A DISCUSSION OF OREGON TIMBER HARVEST METHODS
DETERMINED BY MANAGEMENT OBJECTIVES, SCIENCE, ECONOMICS, AND FEDERAL AND STATE LAW

Oregon Forest Resources Institute

NOT SO CLEAR-CUT

DOUGLAS MAGUIRE
Giustina Professor of Forest Management, Oregon State University College of Forestry

TIMBER HARVEST

Motivated by multiple objectives

From Day One when I started studying forestry, it was pounded into my head that a forester cannot successfully manage a forest without first understanding the objectives of the landowner.

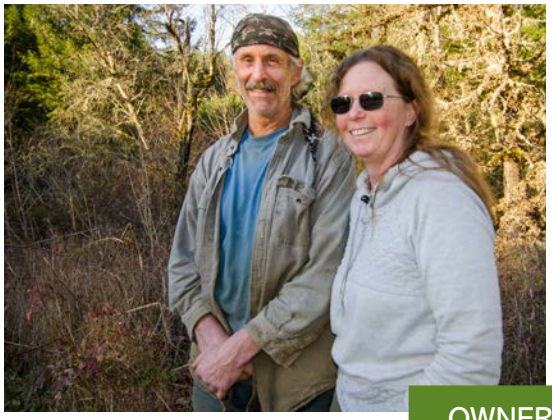
Some forest landowners grow timber to be harvested into wood products. Others focus on wildlife habitat or restoring forest health and fire resiliency. Many try to find a balance between environmental and economic values. It's the job of professional foresters to come up with a forest management plan that meets the landowner's specific goals.

Oregon forest landowners, which include federal, state and local governments, small businesses, large corporations, tribes, families and individuals, run the gamut of forest management objectives. But large or small, no matter the objective, timber harvest often becomes part of the equation.

Some forest landowners choose clearcutting because it's an efficient way to harvest timber, supply mills and create an ideal site for growing the next generation of Douglas-fir trees. Many undertake thinning projects to improve forest health and slow the spread of wildfires. Public forest managers may use methods such as variable-retention harvests that are designed to develop forest conditions that balance protecting wildlife habitat with providing timber revenue and regenerating desired tree species.

The varied motivations behind a timber harvest are one reason there are different methods used throughout the state. Other factors foresters consider when recommending a particular harvest method are the predominant tree species growing in a forest and the climate and historic wildfire patterns of the region where it is located.

Oregon is one of the best places in the world for growing trees, and timber from our forests helps meet society's demand for wood and paper products. Fortunately, when it comes to how we harvest timber, there is a range of options to meet landowner objectives. And timber harvest has come a long way from logging's early days. Timber harvest today is part of a well-thought-out silvicultural system to ensure that the harvested forest is regenerated with a similar healthy forest. Advances in science and technology reduce the impact of harvest on the environment. Tough laws and aggressive monitoring ensure protection of natural resources. The result is sustainably managed forests – for all the benefits we enjoy – for future generations.



OWNER PERSPECTIVES *Left to right*: Scott Gray, director of western resources, Stimson Lumber Co., Forest Grove; Tom Bauman and Lindsay Reaves, Bauman Family Tree Farm, Crow; Bill Aney, eastside restoration coordinator, U.S. Forest Service, Pendleton

FOREST OWNERSHIP

Ownership informs harvest goals

A timber harvest in Oregon can take many different forms depending on who owns the forest.

The state contains more than 30 million acres of forestland, divided between tens of thousands of landowners – each with different priorities when it comes to managing their forestland. It's these varying landowner objectives that set apart small woodland, large private timber landowner and public forest timber harvests. Nearly one-third of the forests in Oregon (mainly federally managed) are designated as reserves and have essentially no timber harvest.

Many of the timber harvests on eastern Oregon federal forests involve thinning out overly dense forests, says Bill Aney, an eastside restoration coordinator with the U.S. Forest Service in Pendleton. The harvests can generate revenue, but the main motivation is reducing the risk of fueling large wildfires that could destroy wildlife habitat and harm watersheds.

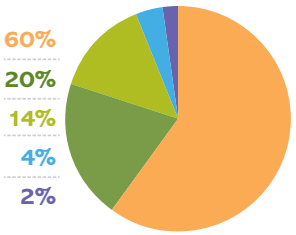
"When we produce timber from the national forests, it's usually to achieve ecological objectives," he says.

As the director of western resources for private timber company Stimson Lumber Co., Scott Gray meets society's demand for wood products. But he also ensures the company's timber harvests don't negatively impact soil productivity and water quality, or the residents of nearby communities.

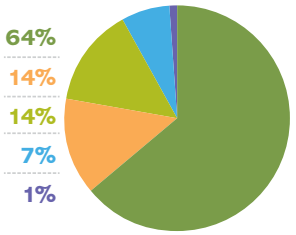
"Our goal is to maximize the production of high-quality timber products," he says. "Though our goals might be different from other owner types, we're certainly just as passionate about the environment."

