48,000. Since this amount is less than Betty's basis in the young growth at \$50,000, she gets to deduct the entire \$48,000.

If, however, Betty had purchased the 40 acres strictly for recreation, then she could only deduct the casualty loss if the fire was declared a federal disaster. Even then, her total claim of \$188,000 would have to be reduced by a flat \$100 and the \$187,900 further reduced by 10 percent of her adjusted gross income reported for the year in which the fire occurred. ■

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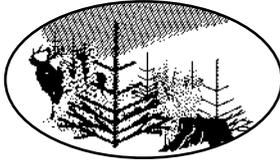
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Down on the Tree Farm

AUGUST

- ✓ In stands susceptible to engraver beetles, schedule cutting of trees over three inches in diameter after August 1 and before January 1 to prevent population buildup in fresh slash.
- ✓ Talk to your public and private neighbors about the possibility of a landscape-scale restoration or fuel reduction project when conditions allow. There is strength in numbers!
- ✓ Maintain your fire prevention diligence until fire season is over in your area. Do you know what your fire danger rating is?
- ✓ While water levels are low, complete your instream repairs and improvements. Consider installing a guzzler or cistern for wildlife. Clear out and reestablish overgrown springs.
- ✓ If you're planning a selection harvest, take the time to paint either the leave trees or the take trees. Or, with a reliable logger, develop clear logger-select guidelines and monitor the work as you go.
- ✓ Take steps to control noxious and invasive weeds. Consider integrated pest management techniques that might work as well as pesticides. Don't forget your personal protective equipment!

SEPTEMBER

- ✓ Invite a logger, forester or fire fighter to survey and assess your roads for access, repair and maintenance needs. Look at the entire haul route(s) and assure that you have road use permits in place.
- ✓ Cruise the timber you plan to harvest or have a professional forester do it. Having a good estimate of volume and value helps you market the logs.
- ✓ While you're cruising, take some core samples to see how your trees are growing. Do a few calculations to assure yourself that your efforts are paying off with accumulated growth, improved vigor and overall good forest health.
- ✓ Students are back in school and it's a valuable time to host or participate in a forest tour. Help our future forestland owners learn about natural resources on site. It will be memorable!
- ✓ Check your management plan for next year. Discuss upcoming project opportunities with a consultant or agency representative.

Down on the Tree Farm is a compilation of all of the excellent tips contributed to this column by experienced volunteers. Suggestions are always welcome and may be sent to the editor at: annewithnw@gmail.com.

OCTOBER

- ✓ Begin your road maintenance and improvement projects after some moisture has reduced the potential for dust and the road surface is workable.
- ✓ The end of fire season is often an appropriate time for burning slash or prescribed burning. Use of fire requires planning and usually a permit or notification. The burn "window" is sometimes small, so be well-prepared to begin when conditions are right.
- ✓ Develop your tree planting contract or agreement and hire an experienced contractor. Get it done right the first time!
- ✓ Find out when and where to apply for cost-share incentives for next year's projects.
- ✓ When you're pleased with your project results, give your forester, logger, agency representative or hired hand kudos for a job well done.
- ✓ Take some time to enjoy the changing fall colors. Did you know that leaves can be laminated like paper and keep their color for a year or more?

FOR MORE INFORMATION...

check out these favorite websites and publications:

- www.oregon.gov/ODF/ForestBenefits/Pages/ForestHealth.aspx (I&D fact sheets)
- www.dnr.wa.gov/publications/rp_fire_ifpl2.pdf (Fire danger rating system)
- www.oregon.gov/ODF/Fire/Pages/FirePrevention.aspx (Oregon fire prevention requirements)
- www.dnr.wa.gov/ifpl (Washington fire prevention requirements)
- www.idl.idaho.gov/fire (Idaho fire prevention requirements)
- dnrc.mt.gov/divisions/forestry/fire-and-aviation/fire-prevention-and-preparedness (Montana fire prevention requirements)
- www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_042076.pdf (wildlife watering)
- www.fs.fed.us/foresthealth/protecting-forest/integrated-pest-management/
- catalog.extension.oregonstate.edu/pnw641 (forest road management)
- knowyourforest.org/sites/default/files/documents/Measuring_timber_products.pdf
- www.knowyourforest.org/sites/default/files/documents/em9047.pdf (maximize revenue)
- www.extension.iastate.edu/forestry/publications/PDF_files/PM2088A.pdf (developing a prescribed fire burn plan)
- knowyourforest.org/sites/default/files/documents/ec1192.pdf (sample contracts)
- www.file.dnr.wa.gov/publications/frc_webster_plantingforestseedlings.pdf
- smokymountains.com/fall-foliage-map/ (fall foliage prediction for US)

The Changing Face of Wildfire

By **DANIEL LEAVELL**

As long as there is a sun in the sky, an atmosphere surrounding the earth and carbon-based lifeforms, there will be fire in our lives. Fire is both beneficial and detrimental. During my career fighting fire in urban and rural environments, it tried to take my life many times and it saved my life many times. Fire is a natural risk and we must live with it—but in recent years, our rapidly changing environment (including our climate, weather and ecology) has increased the frequency and severity of serious fires across the globe. We must be flexible and adapt our response to the evolving threat of fire or continue to suffer catastrophic consequences.



PHOTO COURTESY: KASEY JOHNSON, OREGON DEPARTMENT OF FORESTRY

Many forests are supporting high levels of trees and other vegetation that have little resistance to wildfire.

Climate and weather

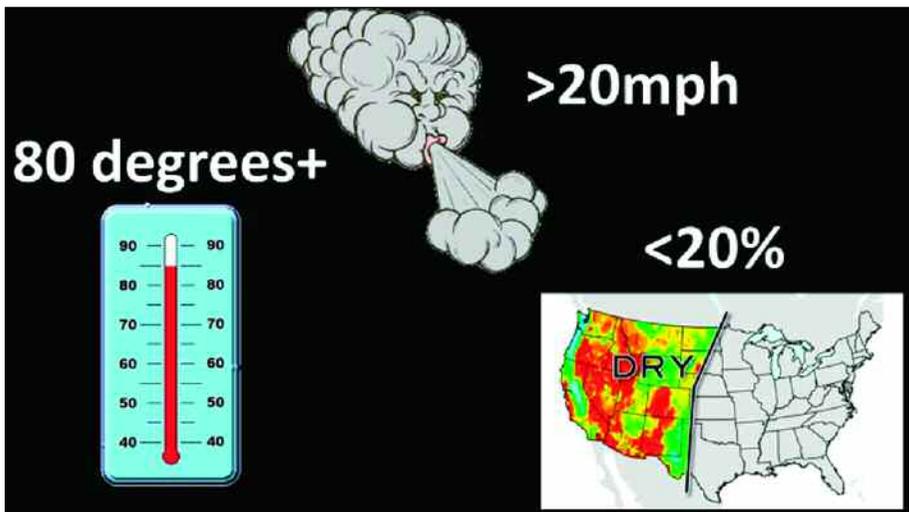
We began recording climate readings in the 1800s. The last 5 years (2014-2018) have been the hottest years on record, following a steady upward trend. 2018 is now the fourth hottest on record, at 1.5 degrees Fahrenheit (F) warmer than the mean

from 1951 to 1980.

Weather patterns have also changed. This past winter I was marooned in Oakridge, Oregon with no power for three days while road crews cleared large trees cracked by heavy, wet snow that dropped across the main east-to-west highway through the town. Many people told

me that this was a unique occurrence.

The changing climate and weather have increased the number of “red flag” warnings. A red flag condition regarding wildland fires is generally when ambient humidity of the air is less than 20 percent, air temperature is greater than 80 degrees F and the wind is blowing at 20 miles per hour or greater. When these three factors coalesce, conditions are ideal for wildland fire combustion and rapid spread—the reason for the warning. Red flag conditions are occurring earlier in the year, lasting later in the year and happening more often than in previous years. Wet forests as well as dry forests have the potential for these extreme conditions. Humidity recovery at night has also changed. It stays dry later after the sun goes down, which results in greater fire activity in a 24-hour period.



GRAPHIC COURTESY: OREGON STATE UNIVERSITY EXTENSION SERVICE

Three attributes of a red flag warning. This combination has been more common over the last ten years.

Ecological changes

We have also seen changes in plant and fire ecology since the turn of the century. Vegetation management by

conversion to agricultural fields, intensively managed forestland or subdivisions along with fire suppression have modified natural disturbances in plant communities. We are 98 percent effective at putting fires out. I know, I've done my best over the years. We have suppressed fires while managing our vegetation (forests, brush and various plant communities) to different degrees, including not managing at all. As a result, dry and wet forests, shrub lands and grass lands, have accumulated live and dead tree, grass and shrub densities (including invasive weeds) and altered the evolutionary adaptation to change and disturbance. This has resulted in vegetation/biomass composition, structure and function contrary to what existed historically. The relationship of plants and fire to the environment has been altered. Stress is compounded in vegetation communities already encumbered by drought and overstocking beyond the carrying capacity of a changing environment.

