



Oregon Forest
Resources Institute

A close-up photograph of a spotted salamander, likely a Hellbender (Cryptobranchus alleganiensis), resting on a mossy log. The salamander has a brown and black mottled pattern on its back and a lighter, speckled pattern on its belly. Its large, dark eyes are prominent.

**OREGON
FOREST FACTS**
2023-24 EDITION

Interesting times for Oregon forestry

Oregon's timber and forest products industries, collectively known as the forest sector, are at a watershed moment.

The historic 2021 Private Forest Accord collaboratively led to legislation in 2022 to modify the Oregon Forest Practices Act regulations in a way that expands habitat protections for forest-dependent fish and aquatic species. The agreement between the state's timber industry and conservation groups aims to provide greater business, environmental and regulatory certainty.

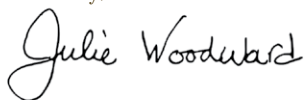
Meanwhile, Oregon's forest sector continues to lead the country in softwood lumber, plywood and engineered wood products production, all while employing more than 60,000 people and managing forests for sustainable timber harvests that help preserve our forest land base.

Recent years have not been without challenges for the state's forest-related industries, including the economic impact of the 2020 Labor Day fires, recovery from a pandemic-induced recession and a statewide labor shortage. But the Oregon forest sector continues to overcome these challenges while working to provide the ecological, social and economic benefits Oregonians expect from forests.

This latest issue of *Oregon Forest Facts* continues the tradition of the Oregon Forest Resources Institute bringing you the latest statistics and information on Oregon's forest sector, including more details on the topics listed above.

Thank you for your interest in Oregon's forests and forest sector.

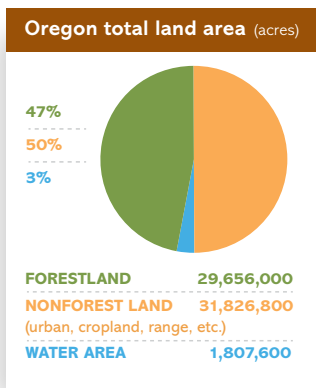
Sincerely,

A handwritten signature in black ink that reads "Julie Woodward". The signature is written in a cursive, flowing style.

Julie Woodward, Director of Forestry
Oregon Forest Resources Institute

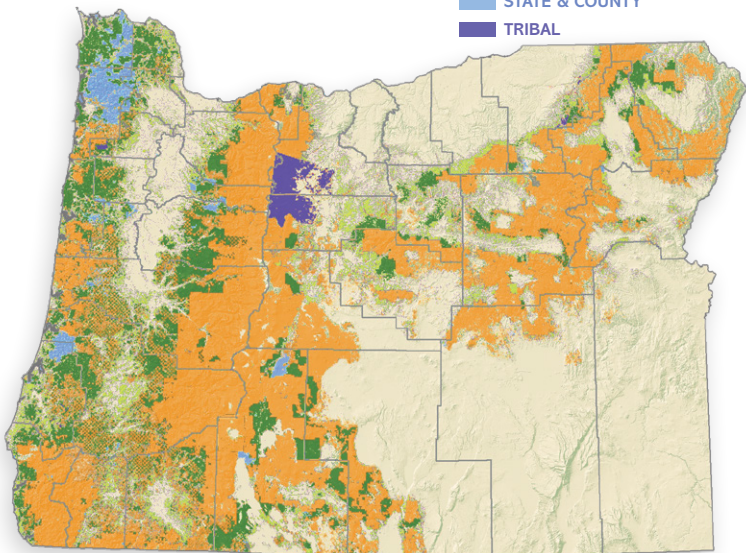
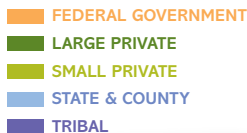
Forestland area¹

Nearly half of Oregon is forestland. Oregon forests vary by species composition and ownership. There are more than 30 distinct forest types, but Douglas-fir dominates in western Oregon, ponderosa pine in eastern Oregon, and mixed conifers in southwest Oregon. In terms of ownership, the federal government manages 61% of Oregon forests; private owners manage 34%; state and county governments manage 4%; and Native American tribes manage 2%.