Tom Bauman and Lindsay Reaves own 672 acres of forestland in the small community of Crow, and harvest timber much less frequently than Stimson Lumber. The Bauman family has owned the land they live on for generations. "It's an honor to care for a resource that's so important to the state," Reaves says.

Forestland acreage by owner



Timber harvest by owner (2014)



FEDERAL GOVERNMENT
LARGE PRIVATE
SMALL PRIVATE
STATE AND OTHER PUBLIC
TRIBAL

WHAT IS A CLEARCUT?

Clearcutting is a timber harvesting practice where most of the trees in a given area are harvested at the same time. Oregon law limits the size of clearcuts and requires landowners to leave trees in certain areas to protect rivers and streams and provide wildlife habitat. The remaining area must be reforested with young tree seedlings within two planting seasons.

CLEARCUTTING

Harvests create openings to grow new forest

When Weyerhaeuser harvest manager Andy Weathers plans a clearcut, there's much to consider.

"The harvest has to make sense," he says. "You don't want to log somewhere that's impossible to log."

> "The goal is to have a harvest that protects site resources such as soil and water."

Weathers oversees timber harvests on 65,000 acres of Weyerhaeuser forestland between Silverton and Detroit Lake. While planning a harvest, he works closely with an engineer to carefully site access roads for log trucks and equipment. He'll consult with a staff wildlife biologist on protecting wildlife and fish habitat. If the terrain is steep, he makes sure he's aware of landslide-prone areas.

"It's a process, and it's a collective effort," he says. "The goal is to have a harvest that protects site resources such as soil and water."

Clearcutting is the most efficient and economical way to harvest timber and supply mills with logs, but there are other advantages, Weathers says. One is that on each plot of forestland major logging activity is typically limited to once every 40 to 50 years.

When logging crews are on the ground, their equipment and techniques are also much less impactful than in the past, Weathers says. Instead of dragging logs across the ground or through streams, now cables carry suspended logs uphill to a road on the ridgeline. Most logging machinery runs not on tires, but on tracks that evenly distribute the weight, reducing soil compaction. Less soil is disturbed, and roads, trucks and other equipment are kept away from streams.

ANDY WEATHERS
Harvest manager,
Weyerhaeuser, Silverton

These precautions are not only better for the environment, they also set up the clearing created by the clearcut as an ideal place to grow the next generation of trees, Weathers says. He finds it particularly rewarding to return to a site where he's helped oversee a harvest and see that the sun-loving Douglas-fir seedlings planted there are flourishing.

"It's a good feeling," he says. "You're seeing that circle of life."

LOW-IMPACT LOGGING

Carrying logs uphill on cables with a skyline logging system is less disruptive to the soil and streams.

WHY CLEARCUT?

- It limits the disturbance and presence of logging machinery on a particular plot of forestland to just a month or two every 40 years or so.
- If planted after a thinning or in shaded areas, Douglas-fir and other tree seedlings will not grow as well.
- Historically, forests of Douglas-fir – the dominant tree species in western Oregon – were established in large openings created by natural disturbances such as wildfires.
- It's an economically efficient way to harvest and then establish the next forest.

THINNING

Improving forest health and fire resiliency

PETE CALIGIURI
Forest ecologist, The Nature Conservancy, Bend

Pete Caligiuri, a Bend-based forest ecologist with The Nature Conservancy, views thinning as an important tool to reduce the risk of large wildfires in central Oregon's federal forests.

"The role of thinning in the restoration process is undeniable," he says, "It's really about the natural steps that created these forests."

The region's dry fire-adapted forests have become unhealthy due to widespread logging of fire-tolerant ponderosa pine and the advent of modern wildfire suppression, Caligiuri explains. Before we started trying to keep fire out of the forests, frequent low-intensity wildfires would have naturally thinned out the smaller trees and underbrush, he says. "So that when they did burn through, these were very benign, but important, fires that kept the forest healthy."

Without regular fires, the forests grew thicker. The unnaturally dense forests that exist today are more susceptible to insect and disease outbreaks and are fueling bigger, more intense wildfires that put nearby communities in danger.

Caligiuri is helping address the issue by getting involved with collaborative forest groups, which include representatives from the conservation community and the timber industry. Through a process of shared learning, group members reach a consensus and provide input to the U.S. Forest Service for thinning, prescribed burning and other efforts aimed to improve the health and fire resiliency of central Oregon federal forests.

"It's really about the natural steps that created these forests."

Restoring more open dry forest conditions makes it harder for wildfires to become the large, uncharacteristically severe fires that are all too common today. Thinning also decreases the competition for soil moisture among the remaining trees, allowing them to grow larger, healthier and more fire-resistant.

"The science supports the combination of thinning and prescribed fire to restore more open and resilient forest conditions, allowing wildfires to play a more natural role in the ecosystem," Caligiuri says.

WHAT ARE FOREST COLLABORATIVE GROUPS?

Forest collaborative groups bring together a diverse group of stakeholders to find a consensus on efforts to restore federal forests in central and eastern Oregon to a heathier, more fire-resilient condition.