Our homes and homesites

As natural factors such as climate, weather and ecology conspire to aggravate the risk of wildfire in our lives, the changing nature of our homes increases the risk even further. Since weather records started in the mid-1800s, the population of the United States has grown from 50 million to approximately 327 million (U.S. Census Bureau). People are building homes in formerly remote areas at densities never seen except in urban areas. Paradise, Malibu and



PHOTO COURTESY: EKANGSH SAXENA ON UNSPLASH

The U.S. population has grown from 50 million in the mid-1800s to 327 million now, and we all need to live somewhere.

Santa Rosa, California and Gatlinburg, Tennessee are all examples of densely stocked housing developments where sparse or no accumulations of structures existed in the past.

Homes, outbuildings, office buildings and other structures contain personal and professional belongings and memories of our lives. These also represent boxes of fuel that will burn with intensities drastically increased compared to 20-30 years ago. “Flashover” is a stage of fire behavior during burning of the interior of a structure when the temperature is hot

enough for all burnable surfaces to spontaneously combust. Just before this occurs, conditions are too hot, explosive and dangerous to make any type of entry. When we responded to structure fires in the 1970s, with legacy furniture of solid wood, cotton and wool carpets, upholstery and drapes, we normally had 30 minutes before flashover occurred. When the call came, we would don our gear, get in the vehicle and respond. Once on site, we normally (not always) had enough time to make entry, conduct a rescue

–Continued on next page–

Providing information about trees and forests

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if needed and put the fire out. That has changed. The rate at which a house fire burns and spreads depends on many factors such as the ambient temperature, relative humidity and air flow. Everything else being equal, today's structures with modern furnishings made of composites and synthetics have trimmed the time to reach a flashover condition from 30 minutes to 3 minutes—ten times faster. This is confirmed by a 2005 study conducted by the Underwriter's Laboratory Firefighter Safety Research Institute and shared online at: [//tinyurl.com/yyha6qpk](http://tinyurl.com/yyha6qpk)

The web of change

Combining these factors, we are witnessing a web of change that demonstrates the problem we face in many forests. When fire is added to this web the consequences are catastrophic, and not many lifeforms have adapted. My work on fires started in 1978 and continued every fire season until 2012. While serving on fires in the 1970s and 1980s, losing one or two homes was a tragedy; unfortunately, thousands of homes have burned in the last several years. Lightning used to be the cause of 80 percent of all wildland fires; now humans are causing 70-80 percent of all wildland fires. All these changes seem to be beyond what we can adapt and adjust to; we are caught in the web and struggling to get out.

We started to experience these

changes on the fireline in the mid-90s. The changes magnified in complexity at the start of the 2000s. Tactics employed in the 1970s and 1980s were no longer effective—risks and hazards were greater, and losses were more severe. Towards the end of my career, the difference in fire behavior, on both wildland and structure fires, was like night and day. There were too many what-ifs:

- What if the homeowner had cleared out defensible space around the structures, or cleared the driveway to enable entry and exit of emergency vehicles or checked the batteries on the smoke alarms?

- What if the land manager had thinned out more suppressed trees, or installed more fuel breaks or cleared more slash?

- Or, the most consistent what if was always: What if we could take one dollar for every hundred dollars we spend during and following a structure or wildland incident and put it up front in preplanning, prevention, outreach and education? What if we implement projects that can create:

- resilient landscapes,
- fire-adapted communities and
- safe and effective wildfire response?

These became the goals of the National Cohesive Wildland Fire Management Strategy (cohesive strategy). My experience tells me an investment toward implementing these goals, if done right, will give us

important dividends and benefits to our ecosystems, communities and economies—and help us escape the web.



PHOTO COURTESY: NATURAL RESOURCES CONSERVATION SERVICE

Klamath-Lake Forest Health Partnership partners Amy Markus (USFS) and Daniel Leavell (OSU) discuss the North Warner project on a forestry tour May 2017.

Concerted efforts

To fulfill the mission of Oregon State University, College of Forestry Extension, Oregon Senate Bill 257 (2019) includes an initiative to provide a fire education program throughout the communities of Oregon. Over the last two years, with minimal extra funding, Extension specialists and agents have:

- developed lesson plans, fire education tools and classroom materials (catalog.extension.oregonstate.edu/em9172);
- presented the fire program at workshops and conferences for hundreds of students, community members, landowners and professionals;
- supported and facilitated partnership development;
- assisted landscape efforts (catalog.extension.oregonstate.edu/em9196); and
- succeeded in raising the awareness and need for increased knowledge of prevention, management, behavior and ecology of fire.

If funded by the State Legislature, these efforts will be greatly enhanced.

Over the last four years, a non-profit partnership has demonstrated proof and hope by its accomplishments in Klamath and Lake Counties

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in Oregon and supports what Oregon State University, College of Forestry Extension has been developing and accomplishing over the last two years. The Klamath-Lake Forest Health Partnership (KLFHP) is following a process documented in a publication titled “Planning and Implementing Cross-boundary, Landscape-scale Restoration and Wildfire Risk Reduction Projects” and released last year through the OSU Extension publication office. (catalog.extension.oregonstate.edu/pnw707). In this issue, Amy Markus, Cohesive Strategy Coordinator for the U.S. Forest Service Fremont-Winema National Forest gives more details about KLFHP and successful implementation of landscape-scale restoration projects.

Washington state has also been successful developing and implementing landscape-scale solutions through its 20-year forest health strategic plan. Reese Lolley, Amy Ramsey and Phil

Hess give an overview of this plan in their article titled “Stand to Landscape: Making Our Forests More Resilient, Together.”

These and many other efforts are putting people to work mitigating fire risk, improving forest and watershed health, enhancing wildlife habitat and making fire response safer. We will never eliminate the risk that fire represents to our lives and our livelihoods, but we can adapt to meet the changing face of wildfire. ■

DANIEL LEAVELL earned bachelor’s and master’s degrees in forestry from Oregon State University and a doctorate in landscape and disturbance ecology from the University of Montana. He is currently assistant professor and Extension forest/fire science agent for Oregon State University College of Forestry Extension assigned to Klamath and Lake counties. His 37 years of work for the Forest Service included agency administrator, resource

advisor, BAER team participant and certified silviculturist. Daniel was also a wildland firefighter for 34 years, worked as a consultant and fire chief for a northwest Montana fire district and was a firefighter/EMT for a fire district in Klamath county. Daniel can be reached at 541-883-7131 or Daniel.Leavell@oregonstate.edu.

Wildfire Considerations on the “Wet Side”

Most effort to reduce wildfire risk in the Northwest has been focused on dry forest types historically maintained by frequent fire. There has been less attention to preparing for fire on the wet (western) side of the mountains. It is important to understand that our moist forests are also fire-driven ecosystems. Productive moist forests develop high fuel hazards and there are high values at risk along the expanding wildland-urban interface. When fire comes, it is likely to be more catastrophic. While historically rare, the coincidence of ignitions with extreme fire weather in moist forests becomes more likely with increasing human population and a warmer climate.

It’s fire science 101: to reduce risks of catastrophic wildfire we need strategic fuels reduction. Productive forests on the wet side require high maintenance to keep fuels low. Prescribed fire is difficult to apply near more populated areas. We need options including commercial thinning and other mechanical or manual methods, along with creative debris disposal programs. To address the challenges will require cooperative efforts such as Firewise®, along with social license and support for woodland owners on the front lines of the wildland interface in wet-side communities.

Glenn Ahrens
OSU Extension Service forester

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Managing Wildfire Risk Through Shared Stewardship

By **AMY MARKUS**

In the western United States, wildfires today are larger and more severe, starting earlier and ending later, and resulting in an unprecedented loss of lives, structures, forests and other resources. We are living in the era of megafires: large wildfires (greater than 100,000 acres) are common. Addressing this type of complex issue is challenging and can be particularly overwhelming for small woodland owners who are motivated to take positive action on their land, but their property is small and isolated in comparison to the scale of the issue.



Landowners can prepare for wildfire by being proactive in reducing fuel loading through positive management actions such as: commercial harvest, small tree thinning, shrub mastication, carefully managed prescribed fire and other methods. Defensible space treatments near structures are also very effective in reducing the risk to homes, outbuildings and properties. These treatments are highly recommended and can reduce the potential for damage from wildfire on an individual property.

However, in the era of megafires, treatments across multiple properties in the context of large landscapes are the most effective means of keeping wildfires small and less damaging. When a fire becomes large and out of control, it can burn very quickly

across ownerships (public and private), through subdivisions and even across entire communities. It is prudent that agencies and landowners work together through shared stewardship to be proactive in preparing for wildfire before it happens and at a landscape scale commensurate with the issue.

A recent U.S. Forest Service strategy for managing catastrophic wildfires and the impacts of invasive species, drought and insect and disease epidemics, is documented in a new report titled “*Toward Shared Stewardship Across Landscapes: An Outcome-based Investment Strategy*.” This strategy acknowledges the need for co-managing wildfire risk across broad landscapes because wildfire and disturbances acknowledge no landowner or administrative boundaries. It also encourages partners and stakeholders to work together across shared landscapes to set goals and priorities, to complete fuel reduction across jurisdictional boundaries and to share the responsibilities of reducing the potential for high-severity wildfire.

