Oregon Forest Resources Institute

OREGON FOREST FACTS & FIGURES 2015-16

Attaining balance

Oregon was the first state to enact a comprehensive forest practices law primarily for state and private forests. That was back in 1971, a time when many Americans had growing environmental concerns.

The Oregon Forest Practices Act wasn't intended to be the end-all answer. Instead, it was based on the idea that Oregon, as one of the world's premier tree-growing regions, should seek to balance timber management with the many other benefits the forest provides – from clean water to wildlife habitat to recreational opportunities.

The law has continually evolved since then. As science and experience have taught us more about forest management, the rules adapt. Another Oregon law went into effect about the same time: our land use planning law, which aims to reduce loss of forestland and farmland to sprawling development – evident today in many states, but less so in Oregon.

Then in the 1990s Oregon implemented a plan to encourage voluntary enhancement of forest and farm watersheds – which has successfully improved water resources and fish habitat.

All these things together, we call the Oregon Way. It's the ongoing work of using both regulation and incentives to sustainably balance all the values we derive from our forests – social, economic and environmental.

This 2015-16 edition of Oregon Forest Facts & Figures is full of information we hope will help you better understand Oregon's forests and the Oregon Way.

Sincerely,

Mike Cloughesy

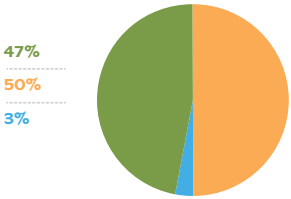
Mike Cloughesy

Director of Forestry
Oregon Forest Resources Institute

Forestland area [1, 2]

Nearly half of Oregon is forestland. About 80 percent of this forestland is classified as "timberland." Timberland is forestland that can productively grow commercial-grade timber. It excludes forestland with low growth and areas where logging is restricted – such as wilderness areas and national parks, referred to as "reserved" areas. [3]

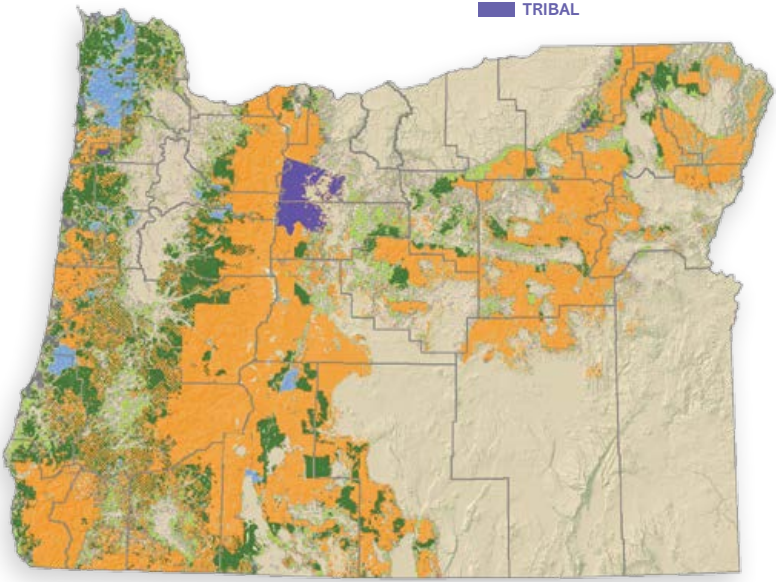
Oregon Total Land Area (acres)



FORESTLAND	29,984,000
NONFOREST LAND (urban, cropland, range, etc.)	31,498,800
WATER AREA	1,807,600

	Forestland acres
US Forest Service total	14,129,700
USFS non-reserved timberland	11,573,100
USFS reserved lands (e.g., wilderness)	2,049,600
USFS other non-timberland forestland (e.g., not productive)	507,100
USFS National Grassland forestland	49,900
National Park Service (reserved)	165,500
Bureau of Land Management	3,620,700
U.S. Fish & Wildlife Service (reserved)	10,200
Other federal (Department of Defense and other)	19,200
Total federal forestland	17,995,300
State forests	860,300
Other state (parks, ODOT, OSU College of Forestry)	159,000
Total state forestland	1,019,300
County and municipal	186,100
Total government forestland	19,200,700
Large private landowners (>/= 5,000 acres)	5,984,100
Small private landowners (<5,000 acres)	4,324,100
Total private forestland	10,308,200
Native American tribal forestland	475,100
TOTAL FORESTLAND, all owners	29,984,000

Forestland ownership [4]



FORESTLAND CONVERSION [5]

When forestland is lost today, it tends to happen because of residential or commercial development. Between 1974 and 2007, about 200,000 acres of private Oregon forestland were converted to other uses, mostly to low-density housing. However, Oregon's loss was less than half the loss seen in Washington state over the same period. That's due largely to a difference in Oregon's land use and forest practices laws, which work in tandem to keep forestland and farmland in forest and farm uses.