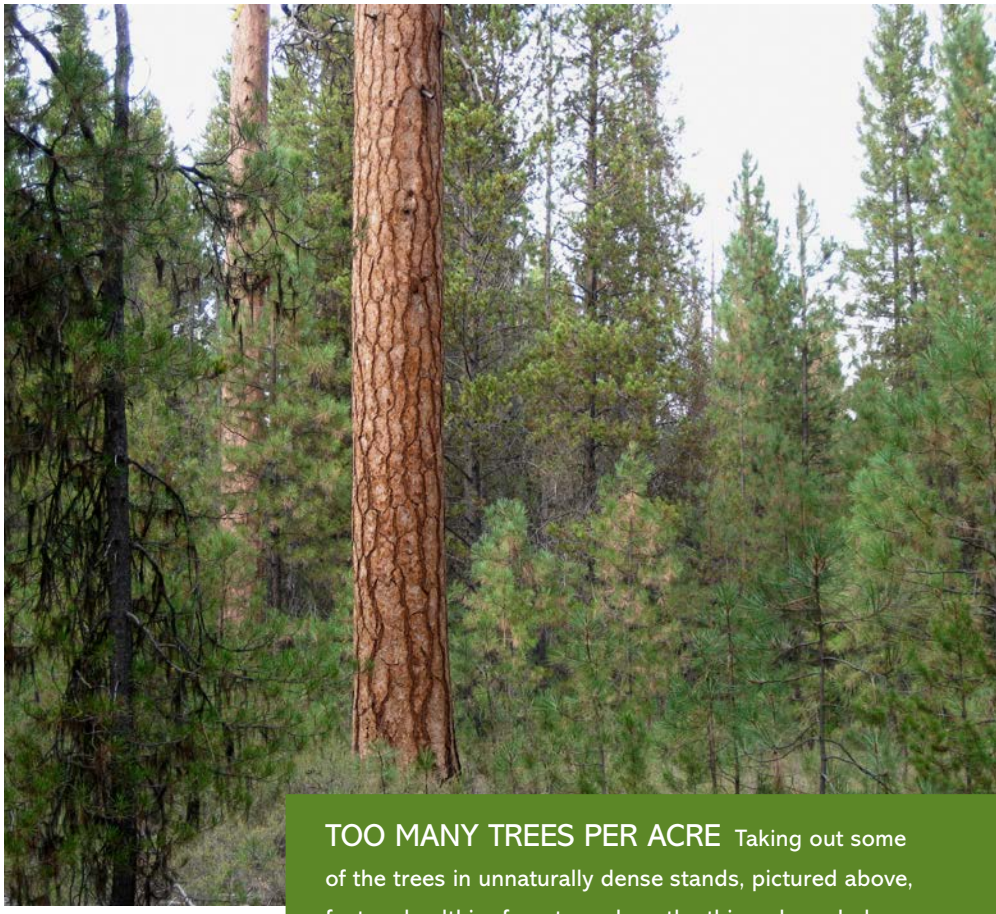
Group members develop "zones of agreement" on ways to restore forest health and fire resiliency to the public forests while also achieving economic and environmental benefits. The goal is to give the Forest Service candid feedback on restoration thinning efforts and avoid gridlock caused by lawsuits to stop timber harvests, says Mark Webb, executive director of Blue Mountains Forest Partners, a collaborative group based in eastern Oregon's Grant County.

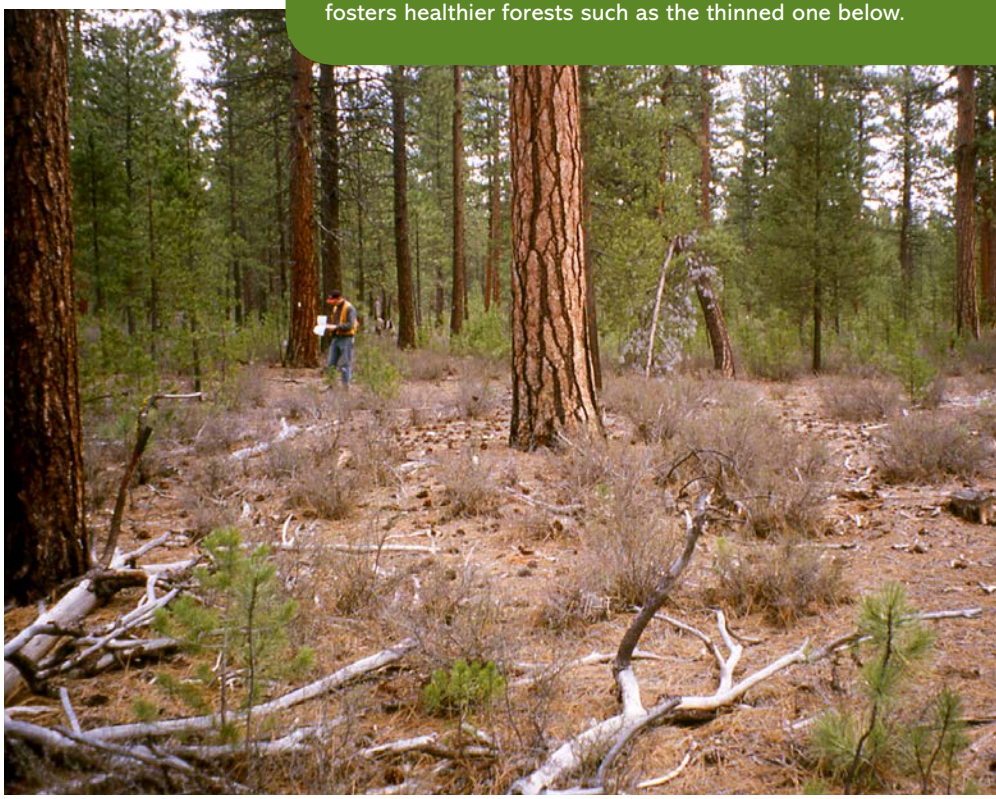
Restoration thinning on federal forests supports jobs with local logging companies and lumber mills as well as improving forest health and fire resiliency, he says. Revenue from harvested timber also helps pay for related efforts such as mowing, wildlife habitat enhancements, stream restoration and prescribed burning.