In southcentral Oregon, the Klamath-Lake Forest Health Partnership (KLFHP) is a non-profit partnership with a mission “to facilitate restoration projects on public and private forestland in Klamath and Lake Counties through education, outreach, and diverse partnerships.” This diverse group of federal and state agencies, local non-profits, university Extension and private landowners has developed a process to plan and implement landscape-scale, cross-boundary forest restoration with great success. With careful planning and a focus on action, communities are working together to prepare for the high probability of wildfire. Within these focused project areas, small woodland landowners are teaming up with neighboring landowners to take action—and it is succeeding at a scale that makes a difference!

Beginning in 2016, the first cross-



PHOTO COURTESY, U.S. FOREST SERVICE

A high-severity wildfire. Severity refers to the degree to which a site has been altered or disrupted by fire.



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boundary, landscape-scale project coordinated through the KLFHP is called the North Warner Multi-Ownership Forest Health Project located near Lakeview, Oregon. This landscape is approximately 150,000 acres of intermixed federal, nonindustrial private and industrial private land. The federal land is a priority project for the U.S. Forest Service and the federal planning requirements have been completed. This presents a great opportunity for planning and implementing across federal and private lands for wildfire risk reduction and forest health objectives.

Often small woodland owners do not have any data or mapping of their forested lands to inform potential treatments. Through the coordinated effort amongst agencies and landowners in the North Warner project, grant funding was obtained to map and assess the nonindustrial private lands within the project area (approximately 32,000 acres). The

mapping and data were invaluable for assisting private landowners with identifying potential treatments for each property, as well as coordinating strategies and priorities across all private lands within the entire landscape.

This data also provided the necessary information for landowners to develop a land management plan. For small woodland owners, the most important reason to develop a management plan is to learn about their forest and to create or refine a course of action based on how it looks today and how they want it to look in the future. Land management plan templates are available for private landowners. One example is “Managing Your Woodlands: A Template for Your Plans for the Future.” A more recently updated template is “Oregon’s Forest Management Plan—Template.” The U.S. Forest Service, Oregon State University Extension Service, Oregon Department of Fish and Wildlife,

Oregon Department of Forestry, Natural Resources Conservation Service, Tree Farm System and Oregon Small Woodlands Association sponsor both land management templates. Find more information online at: blogs.oregonstate.edu/forestplanning/templates/.

The private land mapping and assessment also provided an excellent

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Forest Treatment Methods to Avoid Burning

By **KASEY JOHNSON**

Over one hundred years of fire suppression and past management have created a condition of abnormally large amounts of vegetation biomass in our forests. This biomass can take many forms, from native shrubs to overstocked and stressed forest stands. These dense accumulations of shrubs and trees produce a visually desirable carpet of green, but underscores the stress from limited water, light and nutrients.



High amounts of biomass need treatment on all land ownerships to achieve land management and risk mitigation goals. The consequences of not managing, especially given the last five years of record high temperatures and drought conditions, are forest insect and disease impacts at a larger scale than previously observed. This in turn creates accumulations of fuel, which burns at higher intensity and severity. Depending on site factors



PHOTO COURTESY: KASEY JOHNSON

An overstocked ponderosa pine stand in the North Warner project area in southcentral Oregon.

present within the ecosystem, such as moisture, sun exposure and plant species, different systems require different levels of nutrient cycling and timing. Historically this would have occurred with fire, but with 98 percent efficiency in putting fires out, nutrients from biomass are not recycled as

quickly and as effectively and can be lacking within the system.

Fuel treatment methods

A typical practice of many woodland owners and land managers is to cut or remove this excess biomass, pile it, then burn the piles once the material has cured and weather allows. If burning is not an option for a variety of reasons, there are alternative ways



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to reduce this residue biomass. Options for biomass treatment depend on slash type, amount and size (commercial saw logs compared with nonmerchantable material).

Mastication. A type of biomass disposal leading to better nutrient recycling that better-resembles natural events is mastication, which increases the rate of nutrient cycling and decomposition. Mastication involves the use of a skid-steer type tractor or sometimes larger, more conventional harvesting equipment, such as a feller-buncher equipped with a mulching head. Mastication is similar to mowing or chipping. The masticated material can often be smaller than chips and includes all parts of the vegetation mass, compared with just the stem material.

Lop-and-scatter. Another treatment that has similar elements to mastication regarding on-site utilization is lop-and-scatter. Depending on the current density of vegetation, density of residual material, annual precipitation and potential for fire, this may be a practice that can replace piling and burning, while still disposing of excess biomass. Typically, when conducting lop-and-scatter, material is cut and



PHOTO COURTESY: KASEY JOHNSON

A skid steer completing mastication treatment in the North Warner project area.

then “lopped” into smaller more manageable pieces. Once this material has been lopped, the scattering portion of this practice comes in. These smaller, more-manageable pieces are dispersed through the cutting area in a semi-uniform layer. This practice is most often used when smaller amounts of material are being cut or after a pre-commercial thinning (when the trees are still small enough to move by hand). Like mastication, this practice

needs to be consistent with annual precipitation, so that excess biomass is not added to the fuel loading for the site beyond an amount acceptable to the owner/manager. When lopping and scattering, a good rule-of-thumb is to scatter slash no deeper than 18 inches (oftentimes knee height) and to avoid placing this material under the dripline of retained trees or shrubs.

Biochar. One of the more recent practices for biomass utilization is creating biochar. Biochar can be created with any carbon-based material (anything that grows) and has ever-increasing uses once it’s produced. Applications can range from soil additives that help create healthier soils through moisture and nutrient retention, water filtration in areas prone to pollution, use in water recycling systems or distribution on forest floors to help newly established trees and shrubs survive and grow. If

–Continued on page 26–

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Stand to Landscape: Making Our Forests More Resilient, Together

By **AMY RAMSEY, REESE LOLLEY AND PHIL HESS**

Throughout the West, including in Washington, the health of our forests has been in decline for decades. This has contributed to uncharacteristically severe wildfires and catastrophic community impacts. It's also harder for many forests to support thriving ecosystems and produce community benefits including clean water, wildlife habitat, forest products, carbon storage and outdoor recreation.

How did we get here, and how can we all work together to solve this problem?



Amy Ramsey



Reese Lolley



Phil Hess



The upper photo, taken in 1934 before excluding fire from the ecosystem, shows a more resilient forest. The lower photo of the same area, taken in 2010 after continual fire suppression, shows an overcrowded forest.

Our forest health and wildfire crisis has been more than a century in the making. Historically, firefighters

extinguished every possible wildfire. Past forest management activities removed older and more resilient trees from the landscape. Those factors, in combination with insects and diseases,

population growth in our forests and climate change, have created a perfect storm for poor forest health and increased wildfire risk.

Now, millions of acres of our forests are overcrowded with small trees and understory vegetation, making trees more stressed and more susceptible to uncharacteristically severe wildfires.

Over the past decade, the people who live and work in Washington state, including members of the Washington Legislature, have recognized the growing forest health crisis. But it wasn't until the record-breaking forest fires in 2015—harming communities and businesses and costing over \$300 million in firefighting expenses—that a transformative call to action was made. In 2017, the Washington State Department of Natural Resources (DNR) led 32 organiza-

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PHOTO COURTESY: THE NATURE CONSERVANCY

Tree farmer Ross Frank, former chair of the Chumstick Wildfire Stewardship Coalition, talks to members of The Nature Conservancy in June at the Red-Tail Canyon Farm in Leavenworth. The Chumstick coalition hosted a Nature Conservancy staff meeting with great exchange and discussion of roles and actions of communities to better prepare before, during and after wildfire.

carrying out projects to restore the resiliency of forest and aquatic ecosystems, protecting critical fish and wildlife habitat and reducing wildfire risk in the area.

So far, more than 2,000 acres of commercial and noncommercial thinning have occurred across Conservancy, DNR and WDFW lands, in addition to improved fish passage and roads. Yakama Nation also conducted large flood plain restoration projects with state and private partners.

