

## **SUMMER 2020**

*In this edition, forest management and fire implications for fish and wildlife.*

### **Wildfire and Fish**

It's not all bad news

### **Sage-grouse Habitat**

Essential information to maintain a healthy sagebrush ecosystem

### **Elk Respond Positively to Forest Restoration Treatments**

Better habitat through active management

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Part 4 of 4: Policies and financial incentives

### **Log Market Report**

Current prices and trends

### **Regional News**

Klamath, Lake, and Baker Counties, and NE Oregon

# **Life on the Dry Side**

*Serving land managers and owners east of the Cascades*



**Oregon State  
University**

# Life on the Dry Side

OSU FORESTRY & NATURAL RESOURCES NEWSLETTER

*Serving land managers and owners east of the Cascades*

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**Oregon State University  
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*Our Oregon State University Forestry and Natural Resources agents serve all counties in Oregon. Find your local office and agent at: [www.extension.oregonstate.edu/find-us](http://www.extension.oregonstate.edu/find-us)*

# Log Market Report

Data courtesy John Lindberg (Oregon Log Market Report), supplemented by John Punches

COVID-19 precautions, coupled with stagnant economies, led many Eastern Oregon mills to slow their production rates (and even to some mill curtailments). Log prices suffered accordingly, resulting in some of the lowest prices we've seen in recent history. Ponderosa pine prices were hit particularly hard at many mills. Economies and working conditions are opening back up in some areas, providing a glimmer of hope that our log prices will rebound, but outbreaks of the disease (both regionally and nationally) warn us that the slowdowns may be persistent.

So what do you do if you have timber to harvest? If you have larger timber and can afford to delay harvesting, it may make sense to wait until markets recover. Contact your local log buyers to discuss specifics for your timber values and take into account the availability of logging

contractors now and in the future. If you have small-diameter trees to harvest for fuels reduction or forest health, forge ahead if possible. These actions promote the long-term productivity of your forests. Pulp prices are low, so check with your local Oregon Department of Forestry office to determine if you might qualify for financial assistance for fuels reduction and/or forest health improvement treatments. Keep those treatments in progress, as it can be challenging to catch up if you get behind in your schedule.

Despite the low prices I remain convinced that the best course of action for non-industrial forestland owners is to manage in ways that promote forest health and wildfire resilience rather than seeking maximum logging revenue. This is your best bet for protecting your forest over the long term.

LOG MARKET REPORT \$/1,000 board feet (or ton)							June 15, 2020			
<b>Umatilla/Pendleton/Boardman</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6-11"	12-18"	19"+						
350						300	275	275	34-38	
<b>La Grande/Elgin</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6"+								
350-380		270				280-320	280	280		
<b>Pilot Rock</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	12"+								
		385								
<b>Burns/John Day</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6-7"	8-11"	12-17"	18"+					
7"+ 350		120	200	280	315	7"+ 230			23-24	
<b>Redmond/Bend/Gilchrist – Shut down for undetermined period of time</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6-13"	13-15"	16"+						
-	-	-	-	-		-	-	-	-	
<b>Lakeview/Klamath Falls</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6-11"	12-16"	17-23"	24"+					
		250-265	280	330	330	8"+ 265	8"+ 280			
<b>Lewiston ID</b>										
Douglas-fir/Larch	Ponderosa Pine					Grand/White Fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs (ton)	
	CR	6-7"	8-14"	15-20"	21"+					
410		100	100	100	100	400	390	390		

# Wildfire and Fish

It's not all bad news

*By Bessie Joyce, Watershed Educator and Guillermo Giannico, Extension Fisheries Specialist, OSU Department of Fisheries and Wildlife*

Images of wildfire and cold-water fish coexisting, even thriving in the same landscape, do not come naturally to many of us. True, high-intensity megafires, seen more and more often in our changing climate, can be devastating to stream habitat, especially in the short-term, but the patchwork of relatively less intense fires that historically occurred on a more regular basis in the Pacific Northwest is, in fact, beneficial to our native salmon. Salmonids have adapted to disturbance on the landscape over thousands of years and the habitat

changes caused by wildfire provide essential benefits to stream ecosystems. Wildfire disturbance, for example, opens the forest canopy spurring regeneration and successional growth of vegetation communities. Wildfires can lead to the input of habitat-forming materials via landslides. The historic disturbance regime of fire in PNW forests provides pulses of biological and physical inputs to streams and, given periods of recovery between events, can serve to 'reset' or refresh stream ecology and enhance the physical habitat complexity and food sources for fish.

Many PNW wildlife species have evolved with and therefore are dependent upon landscapes that are occasionally burned or disturbed -i.e., many woodpeckers, blue birds, bear, aspen, lodge pole pine (serotinous cones), and morel mushrooms- to name a few. Salmonids and many other wildlife species gravitate toward more complex habitats shaped by natural disturbance. Fire suppression over the past 100+ years has changed forest and stream conditions from what they were historically.

The forest landscape prior to European settlement was much patchier than what we see today – it was more of a patchwork of recently-burned and older burned areas with snags, interspersed with meadows and early to late succession forests. The more diverse landscape was reflected in streams having more diverse and complex habitats, which native fish and wildlife prefer.