"A lot of our restoration projects have a significant timber harvest component," Webb says. "Federal forest restoration efforts are underfunded, so we have to take timber off to fund it."

By encouraging local conservation and timber industry interests to compromise on improving federal forest health, collaborative groups help the Forest Service gain social acceptance for restoration thinning, he says.

"What this has done is bring the relevant interest groups together to have a much more robust conversation," Webb says. "It gives our voice a weight it didn't have before, and that's why I'm a keen advocate."





TOO MANY TREES PER ACRE Taking out some of the trees in unnaturally dense stands, pictured above, fosters healthier forests such as the thinned one below.

BALANCING OBJECTIV

Harvests that achieve seemingly disparate goals

As a forester for the Bureau of Land Management (BLM), Abe Wheeler helps design timber harvests with competing goals.

He's tasked with maintaining a sustained yield of timber that generates revenue for the federal government and Oregon counties while also protecting forest habitat in the southwestern part of the state for species such as the threatened northern spotted owl. Wheeler relishes the challenge.

"How do we achieve those objectives?" he says. "That's the rewarding part."

A silvicultural method known as variable-retention harvesting is helping the Roseburg BLM district find a balance between its economic and ecological targets, Wheeler says. It involves carefully planning a series of patch cuts that mimic the clearings created in the aftermath of a wildfire or other natural disturbance. These forest clearings are important habitat for deer, elk, butterflies, songbirds and small mammals that feed on the flowers, shrubs, seeds, nuts and berries that thrive in sunlight.

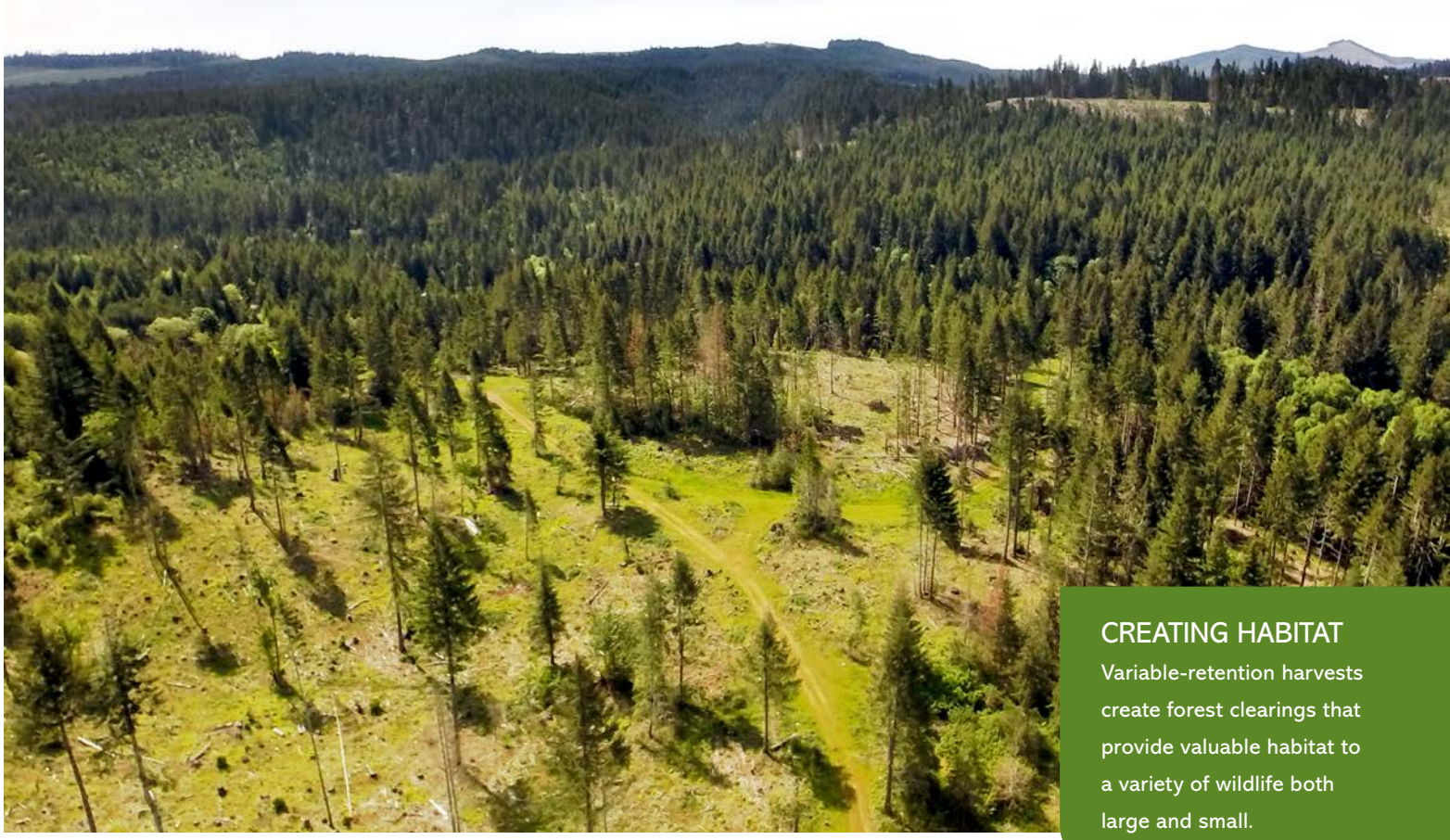
> "By balancing competing objectives, there's a tradeoff."