Ownership	Forestland (acres)	Percent of total
U.S. Forest Service	14,093,000	48%
Bureau of Land Management	3,573,000	12%
National Park Service	160,000	1%
Other federal	32,000	<1%
Total federal	17,858,000	61%
State	942,000	3%
County and municipal	187,000	1%
Total state and county	1,129,000	4%
Total government	18,987,000	64%
Large private landowners (>= 5,000 acres)	6,487,000	22%
Small private landowners (<5,000 acres)	3,702,000	12%
Total private	10,189,000	34%
Native American tribal forestland	480,000	2%
TOTAL FORESTLAND, all owners	29,656,000	100%

Forestland ownership¹



FOREST MANAGEMENT STYLES VARY BY OWNER

Oregon's forests are managed to reflect the varied objectives and practices of a diverse array of landowners. These include the federal government, which owns the largest portion of Oregon's forestland, as well as state, county and municipal governments, private timber companies, nonprofits, tribes and small woodland owners, each with a range of goals for their land. Some forests are managed primarily for timber production, while others are set aside as parks, wilderness areas or reserves to protect old-growth, riparian or endangered species habitat. Many Oregon forest landowners try to find a balance between environmental and economic values, managing their forests for multiple uses including recreation, water, wildlife habitat, wildfire mitigation and timber.

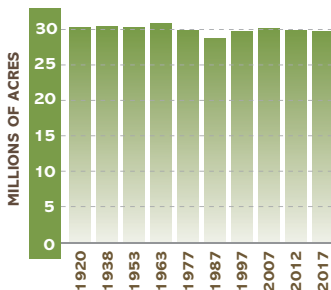
Historic forestland changes ²

The amount of total public and private forestland in Oregon has held mostly steady, at about 30 million acres, for nearly 100 years. In fact, it's estimated to have been about 30 million acres in the 1600s, as well.

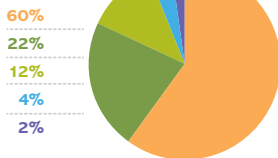
FORESTLAND OWNERSHIP AND TIMBER HARVEST

While the federal government manages most of the forestland in Oregon, only a relatively small portion of Oregon's timber harvest happens on federal land, and most of that is from thinning. About 76% of the total state harvest comes from private timberlands.

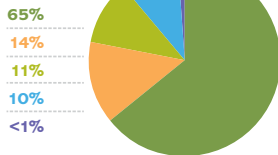
Oregon forestland acreage



FORESTLAND ACREAGE, BY OWNER (2018)¹



TIMBER HARVEST, BY OWNER (2020)³



FEDERAL

LARGE PRIVATE

OTHER PRIVATE

STATE/COUNTY

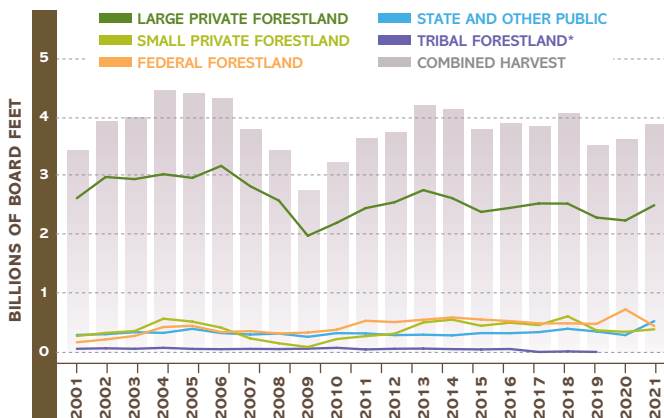
TRIBAL

Oregon timber harvest levels³

Timber harvest levels from public and private forestlands over the past 20 years 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 roughly pre-recession levels.

In the five most recent years where data is available (2017-2021), Oregon timber harvest averaged around 3.8 billion board feet. The 2020 Labor Day fires led to a short-term increase in timber harvest due to post-fire salvage logging on private land. However, long-term annual timber harvest is expected to decrease between 100 and 250 million board feet per year from 2026 to 2065 due to loss of future growth on trees killed by wildfires in 2020.