We recently had the opportunity to meet with Research



*Fire burned in this stand during the B&B Complex fire in 2003 near Canyon Creek in the central Oregon Cascade Range, killing about half of the overstory trees, but also allowing a high level of tree survival and rapid recovery of vegetation, seen in this image from 2007. This is typical of many Pacific Northwest forest fires. Photo © Garrett Meigs, OSU*

Fish Biologist, Dr. Rebecca Flitcroft, at the Forestry Sciences Laboratory of the US Forest Service on the OSU campus. Flitcroft and colleagues published a paper in 2015 describing their research findings in a study of wildfire effects on habitat quality for spring Chinook salmon and bull trout in the Wenatchee River sub-basin in Washington.

Most fire-related changes to stream habitat come as a result of post-burn precipitation and storms. “Landslides provide building blocks of stream habitat,” says Flitcroft, which is often contrary to our conventional approach to sediment and stream health. “Landslides have shaped streams over millennia delivering important pulses of sediment and large wood that native species are adapted to.” Fish species respond differently depending on their preferred habitat and needs at different life stages. Based on the modeling studies Flitcroft and colleagues have completed, Chinook tend to be more resilient to fire disturbance than bull trout. Chinook generally use areas lower in the watershed that are usually more expansive and allow fish to find refuge in unburned areas and access a variety of habitat types. Bull trout, on the other hand, are more vulnerable as they tend to use colder water areas in the upper watershed that don’t allow for as much movement of the bull trout population. The vulnerability of a species reflects the fragmentation of habitats. Loss of habitat connectivity drastically reduces a species resiliency or ability to bounce back after initial disturbance taking advantage of the benefits of such disturbance. How fire affects the different life stages of a species also determines that species’ long-term resilience.

Some generalizations can be made about the long- and short-term effects of fire in a forested watershed. In the short term, fire has more immediate negative consequences, such as silt and fine sediment that can cause egg mortality or suffocation of individuals. The fine sediment delivery, along with nitrate and phosphorous loading to stream, and increased water temperature from loss of shade degrades egg and fry habitat. Temperature fluctuations become more intense, and runoff is increased due to loss of vegetation and reduced infiltration rates causing increased and earlier peak flow events.

Post-fire long-term positive effects include the delivery of coarse sediment and large wood to stream channels creating habitat complexity most beneficial to both juvenile and adult fish. As new patches of algae and plants grow, they become food sources for most of the insects consumed by fish.



*Riparian vegetation can recover quickly after fires, such as here in a small stream found in the Wenatchee River watershed, WA.*



*Trees killed by wildfire that are delivered to streams through debris flows or by simply falling into the river become cornerstones of complex in-stream habitat. Photo © John Marshall*



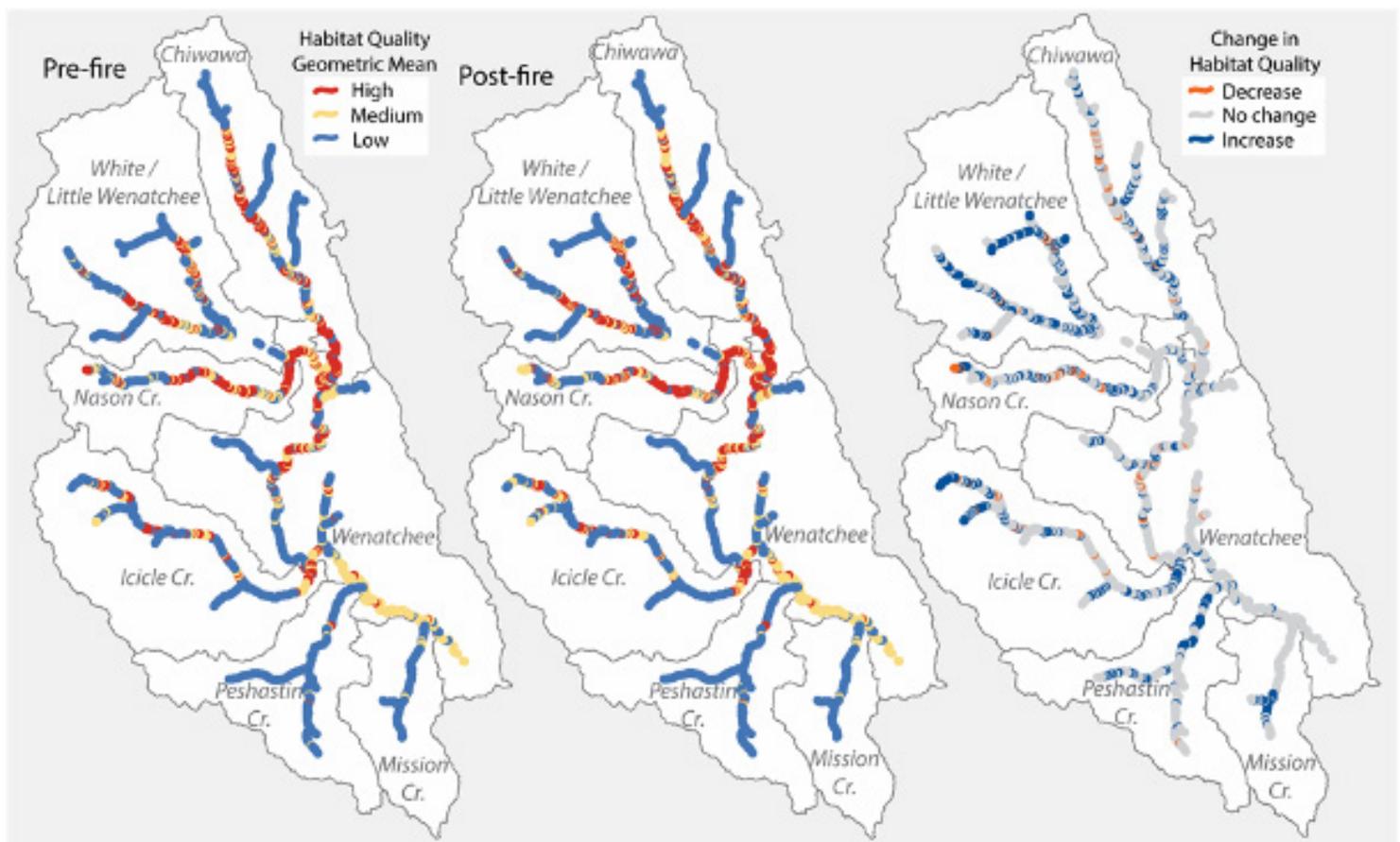
*Spring Chinook Salmon (*Oncorhynchus tshawytscha*) are an anadromous salmon iconic in the Pacific Northwest. Spring Chinook exhibit a “river-type” life history in which juveniles spend up to a year in freshwater before migrating to the ocean to grow to maturity.*