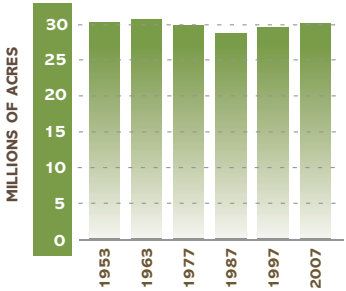
Historic forestland changes [6]

The amount of total forestland in Oregon – public and private – has held mostly steady at about 30 million acres for more than 60 years. In fact, it's estimated to have been about 30 million acres in the 1600s, as well.

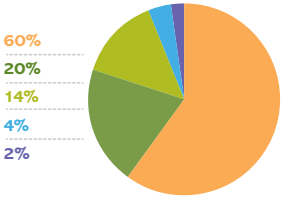
FORESTLAND OWNERSHIP AND TIMBER HARVEST

While the federal government manages most of the forestland in Oregon, only a fraction of Oregon's timber harvest happens on federal land these days, and most of that is from thinning. Nearly 80 percent of the total state harvest comes from private timberlands.

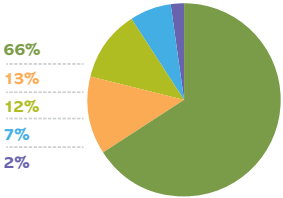
Oregon forestland acreage



FORESTLAND ACREAGE BY OWNER *(1)*



TIMBER HARVEST BY OWNER (2013) *(7)*



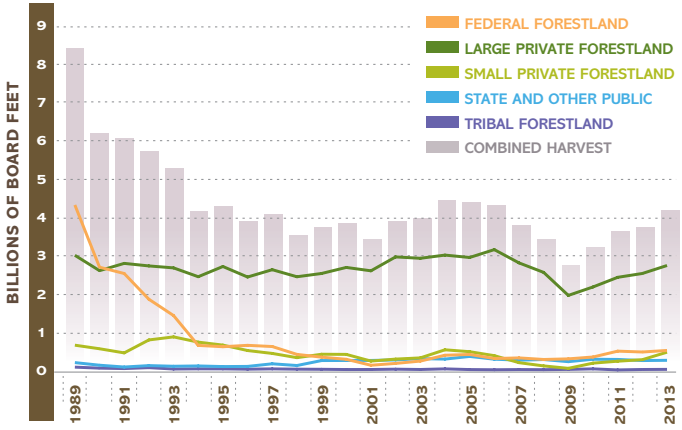
FEDERAL GOVERNMENT
LARGE PRIVATE
SMALL PRIVATE
STATE AND OTHER PUBLIC
TRIBAL

25 years of Oregon timber harvest[7]

From the end of World War II until 1989, timber harvests in Oregon generally ranged from 7 to 9 billion board feet annually. Between 1989 and 1995, timber harvest on federal lands dropped about 90 percent, caused by environmental litigation, listing the northern spotted owl and a number of fish as threatened species, and related changes in federal management emphasis.

Harvests from private lands have remained relatively stable, although the Great Recession (2007-09) and the collapse of the housing market brought a severe contraction in the U.S. demand for lumber. Consequently, Oregon's timber harvest reached a modern-era low in 2009, the smallest harvest since the Great Depression in 1934. By 2013, the harvest had rebounded to 4.2 billion board feet, roughly pre-recession levels.

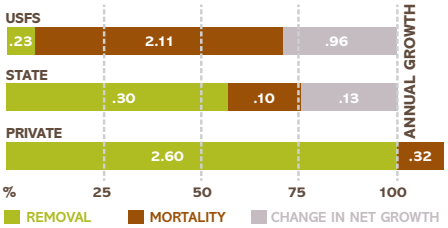
Oregon timber harvest by owner (2013)



Sustainability of Oregon's harvest

On Oregon's private timberland, where most harvest happens in the state, the amount of wood harvested each year is about equal to the annual growth. However, there are year-to-year differences driven by landowner objectives as well as markets. A percentage of timber dies, from fire, insects and disease.