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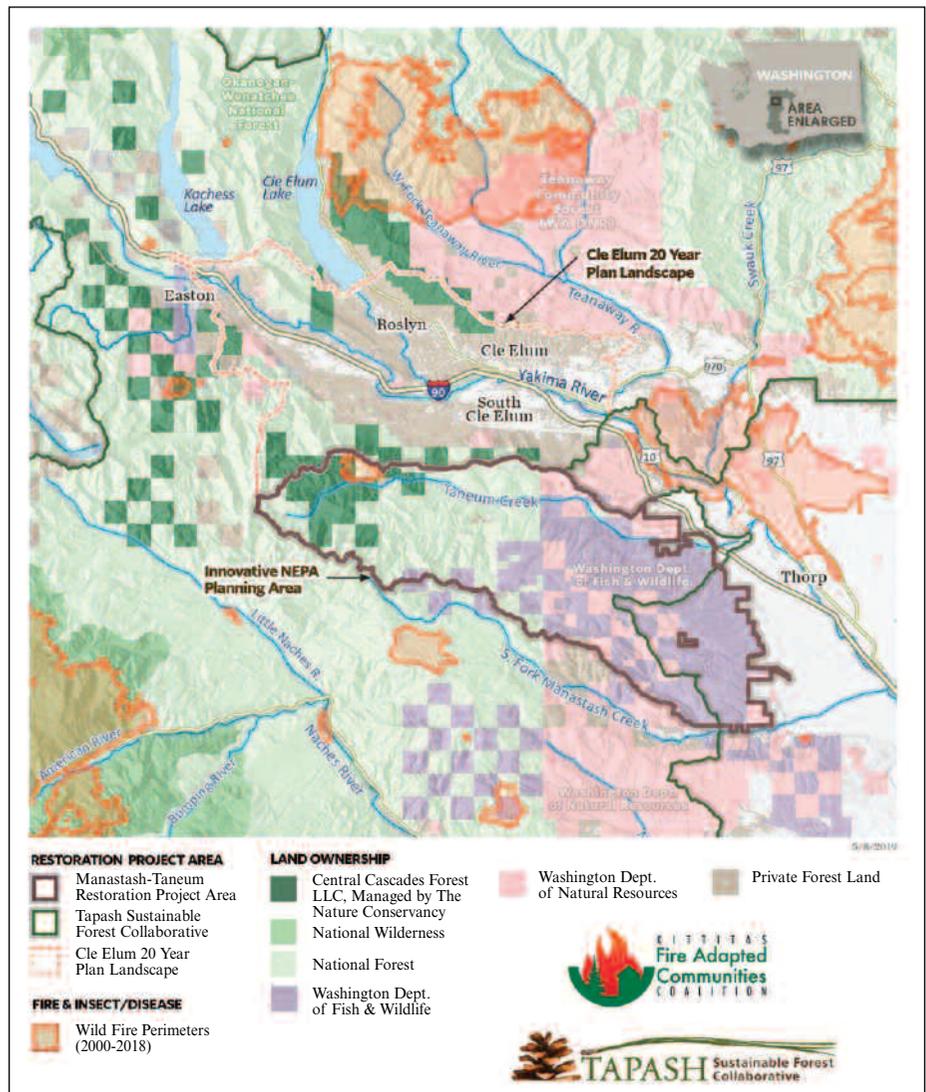
tions in development of a 20-Year Forest Health Strategic Plan that commits to treating 1.25 million acres of unhealthy forests in central and eastern Washington by 2037.

The plan is unprecedented in its scope and application. It embraces an all-lands, all-hands approach, recognizing that solutions for these problems must span property lines, government jurisdictions and all landowners. The mission of the plan is to restore and manage forests at a pace and scale that reduces the risk of severe wildfires and increases the health and resiliency of forest and aquatic ecosystems in a changing climate for rural communities and the people of Washington.

Already, we are seeing inspiring examples of the collaborative forest restoration work being done across those property lines.

Take the Manastash-Taneum project in central Washington, overseen by the Tapash Sustainable Forest Collaborative. Its nearly 80,000 acres are on many different lands—land managed by the U.S. Forest Service, DNR, the Washington Department of Fish and Wildlife (WDFW), the Yakama Nation and The Nature Conservancy. These partners came together for a common goal, analyzing the forest and aquatic restoration needs across the landscape.

With shared understanding, interests and challenges identified, each landowner got to work, planning and



MAP COURTESY: THE NATURE CONSERVANCY, ERICA SLONIFER

Organizations and individuals are coming together across private, state and federal lands to develop shared understanding of wildland fire risk to communities and forest health in 20-Year-Plan landscapes of upper Kittitas County. Agencies and organizations partner to coordinate actions and leverage each other's knowledge and resources. Tapash Sustainable Forest Collaborative and Kittitas Fire-Adapted Community Coalition support development of shared goals and coordinated actions.

People owning only a few acres of forestland are getting involved, too.

In the central Washington landscape surrounding Cle Elum, community concerns about fire risk brought local organizations together to discuss ways to better coordinate and accelerate solutions.

In 2017, people and organizations formed the Kittitas Fire-Adapted Community Coalition with the purpose of speeding up the work needed to increase community resilience to wildfire through public education and technical assistance for those who own forestland. The coalition is encouraging people in their community to take actions that reduce wildfire risk, including thinning for forest health and fuel reduction, controlled burning, building coordinated fuel breaks, fuel reduction within 100 feet of a home (the home-ignition zone) and hardening homes by using building materials that are resistant to embers.

How to get involved

If you are a small forestland owner, even one with a couple acres of forestland in Washington, you have a role to play in making our forests healthier and our communities safer. In central and eastern Washington, coordinating forest health treatments with all willing forestland owners in high-priority watersheds is a key part of the forest health plan. Statewide, forestland owners can make sure they know how to prepare for and prevent wildfires.

There are a variety of actions you can take:

- Develop a forest stewardship plan that provides a blueprint for identifying your goals for your forest, and how to achieve them. Your neighbors may have their own stewardship plan, so coordinating tree removal, chipping and other projects can make it more affordable for everyone. Your state Extension office, DNR's Small Forest Landowner office, and potentially your local conservation district also have resources and classes to help.

- Become involved with the Firewise USA® recognition program, which encourages you and your neighbors to reduce the risk of wildfire to your homes and other structures. Home ignitions depend on a home's characteristics, such as building materials, and it's immediate surroundings. With a home assessment, you can learn how to reduce your home's vulnerability and provide a safer environment for fire fighters.

- For ideas to further engage your community in ways to safely live with wildfire, visit fireadaptedwashington.org and fireadaptednetwork.org.

DNR has foresters on staff to provide you with forest health evaluations, technical assistance and cost-share programs to offset the expense of forest health treatments on your land. Depending on your forest structure, a forest health and fuels reduction project may be applicable. For example, precommercial or commercial thinning may be needed to bring tree density levels down, minimizing the risk of a fire intense enough to destroy the entire stand. In these types of projects, it is possible to also retain and even enhance wildlife habitat. Prescribed fire can also be a tool in meeting your unique objectives for your property.

Technical assistance foresters also provide professional on-site consultation for small forestland owners to remain current with forest practices rules, use low impact harvest techniques and implement best practices in road construction. These technical services foster a strong incentive for you to actively manage forests to

address forest health conditions, reduce wildfire risk for you and your neighbors and protect aquatic resources. Through this work, you'll be joining people across Washington who are working to conserve millions of acres of forest.

If you live in central or eastern Washington and you want to be involved, please contact your regional DNR office, specifically the landowner assistance program. Call at 509-925-8510 if you own forestland in Adams, Asotin, Benton, Chelan, Columbia, Douglas, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Walla Walla, Whitman and Yakima counties; or 509-684-7474 if your forestland is in Okanogan, Ferry, Stevens, Pend Oreille and Spokane counties, or the northern portion of Lincoln County. When you call, ask to speak to someone from the landowner assistance program. Statewide, also check with your local conservation district—many counties can provide this technical guidance as well.

Benefits of forest health restoration

Without active restoration and management, forest health will continue to decline, and uncharacteristically severe wildfires will continue to increase, but together we can do something about it. An analysis at the Institute for Natural Resources at Oregon State University offered the following conclusions about forest health restoration activities in Washington:

- Forests can become more resilient in areas available for active treatment, especially in dry forests.

- Wildfire will continue to be a major disturbance in central and eastern Washington forests, and high levels of stand-replacing fires will still be present on the landscape. However, strategically placed forest health treatments can increase resilience.

- Insect-related mortality will likely decrease in areas with increased forest health treatments, especially in dry forests.



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- Timber volume produced might increase substantially with increased restoration treatments, especially in partial harvests of dry forests with smaller trees.

- Forest restoration and local economic benefits can be substantial for more than 20 years in communities where cooperative efforts lead to strategic work.

More about the 20-Year Forest Health Strategic Plan

Because actions and solutions to improve forest health are needed across multiple land ownerships, DNR worked on developing the 20-Year Forest Health Strategic Plan with more than 30 agencies and organizations, representing public and private forestland owners and managers, including federal and state agencies, tribes, the forest industry, small forestland owners, universities and conservation groups.

To achieve Washington's forest health objective, which is to transform the state's forested landscapes into ecologically functioning and resilient conditions and meet the economic and social needs of present and future generations, the people who helped create the plan identified five goals that are considered vital.

1. Conduct 1.25 million acres of scientifically sound, landscape-scale, cross-boundary management and restoration treatments in priority watersheds to increase forest and watershed resilience by 2037.

2. Reduce the risk of uncharacteristic wildfires and other disturbances to help protect lives, communities, property, ecosystems, assets and working forests.

3. Enhance economic development through implementation of forest restoration and management strategies that maintain and attract private sector investments and employment in rural communities.