We asked Flitcroft how managers might navigate the seemingly changing approach to sediment delivery into streams, which is generally thought to be detrimental – something to be controlled and stopped. She explained that it is the chronic fine sediment delivery from erosion associated with roads and unvegetated riparian areas that is a problem for fish. In contrast, fires release pulses of sediment across landscape slopes. These pulses of sediment are naturally mixed, containing fine sediments as well as gravel, larger rock and wood that together benefit aquatic ecology. Pacific lamprey, for example, need to nest and forage in fine sediment during their young larval or ammocete stage. “Sediment from fire puts the flesh on the bones of restoration projects,” says Flitcroft. Stream habitat projects place large wood and rock in the channel, but it is nature that we count on to deliver the desired materials to these sites over time for the development of complex habitats.

Flitcroft adds a caution to forest managers, however, that the sudden production of fine sediment associated with fire and near-term post-fire conditions pose a threat to forest road drainage. It is important to take a look at culverts for drainage issues associated with fire, especially where undersized culverts exist. Culverts are easily plugged with debris and sediment holding water behind the culvert that can lead to road failure.

The Flitcroft et al. 2015 study can be found at [https://www.fs.fed.us/pnw/pubs/journals/pnw\\_2015\\_flitcroft001.pdf](https://www.fs.fed.us/pnw/pubs/journals/pnw_2015_flitcroft001.pdf)

This video, produced by the Northwest Fire Science Consortium, is a great educational tool showing the effects of wildfire on fish habitat featuring Rebecca Flitcroft and Gordon Reeves. <https://www.youtube.com/watch?v=omUN7VsKxBo&feature=youtu.be>



Overall habitat quality (geometric mean) modeled for spring Chinook salmon throughout the Wenatchee River watershed under pre- and post-fire conditions. The map on the far right shows how habitat quality will change overall, indicating that much of the area stays the same, while some areas will have increases or decreases in habitat quality. Image © Flitcroft et al. 2016.

# NORTHEAST OREGON NEWS

John Punches, Extension Forester in Union, Umatilla, & Wallowa Counties

## TREE SCHOOL EAST POSTPONED

Tree School East has been postponed until summer of 2021. See the Baker update for details. A statewide version of Tree School is available online (free), with details at <https://knowyourforest.org/>

## CFLRP IN LIMBO

Our region's application to the Collaborative Forest Landscape Restoration Program (CFLRP; described in more detail in the previous edition of Life on the Dry Side) is still under review at the national level. We remain hopeful it will bring additional funding to the Umatilla and Wallowa-Whitman National Forests to carry out much needed fuels reduction, fire break, and restoration projects.

## NOT TO BE DETERRED...

Many of the partners who developed the CFLRP proposal came together this spring to submit a proposal to the Natural Resources Conservation Service (NRCS) for region-wide funding (throughout Northeastern Oregon) to offset costs of fuels reduction projects on non-industrial private forestlands. Oregon Department of Forestry (ODF) took the lead on this particular proposal, and will lead on-the-ground implementation if our proposal is successful. We're seeking \$7 million over the next four years to assist primarily with mechanical thinning of small diameter trees. This proposal builds on the many successful smaller projects that have been implemented over the past several years, but takes the efforts to a grander scale. It's another example of the strong partnerships we have in Northeastern Oregon among ODF, NRCS, the National Forests, Wallowa Resources, American Forest Foundation, Oregon Forestry Resources Institute, OSU Extension Service, and many other entities.



