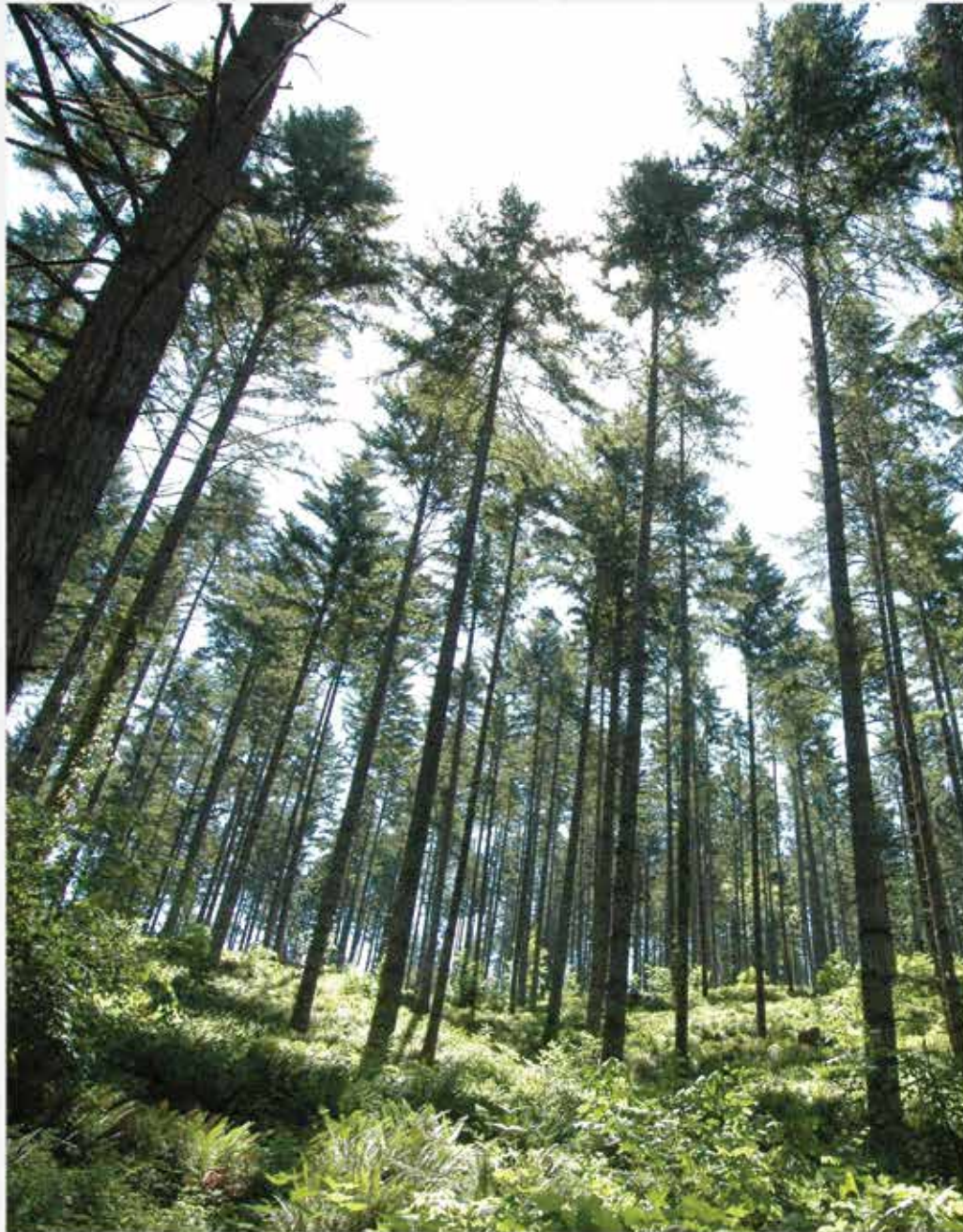


# ESTABLISHING AND MANAGING FOREST TREES IN WESTERN OREGON



# Establishing and Managing Forest Trees in Western Oregon

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More detailed information on identifying Oregon's trees can be found in *Trees to Know in Oregon*, available for purchase at local Extension offices or at [http://oregonstate.edu/trees/order\\_book.html](http://oregonstate.edu/trees/order_book.html)