At the same time, the BLM preserves stands of older trees as habitat for the northern spotted owl and the marbled murrelet, a seabird that flies inland to nest in forests.

ABE WHEELER Oregon & California Timberlands forester, Bureau of Land Management, Roseburg

Before each harvest, a team of foresters, fish and wildlife biologists, and other resource experts inspects the proposed site. They mark areas with streams, sensitive areas and other vital plant or animal habitat as protected from the harvest, Wheeler says. Hardwoods and other tree species that contribute to the overall diversity of the forest are preserved.

"There's a lot of care and thought that goes into what trees stay and what trees go," he says.



CREATING HABITAT
Variable-retention harvests create forest clearings that provide valuable habitat to a variety of wildlife both large and small.

ES ON PUBLIC LAND

Because of the diverse management goals behind a variable-retention harvest, it falls somewhere between thinning and clearcutting, Wheeler says. More trees are harvested than a thinning, but fewer than a commercial clearcut, which would produce the most timber volume.

"By balancing competing objectives, there's a tradeoff," he says.

WHAT IS A VARIABLE-RETENTION HARVEST?

In a variable-retention harvest, timber is logged in patches of varying size, leaving behind certain trees or clusters of trees to protect wildlife habitat or to serve other ecological needs.

It has been hailed as a means to meet demands for wood products from public land while also protecting forest habitat for sensitive wildlife and maintaining a diverse range of tree ages and species. But the harvest method has also been criticized by the forest sector and Oregon counties for not producing enough timber volume, and by conservation groups for not protecting wildlife habitat.

The variable-retention harvest techniques the Roseburg BLM uses are based in part on principles developed by forestry professors Norm Johnson of Oregon State University and Jerry Franklin of the University of Washington. The professors wrote a harvest plan, later piloted by the BLM, aimed at balancing habitat conservation and restoration with timber production.

The plan emphasized the creation of more "structurally complex early-seral habitat" forest clearings where shrubs grow unshaded by trees. The professors noted that this type of habitat, which is favored by butterflies, songbirds and small mammals, is rare in western Oregon. One reason is that fire crews suppress blazes that would naturally create these openings in the forest.

"This is some of the best ground for growing trees anywhere in the world."

WEST-SIDE FORESTS

Harvesting timber in western Oregon

RON ZILLI Assistant district forester, Oregon Department of Forestry, Astoria

WHY IS CLEARCUTTING MORE COMMON IN WESTERN OREGON?

The types of trees that grow best in forests west of the Cascades are a big factor in why clearcutting is a commonly used harvest method in the region.

The forests that surround the Willamette Valley are dominated by Douglas-fir trees, which as seedlings grow best in full sunlight. This gives them a competitive advantage over other tree species after a natural disaster, such as a wildfire or windstorm, exposes the forest floor to more sunlight.

Due to western Oregon's rainier weather, wildfires are less frequent, but tend to be destructive, "stand-replacing" fires. The fires create clearings where Douglas-fir seedlings flourish. Clearcutting mimics this natural process, but without the catastrophic consequences of damage to air and water quality or long-term soil productivity.

Clearcutting is also the most efficient and economical way to harvest high-value Douglas-fir timber that's often used in construction. The fast-growing trees can be profitably harvested every 40 years or so if planted in full sunlight.