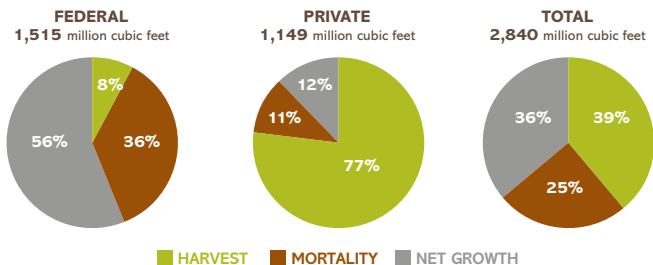
Oregon timber harvest by owner (2001-2021)



*2020 and 2021 data not available for tribal

Forest growth, mortality and harvest¹

Yearly growth, mortality and harvest 2005-2015



Oregon forests grow about 2.8 billion cubic feet of new wood per year. Overall, about 39% is harvested, 25% ends up in trees that die from natural causes, and 36% adds to the volume of standing timber.

On private forestland, where most timber harvest happens in the state, the amount of wood harvested each year is about 77% of the annual timber growth. About 11% of that growth is offset by trees that die from causes such as fire, insects and disease.

On federal lands, only about 8% of the annual timber growth is harvested each year. The amount of timber that dies offsets annual growth by 36%. The remainder of the growth, a net change of 56%, adds to the volume of standing timber in those forests.

On many federal forests in eastern and south-central Oregon, high growth combined with high mortality has created unusually dense forests with stressed trees that are more prone to insect infestation, disease and uncharacteristically severe fire. Much work has been done in recent years to reduce the number of trees and to clean up dead wood on federal forests, by thinning and other fuels reduction treatments such as prescribed burning.

Oregon is number one

Oregon has led the nation for many years in producing softwood lumber and plywood typically used for homebuilding. Oregon's lumber output of 6.1 billion board feet in 2021 accounted for about 16.5% of total U.S. production, while Oregon plywood mills accounted for about 28% of total U.S. plywood production in 2021.

Top softwood lumber-producing states (in millions of board feet)⁴

	2016	2017	2018	2019	2020	2021	% of U.S. total for 2021
Oregon	5,646	5,742	6,100	5,724	5,983	6,141	17%
Washington	3,580	3,833	4,010	4,245	4,456	4,484	12%
Alabama	2,413	2,430	2,524	2,909	3,322	3,511	10%
Georgia	2,791	2,866	2,837	2,703	3,258	3,383	9%
Arkansas	2,179	2,467	2,701	2,577	2,566	2,562	7%
TOTAL U.S.	32,535	33,779	34,907	35,163	36,908	37,152	

Top plywood-producing states (in millions of square feet, 3/8" basis)⁵

	2016	2017	2018	2019	2020	2021	% of U.S. total for 2021
Oregon	2,512	2,518	2,475	2,395	2,291	2,357	28%
Louisiana	1,180	1,250	1,258	1,274	1,186	1,213	15%
Mississippi	659	818	818	834	734	782	9%
Texas	693	695	670	654	679	680	8%
Washington	666	604	610	575	588	547	7%
TOTAL U.S.	8,805	9,026	8,869	8,557	8,325	8,337	

A LEADER IN ENGINEERED WOOD⁵

Oregon is also a leader in producing value-added engineered wood products such as cross-laminated timber (CLT), glue-laminated timber (glulam) and mass plywood panels (MPP).

Top 5 engineered wood states (by number of plants) in 2022

	Glulam	CLT & MPP	I-joist	Structural composite lumber	Total plants
Oregon	7	2	4	5	18
Washington	4	1	2	1	8
Alabama	3	1	1	1	6
Louisiana	-	-	2	3	5
Georgia	1	-	1	2	4
TOTAL U.S.	35	8	14	19	76

A range of forest products

Oregon's wood products industry is a traded sector, with close to 75% of all products made here sold outside the state. This generates revenue that supports mill jobs in Oregon.