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



## Introduction

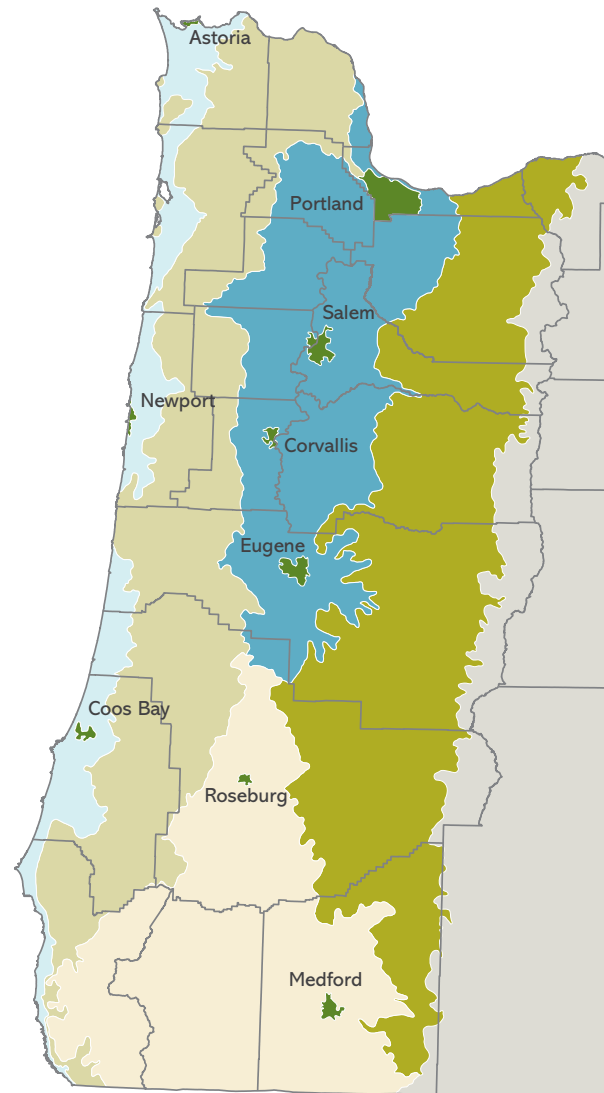
Oregon is a state of staggering geographic diversity. A traveler can experience, in a day's drive, fog-drenched coastline, emerald-green forests, fruitful valley bottoms, glaciated volcanoes and vast desert expanses. Overlaid on this varied topography is a patchwork of different landowners, including public agencies, industrial forestry companies and family forest landowners. Your property may seem like a small part of this puzzle, but Oregon's family forestland comprises almost 4.7 million acres or 15 percent of the state's total forestland. This goes a long way toward providing the wildlife habitat, clean water, wood products and other goods and services Oregonians rely on.

In this publication, we will help you understand your land's place in this varied landscape and how you can best plant and tend to trees in your woods to ensure that they remain healthy and productive. Although forests are found throughout the state of Oregon, this booklet will be focused on the woods of Oregon that lie west of the Cascade crest.

## Western Oregon's Varied Landscape

Generally speaking, Oregon can be divided into its dry east side and wet west side. However, even within the moist, western portion of the state, there is a great deal of geographic variability. Topography and climate interact to create several different regions, each with their own dominant forest type. It's important to consider the region your woods lie in because not every tree species will survive and thrive in all parts of western Oregon. In this booklet, we'll consider western Oregon in five ecoregions:

-  Coastal Fog Belt
-  Coast Range
-  Willamette Valley
-  West Cascades
-  Southwest Oregon



## COASTAL FOG BELT

The coastal fog belt is a narrow band that hugs Oregon's coastline. This ecoregion is defined by its temperate climate, caused by its proximity to the ocean. Winters here are mild and wet, and summer temperatures are tempered by foggy conditions. These factors favor moisture-dependent species, especially Sitka spruce and western hemlock. In fact, woods in this ecoregion are usually referred to as spruce-hemlock forests. Soils here tend to be very deep and fine textured. The mild climate and fine soils result in some of the world's most productive forests.