Growth, removals and mortality, 2007-2010
as % of gross annual growth (billion board feet per year) [8]*

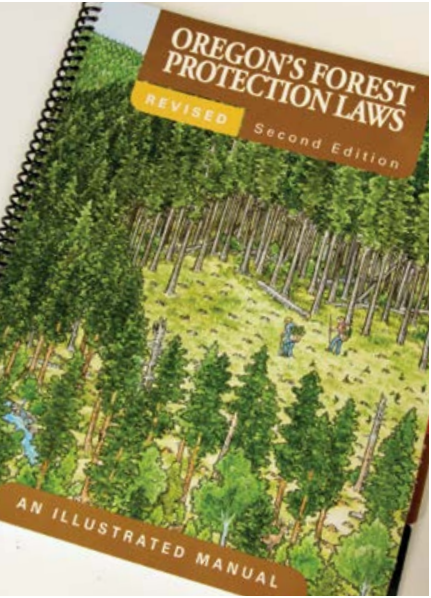


* Federal Inventory and Analysis (FIA) data is based on sampling and therefore only estimates growth, removal and mortality. Oregon Department of Forestry data indicates that timber harvest plus mortality on private land for this period does not exceed growth.

On federal lands, only a small amount of timber is harvested, compared to the large annual growth. The amount of timber that dies – again, typically from fire, insects and disease – amounts to two-thirds of annual growth. The remainder of the growth adds to the volume of standing timber in those forests.

High net growth isn't always beneficial, however. In federal ponderosa pine and mixed conifer forests in eastern and south central Oregon, for instance, high net growth has created unusually dense, stressed forests that are prone to insect infestation, disease and uncharacteristically severe fire.

The Oregon Forest Practices Act[9]



This 185-page manual, published by Oregon Forest Resources Institute, helps landowners and loggers meet the letter and spirit of the state's forest practice rules.

With support from forest sector leaders, the Oregon Legislature passed the Oregon Forest Practices Act in 1971. The act and its accompanying rules apply to all state and private forestlands.

In the four decades since the law was enacted, the rules have been updated dozens of times as science and field experience have improved the professional understanding of forest ecosystems and effective management practices.

The state Board of Forestry is responsible for evaluating, implementing and changing rules as needed. (See page 12.)

In 2013, the Oregon Department of Forestry completed the first phase of a Forest Practices Audit. The audit found 96.5 percent compliance with forest practice rules addressing harvesting and forest roads.

The following pages explain some of the main requirements currently outlined in the law and its rules.

The rules: reforestation

Reforestation rules are intended to make sure new forests are promptly planted and successfully growing after an area is harvested. As a part of reforestation efforts, about 40 million new seedlings - grown from seed in Oregon nurseries such as the one pictured below - are planted each year in Oregon's forests.

IMPORTANT RULES

- **Planting:** Landowners must complete replanting of harvested ground within two years of a harvest that reduces tree density below required numbers.
- **Ensuring success:** Within six years of harvest, the young trees must be "free-to-grow" into a new forest. That means they are vigorous enough to out-compete grass and brush, well-distributed, and are ready to grow successfully into a young forest.
- **Trees per acre:** The rules require that anywhere from 100 to 200 trees per acre survive during reforestation. The number varies depending on the site's climate and soil. Landowners usually plant many more seedlings than the minimum requirement.
- **Selective harvest or thinning:** Different allowances and calculations are used for reforestation if the site is harvested selectively or thinned, or if existing saplings and seedlings are left unharmed after harvest.

The rules: clearcutting

A clearcut is when most of the trees on a site are removed, though regulations require landowners to leave forested buffers and other vegetation to protect rivers, streams and wildlife habitat. Replanting is required and young trees must be established within six years. It is an efficient way to harvest timber and forestland is disturbed for just one brief period during the course of 40 to 70 years.

IMPORTANT RULES

- **Limits:** Individual clearcuts cannot exceed 120 acres within a single ownership, including the combined acreage of any clearcuts within 300 feet of each other. In practice, most clearcuts today are 10 to 50 acres in size.
- **When is a clearcut no longer a clearcut?** Once replanted trees reach 4 feet tall, the young forest is no longer considered a clearcut. Adjacent areas can then be harvested without acreage from the previous clearcut being included in acreage limits of the new clearcut.
- **Landslide risk:** The state can restrict clearcutting on steep slopes if there is risk that a landslide, which can sometimes occur when a site has been disturbed by harvest or other management activity, could be a threat to public safety. There might be a public safety risk, for instance, if homes or a busy highway lie below, in the path of a potential landslide.
- **Wildlife habitat:** If a clearcut is larger than 25 acres, additional rules for wildlife habitat take effect (see page 9).