4. Plan and implement coordinated, landscape-scale forest restoration and management treatments in a manner that integrates landowners'

objectives and responsibilities.

5. Develop and implement a forest resilience monitoring program that establishes criteria, tools and processes to monitor forest and watershed conditions, assess progress and reassess strategies over time.

For more about the 20-Year Forest Health Strategic Plan visit: dnr.wa.gov/ForestHealthPlan.

Together, and only together, will we make our forests healthier and our communities safer in the face of severe wildfires. We have the plan; now it's time to act. ■

AMY RAMSEY is an environmental planner with the Washington Department of Natural Resources and is currently working as a coordinator for the 20-Year Forest Health Strategic Plan for eastern Washington. She has been involved with forest health issues in the Pacific Northwest for nearly 15 years and is passionate about finding solutions to maintain healthy forests across the landscape. Amy can be reached at 360-902-1309 or amy.ramsey@dnr.wa.gov. REESE LOLLEY is director of forest restoration and fire for The Nature Conservancy in Washington. He works with Conservancy staff and

partners to develop and implement strategies to conserve and restore forests of Washington, increasing benefits to those that live, play, and work in Washington's magnificent forests. He is engaged with collaborative groups such as the Tapash Sustainable Forest Collaborative, the Washington Prescribed Fire Council (chair), and the Washington Fire-Adapted Communities Learning Network (core team committee member). He shares and exchanges lessons learned with the Conservancy's Restoring America's Forests and Fire Learning Network. Reese can be reached at 509-248-6697 or rlolley@tnc.org. PHIL HESS is a Society of American Foresters certified forester specializing in forest stewardship assistance to small forestland owners in eastern and central Washington. He is a Washington Farm Forestry Association (WFFA) chapter president, WFFA policy committee member, a member of DNR's Small Forest Landowner office advisory committee and an American Tree Farm System tree farm inspector. He is also active in local forestry-related community activities. Phil can be reached at 509-952-0678 or hessphil09@gmail.com.



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Managing Wildfire Risks Through Shared Stewardship

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outreach and education tool when the Oregon Department of Forestry project forester worked with landowners to identify treatments. The landowners appreciated getting detailed maps of their property, and most landowners would have no other way of acquiring this information. As the project forester moves from property to property to complete the assessment, there are opportunities to ask landowners permission for access, drop off packets of information and talk to neighbors curious about the project. These activities are all part of an organized outreach and education effort.

The coordinated planning, mapping and data collection across federal and private lands in the North Warner project allowed the partners to develop strategies and priorities for treatments and to offer assistance to landowners across the broad landscape. This organized effort was very appealing to grantors who approved funding for forest health and defensible space treatments within the project area. Over the course of just 3 years,

over \$7 million has been acquired for forest health and risk reduction treatments on federal and private land. As of May 2019, approximately 24,000 acres of federal land and 20,000 acres of private land have been treated.

The KLFHP took the success of the North Warner project and applied the same general process to another landscape in Klamath County called the Chiloquin Community Forest and Fire project (located on Highway 97, north of Klamath Falls). This 185,000-acre project area includes federal and non-



PHOTO COURTESY: LEIGH ANN VRADENBURG, KLAMATH WATERSHED PARTNERSHIP

Outreach materials specifically addressing a local area can provide information and motivation for forestland owners and managers to participate in landscape-level treatments.

industrial private land owned by 2,850 individual property owners, eight subdivisions and the city of Chiloquin (32,000 acres). The primary objective of this focused landscape is to reduce the risk of wildfire to the community of Chiloquin and surrounding properties within the designated landscape. Similar to the North Warner project, within a two-year timeframe the KLFHP completed education and outreach, mapping and assessment of private lands, and has secured approximately \$4 million for treatments on both federal and private land. Implementation will begin in the summer of 2019.

Within the North Warner and Chiloquin project areas, small woodland owners have spread the word to other landowners and every year more landowners are participating. Landowners are also teaming up with adjoining neighbors to take action. In some cases, private landowners are working together within a wooded subdivision to treat fuels across all properties. In other cases, there are larger woodland owners working with adjoining properties to manage at larger scales within these focused project areas. KLFHP partners are assisting landowners when needed and outreach efforts continue.

Through outreach and education, mapping and data collection and acquisition of grant funds, small woodland owners are empowered to take action on their own property. These landowners also have the information and knowledge to work with their neighbors to encourage participation in the project by completing fuels reduction and defensible space treatments. As treatment areas become larger from multiple landowners taking action and working together, the effectiveness of treatments increases, the word spreads to other landowners within the project area, and over time, the amount of private land treated increases significantly. Combine these great efforts with action across the fence on federal land, and the larger landscape



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When carefully managed, prescribed fire can be the most economical and ecologically appropriate tool for restoration and fuel reduction.

becomes more resilient to large-scale severe wildfire.

Mechanical treatments across federal and private land also create a wonderful opportunity for cross-boundary prescribed fire. It is extremely important to maintain the investments made in the initial mechanical treatments over time and prescribed fire is the most ecologically appropriate and economical tool available. With coordinated efforts between federal and state agencies and private landowners, there may be opportunities for using carefully managed prescribed fire on private land that may not have been feasible for a landowner otherwise.

For more information and lessons learned on the success of the North Warner and Chiloquin projects, landowners and others can refer to a recent Oregon State University Extension publication titled “Planning and Implementing Cross-Boundary, Landscape-Scale Restoration and Wildfire Risk Reduction Projects.” This publication can be found on the web at: catalog.extension.oregonstate.edu/pnw707.

The North Warner and Chiloquin projects are great examples of how

small woodland owners are working with federal and state agencies

through shared stewardship. Because of private landowner motivation, action and communication with adjoining neighbors, multiple properties are being treated with mechanical and prescribed fire treatments to reduce the potential for wildfire. This results in fuel treatments at a scale that allows safer and more effective wildfire response.

Private landowners are taking action and it’s making a difference! ■

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Are Prescribed Burns Effective? A Summary of Research Findings

By **ROBERT KEANE AND
HEATHER HEWARD**

Perhaps the single biggest question most landowners have concerning prescribed burns is, "Do they actually work?"

Unequivocally, prescribed (Rx) burning is the best treatment for many fire-prone forests of western North America from an ecological, economical and fire management perspective.

Few alternative management treatments have the superior ability to both restore forest ecosystems and reduce fuel hazard like Rx burning. Rx fire can inexpensively kill abundant regeneration to improve the longevity of the treatment, reduce



Robert Keane



Heather Heward

surface and canopy fuels to decrease wildfire hazard, and lessen tree competition to improve the vigor and resilience of surviving plants. Moreover, follow-up Rx fire treatments are often much easier to implement, unlike many mechanical treatments. The steep downside of Rx burning is that it is somewhat risky in that an Rx fire may get away and become an unplanned wildfire that may endanger people and property. Rx burn implementation is also highly dependent on the weather: if fuels are too wet there will not be enough consumed to reduce the risk of wildfire or remove unwanted plants; if fuels are too dry there is a greater risk for an escape.

There is no doubt that Rx burning can be a highly effective tool to reduce fire hazard if done properly. However, evaluating the effectiveness of a past or future Rx treatment, especially in comparison with a mechanical treatment, is an extremely difficult and

complicated task because of many interacting factors. This article presents several important factors that influence Rx burning effectiveness so that landowners understand the intricacies of designing effective Rx burning projects.

First, however, a context in which to evaluate Rx effectiveness is needed. There are many reasons why people implement Rx burns, but without doubt, fuel reduction to reduce fire hazard is the most common, especially for woodland management. Other objectives may include ecosystem restoration, wildlife habitat improvement, watershed maintenance and aesthetics. In this article, we will base our evaluation of Rx efficacy on sufficient fuel reduction to mitigate adverse fire behavior. By removing fuels through Rx burns, future wildfires have more moderate fire behavior which makes fire suppression safer and more effective and decreases the impact of the fire on the remaining vegetation.

Next, we must attach a time period to this objective because forests are constantly changing, and forest growth after Rx treatment may provide enough fuel over time to render an Rx treatment ineffective. Therefore, let's set a goal of implementing an Rx burn to provide at least 7 years of effective fire hazard mitigation. Last, it must be noted that the goal of fuel reduction is NOT to reduce the occurrence of future fire (i.e., ignition reduction), but rather the goal is to lower intensities of unplanned wildfires so that direct suppression is possible.

In general, there are two categories



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of factors that influence Rx burn efficacy over time: (1) treatment design and implementation, and (2) future environmental conditions.

The first set of factors concern the details of treatment design or, “Does the design of the treatment limit its effectiveness?”

1. Rx burn plan implementation. Some burn plans may specify igniting the Rx fire at the moister end of the burning window resulting in light fuel consumption with little fuel reduction, resulting in nominal decreases in fire hazard. There may still be sufficient fuel to sustain an intense future wildfire. More often, Rx burns that are implemented in dense stands with high fuel buildups, often after decades of fire exclusion, result in high tree mortality that eventually creates heavy fuel accumulations after the treatment. Here, another burn is needed to reduce the recently downed material, or a mechanical treatment could have been implemented prior to the first burn.