Besides the ever-present Sitka spruce and western hemlock, other important tree species include red alder, shore pine, western redcedar on the north coast and Port-Orford-cedar on the south coast. Douglas-fir and grand fir are also present here, but historically they were not found in pure stands.

Woods in this region are highly productive, but the moist conditions can lead to disease issues when trees from out of the area are planted here. Also, because sites are so productive, understory vegetation such as huckleberry, salmonberry and vine maple can grow quickly and dominate a site after trees are cut. Consequently, you will often need to control brush when planting trees in this region.



## COAST RANGE

The Coast Range of Oregon runs from the Oregon-Washington border south to the Middle Fork of the Coquille River. Soils here are mostly derived from the ancient ocean and are, generally speaking, deep and well drained in valley bottoms, becoming shallower and rockier as the slope increases. The climate in the Coast Range is mild and moist, like the coastal fog belt, but moisture and temperature extremes are greater here because this region is farther from the coast. Because summers here are dry (only 5 percent to 10 percent of precipitation occurs in the summer), trees need to be able to survive droughty conditions. This is especially true on harsh sites such as south-facing slopes and steep, rocky hillsides with shallow soil.



JORDAN BENNER

Coast Range forests are dominated by conifer trees including Douglas-fir, western hemlock, grand fir and western redcedar. Of these, Douglas-fir is the most common due to its widespread planting as a commercial species. Hardwoods tend to be found in moister areas including along streams and in

valley bottoms, where you will likely find red alder, bigleaf maple and black cottonwood, among others. At the southern end of the Coast Range, in the Umpqua and Coquille watersheds, you are also likely to see Oregon myrtle (also known as California laurel) and tanoak.



SARAH MARSHALL

## WILLAMETTE VALLEY

The Willamette Valley sits in a rain shadow caused by the Coast Range. Consequently, total precipitation is lower here than in forests closer to the coast. Also, temperatures are not as moderated by the ocean so winters tend to be colder and summers hotter. However, while the climate does influence the forests of the Willamette Valley, soils do more to determine which trees thrive here.

Soils below 400 feet elevation are mostly poorly drained clays and silts originating from river alluvium and lake sediments. This sediment was deposited at the end of the last Ice Age (15,000 to 12,800 years ago), when advances and retreats of glaciers repeatedly blocked the Columbia River near present-day Missoula, Montana. Periodic collapses of the ice dam released cataclysmic floods, causing the Columbia River to flow at a volume 10 times the flows of all the Earth's rivers combined. These floodwaters backed up into the Willamette Valley to about Eugene, forming Lake Allison. The lake would only last for a few weeks until the floodwaters were able to drain into the Pacific, but the process is estimated to have repeated itself about every 50 years for some 2000 years.

The poorly drained glacial silts and clays deposited by Lake Allison are generally more suited to growing hardwoods than conifers, which is why the valley-floor forests often contain Oregon white oak and Oregon ash rather than Douglas-fir. The major exception to this rule is the native strain of ponderosa pine, which does very well on these poorly drained soils.

The foothills of the Willamette Valley are made of a variety of soil types, some behaving like the poorly drained lowland soils and some more like the Coast Range and West Cascade soils. Historically, Native Americans burned these foothills to maintain open conditions favorable to hunting and food gathering. This practice stopped following Euro-American settlement in the 1800s, and savannahs of oak and pine were gradually invaded by Douglas-fir and grand fir that had previously been suppressed by fire.

Foothill woods in the Willamette Valley support several species of conifer and hardwood species, but take care when planting on heavier, poorly drained soils in the lower elevations, as your options will be much more limited.



## WEST CASCADES

The forests on the west slope of the Cascade Mountains are similar in many respects to those found in the Coast Range. Soils (while volcanically derived rather than coming from sedimentary deposits as in the Coast Range) are generally well drained and deep in the valley bottoms and toe slopes, becoming shallower and rockier as slopes increase in steepness. The climate, however, is somewhat drier, with greater extremes in temperature.

