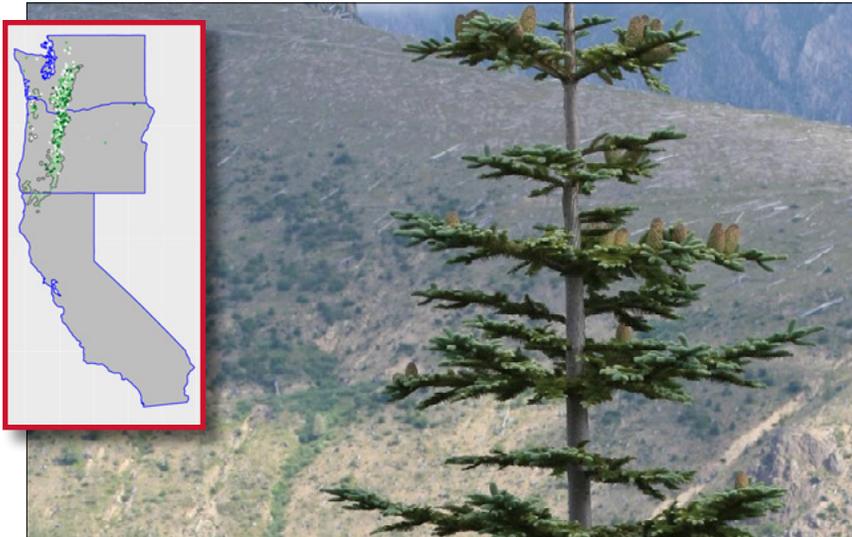


NTFPs from Trees: Nontimber Forest Products that Support our Society and Economy

NOBLE FIR

Products: Boughs and Christmas trees
Plant parts used: Boughs and small trees

Noble fir (*Abies procera* Rehd.) is highly valued by the ornamental bough and Christmas tree industries due to its superior needle retention, blue foliage, and unique density and positioning of the needles. It grows mainly on upper western slopes of the Cascade Range of northern Oregon and Washington between the McKenzie River and Stevens Pass and is also found as far south as northern California (shown in green on the map below).



Nontimber Uses

- Noble fir is used as an ornamental and is in high demand in the Pacific Northwest as a Christmas tree and for its boughs.
- In 2018, an 82-foot noble fir from the Willamette National Forest in Oregon was the U.S. Capitol Christmas tree.
- Historically, Native Americans used noble fir bark to tan leather. The Paiute Tribe reportedly used fresh and dried needles as remedies for colds and coughs.
- Essential oils derived from noble fir are thought to be soothing for sore throats, congestion, and coughs. The refreshing scent may be useful for depression and stress.

Markets

- There is little information on the markets for noble fir boughs.
- In 2017, 54 percent of the Christmas tree production in the Pacific Northwest was noble fir.
- In 1989, >9,000 tons of noble fir boughs were harvested for Christmas greenery, contributing more than \$6.7 million to the economy of the Pacific Northwest.
- In 1996, noble fir boughs commanded an average of about \$515 per ton.
- Christmas tree and bough production often occurs on plantations, where most revenue is realized from the tree, while bough revenues are supplementary.

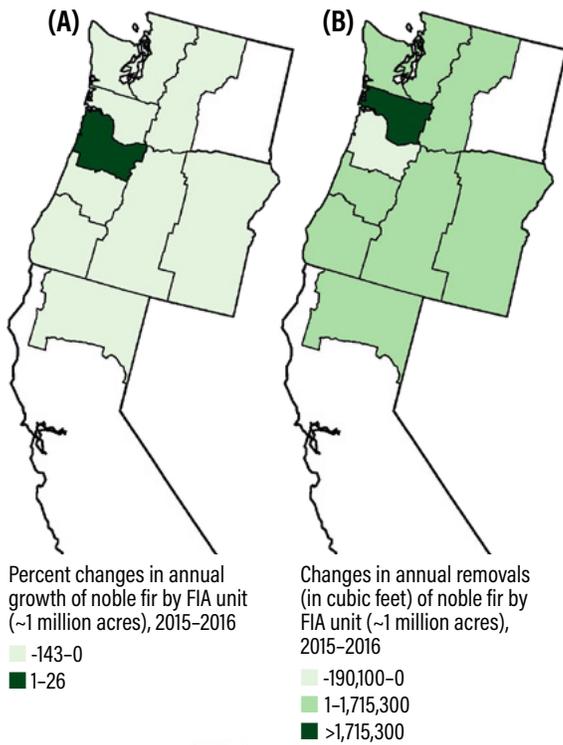
Key Points

- Noble fir is associated with five forest types and a suite of conifers and understory shrubs, yet it is found primarily with other species (e.g., Douglas-fir, western hemlock, western white pine, huckleberry, beargrass) associated with the Pacific silver fir zone.
- Dated information suggests that the species is one of the most valuable sources of greenery for floral arrangements in the Pacific Northwest.
- Harvestable bough weights from standing trees can be estimated to aid in managing for this product.
- In some areas, a fungal disease known as purple needle eater causes significant reductions in production and quality of noble fir boughs and Christmas trees.

Any medical or pesticide use described in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture.

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Photo Credits: ABOVE: <http://treesplanet.blogspot.com>. Next page TOP TO BOTTOM: Keith Blatner, Washington State University.



Status^a

- According to Forest Inventory and Analysis (FIA) data, estimated volume of noble fir in the evaluation year 2019 across all States was approximately 1,388^b cubic feet per acre. Oregon had the greatest estimated volume, exceeding 1,540^c cubic feet per acre.
- Net change (i.e., difference between growth and sum of mortality and removals) for the period 2017–2019 was positive across all States except California, which had negative net change. Net change in Washington was about 50 percent greater than Oregon. Across all States, over that period, mortality increased about 11 percent.
- The greatest net change in annual growth was observed in the northwest FIA unit of Oregon (see map [A]).
- The greatest amount of removals was observed in the southwest FIA unit in Washington that includes Clark, Cowlitz, Lewis, Pacific, Skamania, and Wahkiakum Counties (see map [B]).

^a Estimates are based on observations of at least one specimen of the species in an inventory plot (representing about 6,000 acres of forest land). They are not based on all forest land for the State.

^b At 68-percent confidence level, standard error is ± 6.48 percent of estimate

^c At 68-percent confidence level, standard error is ± 8.91 percent of estimate.

Management and Implications

- Noble fir boughs are generally harvested once or twice from the lower portion of the tree, depending on stand density, age, and competition. Harvesting takes place after heavy frosts for best needle retention.
- Guidelines are available to improve understanding of desired greenery product characteristics and to inform forest stand management that encourages desirable bough traits.
- A bough inventory tool based on standard timber cruising variables can estimate harvestable bough weight from standing trees. Another method combines the inventory tool with field measurements to estimate the number of merchantable noble fir trees per acre and the weight of boughs per tree.
- More knowledge is needed on the impacts of bough harvesting on the quality of sawtimber.
- Noble fir is threatened by the purple needle eater, a fungal disease caused by *Delphinella abietes* that attacks new growth and causes needles to turn purple and die. The disease is particularly troublesome during wet spring weather when new growth is occurring.

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