2. Spatial context. The treated area might be so small that wildfire from outside of the treatment area may easily ignite tree crowns by spotting or direct convection. To be truly effective, treatment units must be large, or a large part of the landscape must be burned with multiple treatments. Studies often put the amount of landscape that needs to be treated at



PHOTO COURTESY: HEATHER HEWARD

Prescribed fire: Any fire intentionally ignited by management actions in accordance with applicable laws, policies and regulations to meet specific objectives. The National Wildfire Coordinating Group: nwcg.gov.

somewhere between 20-47 percent of the total area every decade or so depending on the resident ecosystems. Moreover, the pattern of Rx treatment units on the landscape is important in that small treatments that cover large areas of a landscape are not nearly as effective as integrating large units into the burn plan.

3. Ancillary mechanical treatments. Some treatment areas, such as those that haven't been treated in decades, may contain such dense canopies, that Rx burning alone may be inappropriate because the abundant canopy and surface fuels may foster high Rx fire

intensities. In these cases, it may be necessary to first conduct a mechanical treatment, such as a commercial or noncommercial thin, before implementing an Rx burn. However, some cutting or mastication treatments may leave abundant slash that, if unconsumed by Rx burning, could also foster a high intensity Rx burn or wildfire.

Treatment histories are very important in determining future Rx burning effectiveness.

4. Target stand structures. Effective canopy fuel reduction to minimize crown fire potential often involves heavier thinning than is customary for most foresters and woodlot owners. Reducing canopy bulk densities below the minimal value to carry a crown fire often involves removing numerous trees in both the overstory and understory, which may be unacceptable to many members of the public and private landowners. As a result, compromises in thinning intensities often

–Continued on next page–

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result in stand structures that may continue to be susceptible to crown fires.

The next set of factors concern those environmental conditions that may occur in the future and could impact the ability of the Rx burn to accomplish fire hazard reduction objectives.

1. Climate. Fire seasons in the future may be so long, hot and dry that some Rx burns may not be that effective. It is possible that the fuel left after an Rx burn may still generate high fire intensities and severities when fuel moistures are extremely low. Most studies on climate change and wildland fire predict hotter, drier fire seasons, longer fire seasons and higher lightning occurrence, all of which may overwhelm an Rx burn's efficacy.

2. Wildfire. It is possible that the next wildfire may be downslope and wind-driven, and therefore become so large and intense that it can easily overwhelm Rx treatment results and render the Rx burn ineffective. This often happens when wildfires get so large that their inertias and far-reaching spotting easily cross into the treatment area and burn at intensities that will not allow direct suppression.

3. Productivity. It also may be that the treated area might have such high productivity that regeneration is rapid, and biomass quickly accumulates creating high fuel loadings in the treated area in a very short time. This new fuel accumulation may render the Rx treatment ineffective in less than 10 years.

Research has shown that the best results of Rx fire applications are like-



PHOTO COURTESY, U.S. FOREST SERVICE

Robert Keane on a Rx burn in ponderosa pine for fuel reduction and ecosystem restoration on the University of Montana Lubrecht Forest in western Montana.

ly to be attained in heterogeneous landscapes where the likelihood of extreme weather conditions is low, and a large portion of the landscape is treated. Effective Rx treatments, as well as mechanical treatments, rarely last more than 10 years and time horizons of 3-5 years are often more appropriate. Moreover, the efficacy of Rx burning appears to increase with additional Rx burns; long-term fuel reduction goals will rarely be achieved after one Rx burn. Long term fuel reduction, especially using Rx burning, can only be attained through a series of proactive actions rather than a one-time treatment. Studies have shown that it may take as many as 3-5 Rx burns to achieve desired fuel reduction goals. And last, no treatment, Rx fire or mechanical, is 100 percent effective at stopping or containing wildfire, and many scientists recommend thinking about Rx fire efficacy as allowable risk rather than as guaranteed outcomes.

The decision of whether to use Rx can be very difficult, especially for small landowners. Is the risk worth the reward, especially in the context of how often the treatments would need to take place to remain effective? There are a growing number of exam-



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ples of landowners working together to share resources and experience (e.g., prescribed burn associations). Through collaboration, these groups can effectively treat large areas on a frequent rotation. And through education and practice, the application of fire can become part of the routine of land maintenance which over time will lead to desired reductions in wild-fire activity and a host of other ecological benefits.

Hopefully, this article has provided the information that woodland managers need to implement successful and effective Rx burning in the future. Some content in this article was taken from the recommended readings in the sidebar. ■

ROBERT E. KEANE has been a research ecologist with the USDA Forest Service, Rocky Mountain Research Station at the Missoula Fire Sciences Laboratory since 1994. His most recent research includes: 1) developing ecological computer simulation models for the exploring landscape, fire, and climate dynamics, 2) conducting basic research in wild-land fuel science, and 3) investigating the ecology and restoration of white-bark pine. He received his B.S. degree in forest engineering from the University of Maine, Orono; his M.S. degree in forest ecology from the University of Montana, Missoula; and his Ph.D. degree in forest ecology from the University of Idaho, Moscow. Robert can be reached at 406-329-4846 or rkeane@fs.fed.us. **HEATHER HEWARD** is a senior instructor at the University of Idaho where she teaching classes related to fire ecology and management. She is passionate about prescribed fire and is working to increase the use of prescribed fire through public education and outreach and by increasing her own prescribed fire qualifications. Heather can be reached at 208-885-6454 or hheward@uidaho.edu.

Boer, M. M.; Sadler, R. J. [et al.]. 2009. Long-term impacts of prescribed burning on regional extent and incidence of wildfires-Evidence from 50 years of active fire management in SW Australian forests. *Forest Ecology and Management* 259:132-142.

Fernandes, P. M.; Botelho, H. S. 2003. A review of prescribed burning effectiveness in fire hazard reduction. *International Journal of Wildland Fire* 12:117-128.

Fule, P. Z.; Crouse J. E.; Roccaforte, J. P.; Kalies, E. L. 2012. Do thinning and/or burning treatments in western USA ponderosa or Jeffrey pine-dominated forests help restore natural fire behavior? *Forest Ecology and Management* 269:68-81.

Fulé, P. Z.; Waltz, A. E. M.; Covington, W. W.; Heinlein, T. A. 2001. Measuring Forest Restoration Effectiveness in Reducing Hazardous Fuels. *Journal of Forestry* 99:24-29.

Jain, T.; Graham, R. 2004. Is forest structure related to fire severity? Yes, no, and maybe : methods and insights in quantifying the answer. Pages 217-234 in *Silviculture in special places: Proceedings of the 2003 National Silviculture Workshop*. USDA Forest Service Rocky Mountain Research Station, Granby, CO.

Jain, T.; Sikkink, P.; Keefe, R.; Byrne, J. 2018. To masticate or not: Useful tips for treating forest, woodland, and shrubland vegetation. Page 55 in *F. S. U.S Department of Agriculture, editor. Rocky Mountain Research Station, Fort Collins, CO USA.*

Kobziar, L. N.; Godwin, D.; Taylor, L.; Watts, A. C. 2015. Perspectives on Trends, Effectiveness, and Impediments to Prescribed Burning in the Southern U.S. *Forests* 6:561.

Penman, T. D.; Christie, F. J.; Andersen, A. N. [et al.]. 2011. Prescribed burning: how can it work to conserve the things we value? *International Journal of Wildland Fire* 20:721-733.

Reinhardt, E. D.; Keane, R. E.; Calkin, D. E.; Cohen, J. D. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management* 256:1997-2006.

Stephens, S. L.; McIver, J. D.; Boerner, R. E. [et al.]. 2012. The effects of forest fuel-reduction treatments in the United States. *BioScience* 62:549-560.

Toledo, D.; Kreuter, U. P.; Sorice, M. G.; Taylor, C. A., Jr. 2014. The role of prescribed burn associations in the application of prescribed fires in rangeland ecosystems. *Journal of environmental management*, 132, 323-328.

Pritchard S., Peterson, D. 2011. Assessing fuel treatment effectiveness after the tripod complex fires.: Fire Science Brief from the Joint Fire Service Program. 135. https://www.fire-science.gov/projects/briefs/07-1-2-13_FSBrief135.pdf

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Forest Treatment Methods

continued from page 15

applying to a forest floor, this practice would be similar to low-intensity fire regarding nutrient cycling benefits.

There are many different methods for creating biochar, from small-scale or “backyard” practices to large equipment capable of consuming tens of tons of raw biomass daily (potentially even hundreds). Different methods for biochar production can also relate to the form the biomass is in; if large harvest slash piles are present there are machines capable of accepting material up to 22 feet long. If you only have a small amount of biomass to treat, then the backyard method would be your best bet. Depending on the scale of your ownership or management, different methods for creating biochar could be used, all while still avoiding conventional piling and burning of excess biomass. An internet search on creating biochar will elicit many different methods and scales for creating and using biochar.