Douglas-fir, western hemlock and grand fir are all common species here, and incense-cedar can be found in some areas. Hardwoods such as bigleaf maple and red alder are less common than in the Coast Range and are generally limited to riparian areas. Western redcedar also favors sites with more moisture, such as valley floors.



TIM DELANO

## SOUTHWEST OREGON

Interior southern Oregon, beginning in the Umpqua Valley and continuing south to the California border, contains some of the most biologically diverse forests in the Pacific Northwest. This ecoregion is at an intersection of several geologic formations and experiences a wide range of climates. Generally speaking, the climate here is similar to the Mediterranean climate of the Willamette Valley but with somewhat colder winters and hotter summers. Also, total precipitation is much lower than other regions of western Oregon. Foothill soils are relatively shallow and rocky, while valley bottom soils are well-drained clay soils.

Forest trees found in the Siskiyou region tend to be those that can tolerate the hot, dry summers. In fact, moisture plays a very large role in determining which trees will be found on a particular site. The driest sites will be home to Oregon white oak, California black oak, Pacific madrone and ponderosa pine, with ponderosa pine playing a much larger role here than in the Willamette Valley. Intermediate sites will contain incense-cedar, Douglas-fir, grand fir, sugar pine and western white pine. Very wet sites such as springs, seeps and stream banks may also host Port-Orford-cedar and western hemlock, which both require some water during the growing season. Evergreen hardwoods are also quite common in the woods of southern Oregon, where you'll find California black oak, pacific madrone, golden chinkapin and tanoak.

Riparian areas that are poorly drained or that flood are home to a different set of hardwoods. Here, black cottonwood, white or red alders, and Oregon ash dominate. These species are tolerant of very wet conditions and take advantage of the abundant moisture that's available year-round.



RAIN RIPPY



MAX BENNETT

## Common Trees of Western Oregon

Look around. From almost any vantage point you will see trees. That sea of green we call “the forest” often comprises different species of trees, each with its own likes and dislikes as far as a place to perpetuate itself. Tree species are commonly separated into two types – conifers and hardwoods (also called broadleaves). Conifers have needles for leaves, produce their seeds in cones and are almost always evergreen. Hardwood trees have flattened leaves, produce their seeds in a wide variety of berries, nuts and samaras, and are generally deciduous, losing their leaves each fall. There are always exceptions – like the madrone and chinkapin, which are evergreen hardwood trees, and the larch, which is a deciduous conifer. Also, Pacific yew produces its seed in a fleshy aril instead of a cone, but is still included in our discussion with the conifers. Here is a list of the most common native tree species of western Oregon:

### CONIFERS



#### Douglas-fir (*Pseudotsuga menziesii*)

**CHARACTER** Large, sun-loving conifer capable of living hundreds of years, reaching more than 250 feet tall and 10 feet in diameter.

**DISTRIBUTION** Widely grown everywhere in western Oregon where sufficient soil drainage and sunlight are present. This tree is so prevalent in the Pacific Northwest that ecologists refer to it as the Douglas-fir region.

**USES** Known worldwide as the premier structural wood, Douglas-fir is used for a wide variety of building products. Older Douglas-fir are important as homes for nesting birds, and decadent trees and snags are a key source of cavities for woodpeckers and other birds. Millions of Douglas-fir Christmas trees are also exported from Oregon each year.



#### Western hemlock (*Tsuga heterophylla*)

**CHARACTER** Large, shade-tolerant conifer up to 200 feet tall.

**DISTRIBUTION** A major species in the coastal fog belt and also found in the Coast Range, West Cascades and valley fringes on moist sites (generally more than 60 inches of annual rainfall). On these sites, this tree is the dominant climax tree species in old-growth forests.

**USES** Hemlock is prized for trim products, windows and doors. Older trees are prone to rot, which makes them excellent sources of cavities for birds.