*Many forests in Northeastern Oregon are too dense and have abundant ladder fuels.*



*Alpine forest in the upper reaches of Lostine Canyon*

## EXTENSION IN THIS COVID WORLD

OSU's Extension Offices remain closed to the public as a COVID-19 precaution, and we're not yet able to offer in-person educational programs. While counties in Northeastern Oregon are being allowed to open up in progressive stages, OSU (as a statewide agency) remains under tighter restrictions. As Jake noted in the Baker Update, he and I are working on a series of Eastern-Oregon-focused webinar classes to fill the gap. Watch for details in your email and mail – and feel free to call or email me if you have individual questions about forest health or management issues.

# Sage-grouse Habitat

Essential information to maintain a healthy sagebrush ecosystem

*By Jonathan Dinkins, Dustin Johnson, Vanessa Schroeder and Fara Brummer*

In western North America, the distribution and abundance of greater sage-grouse (*Centrocercus urophasianus*; hereafter “sage-grouse”) have dramatically declined over the last century (Nielson et al. 2015). Sage-grouse are a sagebrush-obligate bird that require expansive and contiguous sagebrush (*Artemisia* spp.) to survive and reproduce. Their habitat within the sagebrush ecosystem is dominated by sagebrush, mostly devoid of trees and other tall structures, and includes healthy herbaceous understory consisting of grasses and forbs (i.e., wildflowers). In recent years, range-wide population numbers have approached the lowest on record. This includes Oregon, where counts of male birds in 2019 on breeding grounds were the lowest during the 1980–2019 analysis period (Foster 2019). The lowest range-wide population estimates were in 1996, which prompted a multitude of conservation measures and petitions to the U.S. Fish and Wildlife Service (USFWS) to list sage-grouse under the Endangered Species Act (ESA). In fact, sage-grouse were listed as “warranted but precluded” under ESA from 2010–2015. However, in late-2015, USFWS determined that voluntary conservation actions under multiple state and federal plans and partnerships with private landowners were sufficient to help the bird; thus, sage-grouse did not require listing under ESA.

Many factors have contributed to sage-grouse declines and range contraction, including habitat loss, fragmentation, and predation. Specifically, conifer encroachment; increasing wildfire size, intensity, and frequency; invasive annual grasses; and human development in sagebrush ecosystems have been

identified as primary threats to sage-grouse habitat and populations (USFWS 2015). For example, increasing wildfire since the mid-1980’s has been associated with declines in male sage-grouse on breeding grounds in the Great Basin (Coates et al. 2015), and nest success and adult hen survival was lower in burned areas in southeast Oregon (Foster et al. 2019). Avoidance of forested habitat, including pinyon–juniper, by sage-grouse has been well documented. Forested areas also have the potential to pose a greater risk of predation to sage-grouse (Severson et al. 2017). Similar results have been found in Oregon in on-going research by Andrew Olsen and Christian Hagen.

While unprecedented conservation actions have so far prevented the need to list the sage-grouse under the ESA, wildlife that rely on the sagebrush ecosystem continue to decline. This has kept the spotlight centered on declining bird numbers and the landscape scale threats the sagebrush ecosystem faces. Mounting concern for the plight of the sage-grouse and its habitat in Oregon resulted in the creation of Oregon State University’s (OSU) Sagebrush Habitat Team in late-2016. The team was supported by key stakeholder groups and legislative funding, in order to fill research and extension needs associated with threats to sage-grouse. However, regional and national focus has started to shift toward conservation of the sagebrush ecosystem holistically. The team also quickly recognized that the large-scale habitat threats facing not only the sage-grouse, but the entire sagebrush ecosystem, warranted research and extension to include broader issues negatively influencing

the sagebrush ecosystem and sagebrush-obligate wildlife more generally.

OSU's Sagebrush Habitat Team is comprised of researchers and Extension faculty whose mission is to advance research and outreach programs that promote healthy sagebrush ecosystems that are more resistant and resilient to landscape scale threats, such as invasive weeds, encroaching pinyon-juniper, and changing wildfire patterns. This mission also includes assessing potential impacts from human development to inform management and conservation. Success of this mission will lead to an ecosystem that can support multiple land uses, rural communities, and wildlife populations. This team is also intent on addressing priorities set forth by their stakeholder advisory committee and state, federal, private, and non-profit partners. Thus, the OSU Sagebrush Habitat Team has initiated work to fill knowledge gaps related to these issues and works to address three major objectives: 1) Sagebrush Ecosystem Management, 2) Sagebrush Wildlife Conservation and Management, and 3) providing Extension Trainings and Outreach in Oregon and regionally.