The rules: wildlife

Forests continually change. Some wildlife species, such as deer and some songbirds, thrive in young, open stands. Others prefer old stands. Yet other species prefer middle-aged stands. Forest landowners can create and enhance wildlife habitat through active management – including timber harvest.

IMPORTANT RULES

When a harvest is larger than 25 acres:

- Foresters and loggers must leave standing live trees or snags, at least two per acre of harvest. These provide important nesting sites and habitat for birds, bats, squirrels and many other animals.
- Foresters and loggers must leave at least two logs per acre on the ground. This so-called "down wood" is important to many amphibians, reptiles, birds, mammals and insects, as well as plants and fungi.

Sensitive sites:

- If sensitive wildlife sites are present in a proposed harvest area, the Oregon Department of Forestry may require the harvest be modified to protect the sites. Sensitive sites include areas actively used by bald eagles, osprey, northern spotted owl and other species identified as sensitive, threatened or endangered. Sensitive sites also include some wetlands or other critical wildlife habitat as identified by the state or federal government.

The rules: fish habitat

A large portion of Oregon's forest practice rules are aimed at protecting water quality and fish habitat. Over the past 40 years there have been many rule changes aimed at improving those protections, as scientific research has revealed new information about what fish need.

IMPORTANT RULES

- **Stream buffers:** Trees and other vegetation must be left along streams in which fish live. Buffers of trees serve several purposes: They shade the stream, helping keep the water cool, which fish prefer; and the trees left alongside the stream will someday fall across or into the stream. Logs and large boulders in streams are a key component of good fish habitat. They provide areas of slow water and hiding places for young fish. Trees also provide litter fall and nutrient input, which are important to the food web.

- **Stream crossings:** Landowners are encouraged to build roads away from streams. But where a new or improved road must cross a stream, it must not block fish from passing. Typically, either a bridge or a properly sized culvert will be installed.

- **Chemicals:** Forest professionals take care to prohibit spraying herbicides near streams, where they might kill vegetation along the banks, get into the water or harm insects or fish. Spraying always must follow stringent state and federal rules concerning careful application.

See more rules about water quality on page 11.

The rules: water quality

Related to the rules protecting fish habitat (see page 10) are various rules that protect the clarity and temperature of water.

IMPORTANT RULES

- **Buffers:** To keep water clear and cool, timber harvest, road building and chemical use are restricted near streams, rivers, lakes and wetlands.
- **Road construction, maintenance and use:** Regulations govern the location, construction, maintenance and use of roads to assure that muddy water is not delivered into forest streams from roads or ditches.
- **Wet-weather hauling:** Heavy log truck use of forest roads during storms or other extremely wet weather is carefully managed – or curtailed – to ensure that the roads do not create muddy water that enters fish streams.

The Oregon Board of Forestry[10]

A seven-member citizen board guides forest policy in Oregon. The Oregon Board of Forestry's mission is to "promote environmentally, economically and socially sustainable management" of Oregon forests. As part of that responsibility, the board adopts the rules that govern how the Oregon Forest Practices Act is implemented. It also appoints the state forester and provides oversight of the Department of Forestry.

Board members are appointed by the governor and confirmed by the state Senate. They are not paid for their service. No more than three of the members may receive any significant portion of their income from the forest products industry.

Board of Forestry meetings are open to the public, and a meeting schedule and agendas are available at **oregon.gov/odf/Pages/board/index.aspx.**

BOARD MEMBERS

Tom Imeson (chair)

Sybil Ackerman-Munson

Cindy Deacon Williams

Nils Christoffersen

Tom Insko

Gary Springer

Michael Rose

Water quality in Oregon's forests

Streams originating on forestlands supply water for Oregonians to drink, use in their homes and businesses, irrigate their fields and run industrial processes. Forest soils provide natural filtration to keep streams clean and water quality high. Some 35 Oregon municipal water systems in Oregon source their drinking water supply from forested watersheds; more than 30 of those watersheds include actively managed lands that employ modern timber-harvest and resource-protection methods.

OREGON WATER QUALITY INDEX [11]

The Oregon Department of Environmental Quality regularly measures water quality in major rivers and streams throughout the state. DEQ developed the Oregon Water Quality Index using eight measures to express water quality as a number between 10 (worst) and 100 (ideal). There are currently 160 monitoring sites in the DEQ network. Among all land uses, the highest water quality generally occurs in forested watersheds, including those that have significant active management.

According to the index, 64 percent of the forestland test sites had a good or excellent water quality rating, compared to 51 percent of all the sites statewide, which include range, agricultural and urban areas.