### Sitka spruce (*Picea sitchensis*)

**CHARACTER** Large tree with wide-buttressed base. Can exceed 200 feet tall with impressive diameters.

**DISTRIBUTION** Limited to the coastal fog belt, where it is a major forest component along with western hemlock.

**USES** Used commercially for lumber, pulp and plywood cores. Old-growth spruce is straight-grained and light, but smaller second-growth trees are coarser in structure. Can tolerate direct salt spray better than hemlock.



### Grand fir (*Abies grandis*)

**CHARACTER** Medium to large, thin-barked, shade-tolerant conifer up to 250 feet tall.

**DISTRIBUTION** Common on cool, moist sites across western Oregon. Often seen as an understory tree growing in the shade of other species.

**USES** Grand fir is used for a variety of wood products, although it is not as highly prized as Douglas-fir. It is also a popular Christmas tree.



### Western redcedar (*Thuja plicata*)

**CHARACTER** Medium to large, long-lived, shade-tolerant conifer up to 200 feet tall.

**DISTRIBUTION** Moist sites along streams and near springs or other wet areas. A major species in the coastal fog belt but also found in most parts of western Oregon.

**USES** Wood from redcedar is prized for decks, siding and shake roofs because of its rot resistance. Redcedar is an important conifer along streams, where it provides large woody debris for healthy stream structure.



### Port-Orford-cedar (*Chamaecyparis lawsoniana*)

**CHARACTER** Similar in form and size to redcedar but with slightly bluer foliage. This species is very susceptible to an introduced root rot that has decimated the species in its native range, but resistant seedlings are available.

**DISTRIBUTION** Southern Oregon and along the coast from Reedsport south. The tree is a major part of southern Oregon coast woods but is only found on moist sites in interior southern Oregon.

**USES** Port-Orford-cedar produces strong, rot-resistant, light-colored wood that is used for a variety of niche products. Boughs are valuable as greenery for wreaths and floral arrangements. Strong markets exist locally for logs and boughs.





### Incense-cedar (*Libocedrus decurrens*)

**CHARACTER** Medium to large sun-loving conifer up to 150 feet tall.

**DISTRIBUTION** Southern Willamette Valley and southern Oregon on drier sites.

**USES** Known as pencil cedar because of its historic use for pencils, the aromatic wood of this species is used for a wide variety of wood products. The trees often develop heart rot at older ages and become excellent habitat for cavity nesting birds.



### Ponderosa pine (*Pinus ponderosa*)

**CHARACTER** Medium to large conifer up to 200 feet tall that grows on the full range of Willamette Valley soils. Native ponderosa pines from the valley are genetically different from those found in southern and eastern Oregon, so make sure you are using a local seed source when you plant.

**DISTRIBUTION** Capable of growing on most low- to mid-elevation sites in the Willamette Valley and southern Oregon.

**USES** Currently there are not enough natural stands to create a market for its wood in the Willamette Valley, but historically the wood has been used for a wide range of products. Markets are better in southern Oregon. Potentially a valuable tree for use in riparian plantings, poorly drained sites or where summer drought is an issue. Has a deep root system, which makes it well suited to urban uses, and for mixing with grazing in agroforestry applications.



### Sugar pine (*Pinus lambertiana*)

**CHARACTER** The tallest and largest of all pines, the species was named “the most princely of the genus” by its discoverer, David Douglas. This species is susceptible to white pine blister rust, but resistant seedlings have been developed.

**DISTRIBUTION** Found in mid-elevation sites of southern Oregon.

**USES** Sugar pine wood exhibits exceptional wood properties and is a valuable commercial species. Although early growth rates are slower than other conifer species, the growth rate remains steady as the tree ages.



### Western white pine (*Pinus monticola*)

**CHARACTER** Relatively fast-growing tree with a beautiful straight trunk. Like sugar pine, this species is susceptible to white pine blister rust but resistant seedlings are available.

**DISTRIBUTION** Found in mid- to high-elevation forests in southern Oregon.

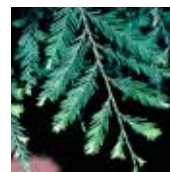
**USES** White pine wood is very straight-grained and free of resin, which makes it valuable for millwork. This species is one of the most frost-resistant trees native to western Oregon, so it can be used to reforest areas previously ravaged by cold winters. Also grown for Christmas trees and boughs.