To address the complex and persistent nature of landscape scale threats facing sagebrush ecosystems and wildlife, OSU's Sagebrush Habitat Team research and outreach programs aim to provide cohesive direction, longevity, and applicable information for land managers. The team is currently working on over a dozen projects to meet these objectives with focus on the following topics:

### Sagebrush Ecosystem Management

- Effects of grazing seasons of use of cattle on the sagebrush ecosystem
- Effects of horse grazing on sage-grouse habitat
- Utility of targeted grazing as a control measure for ventenata expansion
- Effects of cheatgrass invasion on sage-grouse food resources (insects and forbs)
- Assessing expansion of ventenata into mesic areas (summer habitat for sage-grouse)

### Sagebrush Wildlife Conservation and Management

- Effects of grazing seasons of use on sagebrush-obligate songbirds
- Effects of juniper removal in aspen and riparian on multiple wildlife species
- Effect of wildfire and invasive annual grasses on sage-grouse

- Efficacy of raven management for the benefit of sage-grouse
- Negative and positive effects of predators and cattle interactions on sage-grouse
- Effectiveness of conservation policy reducing predation risk of sage-grouse
- Assessment of sage-grouse populations relative to habitat quality (anthropogenic, fire, habitat, hunting, ravens, and weather)

### Extension Trainings and Outreach

- Development of wildfire management tools and guides that help identify areas to target fire risk reduction
- Development and testing of methods for restoring sagebrush habitats invaded by weedy annual grasses that are on the brink of degradation.

For more details about the Sage Habitat Team's current research and extension projects, please visit <https://blogs.oregonstate.edu/sagehabitatteam>. Or keep up to date on our work by following us on: Facebook <https://www.facebook.com/OSUSageHabitatTeam>, Twitter <https://twitter.com/SageHabitatTeam>, or Instagram <https://www.instagram.com/sagehabitatteam>



*Grazing is a common practice in sagebrush regions.*

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United States Fish and Wildlife Service (USFWS). 2015. Endangered and threatened wildlife and plants; 12-month finding on a petition to list greater sage-grouse (*Centrocercus urophasianus*) as an endangered or threatened species; Proposed Rule. *Federal Register* 80:59858–59942.

# Elk Respond Positively to Forest Thinning and Prescribed Burning

Better habitat through active management

By Michael Wisdom and Mary Rowland, Research Wildlife Biologists, U.S. Forest Service, Pacific Northwest Research Station, La Grande, OR

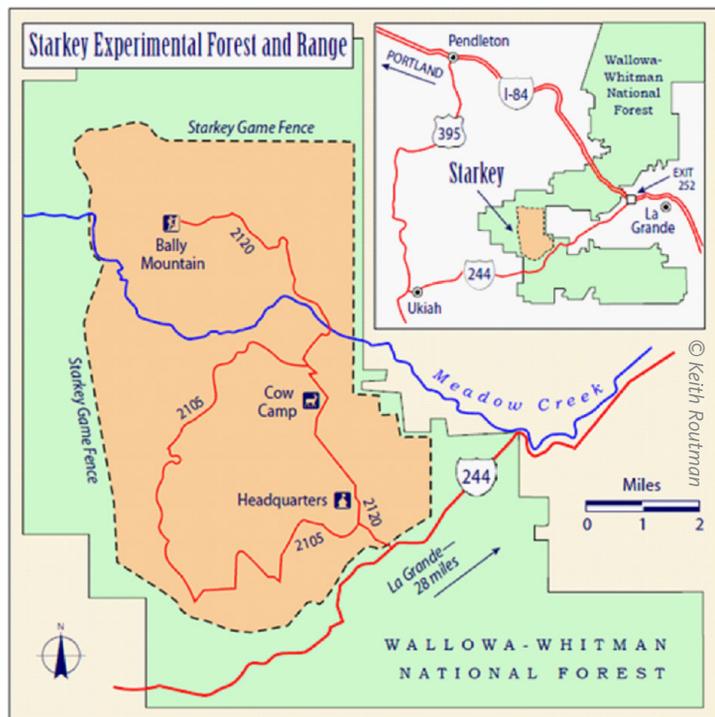
Of all the forest management activities occurring in the Blue Mountains, thinning and prescribed burning are two of the most common. Along with these activities come many questions for public and private land managers about how best to use them to meet multiple use objectives for timber production, fuels reduction, wildfire mitigation, resilience to drought and forest disease, and sustaining wildlife. Effects of thinning and prescribed burning on habitat for many species of wildlife often are

perceived as negative, but species like elk that depend on lush understories of grasses, forbs, and shrubs can benefit substantially from these treatments.

Understory thinning and prescribed burning open the forest canopy, allowing increased light penetration to the forest floor that promotes establishment and growth of understory forage and a flush of soil nutrients from ash – all a boon to elk as well as other wildlife. Soil disturbance further enhances seedbeds for rapid establishment of pioneering grasses, forbs, and shrubs, and can reinvigorate the growth of established plants. The realized benefits of these treatments for elk habitat and their use of the treated areas, however, depend on important details like the frequency, extent, and intensity of these treatments on a given land ownership or mix of ownerships, and what seasons elk occupy a given area.

Long-term research conducted at the U.S. Forest Service Starkey Experimental Forest and Range (Starkey), 25 miles southwest of La Grande, has helped shed light on these important details. Additional research about elk conducted in other areas of the Blue Mountains, such as Mount Emily, Sled Springs, and Antelope Ridge, has provided further insights about elk nutrition and use associated with different levels of forest canopy cover and how forest practices can benefit this iconic species.