Here are some of the many different types of products that can be made from trees harvested in Oregon:

- **softwood lumber**
- **plywood**
- **hardwood lumber and plywood**
- **engineered wood products**
- **composite wood products**, such as particleboard, hardboard and fiberboard
- **posts, poles and timbers**
- **pulp and paper products**
- **moulding and millwork**
- **biomass energy** from mills burning wood waste to generate heat and electricity
- **heating** uses such as pellets and bricks, made from sawdust and mill residue
- **other wood products**, including shipping pallets, pencils and musical instruments

Private Forest Accord⁶

The Private Forest Accord is a collaborative agreement made between representatives from Oregon's timber industry, the Oregon Small Woodlands Association, and prominent conservation and fishing organizations, to modify portions of Oregon's forest practice laws and regulations in a way that expands protections for fish and amphibians.

The changes to the Oregon Forest Practices Act include increasing the size of protective buffers where logging is prohibited along streams, new standards for fish-bearing-stream culvert sizes and culvert installation procedures, and new rules for logging on steep slopes.

HABITAT CONSERVATION PLAN FOR PRIVATE FORESTS

Changes to the Oregon Forest Practices Act should allow Oregon to receive federal approval for a Habitat Conservation Plan (HCP) for private forestlands. A Habitat Conservation Plan is intended to provide long-term conservation benefits to designated wildlife species while also providing regulatory assurance and minimizing legal risks to landowners so they may continue sustainable management of their land while supporting species survival.



The Private Forest Accord expands habitat protections for the coastal tailed frog, four species of salamanders, and salmon, trout and other native fish.

The Oregon Forest Practices Act^{6, 7}

In 1971, Oregon became the first state to pass a comprehensive law to regulate forest practices and safeguard water, fish and wildlife habitat, soil and air. The rules of the Oregon Forest Practices Act are continually reviewed and updated to keep pace with the most current scientific research.

The rules most recently changed in 2022, in response to the Private Forest Accord agreement between the timber industry and conservation groups (see page 8). Some of those new rules are included below.

IMPORTANT RULES

- **Reforestation:** Landowners must complete replanting within two years after a timber harvest, with at least 200 tree seedlings per acre. Within six years, the harvest area must contain healthy trees that can outgrow competing grass and brush on their own.
- **Water and stream protection:** Timber harvesting, road building and the use of chemicals are restricted close to streams, to protect fish and safeguard the source of much of Oregon's drinking water. In 2022, protective buffers along streams where logging is prohibited were expanded. New standards were added for fish-bearing-stream culvert sizes and culvert installation procedures, and some road-building rules were modified to focus on minimizing sediment in streams.
- **Wildlife habitat protection:** Live trees, standing dead trees (snags) and fallen logs must be left after a timber harvest, to provide wildlife habitat.
- **Limits on clearcutting:** Clearcuts cannot exceed 120 acres within a single ownership, including the combined acreage of any clearcuts within 300 feet of each other.
- **Steep slopes:** In 2022, the Oregon Legislature passed new rules related to logging on steep slopes, such as retaining trees in certain areas, with the intention to provide high-quality habitat to support long-term conservation of stream habitats.
- **Chemical application:** Forest protection laws limit the use of chemicals. Foresters must follow a variety of state and federal regulations when using herbicides.



Forest sector workforce^{8, 9, 10}

Tens of thousands of Oregonians are employed across a variety of forest-related jobs, from forestry, logging, millwork and cabinetmaking to engineering, hydrology, business management and academic research. (For a complete breakdown of the job figures, see the back cover.) These forest professionals help care for our forests, conserve fish and wildlife habitat, protect water, sustain forests for future generations, and make innovative forest products.