### Coast redwood (*Sequoia sempervirens*)

**CHARACTER** Long-lived, giant conifer capable of reaching more than 3 feet in diameter and more than 100 feet in height in 50 to 60 years, and up to 12 feet in diameter and 300 feet tall in its native habitat. The tree is tolerant of shade and likes moist, well-drained areas but does not tolerate hard frosts.

**DISTRIBUTION** Found in northern California and the extreme southern end of the Oregon coast. Coast redwood has been planted throughout Oregon as an ornamental.

**USES** Redwoods produce decay-resistant lumber that has been used for decking, siding and outdoor furniture.



## HARDWOOD TREES

### White alder (*Alnus rhombifolia*)

**CHARACTER** Medium, broadleaf tree up to 120 feet tall. Short-lived species that is intolerant of shade and drought.

**DISTRIBUTION** On wet sites along rivers and streams near valley floors. Prefers sites with moving water.

**USES** Similar to red alder (see below) but is not commonly managed for timber production. Important riparian tree for some Willamette Valley streams.



### Red alder (*Alnus rubra*)

**CHARACTER** Fast-growing, medium broadleaf tree up to 120 feet tall. Short life span but well suited to the dynamic environment near streams.

**DISTRIBUTION** Common along stream courses in the Coast Range and Cascades below 2000 feet elevation. On moist sites it will grow across the landscape.

**USES** Broadly acclaimed for a variety of high-value wood products. Alder also fixes nitrogen from the atmosphere and is an excellent recycler of nutrients. Important riparian species for habitat.



### Oregon ash (*Fraxinus latifolia*)

**CHARACTER** Small to medium, shade-tolerant broadleaf tree up to 100 feet tall.

**DISTRIBUTION** Tolerance to standing water allows this tree to grow on the most poorly drained valley soils, where no other tree species will grow. Common along watercourses and swales.

**USES** Wood is prized for flooring, cabinetry and other high-value wood products, but trees grow slowly, and there is not a well-developed local ash industry.





### **Black cottonwood (*Populus trichocarpa*)**

**CHARACTER** Fast-growing, large broadleaf tree that can grow up to 200 feet tall and more than 8 feet in diameter. This sun-loving tree is fast growing but short-lived, rarely living more than 100 years.

**DISTRIBUTION** Restricted to stream and river courses throughout the Willamette Valley floor and foothills. Particularly well suited to well-drained, gravelly soils near streams. Tolerant of flooding.

**USES** Wood historically used for paper, but also can be used for plywood and lumber. Leaves and shoots highly prized as food for many wildlife species.



### **Bigleaf maple (*Acer macrophyllum*)**

**CHARACTER** Medium to large, shade-tolerant broadleaf tree up to 120 feet.

**DISTRIBUTION** Widely distributed throughout western Oregon. Capable of growing on a wide variety of sites and soils, and regenerating in the shade of other species.

**USES** Wood used for furniture, cabinets and other uses. Maple is an excellent habitat tree due to its palatable foliage, good seed production and nesting possibilities.



### **Golden chinkapin (*Chrysolepis chrysophylla*)**

**CHARACTER** Evergreen broadleaf tree up to 80 feet tall. At higher elevations it may be a shrub. Intermediate shade tolerance.

**DISTRIBUTION** Scattered, on well-drained, usually rocky soils in the foothill forests of the southern Willamette Valley below 500 feet but more common in southern Oregon.

**USES** The burr-covered fruit contains two triangular nuts popular with chipmunks and squirrels. On good sites, chinkapin can develop tall straight trunks that yield beautiful, hard lumber.



### **Pacific madrone (*Arbutus menziesii*)**

**CHARACTER** Evergreen broadleaf tree up to 100 feet tall. Bark has a distinctive reddish-brown color and peels in the fall.

**DISTRIBUTION** Widely found across western Oregon on well-drained, sunny sites.

**USES** The red-orange berries are popular in the fall. Bees like the flower clusters in spring. Wood is hard and valuable for woodworking, but tends to check as it dries. Excellent firewood.