At Starkey, research on elk responses to thinning and burning was conducted over a 22-year period, including 6 years before and 15 years after treatments. Over



1,600 acres of mixed conifer stands, ranging in size from 5 to 529 acres, were treated in 2001-2003 to reduce extremely high fuel loads resulting from extensive tree mortality caused by spruce budworm. Large areas of primarily Douglas-fir or grand fir were thinned using mastication or mechanical thinning between May and October, followed by prescribed burning in September or October of that year or the following year. Key objectives of the treatments were to substantially reduce fuel loads (to about 30-50 tons per hectare) and associated fire risk, enhance future timber production, and evaluate the potential benefits of the treatments for elk nutrition and habitat use.

Effects of these treatments and those of paired “control” (untreated) sites on elk nutrition were evaluated with field sampling to estimate and monitor the abundance and quality of key forage species for elk during spring, summer, and fall. Elk use of treated and control areas was measured with daily locations of elk equipped with telemetry collars, using animal location data collected spring through fall over the 22 years.

Elk responses to the treatments varied depending on the season. During spring and early summer elk strongly preferred the fuels-treated sites, a response to the large increase in abundance of grasses and forbs and their rapid growth early in the growing season – a result of the increased sunlight penetration to the forest floor. Most visits by elk to the treated sites were at night, a time when elk typically forage. As the summer progressed, however, the initially lush growth of herbaceous plants in the fuels-treated sites resulted in their earlier senescence, and elk began selecting adjacent, untreated areas of higher canopy cover. The control sites supported a lower abundance of forage for elk, but grasses and forbs in the understory remained palatable in these sites into late summer, a predictable period of drought in the Blue Mountains. In general, elk preference for fuels-treated sites was for levels of canopy cover less than 30% during spring and early summer. By contrast, elk preferred untreated sites with canopy cover over 30% during late summer and early fall. Research with telemetry data on elk in other areas of the Blue Mountains corroborated elk preference during late summer for forests with somewhat higher canopy cover of 30%-40%, in line with the levels preferred during late summer at Starkey.

Results illustrate the importance of different forest structural conditions that benefit elk nutrition and use



*Starkey **before** treatment shows an overabundance of downed-trees, dense understories and little foraging opportunity for elk.*



*Understory thinning and removal of high fuel loads was accomplished at Starkey using mastication or mechanical thinning and piling, followed by prescribed burning.*



*A combination of mechanical treatments and prescribed burning was used on over 1,600 acres of mixed conifer stands to reduce extremely high fuel loads resulting from western spruce budworm tree mortality. The treatments reduced fire risk, improved forest health, and enhanced nutrition for elk.*

across seasons. Summer nutrition is considered a limiting factor for production of elk calves, a period when females with calves at heel must consume copious amounts of nutritious forage to produce sufficient milk for survival and growth of their calves. At Starkey, elk could choose to forage across the patchwork mosaic of untreated and treated sites that were arranged in close proximity to one another and in relatively even amounts within elk home ranges. This patchwork arrangement of site conditions provided elk with a diversity of foraging choices by season, thus allowing elk to optimize their nutritional intake by seeking out whatever areas provided the most efficient and nutritious foraging opportunities.



Based on the long-term telemetry tracking of elk, the benefits of thinning and prescribed burning lasted 15 years post-treatment, a substantial period and coinciding with the return of these stands to pre-treatment levels of canopy cover. From a silvicultural viewpoint, many of these stands could now benefit from re-entry with understory thinning or burning to reduce additional fuel loading and provide needed space for understory conifers to attain maximum growth and health. Costs for such treatments can be offset when combined with commercial timber harvest.

Research findings from Starkey and elsewhere in the Blue Mountains highlight a few simple design considerations for forest management practices like thinning and prescribed burning to improve elk nutrition and habitat use:

1. Elk respond positively to increased abundance of key forage species of grasses and forbs produced by opening up the forest canopy via fuels reduction projects like understory thinning and prescribed burning. Highest use occurs during spring-early

summer, coinciding with maximum growth and palatability of herbaceous forage.

2. During late summer, elk switch to untreated forest sites associated with higher levels of canopy cover (e.g., approximately 30%-40% overstory canopy cover). Use of these sites coincides with senescence of herbaceous forage in more open areas, while more shaded areas continue to provide green forage.
3. Elk use of the combination of treated and untreated sites across seasons highlights the importance of maintaining a patchwork of both types of sites within the home ranges of elk. This allows lactating female elk, whose nutritional demands are high, to acquire and maintain sufficient energy reserves to produce milk needed for calf survival and growth.
4. Increased elk use of treated sites can be sustained for at least 15 years after treatment, highlighting the long-term benefits to elk.
5. These considerations align well with multiple use objectives to increase timber production, reduce fuel loads and fire risk, and maintain healthy forests resilient to drought and disease infestations.

If managing for elk is a high priority, then other factors should be considered and integrated with design of thinning and burning activities. For example, decades of research on elk in the Blue Mountains and across western North America has shown that elk consistently avoid roads and trails open to public motorized uses. Treating areas on public lands away from open roads will help ensure that elk can take advantage of the improved nutrition in treated sites.