About 3% of Oregon jobs⁸ are part of what is known as the “forest sector.” The sector encompasses a diverse array of career paths that include firefighters, ecologists, foresters, wildlife and fish biologists, and more. Forest sector jobs are present in each of Oregon’s 36 counties. In some rural counties, the sector is responsible for nearly a third of the economic base.⁹

Like other industries, Oregon’s forest sector has been affected in recent years by a statewide labor shortage. The forest sector is looking at several opportunities to improve the forestry workforce, such as by providing forest operator training programs.¹⁰

Forest sector employment and wages⁹

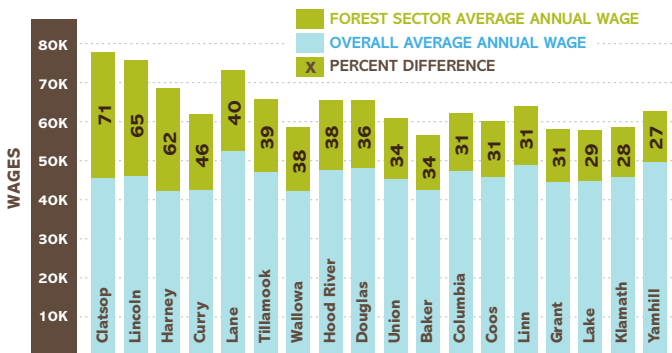
Forest-related employment in Oregon totaled 61,970 jobs in Oregon in 2021, according to the Oregon Employment Department. This



represented about 3% of the total jobs in Oregon. However, in five rural Oregon counties – Crook, Douglas, Grant, Jefferson and Lake – forest sector jobs accounted for more than 10% of the total.

The average annual wage of those jobs was \$68,200, roughly 7% more than the average wage of \$64,000 for all Oregon employment. In some Oregon counties, especially rural ones, forest sector jobs had significantly higher-than-average wages. Forest sector wages in Clatsop County, for instance, were 71% higher than the county average.

Oregon counties with greatest forest sector wage differences (2021)



2020 Labor Day fires – economic impact ¹¹

The Labor Day 2020 fires burned nearly a million acres of public and private forestland, primarily in western Oregon. Compared to the average Oregon fire year, the Labor Day 2020 fires were unusual for involving more private land and burning more acres in western Oregon.

This had a large economic impact on the state's forest-related businesses, according to a study commissioned by the Oregon Forest Resources Institute that examined the economic impacts of the Labor Day fires on Oregon's forest sector.¹¹ That's because many logging and forest products companies rely on timber harvested from private forestland, which is mostly located in western Oregon, to supply mills with saw logs.

Acres, volume and value of burned acres by owner

bbf = billion board feet.

Landowner	Forested acres burned	Volume of timber burned*	Monetary value of timber lost**
U.S. Forest Service	347,400	5.3 bbf	\$3.47 billion
Bureau of Land Management	123,000	2.2 bbf	\$1.19 billion
Oregon Department of Forestry	24,100	0.2 bbf	\$293 million
Large private	260,700	1.1 bbf	\$1.79 billion
Other private	164,500	0.4 bbf	\$764 million
TOTAL	919,700	9.2 bbf	\$7.5 billion

Acres, volume and value of timber burned, estimated by owner group, including federal, state and privately owned forests.

*The volume of timber burned is merchantable timber that burned at medium or high severity, in billion board feet (bbf).

**The monetary value of timber lost was estimated based on the volume potentially available for salvage.

Acres, volume and value of burned acres, total

bbf = billion board feet.

	Acres	Volume	Value
Total forested acres burned	919,700	14.9 bbf	\$30.1 billion
Areas that burned with medium and high severity	594,800	9.2 bbf	\$18.6 billion
Potential areas available for salvage timber harvest	157,000	3.9 bbf	\$7.5 billion
Areas that are probable to be salvaged	105,800	1.4 bbf	\$2.6 billion

In assessing the acres, volume and value of timber burned in the Labor Day 2020 fires, analysts used a "waterfall" approach. First, the total forested acres burned are estimated. Then the acres that burned with medium and high severity are estimated, since these are the areas most in need of restoration and most likely to be candidates for salvage timber harvest. The number of potential burned acres available for salvage logging is then listed. Finally, the probable volume and value of salvaged timber is calculated.

Summary of economic impacts

Impact description	Amount
Value of merchantable timber available for harvest	\$7.5 million
Value of pre-merchantable timber	\$704 million
Road reconstruction costs	\$27 million
Losses to forest contractors	\$100 million
Reforestation costs	\$144 million
Gross economic impact	\$8.5 billion
Offset – value of timber likely to be salvaged	\$2.6 billion
Net economic impact	\$5.9 billion

The economic impacts of the 2020 Labor Day fires were found in various parts of Oregon's forest sector. The gross impact is nearly \$8.5 billion. After a projected offset of \$2.6 billion from salvage logging, a net impact of \$5.9 billion remains.