### Oregon white oak (*Quercus garryana*)

**CHARACTER** Slow-growing medium broadleaf tree up to 80 feet. Although capable of growing hundreds of years, this species needs disturbance from fire or grazing on Douglas-fir sites to remain competitive.

**DISTRIBUTION** Valley floor and foothills on wet to dry sites.

**USES** Wood is prized for wine barrels and can be used for furniture and other products. Excellent firewood species. Excellent habitat species, producing acorns, nesting cavities and other habitat features.



### California black oak (*Quercus kelloggii*)

**CHARACTER** Slow growing but capable of exceeding 100 feet tall. This tree will sprout vigorously from the stump if cut. Deciduous.

**DISTRIBUTION** Southern Oregon is at the northern end of black oak's native range. Here it usually occupies drier sites.

**USES** Black oak can be sawn into lumber or peeled for veneer to be used in various finished wood products.



### Oregon myrtle or California laurel (*Umbellularia californica*)

**CHARACTER** Large evergreen tree capable of exceeding 125 feet in height and 60 inches in diameter. When grown in the open trees have very broad crowns, but when grown in a dense stand, trunks can be clear and straight. Vigorous stump sprouter.

**DISTRIBUTION** Broadly distributed throughout southern Oregon from the coast to the Rogue Valley.

**USES** Wood is prized for its beauty and machinability. Leaves are highly aromatic and have been used as a replacement for bay leaves in cooking.



### Tanoak (*Lithocarpus densiflorus*)

**CHARACTER** Very tall evergreen tree reaching 150 feet tall. Affected by the introduced pathogen *Phytophthora ramorum*, which causes Sudden Oak Death. The disease is currently limited to California and southern Curry County. Vigorous stump sprouts often compete with planted conifers following harvest.

**DISTRIBUTION** Found on a variety of sites in the southern Coast Range and throughout southern Oregon.

**USES** Wood has been used for furniture and flooring, although it is most commonly used for pulp or firewood.



## EXOTIC SPECIES

The mild climate of western Oregon makes it possible to grow a range of non-native tree species. When choosing non-native species, however, you need to be careful to select trees that will thrive. It is not adequate for a planted tree just to survive the average weather conditions. To thrive, it will have to survive the extremes. Colder climate trees sometimes have problems with drought and heat. Warmer climate trees have trouble with the occasional cold blasts of arctic air.

Over the past 150 years, several hundred species of non-native trees have been tried in western Oregon. For example, more than 35 species of eucalyptus have been tested, without even one species having been determined to be well suited to the climatic cycles. Before planting an exotic species, ask around to see if it has already been tested here. In general, you are best to stick with native species that are well adapted to your site's conditions. Here are a few of the most common species that have been tried:

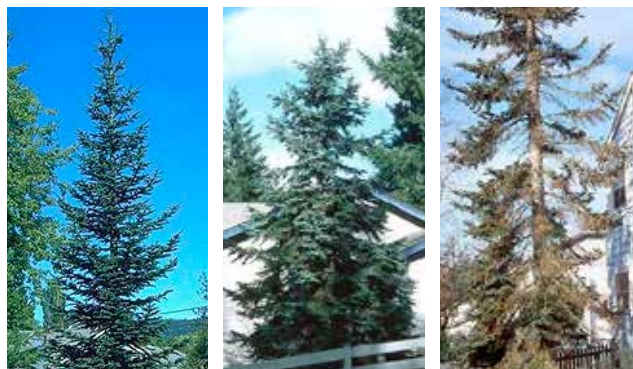


**Sierra redwood/giant sequoia (*Sequoiadendron giganteum*)** Giant, long-lived conifer native to the Sierra Nevada Mountains in California. Grows extremely fast, with a pleasant Christmas-tree shape, but needs lots of room, as it may reach several feet in diameter and well over 150 feet tall. Avoid poorly drained areas. Its value as a timber species is doubtful, yet it can grow to become a magnificent specimen tree.