By contrast, elk response to roads on private lands not open to the public typically is not a concern. Elk in this situation often will use newly-established areas of high nutrition near private roads, likely because of their relatively low and more predictable rates of traffic and associated human activities than on public roads.

Other wildlife species can benefit from the increased abundance and structural changes of understory vegetation following thinning or burning. The resulting grasses, forbs, and shrubs are used for nesting, hiding, foraging, and pollination by a variety of vertebrates and invertebrates. With careful planning, thinning and prescribed burning can result in positive outcomes for multiple resources, including elk and other wildlife.

# KLAMATH AND LAKE COUNTIES NEWS

*Kendal Martel, Fire Extension Agent in Lake and Klamath Counties*

*Kasey Johnson, Forest Extension Agent in Lake and Klamath Counties*

Kendal has continued to work on the development of Fire FAQ materials for landowners focusing on pile burning and prescribed fire liability. Lake County also received a grant from the Oregon DEQ to develop a Smoke Management Community Response Plan for community mitigation of prescribed fire and wildfire smoke events.

Kasey has continued to work and support the efforts going on through the Klamath-Lake Forest Health Partnership, and has also been assisting landowners with questions or concerns they may have with their trees and forested ownerships.

In Klamath County, the Chiloquin Community Forest and Fire Project (CCFFP) held a workshop in Chiloquin to assist landowners with sign-ups related to the multiple grants going on within the project area, and had a great turn-out to this event. Although the sign-up periods have wrapped up for this year, this project will offer another opportunity next spring for additional sign-ups if any landowners may have missed the opportunity this spring. Also within Klamath County, the Gerber Landscape project is continuing on with private lands treatments; so far this year an additional 1,500 acres of juniper have been thinned within the landscape.

In Lake County, partners are still moving forward with the landscape efforts going on. So far this year around 700 acres have been thinned, with an outlook to get an additional 500-700 acres treated throughout the remainder of the year. Along with assisting in these efforts, Kasey has also met with private landowners to answer and assist with their forest questions and concerns.

An important piece of information to note is that Fire Season within Klamath and Lake Counties started June 1st. Regulations in regard to fire season are now in effect and impact actions on private ownerships. To get more information on the rules and regulations related to fire season and private ownerships contact the Oregon Department of Forestry:

**Klamath Falls:** 541-883-5681

**Lakeview:** 541-947-3311

*For more information on the process the Klamath-Lake Forest Partnership (KLFHP) has used to plan and implement cross-boundary restoration projects, download the free e-book, [Planning and Implementing Cross-boundary, Landscape-scale Restoration and Wildfire Risk Reduction Projects](https://catalog.extension.oregonstate.edu/pnw707).*

*<https://catalog.extension.oregonstate.edu/pnw707>*



*Klamath County: Gerber Landscape juniper removal on private land.*



*Klamath County: Good winter operating conditions allowed private land treatments for juniper reduction to continue in the Gerber Landscape.*

# Biomass Supply

Policies and financial incentives

PART 4 OF 4

*Adapted for this newsletter by Nicole Strong, from an original article by Vernita Ediger, Central Oregon Intergovernmental Council and the Central Oregon Forest Stewardship Foundation*

## ABOUT THE BIOMASS SUMMIT

On October 19, 2018, the Ochoco Forest Restoration Collaborative (OFRC) hosted a Biomass Summit in Prineville, OR. Gathering together 16 speakers from all over the western states, the Summit featured four panels with different focus areas: Success Stories and Lessons Learned, Supply and Scale, Emerging Technologies, and Policy and Financial Incentives. This series of blog posts offers a synopsis of the rich content generated from each panel. You can find more information about each of the panels at <http://ochocoforest.org/biomass-summit/>.



## PANEL SUMMARY

Steve Forrester from the City of Prineville started the panel off with an overview of Prineville's growth and energy needs. Prineville is situated in a place and time that offers an opportunity to make biomass utilization a feasible enterprise. In light of the recent growth of data centers, power consumption has grown from 10 megawatts to 100 megawatts. At this rate of growth, Prineville stands to surpass the current load capacities of current suppliers. This creates an opportunity and incentive for Prineville to begin to create its own power. Prineville has a proven track record with innovative problem-solving, including the recent development of a waste water treatment wetlands, the Crooked River Wetlands Complex. Biomass utilization could be a next step for this kind of innovative work. Steve Forrester, our

first presenter on this panel, was optimistic in his resolve that power generation could be a feasible endeavor for Prineville's current and future power needs, creating jobs and restoration our rangelands and forests.

Marcus Kauffman is a statewide biomass resources specialist for the Oregon Department of Forestry. He acknowledged that enthusiasm about biomass has ebbed and flowed over the last several decades. This latest shift however, involved the need for low-carbon and renewable sources of energy, for which biomass certainly qualifies.

Kauffman also highlighted two global markets with potential to influence biomass markets here in Oregon:

- **Exporting Pellets to European countries.** There are currently 32 export wood pellets in the Southeastern United States, with a 9.4-million-ton capacity. There could be an opportunity for the Pacific Northwest to enter this market.
- **Asian Carbon Policy.** Japan and South Korea both require renewable energy that surpass their production ability, which requires them to import renewable energy products. Canada is currently the largest supplier of pellets for Japan, and Vietnam is the largest supplier to South Korea, but there could be an opportunity for the United States to enter this market.