See more about the index at **www.deq.state.or.us/lab/wqm/wqimain.htm.**

Protecting salmon habitat and watersheds

In response to listings of salmon species under the federal Endangered Species Act, the Oregon Legislature and Gov. John Kitzhaber joined with landowners in 1997 to create the Oregon Plan for Salmon and Watersheds. The Oregon Plan seeks to restore salmon runs, improve water quality and achieve healthy watersheds statewide through the joint efforts of government, landowners and citizen volunteers.

The plan is unique among state protection plans for its emphasis on landowners voluntarily exceeding regulations, and for its engagement of communities to restore their watersheds. Combined efforts have restored more than 6,700 miles of stream banks and opened an additional 4,800 miles of streams to fish through stream-crossing improvements.

Watershed restoration outcomes *(12)*

	1997-2008	2009	2010*	2011*	2012*	2013*
Riparian miles treated	5,240	273	368	311	421	161
Miles of road closures and decommissionings	2,523	58	29	4	11	5
Miles of road improvements	9,008	73	41	33	29	26
Fish passage: number of stream crossings improved	2,636	164	81	91	77	81
Miles made accessible to fish due to stream-crossing improvements	4,026	175	220	208	109	82
Funding for completed and reported restoration (in millions)**	$598	$64	$71	$43	$67	$50

*Data from projects on federal land not included, so totals may underrepresent actual completed work.
** Includes funding for additional restoration activities not included in this table.

The Oregon Plan is one part of a three-pronged effort to protect water and fish habitat, along with forest practice rules (see pages 10 and 11) and land use laws that work to keep forestland from being converted to other uses that are less compatible with quality fish habitat.

For more information on outcomes, go to: **www.oregon.gov/OWEB/Pages/BiennialReport1315/Actions.aspx**

KEY ELEMENTS OF THE OREGON PLAN

- voluntary restoration activities by private landowners (especially forest landowners), supported by local citizens, students, businesses and government
- coordinated tribal, state and federal agency actions
- continued monitoring of watershed health, water quality and salmon recovery
- rigorous technical oversight by independent scientists and specialists

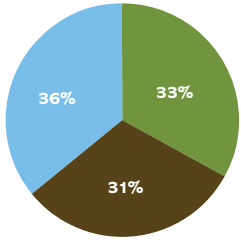
Total
6,776
2,631
9,211
3,130
4,821
$892

Three classes of forest management[13]

Oregon's forests are managed to reflect the interests and practices of different owners. A study by the Oregon Department of Forestry showed that in general, the forestland base is managed for three primary purposes:

Wood production 36%
Forests managed mostly for income or timber production by large and small private owners and tribes. Private forests, managed under the Oregon Forest Practices Act (see page 6) to protect non-timber values, supply about three-quarters of the annual statewide timber harvest.

Forestland management classifications



WOOD PRODUCTION
MULTI-RESOURCE
RESERVE

Multi-resource 33%
Forests managed for multiple uses, including recreation, water, wildlife habitat and timber production. These forestlands are primarily in public, tribal and small private ownership. When harvest occurs on state and private land, it also is subject to the Oregon Forest Practices Act.

Reserve 31%
Forests managed and conserved mostly for environmental or cultural reasons, with limited timber harvest. These forests are largely owned by the federal government and may be set aside as parks or wilderness areas, or as riparian, old-growth or endangered species habitat.

Forest certification

Oregon forest landowners meet some of the strictest environmental standards in the world through compliance with the Oregon Forest Practices Act. Yet they may choose to meet additional standards to gain recognition from independent, third-party forest sustainability certification systems.

Wood products from certified timberlands earn the right to display an "ecolabel" seal of approval. This gives consumers, architects, engineers and builders independent assurance that the products were produced using responsible and sustainable forestry practices. Certification may also lead to acceptance by green-building architectural standards, such as the U.S. Green Building Initiative's Green Globes program and the U.S. Green Building Council's LEED program.

America's three largest certification systems are the American Tree Farm System (ATFS), Forest Stewardship Council (FSC), and the Sustainable Forestry Initiative (SFI).

Oregon acres certified by the three major forest certification systems*

Certification system	Acres
American Tree Farm System [14]	804,634
Forest Stewardship Council [15]	137,950
Sustainable Forestry Initiative [16]	3,293,163
TOTAL	4,235,747

*As of October 2014.

The forest economy

The forest sector – the part of Oregon's economy derived from its forests – encompasses the harvest of trees and their conversion into consumer and construction products such as lumber, plywood, poles, paper, energy and even garden bark chips. It includes value-added manufacturing such as the production of doors, windows, packaging, furniture, cabinets, treated wood, millwork and sophisticated engineered wood products.