FUTURE IMPACTS OF THE 2020 FIRE SEASON¹¹

The large volume of timber that was burned on private forestlands in 2020 will not be available for harvest over the next 40 years, causing a ripple effect to Oregon's forest sector, according to an Oregon Forest Resources Institute study examining the economic impacts of the 2020 Labor Day fires on the sector. The study showed that the impact of the 2020 fire season will be small in the near term, but Oregon's long-term annual timber harvest is expected to decrease between 100 and 250 million board feet per year from 2026 to 2065, due to loss of future growth on trees killed by wildfires in 2020. The cumulative timber harvest shortfall over the next 40 years is more than 7 billion board feet.

Total wildland fires and acres burned in Oregon^{12, 13, 14}

The total number of Oregon wildfires per year has remained fairly stable, but the total acres burned has increased in recent years. In 2020, the acreage burned on Oregon Department of Forestry (ODF) protected lands was nearly 10 times the average of the previous 10 years. This is because of the large amount of private land that burned in the Labor Day fires.

Year	ODF fires	ODF acres	Total fires	Total acres
2022	*879	*3,4512	*2,045	*446,534
2021	1,134	228,778	2,203	828,778
2020	981	541,372	2,215	1,141,613
2019	1,020	17,077	2,295	79,735
2018	1,112	76,774	2,019	897,263
2017	1,091	47,162	2,049	714,520
2016	832	5,661	1,245	219,509
2015	1,079	86,849	2,588	685,809
2014	1,120	53,387	3,087	984,629
2013	1,186	104,167	2,848	350,786
2012	689	17,547	1,599	1,290,527
Average (2013-22)	1,044	119,576	2,259	634,918

*Data available as of 11/2022, Oregon Department of Forestry

Sustainable forestry

Oregon forest landowners may choose to gain recognition from independent, third-party forest sustainability certification systems by meeting certain standards for sustainable forest management.

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

Forest certification may give wood product consumers, architects, engineers and builders an added level of assurance that the products used in their construction projects were produced using responsible and sustainable forestry practices.

Oregon acres certified by the three major forest certification systems

(as of June 2022)

Certification system	Acres
American Tree Farm System ¹⁵	719,106
Forest Stewardship Council ¹⁶	172,304
Sustainable Forestry Initiative ¹⁷	3,889,098
TOTAL	4,780,508



FOREST PRACTICES ACT AND SUSTAINABILITY

Sustainable forestry requires following best management practices to protect water and other resources. In Oregon, the Oregon Forest Practices Act mandates the use of best management practices. An independent third-party audit commissioned by the Oregon Department of Forestry found that Oregon-grown wood meets the Leadership in Energy and Environmental Design (LEED) credit for wood used in a building project if it comes from forests subject to the Oregon Forest Practices Act.