Chipping. Depending on the geographic location in relation to current markets, chipping excess biomass might be an alternative to piling and burning. Chipping material would most typically be used when large quantities are present, and almost exclusively deals with trees rather than brush. This method can be costly to hire a contractor with the capabilities to chip, haul and market the material; however, with this method there are often payments exchanged for each piece of the process, biomass owners included. Chipping has most often been used to deal with slash piles created through a conventional timber harvest, or when removing large quantities of non-merchantable timber (diameter, defect, or insects and diseases have removed the log value). After deciding that chipping excess biomass is the best option available, steps can be taken to help create the



A self-mobile method of biochar production, capable of handling high levels of biomass daily

PHOTO COURTESY: HALEY THOMPSON

most value. Like a typical log deck sort, biomass sorting can be incorporated at the landing to help facilitate the best market use of each biomass piece. Sorts can be made to address the desired end use of the biomass all the way from saw log markets to the various types of chips, such as clean chips versus hog fuel. Clean chips will utilize stem wood void of bark and limbs, whereas hog fuel utilizes stem wood, bark and limbs. Sometimes managers will refer to hog fuel as guts and feathers. Sorting based on how each portion or section of the tree will be utilized can help create better operational and economic feasibility of full utilization, and avoidance of pile burning.

Regardless of the scale of ownership or management and the amount and type of biomass to deal with, there are currently a wide array of options to choose from. Given the wide range of ecosystems and variables present within the Northwest, it would be advisable to consult with your local state or government forestry organization, Extension forestry agent or private consultant for specifics on biomass markets and methods based on variables specific to the local environment. Talking with local industrial

timber companies may also help you find avenues for dealing with excess biomass. This is an evolving factor for them in management of industrial forested tracts.

Benefits of slash

Leaving an amount of organic slash distributed across the forest floor can be like leaving mulch on a garden. Soils are protected from moisture loss and erosion, and nutrients are recycled to add to the fertility of the soil. Water-holding capacity, nutrient storage, soil aeration, nitrogen fixation and other soil functions require the input of organic materials back into the soil. About half of a conifer’s above-ground nutrients are stored in the needles, twigs and small branches and tree growth can be significantly reduced by nutrient deficiencies. Piles of slash can also be beneficial as habitat for wildlife. Some species of wildlife are opportunists and will use slash piles as habitat.

Reducing hazard and mitigating risk while providing for nutrient input and wildlife habitat is a balancing act within a solid land management plan and/or landscape plan. Consult local expertise for assistance, such as private consultants, Extension foresters, state forestry assistance foresters and federal agency representatives. ■

KASEY JOHNSON graduated in 2015 with a degree in forest management from Oregon State University. Since graduation he has worked with the Oregon Department of Forestry in Lakeview Oregon, with a major focus on cross-boundary landscape-scale restoration projects. After growing up spending much of his free time in the woods hunting and fishing, working as a forester was a natural fit for Kasey. He enjoys these large projects because they allow him to work with private landowners on methods to reach their management objectives. Kasey can be reached at 541-947-3311 or Kasey.a.johnson@oregon.gov.



The Understory

Thank-you to Leigh Ann Vradenburg with the Klamath Watershed Partnership for the contents of this column, taken from her outreach flyer for the Oregon Department of Forestry, Klamath-Lake District.

Guidelines for Safe and Effective Burning

Follow these guidelines for successful pile burning. While burning, assure that you can communicate, by cell phone or radio, with someone who can help in the event of unexpected conditions.

Build

Proper slash pile construction and siting is important to set the stage for safe and complete burning.

Build high and tight. Minimize pile size by harvesting firewood. Create piles that are as tall as they are wide, minimizing air space within the pile.

Keep it clean and dry. Keep dirt and all nonvegetative material out of the piles to ensure complete consumption. Covering 1/3 of the pile with 4-mil plastic may help keep material dry for lighting.

Note the surroundings. Locate piles so that there are no overhanging branches or power lines. Piles should have an enlarged footprint cleared of all flammable vegetation to reduce the risk of the fire spreading. Avoid placing piles near live trees or structures.

Before

In the days and hours leading up to burning, assess environmental conditions and check local restrictions.

Check the forecast. Never burn on dry or very windy days. Burning in damp conditions or when there is adequate snow cover (4"-6") will minimize risk of the fire spreading. A light breeze (<10mph) can help with smoke dispersal.

Follow notifications and regulations. Call your local fire department during the

week to verify burning is permitted and to notify them of the time and location of your burn.

Burn

When you are ready to burn, timing, techniques and tending are critical to safely accomplish disposal objectives.

Time your burn. Burn only as much as you can safely complete in your permitted burn window, and only as long as good conditions persist.

Grab your tools. A shovel and Pulaski should be readily available at all burn sites. Consider if a water source is needed.

Light your piles. Use a propane weed burner, drip torch or another controlled ignition source. Start on the downwind side and try to light all sides. Only light as many piles as you can see and manage at one time.

Tend to the end. Stir and drown embers until the fire is dead out. Recheck burn areas for several weeks or months for any signs of heat or smoke. Revisit areas in the spring to look for smoldering spots that could reignite.

Alternatives to burning

There may be other methods of slash disposal that could be appropriate for your site. Depending on your objectives and the volume of material, other common techniques could include lop-and-scatter, mastication, or chipping and hauling. Talk with a consultant or agency forester about your options.

Don't forget rehab

Former burn areas should be rehabilitated during the next growing season to minimize weeds. Harrow the burned area and seed with a native grass mix or plant bare root native shrubs.



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TreeSmarts: Answers to Your Tax Planning Questions

TreeSmarts: Answers to Your Tax Planning Questions appears every other issue in Northwest Woodlands. The column is edited by John P. Johnston, a partner, CPA, and CMA with Bancroft Buckley Johnston & Serres LLP in Seattle, Washington. He is a member of the AICPA, IMA and WSCPA. Questions can be emailed directly to John at jjohnston@bbjsllp.com.

I am finding that there are a lot of folks out there who haven't heard about opportunity zones (OZ), or at least aren't familiar with what OZs are as birthed by federal tax legislation, *The Tax Cuts and Jobs Act*, enacted well over a year ago now. Part of the reason could be that it was poorly written and frequently vague. Or it could

be that there was so much else in that huge piece of legislation that OZs got lost in the confusion. Either way, it's probably a good idea to be aware of the basics, because the tax savings possibilities are truly enormous.

The two primary incentives occur when an investment is sold, and the resulting proceeds are reinvested in an OZ. The best results are: 1) deferral of tax on any gain on the initial sale for seven years and possible forgiveness of up to 15 percent, and 2) future tax free capital gains on subsequent sales of OZ property for the next 30 years. Yeah, potentially very big! If we can make this work for the timber industry the possibilities are overwhelming. But that's just it—there is very little guidance, whether in the code and regula-

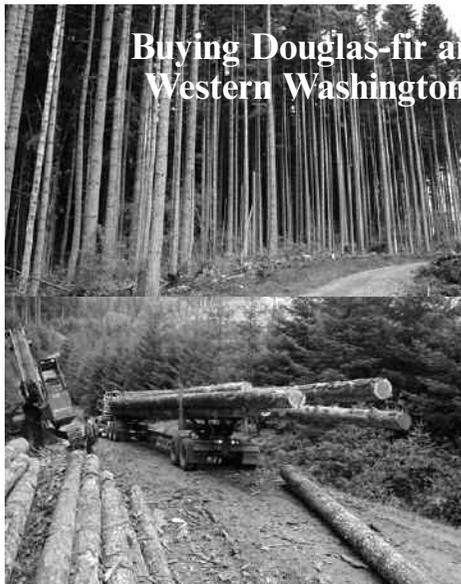
Send in Your Tax Question

Do you have a question that relates to accounting, business, or tax planning? If so, send it to tax expert John Johnston (jjohnston@bbjsllp.com) and he will answer it in the next scheduled column.

tions or in editorial and court case. So, let me offer a bit more detail to help you understand the wrinkle.

The core concept behind OZs is nothing new. Every so often a variation on a tax regime comes out to induce investment in struggling areas. In this latest OZ iteration, the idea is to allow people to favorably liquidate one investment and relocate those funds into a newly created business in an area (zone) defined by Governors. But there is an exception to the "newly created business" concept. It can also be an existing business just so long as a substantial improvement is made, defined as when a "building" (in quotes because this is a complicated and undefined tax concept) within the OZ receives an additional 50 percent improvement expenditure. Beyond that we have very little guidance. So, for example, would spending \$2,000 to expand the storage shed on your 5,000-acre tree farm qualify? We don't know. And by the way, it is proba-

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bly not a prudent tax maneuver to take the position, “Well, it didn’t say I couldn’t, so...”