While less evident in urban centers, the forest sector economy is vital to many rural Oregon communities. In some rural counties – such as Clatsop and Lake – the sector is responsible for about 30 percent of the economic base. [17]

Overall, the forest sector included about 59,000 jobs in Oregon in 2013, according to the Oregon Employment Department. (For a breakdown of the job figures, see the back cover). The average annual wage of those jobs was $49,200, compared to to $45,000 for all Oregon employment. [18]

Wood as a green building material

Wood is increasingly being recognized as a green building material with important environmental advantages over concrete, steel and other materials.

- Unlike finite natural resources, wood is a renewable resource – it grows!
- The only energy trees need to grow comes from the sun.
- Wood is reusable and recyclable.
- Nearly 100 percent of a log, including the bark, can be used for wood, paper and many other products, including energy; there is little waste.
- Trees suck carbon from the atmosphere and store it as wood; when the tree is turned into lumber, carbon remains sequestered in the wood for the life of the product.
- Wood requires less energy and water to produce than concrete, steel or plastic.
- Wood can be sourced locally, saving energy and transportation costs.
- Oregon wood products are harvested sustainably, and Oregon's environmental protections surrounding timber harvest are among the strongest in the world.

EXECUTIVE ORDER

An order from Gov. John Kitzhaber in October 2012 called on state agencies to showcase the role of wood products in high-performance buildings. The order also called on state agencies to accelerate the development and commercialization of innovative wood products, and to review whether green-building rating systems adequately recognize wood grown under Oregon's forest practice rules. [19]

Made in Oregon: types of forest products

Here are some of the products made from trees harvested in Oregon.

- **structural softwood lumber** used in construction, such as dimensional lumber and solid beams (see page 21)
- **plywood** from softwood and hardwood veneer (see page 22)
- **engineered wood products,** such as laminated veneer lumber, glulam beams, finger-jointed lumber, I-beams, cross-laminated timber and other products (see page 23)
- **reconstituted wood products,** such as particleboard, hardboard, fiberboard and heating pellets, made largely from residuals generated by sawmills and plywood mills
- **posts, poles and timbers,** such as utility poles, house logs, fence posts, pilings, treated timbers, cross-arms and railroad ties
- **pulp and paper products** from wood fiber, including packaging, printing paper, newsprint, tissue, toweling, absorbents, adhesives, fluff pulp and cellulose products such as rayon, cellophane, food additives and pharmaceuticals
- **millwork,** including a variety of softwood and hardwood lumber for products such as doors, windows, cabinets, furniture, siding, flooring, moldings, fencing, lathe and other millwork (for example, pencils and musical instruments)
- **other secondary wood products,** such as pallets, kitchen cabinets and furniture
- **biomass energy** from mills burning wood waste to generate heat and electricity for manufacturing

No. 1 in softwood lumber

Oregon has led the nation in the production of softwood lumber for many years.

Oregon's lumber output in 2013 accounted for more than 17 percent of total U.S. production. That's an increase from 15.6 percent in 2011. Sawmill output has steadily rebounded from the recessionary low in 2009.

SOFTWOOD LUMBER PRODUCTION

Top 10 states and U.S. total production (in millions of board feet) [20]

	2007	2008	2009	2010	2011	2012	2013	% of U.S. total for 2013
Oregon	**6,176**	**4,724**	**3,829**	**3,994**	**4,134**	**4,659**	**5,119**	**17.1%**
Washington	4,763	3,885	3,241	3,637	3,685	3,763	3,942	13.2%
Georgia	2,309	1,920	1,518	1,714	1,914	2,273	2,366	7.9%
Alabama	2,242	1,594	1,274	1,465	1,626	1,943	2,103	7.0%
Arkansas	2,215	1,615	1,493	1,576	1,675	1,964	2,026	6.8%
California	2,309	1,920	1,442	1,435	1,623	1,838	1,937	6.5%
Mississippi	1,998	1,598	1,446	1,532	1,708	1,743	1,849	6.2%
North Carolina	1,649	1,407	1,242	1,289	1,388	1,635	1,687	5.6%
Idaho	1,752	1,344	1,105	1,258	1,353	1,494	1,647	5.5%
Texas	1,652	1,406	1,238	1,188	1,308	1,292	1,385	4.6%
. . .								
TOTAL U.S.	35,158	29,177	23,420	24,802	26,505	28,257	29,950	

No. 1 in plywood

Oregon dominates U.S. production of both softwood construction plywood and hardwood cabinetry plywood. In fact, Oregon accounted for about 29 percent of total U.S. plywood production in 2013. That was up from 22 percent in 2008.