Douglas-fir is not shade-tolerant, so seedlings growing under a forest canopy will have greatly reduced growth and may not survive to commercial harvest size. Most private forest landowners cannot risk this uncertainty, and use clearcutting to ensure planted Douglas-fir seedlings will thrive.

The moderate, rainy climate and fertile soil of Oregon's Coast Range fosters lush, rapid-growing forests.

"This is some of the best ground for growing trees anywhere in the world," says Ron Zilli, assistant district forester for the Clatsop State Forest in northwestern Oregon.

The predominantly Douglas-fir forests growing west of the Cascades also produce valuable timber. Harvests on the Clatsop as well as other state forests generate revenue for the state, counties, schools and local taxing districts.

The Oregon Department of Forestry manages state forests for timber revenue and to provide diverse habitats for native wildlife and recreational opportunities for the public, Zilli says. "We make management decisions that contribute to the full range of social, economic and environmental outcomes from forests."

This includes leaving an average of five live trees and two dead trees, or snags, per acre after clearcutting, and lots of down wood that provides habitat for small mammals and amphibians, he says.

Meanwhile, thinning in the Clatsop State Forest has generated timber revenue and left larger trees preferred by the threatened northern spotted owl and marbled murrelet. The reduced competition for sunlight and nutrients among the remaining trees allows them to grow larger in a shorter period of time, Zilli says.

"Overall, there's less trees per acre, but they're all bigger," he says. "This stuff is really good for spotted owls, and we have had spotted owls here."

EAST-SIDE FORESTS

Harvesting timber in central and eastern Oregon

Wildfires once regularly burned through dry-climate forests growing east of the Cascades. The low-intensity fires often killed smaller trees, creating space between ponderosa pines.

Shannon Berg oversees timber harvests aimed at helping recreate that natural process. As a timber sale administrator for the Deschutes National Forest in central Oregon, she works closely with logging companies that the U.S. Forest Service contracts with to thin forestland that's grown too dense.

> "The main objective of this project is to create a healthy stand that is fire-resilient."

"I'm the person on the ground who's out there working with the contractors for them to be successful and for the forest to be successful," she says.

The goal is to bring the forest back to the condition it was in before wildfire suppression allowed it to become overcrowded. Overly dense stands of trees, in combination with species besides ponderosa pine, are fueling larger, more destructive wildfires, Berg says.

"The main objective of this project is to create a healthy stand that is fire-resilient," she says.

Contracting with a logging company to undertake a carefully planned restoration thinning project helps achieve this goal, Berg says.

"Restoration projects are reliant on industry, which creates a symbiotic relationship between the Forest Service and industry," she says. "It's restoring the stands to a more historical density."

SHANNON BERG
Timber sale administrator, Deschutes National Forest, Bend

WHY IS THINNING THE MOST COMMON HARVEST METHOD EAST OF THE CASCADES?

Clearcutting is rare in central and eastern Oregon, except in extreme cases such as a disease outbreak, according to Brian Tandy, a silviculturist with the Deschutes National Forest. The reason thinning is much more common is because of the drier climate east of the Cascade Crest, he explains.

"It's a dry forest ecosystem. The species are completely different and the ecology is completely different," Tandy says. "These are fire-adapted ecosystems. They've evolved with fire as the primary disturbance method."

Historically, low-intensity wildfires burned through Oregon's east-side forests every 10 to 20 years, naturally thinning out brush and small trees. The wildfires also kept out less fire-tolerant tree species such as white fir and grand fir, creating "pine stands maintained by fire," Tandy says. Restoration thinning mimics this natural process by taking out some of the non-pine species and alleviating overcrowding, he says.

Another reason thinning is a more common harvest method in eastern Oregon is because the forests are often dominated by ponderosa pine. Unlike in Douglas-fir forests, ponderosa pine forest canopies are less dense. As a result, more sunlight reaches the forest floor. This fosters the regrowth of ponderosa pine seedlings so there's no need for commercial timber companies to create a clearing by clearcutting in order for the forest to regenerate.

ASHLEY LERTORA
Stewardship forester, Oregon Department of Forestry, Astoria District, Clatsop County

FOREST LAWS

Timber harvests governed by state regulations

For Ashley Lertora, being a state stewardship forester is all about relationships.

It's an important part of her job to ensure that forest landowners, loggers and timber companies are complying with the Oregon Forest Practices Act. The state law outlines a set of rules for private timber harvesting. The rules aim to protect soil productivity, water quality and wildlife habitat, and ensure replanting after harvest.

Lertora is among more than 50 state stewardship foresters who inform landowners about the forest practice rules and can cite and fine those who break the law. Stewardship foresters also inspect logging sites and respond to complaints about potential violations of the forest practices rules.

"Clean water and productive soil … It's important to all Oregonians," she says. "We're the ones who make sure that all happens. We're part educator, part regulator."

WHAT ARE THE KEY RULES GOVERNING PRIVATE TIMBER HARVESTS IN OREGON?