ENDNOTES – SOURCES OF INFORMATION

1. Palmer, Marin; Kuegler, Olaf; and Christensen, Glenn, tech. eds. *Oregon's Forest Resources, 2006-2015; Ten-year Forest Inventory and Analysis Report*. General Technical Report PNW-GTR-971. USDA Forest Service, Pacific Northwest Research Station, Portland, Ore. 2018. 54 p. <https://www.fs.usda.gov/treearch/pubs/57274> Oregon Department of Forestry Resources Planning Program.
2. Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; and Pugh, Scott A. *Forest Resources of the United States, 2012*. General Technical Report WO-91. USDA Forest Service, Washington, D.C. 2014. <http://srs.fs.usda.gov/pubs/47322>
3. Oregon Department of Forestry Forest Resources Planning Program, Harvest Reports. <https://data.oregon.gov/Natural-Resources/Timber-Harvest-Data-1942-2017/v7yh-3r7a>
4. Forest Economic Advisors LLC. Personal communication, July 2022. <http://www.getfea.com/>
5. Elling, Joe. *Structural Panel and Engineered Wood Yearbook*. APA – The Engineered Wood Association, Tacoma, Wash. April 2022. <https://www.apawood.org/>
6. Oregon Forest Resources Institute. Private Forest Accord website & PFA factsheets. <https://oregonforests.org/private-forest-accord>
7. Oregon Forest Resources Institute. *Oregon's Forest Protection Laws: An Illustrated Manual – Revised – Third Edition*. 2018. https://oregonforests.org/sites/default/files/2018-02/OFRI_IllusManual_full.pdf
8. Latta, Greg; Watson, Philip; Nadreu, Tim; Kuusela, Olli-Pekka; and Rossi, David. *The 2019 Oregon Forest Report – Forest Resources and Markets: Trends and Economic Impacts*. 2019. Oregon Forest Resources Institute. <http://theforestreport.org/>
9. Johnson, Anna, and Krumenauer, Gail. *Oregon's Forest Sector Employment Totals 62,000 in 2021*. Oregon Employment Department, in cooperation with the Oregon Department of Forestry and the Oregon Forest Resources Institute. November 2022. <https://www.qualityinfo.org/-/oregon-s-forest-sector-employment-totals-62-000-in-2021-2>
10. Vander Vliet, Amy. *Oregon Economic Update: Growth amid Risks and Challenges*. Oregon Employment Department. June 2022.

11. Rasmussen, Mark; Lord, Roger; Fay, Reggie; Baribault, Tom; and Goodnow, Rocky. *2020 Labor Day Fires Report – Economic Impacts to Oregon's Forest Sector*. 2021. Oregon Forest Resources Institute. https://oregonforests.org/sites/default/files/2021-09/OFRI-LaborDayFiresEconomicReport_Final%20Sept%202021.pdf
12. Oregon Department of Forestry, Fire. Personal Communication. November 2022. <http://www.oregon.gov/odf/fire>
13. Oregon Department of Forestry, fire reports: <http://www.oregon.gov/odf/fire/Pages/default.aspx> (Annual Fire Season Reports)
14. Northwest Coordination Center, U.S. Bureau of Land Management, Predictive Services Unit, Portland, Ore. <http://gacc.nifc.gov/nwcc/admin/publications.aspx>
15. American Tree Farm System. <http://www.treefarmssystem.org/>
16. Forest Stewardship Council. <https://us.fsc.org/>
17. Sustainable Forestry Initiative. <http://www.sfiprogram.org/>



ABOUT THE OREGON FOREST RESOURCES INSTITUTE

The Oregon Forest Resources Institute supports and enhances Oregon's forest products industry by advancing public understanding of forests, forest management and forest products.

An array of jobs

Oregon's forest sector includes a wide variety of employment, from forestry, logging, millwork and cabinetmaking to engineering, hydrology, business management and academic research.

Here's a rundown of Oregon's forest sector jobs in 2021, by type of employment.⁴



**Oregon Forest
Resources Institute**

**OregonForests.org
OregonForestFacts.org**

Follow OFRI on Facebook,
Twitter and Instagram

© 2023 Oregon Forest
Resources Institute

Oregon's forest sector jobs - 2021

Forest management

Company management	1,088
Forestry and environmental consultants, researchers, academics	282
Bureau of Land Management	944
State of Oregon	863
U.S. Forest Service	3,672
Subtotal	6,849

Forestry support

Forestry support (nurseries, machinery manufacturing, firefighting)	6,698
Logging	6,204
Subtotal	12,902

Primary forest products

Pulp and paper manufacturing	4,056
Sawmills and wood preservation	6,285
Veneer, plywood and engineered wood	8,981
Subtotal	19,322

Secondary forest products

Millwork (doors, windows, custom)	5,941
Wood kitchen cabinets and countertops	3,890
Other (manufactured homes, wood buildings, pallets, furniture, etc.)	2,769
Subtotal	12,600

Distribution, transportation and other

Wood products wholesalers	2,774
Paper products wholesalers	763
Transportation of logs, chips, goods	5,150
Other (biomass electric power, airport operations, marine cargo handling, etc.)	1,610
Subtotal	10,297

TOTAL **61,970**