Through 2013, 16 plywood mills were operating in Oregon, of 54 total nationwide. However, one Oregon mill, in Springfield, was destroyed by fire in 2014.

Overall, U.S. plywood production has been challenged by cheaper strand-board products that have taken market share in some uses. Oregon has no mills that make strand-board. Yet plywood is still a significant business that has rebounded from its recessionary low in 2009.

Top five plywood-producing states [21]
(million square feet, 3/8" basis)

	2008	2009	2010	2011	2012	2013	% of U.S. total for 2013
Oregon	**2,256**	**1,895**	**2,303**	**2,149**	**2,553**	**2,704**	**29%**
Louisiana	1,341	961	996	1,111	1,236	1,251	13%
Washington	832	651	777	706	751	791	8%
Texas	969	953	809	750	763	726	8%
Mississippi	938	594	584	650	656	654	7%
Georgia	525	605	591	571	649	609	7%
Arkansas	754	857	867	837	470	505	5%
. . .							
TOTAL U.S.	10,237	8,608	9,131	8,986	9,181	9,345	

A leader in engineered wood

Oregon companies use innovative techniques to turn raw timber or lumber into value-added engineered wood products. These products typically mean more mills, more jobs and more money staying in Oregon.

Here are some engineered wood products important to Oregon:

- **Cross Laminated Timber (CLT)** is made by gluing dimensional lumber into large panels several layers thick, with each layer's wood fibers running perpendicular to the adjacent layers. This technique can be used to form very large, strong panels that can serve as one-piece walls, floors and roofs. They can be prefabricated with cutouts for windows, plumbing, electric and HVAC, and then assembled into large, multistory buildings that otherwise might be built from steel or concrete. As of late 2014, there were no structural CLT plants in the United States, but an Oregon mill was working with Oregon State University to develop a process to become the first.

- **Glued Laminated Timber (Glulam)** is a stress-rated engineered wood product made up of wood laminations, or "lams" that are bonded together with strong, waterproof adhesives. They are used in commercial and residential applications, from simple garage door headers and floor beams to huge, dramatic, curving beams that are an architectural focal point.

- **Laminated Veneer Lumber (LVL)** is the most widely used structural composite lumber product. It is produced by bonding thin wood veneers together into a large board called a billet. The LVL billet is then sawed to desired dimensions depending on the construction application. The many uses of LVL include headers and beams, rafters, rim board, scaffold planking, studs and flange material for prefabricated wood I-joists and truss components.

- **I-joists** are "I"-shaped engineered-wood structural components made of top and bottom LVL flanges of various widths, united with webs of various depths. They offer strength, versatility and economy in residential and light commercial applications.

Fire in Oregon's forests

Fire has always been part of the forest ecosystem, although Oregon has different kinds of forests that have been shaped by different kinds of fires. [22]

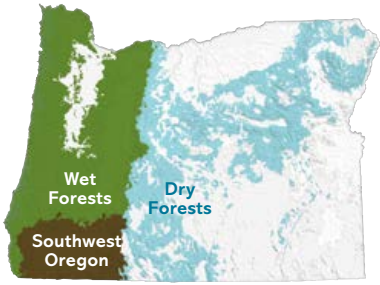
DRY FORESTS

In the dry ponderosa pine forests of central and eastern Oregon, fire historically burned through any given area every two to 25 years. But the fires generally were not intense. Understory plants were burned off, but large trees usually survived.

WET FORESTS

In the wet Douglas-fir forests on the west side of the Cascades and in the Coast Range, fire in any given stand is much less frequent, once every 200 to several hundred years. The historic record shows numerous instances of large, intense fires that killed most of the forest.

How fire historically behaved in Oregon forest types



- Fire frequency: every 100 to 450 years. Fire severity: high
- Fire frequency: every 5 to 50 years. Fire severity: moderate/mixed
- Fire frequency: every 2 to 50 years. Fire severity: low/mixed

SOUTHWEST OREGON FORESTS

Interior southwest Oregon forests experience some of the dryness of east-side forests but with productivity more like west-side forests. They are intermediate in fire behavior, and historically burned with mixed severity every 25 to 50 years.

Fires of 2013 and 2014

With continuing drought in parts of Oregon and unhealthy, overstocked conditions on some federal forests (see page 26), firefighters faced challenging conditions in 2013 and 2014. Additionally, Oregon experienced 150,000 lighting strikes in 2013 and nearly 130,000 in 2014, well above average. The cost of fighting large fires on state-protected lands was $122 million in 2013 and $76 million in 2014.