Oregon is currently engaged in a carbon cap and invest conversation, which includes biomass. Marcus stated that at this point in the conversation it is too soon to see how forests will be treated, but there is an opportunity for stakeholders to get engaged in the process if they want to see biomass utilization included in any policies that

are developed. Several resources for those interested in further pursuing biomass initiatives include:

- USFS national Bio-Energy Technical Team: <https://www.fs.fed.us/science-technology/energy-forest-products/wood-innovation>
- Oregon Statewide Wood Energy Team: <https://www.oregon.gov/ODF/Board/Pages/SWET.aspx>
- USFS Wood Innovations Fund: <https://www.fs.fed.us/science-technology/energy-forest-products/wood-innovations-grants>

Energy Trust of Oregon is an independent nonprofit organization dedicated to helping Oregon's 1.6 million residential, business and nonprofit utility ratepayers use less energy, save on energy costs and move to renewable resources.

Dave Moldal from Energy Trust of Oregon helped us better understand how current efforts by the Energy Trust could dovetail with local interests to utilize biomass materials. Energy Trust provides support for municipal project development assistance including, but not limited to: “grant writing assistance, feasibility studies, final design, permitting, utility interconnection and construction management”. They may pay up to 50% of the cost to conduct these activities, up to \$200,000. The best fit with forest restoration work would be “biopower”: anaerobic digestion of wood waste to create steam and electricity. Moldal shared with us that utilizing technology that can create both heat and power are most viable given fluctuating markets.

David Smith, Oregon State University Professor Emeritus, has been working in the forest products industry for 45 years. Over the course of this time he has seen interest in biomass come and go. There have been some small successes, and many failures (or learning opportunities as some of us like to call them!).

So what does Dr. Smith think we need for a successful biomass business?

- Adequate wood supply. Somewhere around 2000 truckloads a year, every year.
- Manufacturing Facility and High-Quality Products. An investment (\$10 million) in a mill that can make a high-quality product, made to meet the specifications and expectations of markets made up of professional customers who will keep paying at least \$5 million dollars for those products annually. This mill would

employ at least 12 skilled full-time employees.

- Business Climate. Sensible regulation and trust between the public and private entities involved. Assured log supply.
- A Project Champion and a Well-Articulated Business Plan. The enterprise must be led by a team that is committed to success and knows what they're doing. Forest treatments that generate biomass are often seasonal. They need to understand their products and the dynamics of the markets. If you're going to attract investors, or get corporate support, all of these questions and more must be addressed in a solid business plan.

Dr Smith recommended two resources for anyone interested in planning a potential project:

- Biomass Enterprise Economic Model. Tool for estimating CapEx and OpEx for various biomass plant sizes and configurations <http://owic.oregonstate.edu/biomass-enterprise-economic-model>
- CBH- 4, Community Biomass Handbook, Vol.4. Enterprise Development for Integrated Wood Manufacturing, Eini Lowell, PNW Research Station , 2017 <https://www.fs.usda.gov/treearch/pubs/53956>



## KEY TAKEAWAYS

- Given current industrial growth and population increases in Prineville, biomass could provide important supplemental power and heat in the near future.
- Quantifying current annual supply of woody biomass can incentivize investors in the needed facilities and work force.
- There are also potential growing international markets that can be considered in a business plan.

## LOOKING FOR MORE INFO ON BIOMASS IN CENTRAL OREGON?

Visit <http://ochocoforest.org/biomass-summit> for additional articles from the OFRC Biomass Summit.



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## BAKER COUNTY NEWS

*Jacob Putney, Extension Forester in Baker County*

### TREE SCHOOL EAST POSTPONED

You might have seen the announcement in the Winter Edition of Life on the Dry Side, or received a Save the Date in the mail, about the one day mini-college - Tree School East - originally scheduled for June 12th at Baker High School in Baker City. Unfortunately, with the outbreak of COVID-19, we needed to postpone. After much discussion with my colleague and co-host, John Panches, we have decided the safest course of action will be to continue postponing Tree School East until summer of 2021. However, that will not stop us from providing educational programs! We are currently developing a webinar series specific to forestry and natural resources on the dry-side that will include many of the classes that would have been held at the Tree School event.

After the cancellation of Tree School Clackamas, the largest of the regional Tree Schools, the OSU Forestry and Natural Resources Extension Program and the Partnership for Forestry Education came together to develop a webinar series called Tree School Online. The east side focused webinar series we are developing is intended to compliment Tree School Online, which is currently being held every Tuesday through July 28th, 2020. If you haven't already, be sure to check out and sign up for a free Tree School Online webinar and stay tuned for the east side series.

Tree School Online Class Guide and registration can be found here: <https://knowyourforest.org/TreeSchoolOnline>



### WORKING FROM HOME

With many of the Extension offices still closed, I will continue to work from home until our offices can safely re-open. But that does not mean I am unavailable! Please do not hesitate to contact me by phone or email with any questions, or even just to talk trees. While I may not be able to visit your woodland or help assess a sick tree in-person, I will do my best to provide you with any assistance you may need.