- **Acreage**: Clearcuts cannot exceed 120 acres within a single ownership, including the combined acreage of any clearcuts within 300 feet of each other.
- **Standing trees**: When a harvest is larger than 25 acres, logging crews must leave at least two live trees or two standing dead trees (snags) per acre as wildlife habitat.
- **Down logs**: Crews must also leave at least two large logs per acre on the ground for wildlife.
- **Stream buffers**: Trees and vegetation must be left along streams in which fish live. The buffers shade the stream, keeping the water cool. Trees left in these buffers will also someday fall across or into the stream, which improves fish habitat by providing pools of slow water and hiding places for young fish.
- **Forest roads**: The location, construction, maintenance, use and drainage of forest roads used by logging crews must prevent sediment from getting into streams. State rules encourage roads to be built away from streams and to minimize the number of times a road crosses a stream. When a road does cross a stream, fish must be able to pass through the crossing.
- **Wet-weather hauling**: Log trucks may not use some forest roads during wet weather, to avoid muddying streams. Roads that are used during winter months must be properly maintained.
- **Landslides**: The state can prevent private timber harvest on a steep slope if homes or busy roads lie in the path of a potential landslide that could begin in the harvest area.
- **Planting**: Landowners must replant harvested ground within two years. Within six years of harvest, young trees must be tall enough to out-compete grass and brush and grow into the next forest.

Often her work involves driving a pickup truck across the district she covers in northern Clatsop County for inspections and to meet with loggers or landowners who've filed notice with the state of a planned timber harvest. She's become such a familiar face that she's frequently greeted by name.

"We're part educator, part regulator."

"I can't go to a school concert or the grocery store without seeing someone I know from work," Lertora says.

This ends up being an advantage, because the loggers or landowners know there's someone who will hold them accountable for an issue that violates the forest practices rules, such as letting runoff from a logging road muddy streams, she says. They're also more likely to seek her advice on how to make sure they're following the rules.

"The more work we can do in the front end, the fewer violations we'll see," Lertora says.

REFORESTATION

An important component of the work of stewardship foresters is ensuring that forest landowners comply with the Oregon law requiring trees to be replanted after a timber harvest.

WHAT ARE THE CONSEQUENCES OF BREAKING THE RULES?

Violators of the Oregon Forest Practices Act can face a fine and must repair any damage to forests from not following the rules.

The maximum fine is $5,000 per citation, meaning forest landowners, private timber companies and loggers can be fined more than that if they break multiple rules, says Angie Lane, Oregon Department of Forestry civil penalties administrator.

Although ODF has authority to issue fines, the agency emphasizes building awareness of the state regulations, she says. Stewardship foresters play a large role in helping educate about the rules. Instead of a citation, they may choose to first issue a warning that asks landowners or loggers to correct issues that violate the forest practices rules and repair any damage to natural resources. Those who continue to break the rules or don't take corrective action, despite a warning, are cited and fined.

"Part of our enforcement policy is to educate folks," Lane says. "We're trying to catch folks at the front end so we don't have to hit them on the back end with a citation."

SUSTAINABLE HARVESTS

Oregon businesses practice eco-conscious forestry

Starker Forests, Inc. President Bond Starker's role as the current custodian of the Corvallis-based timber company's forestland often involves thinking about its future.

"We're not seeing it as a one-and-done thing," he says. "We want to make it last as long as we can."

This philosophy has influenced the family-owned company's longstanding commitment to smaller timber harvests spread across the landscape that maintain a range of tree ages and wildlife habitats, says Anna Starker May, Starker's daughter and vice chairwoman of the Starker Forests board.

"I think some of it is trying to get that balance of features that would happen on an unmanaged forest, while managing it and still getting wood fiber off it," she says.

> "Using 100 percent of the tree is not only efficient and increases our productivity, it's better for the environment."

Starker Forests is among other Oregon companies operating on all levels of the wood products supply chain that incorporate sustainable practices into their business ethos.

Many Oregon loggers, who typically contract with various timber companies and forest landowners, share that commitment, says Rex Storm, forest policy manager for the Salem-based trade group Oregon Associated Loggers, Inc. Protecting fish, wildlife, soil and water quality isn't just the right thing to do, it's a matter of staying in business for