Total forest fires and forested acres burned in Oregon [25, 26]

(Includes Forest Service, state, private, tribal and BLM forestlands)

Year	Forest fires	Forest acres burned
2014*	2,480	213,725
2013	2,339	133,240
2012	1,319	168,554
2011	1,524	37,045
2010	1,590	32,629
2009	1,952	67,424
2008	2,314	66,942
2007	2,114	360,919
2006	2,609	78,994
2005	1,407	76,493
2004	1,865	11,612

* unofficial figures as of October 2014

2014

The 2014 season started early. The human-caused Two Bulls Fire burned 7,000 acres outside Bend in the first week of June. While there was not one major standout fire, the season went on well into September and total acreage burned was the most since 2007. Oregon Department of Forestry's large-fire management teams logged 107 days of deployment, five times the annual average. [23]

2013

The summer of 2013 was the toughest in 60 years for the Department of Forestry, in terms of acreage burned on state-protected forests, which includes state, private and western Oregon BLM land. The Douglas Complex was the most prominent blaze, burning 48,000 acres in the Oregon & California checkerboard near Roseburg. The alternating one-mile-by-one-mile squares of BLM and private lands complicate forest management and fire protection. [24]

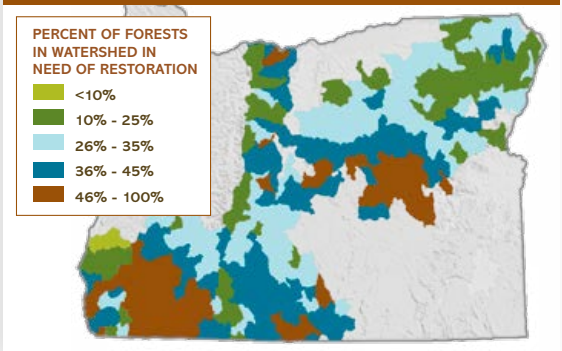
Protecting against fire

For decades, the natural cycle of fire (see page 24) has been suppressed to protect property values, forest resources and public safety. And for the past 25 years, fire suppression has been coupled with mostly passive management on federal forests. As a result, federal forests in the drier forests of eastern and southwestern Oregon have grown uncharacteristically dense. These forests are at risk of fires larger and more severe than would be typical.

RESTORATION

The state and federal government, as well as local collaborative groups, are working to accelerate the restoration of some of these overly dense federal forests, using thinning, prescribed burning and mechanical understory treatments.

Forest restoration needs



The percentage of all forests within a watershed in immediate need of restoration treatments. Overall, more than 6.6 million acres of fire-adapted forests in Oregon are in need of restoration. [27]

SUPPRESSION

On highly productive western Oregon forests, adequate road access, fire prevention and firefighting resources are essential to protect homes, lives and property, including private timberlands.

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An array of jobs

Oregon's forest sector includes a wide variety of work, from forestry, logging, millwork and cabinetmaking to engineering, hydrology, business management and academic research. Economists estimate that each million board feet of timber harvest creates or retains about 11 forest sector jobs.

Here is how Oregon's forest sector jobs broke down by type of employment in 2013:

OREGON'S FOREST SECTOR JOBS - 2013 [18]

Forest Management	
Company management	1,242
Forestry and environmental consultants, researchers, academics	315
Bureau of Land Management	1,065
State of Oregon	830
U.S. Forest Service	3,226
Subtotal	**6,678**
Forestry Support	
Forestry support (nurseries, machinery manufacturing, firefighting)	5,504
Logging	7,518
Subtotal	**13,022**
Primary Forest Products	
Pulp and paper manufacturing	4,693
Sawmills and wood preservation	6,990
Veneer and plywood	5,670
Subtotal	**17,353**
Secondary Forest Products	
Engineered wood	1,086
Millwork (doors, windows, custom)	5,162
Wood kitchen cabinets and countertops	2,651
Other (manufactured homes, wood buildings, pallets, furniture)	3,915
Subtotal	**12,814**
Distribution, Transportation & Other	
Wood products wholesalers	2,425
Paper products wholesalers	798
Transportation of logs, chips, goods	5,065
Other (biomass electric power, airport operations, marine cargo handling, etc.)	659
Subtotal	**8,947**
TOTAL	**58,814**

Oregon Forest Resources Institute

317 SW Sixth Ave.
Suite 400
Portland, OR 97204-1705
971-673-2944

OregonForests.org

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