Of course, there are a myriad of other rules, requirements and procedures far too involved to include in a high-level article like this, particularly if I want to mitigate the risk that people, in an attempt to avoid overt tedium, use the rest of this paper as bedding for their children’s guinea pigs. Here are just a handful of other important things to keep in mind. First, you can make the investment directly in your own OZ business, or pool funds in what is called an OZ fund; there are groups out there organizing such investment funds. Second, related party transactions are not allowed. Third, just like an IRC §1031 Tax Free Exchange, there are definite timing requirements. And fourth, the election to be treated as an OZ business is self-elected and in the case of a partnership can be made by either the entity or the individual partner privately, just themselves.

So where do we go from here? I suppose the first thing you should do if you are interested in this concept and whether it can work for you is to seek out additional information. Most states have some pretty good information on their websites already, such as the Washington DNR. There are also a couple of firms out there that specialize in very narrow tax concepts (e.g., R&D credits, new markets tax credits, and now OZs) and they can be found with a quick internet search. But on this, be forewarned that, in my experience, while their expertise on the subject may be a mile deep, they know zero about the timber industry and related tax planning/strategy. So, with that said, my advice would be to start

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with your own CPA, as she/he has probably already come across a few articles, other forms of resource, has a few initial thoughts and at least knows about a §631(a) election.

A final point I would like to reiterate—the code on this has a great deal of ambiguity and holes, at least as far as the timber industry is concerned. On a positive note, a first set of proposed regulations was issued late in 2018, and another set was issued in early May

2019. These again leave something to be desired, but at least it is progress on authoritative guidance. It is likely that in the next few years this topic will begin to ripen, and we will start to see more and more sources of authority to help guide us. To me that means that the first decision to make is not what, where or how, but rather whether you want to be a pioneer, implementing immediately, or to wait for others to break first ground. ■

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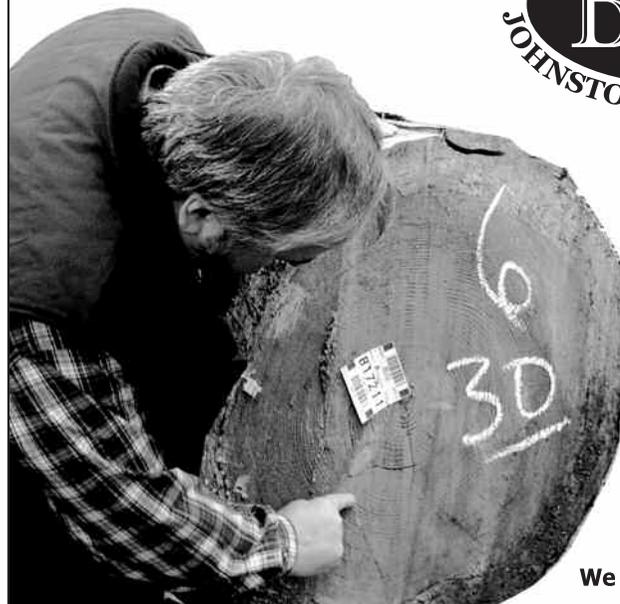


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Twig Tales

Forest Health Action Program

BY KEN BEVIS

I went to see my doctor for my tri-annual check-up. After taking my blood pressure (too high), body temperature (too low), weight (too high), glycemic index (WTH is that?), height (lessening) and asking questions about my personal exercise and dietary habits (bad), Dr. Thunderhammer came in to see me.



"Well, it looks like we have a situation here," he said, "and you can call me Thor."

"OK, Thor, what is it?" I replied. "Let me guess, I'm overweight and I drink too much beer."

"Looks like you didn't need to waste your money on me!" he quipped while messing with his stethoscope and looking at his smarty phone. "You need to pay more attention to your health: improve your diet, drink less beer and get more exercise. See you in 3 years."

About 3 weeks later I received a communication from Amalgamated

Insurance, full of indecipherable tables indicating THIS IS NOT A BILL, something about deductibles (mentioned several times) and at the end it showed that my 10-minute visit with Dr. Thunderhammer came to exactly \$537.32. I kept thinking about health.

A few days later, in my real-life role as stewardship biologist/forester, I was walking the property of one of our wonderful small landowners. Ms. Julia Sunshine-Wormcast is an organic farmer and jewelry maker who wears tie-dyed Carhartts®, with 16.1 acres of forest near the Lower Mudflat River in west Cascadia. We were viewing a root rot pocket where a cluster of nice Douglas-fir, 18-24 inches DBH, were standing dead, covered in woodpecker holes. There were declining crowns all around the mortality pocket. Jangling in the dappled forest, Julia expressed deep concern about the health of her forest and wondered what she could do to help the trees grow and not die. She said, "I want our planet to thrive and be healthy in the way that my hum-

mingbirds are every day, singing joyfully to the spirit of the sky!" I had to tell Julia that root rot is a natural phenomenon of the soil and, other than tree species change via active management, there wasn't much she could do. But they are excellent woodpecker habitat I pointed out.

It reminded me of a similar visit to the property of Captain Doug "Gunner" Sandspit (retired), way up in northeast Cascadia. Sandspit has 527 acres of mixed forest on the north and east sides of Old Gnarly Mountain with dense, mixed stands of ponderosa pine, Douglas-fir, larch and lodgepole. Bark beetles and patch fires jumping in from adjacent giant wildfires have killed whole chunks of his domain. These are next to beautifully spaced stands of perfect timber where Sandspit had done the work himself. Doug boldly stated, in his crew-cut with square jaw clenched, "I wish I knew how to take out those sneaky little beetle varmints like we did when I was over there in the service. What the heck can I do about it, Mr. Forestry Wildlife Expert guy?" I was at a loss and after mentioning thinning (again), I pointed out that snags are good habitat features. After hearing some crispy commentary on agency priorities, I deflected the Captain to old copies of *Northwest Woodlands*, especially the columns by "Treeman," who undoubtedly had insight into this forest health dilemma.

I looked back through old issues myself and, although Treeman had some good ideas on sharpening chainsaws and marketing small diameter alder, he didn't say much about the type of health I was pondering: forest health. I'm a big thinker and never hesitate to gather opinions from my own experience and the veritable plethora of experts available at our Forestry Department of the Coordinated Natural Resource Agency Department (FDCNRAD).

I picked up the phone and called my friend, and real-world expert on forest health, Dr. Juniper Tsuga. I asked her what the FDCNRAD was doing about forest health. She had many thoughts, and after a prodigious brainstorm session resulting in no doubt several lightning strikes, she listed action items: strategic thinnings, making sure that a forest on any given site has the right species in the right

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place, stocking control, appropriate grazing, control of noxious plants, such as Scotch broom and ivy, and replacing dying or harvested stands with more drought-tolerant tree species as we anticipate drier conditions with a changing climate. It came down to the punch line that forest health really means individual tree vigor.

After this invigorating conversation, I went for a walk in the woods and reflected on what Drs. Thor and Juniper had said. After waking from my nap, I was looking up into the interlaced tree canopy and I had a revelation!

Apply what works for the human organism to forests: exercise and diet. That's it! These are undoubtedly the keys

to forest health! We could apply these principles in a new Forest Health Action Program (FHAP).

Later that day, I went into a stand of fast growing, mid-diameter Douglas-fir. I knelt and dug down to study the nutritional properties of the soil. Hmm. Good humus, bugs in the duff, nice clay, not too many rocks: looked good. Nutrition, check. Now, what about the second part of the FHAP: exercise?

I stood on the edge of the stand and began to encourage the trees to move. I did my best Richard Simmons. "C'mon, everybody, move those limbs! Let's get it going!" Nothing. They didn't seem to even notice, until a breeze picked up. Suddenly, my trees were waving their arms and bending their stems all over, sometimes in unison and sometimes in crazy random enthusiasm. They were no doubt gaining excellent improved health from circulation, induced transpiration and better resistance to various pathogens like bugs and fungus! I was thrilled and stood waving my arms and shouting, "Go trees go!" It was a blast.

And then the wind stopped.

They stopped moving. No matter what I tried—shouts, emphatic cheering, curses, insults (You look like a bunch of worn out vine maples!) and vigorous modeling of windmills, toe touches, jumping jacks... nuthin. After an hour or so, I gave up and left, sweaty and dejected.

At home, I opened my computer to the search engine "Goobly-gook" on "sedentary exercise." There it was—numerous forms of stationary exercise using stationary poses! Just like trees. Eureka! Maybe I can get these ideas mixed together and try again. It might work.

The FHAP is taking form. I have invented a series of arboreal moves, a cross between yoga and martial arts, involving slow-motion, thoughtful exercise. The FDCNRAD will be initiating this new FHAP program late in 2019—we call it "Tai-Tree."

It's hard being this smart.

KEN BEVIS is the landowner assistance biologist for the Washington Department of Natural Resources. Ken has a BS in forestry and wildlife from Virginia Tech (1979), and an MS in biology from Central Washington University (1994). He has worked for the US Forest Service, the Yakama Indian Nation and the state of Washington. He continues to be fascinated with dead trees and works daily on his singing and quirky sense of humor. He can be reached at 360-489-4802 or Ken.Bevis@dnr.wa.gov.

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