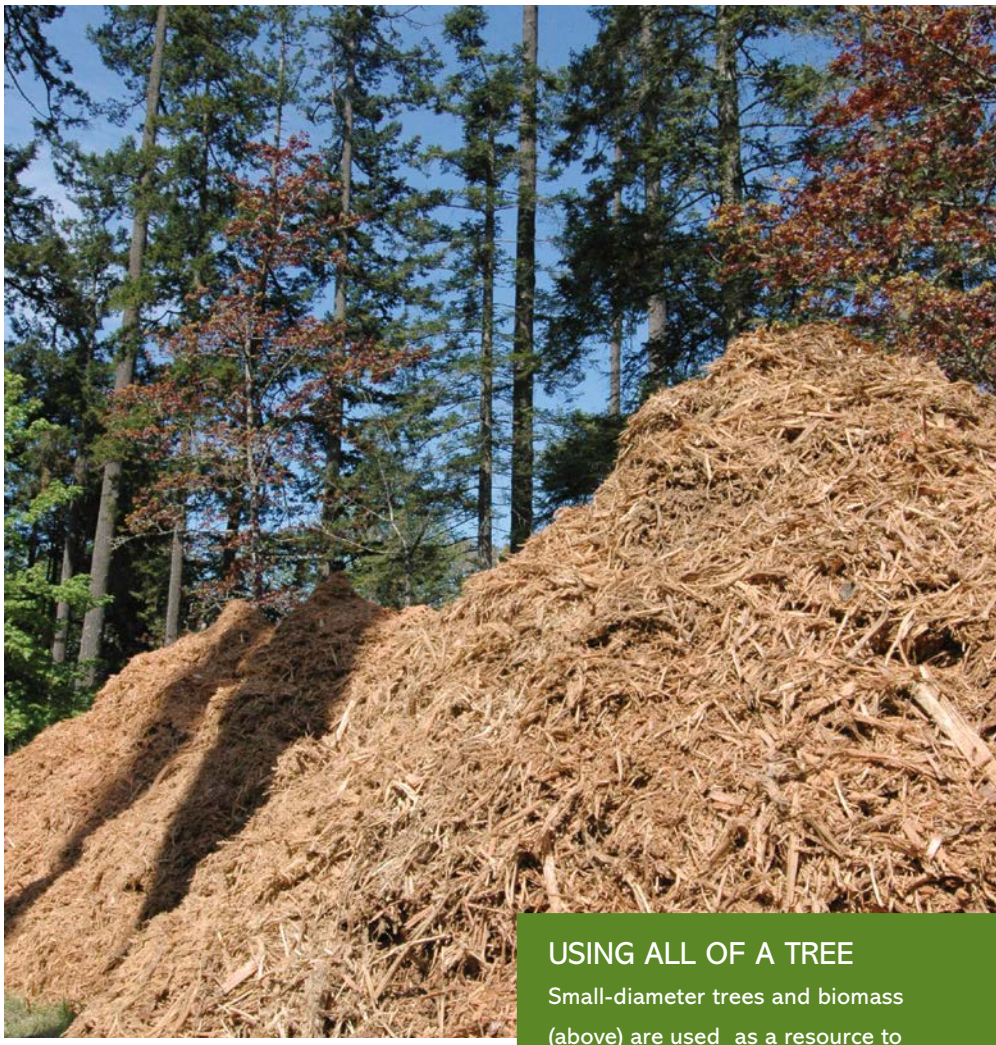
FOCUSED ON SUSTAINABILITY *Left to right*: Bond Starker and Anna Starker May, Starker Forests, Inc., Corvallis; Ted Reiss, timberlands manager, Seneca Jones Timber Co., Eugene; Rex Storm, forest policy manager, Associated Oregon Loggers, Inc., Salem

loggers whose reputation is important to gaining work, he says.

"It's not whether you clearcut or partial-cut, it's about the care you take and the stewardship of the land," he says. Loggers also do continuing education to learn the forest laws and best management practices.

Once a log arrives at the mill, finding uses for every inch of it not only makes good business sense for Eugene-based Seneca Jones Timber Co., it contributes to sustainable forest management, says timberlands manager Ted Reiss. Even the tree tops and chunks of wood cast off during the milling process are used to make paper or generate electricity.

"Using 100 percent of the tree is not only efficient and increases our productivity, it's better for the environment," he says. "Seneca's committed to using all parts of the tree and employing other sustainable forest practices that cause less disturbance to the land, which is better for all forest resources."



USING ALL OF A TREE

Small-diameter trees and biomass (above) are used as a resource to make paper or generate electricity.

Oregon acres certified by the three major forest certification systems*

Certification system	Acres
American Tree Farm System	**805,050**
Forest Stewardship Council	**172,543**
Sustainable Forestry Initiative	**2,939,529**
TOTAL	**3,917,122**

*As of June 2015
Source: Oregon Department of Forestry

FOREST CERTIFICATION

Along with following Oregon's forest practice laws, some forest landowners choose to meet additional standards to gain recognition from independent third-party forest sustainability certification programs.

To get certified, forest landowners agree to regular audits to ensure they are meeting the certification program's environmental protection standards. Wood products from certified timberlands then earn the right to display an "ecolabel" seal of approval. This gives consumers, architects, engineers and builders independent assurance that the wood products came from legally and sustainably managed forests.

The three most widely used certification programs in the United States are the American Tree Farm System (ATFS), the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI).

NEW GROWTH Oregon forest managers plant about 40 million seedlings a year, which equates to about four trees planted for every one harvested.

ACKNOWLEDGMENTS

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ABOUT OFRI

The Oregon Legislature created the Oregon Forest Resources Institute in 1991 to advance public understanding of forests, forest management and forest products and to encourage sound forestry through landowner education. OFRI is governed by a 13-member board of directors and is funded by a portion of the forest products harvest tax.

Oregon Forest Resources Institute

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