**Scots (*Pinus sylvestris*), lodgepole (*Pinus contorta*)** and other non-native pines. Many species have been tried, but most become infested with insects and diseases within a few decades. Many different varieties have been planted in home landscapes, but none are currently recommended for forest plantings. A hybrid between Monterey (*Pinus radiata*) and knobcone (*Pinus attenuata*) pine called KMX has been tested extensively during the past 40 years with limited success. Note that a type of lodgepole pine, known locally as shore pine, is native to coastal areas, where it does well in poor-quality dune soils and can tolerate high winds and salt spray.

**True firs (*Abies spp.*)** Many species of true firs have been tried in western Oregon. The most common is noble fir (*Abies procera*), which has recently become the primary Christmas tree grown in Oregon. If left to grow for timber, noble fir will only become timber-sized on moist, well-drained sites above about 1000 feet in elevation. At lower elevations, they tend to suffer from root rot and other ailments, which shorten their lives and deform them. There are several other true firs such as Nordmann (*Abies nordmanniana*), Turkish (*Abies bornmuelleriana*) and Fraser (*Abies fraseri*) fir that are grown for Christmas trees, but none of these species are currently recommended for forest plantings.



**Black locust (*Robinia pseudoacacia*)** Native to the Appalachian Mountains, this species has been planted extensively throughout the country. Early homesteaders favored this tree for its rapid growth rates and ability to produce rot-resistant fence posts. A nitrogen fixer, black locust has also been used to reclaim old mining sites. This tree likes moist, well-drained soils and will not do well in overly wet or droughty sites. Prolific suckering can make black locust a weedy tree if not managed.



**Black walnut (*Juglans nigra var. hindsii*)** Black walnut plantings in western Oregon date back to white settlement in the mid-1800s. Many fine specimen trees exist on old farmsteads, and during the past 20 years new plantings have been established on farms throughout the state. Growing much faster than their midwestern cousins, the successful trees in the Willamette Valley appear to be hybrids between black walnut (*Juglans nigra*) and the Hinds variety native to the Sacramento Valley in California. Localized planting stock is generally available through the Oregon Chapter of the Walnut Council. Walnut trees need full sunlight and prefer deep, well-drained soils.



## Establishing Tree Plantings

The forests of the Pacific Northwest are some of the most productive tree-growing areas on the planet. With careful thought and planning, you should be able to grow a healthy stand of trees that achieves your goals as a landowner. In this section, we'll work through the various decisions that will have to be made in the planting process. While every project is different, the same decisions will have to be made whether you plant one tree or 10,000.

### Tree planting decisions:

- What species should I plant?
- How will I prepare the site for planting?
- Where do I get seedlings?
- How much space do my trees need?
- How do I plant my trees?

### WHICH SPECIES SHOULD I PLANT?

You'll want to choose which species to plant based on your objectives as a landowner and the characteristics of the ground where the trees will be planted.

Where specific tree species grow is no accident. In the wild, trees may be where they are for a variety of reasons, but often they are where they are because they compete better for that shady space near the stream, can stand the hot, dry summer drought on a clay hillside, or simply grow faster than other species in a particular place.

To ensure success with growing trees, select tree species that will “love” the place where they are planted. Simply surviving is not enough. Start by choosing species that are native to your ecoregion; planting non-native trees can result in poor growth as well as insect and disease problems.

Next, you need to understand the conditions a tree will experience on your property. It often helps if you can observe the property over a year, especially through the winter and spring. Here are some things to consider:

- 1. Water** After a prolonged rainy period, does the property flood or stay soggy? Getting trees to grow in wet ground can be frustrating and often futile. Some tests you can use:
  - Dig a few planting holes and see how far down the water table sits.
  - Observe how long it takes the water to drain in test holes.
- 2. Frost** Pay particular attention to areas that may have frost forming in late April through May. Conifer trees begin to break buds in this time period, and if a late frost hits, new buds may be damaged.
- 3. Sunlight** Is the area open to full sun, or is it shaded by other plants for most or all of the day? Most trees like open areas, yet some will survive where more shade is present.
- 4. Past vegetation**
  - If an open area never had any trees and no stumps exist, it may not be well suited to trees.



RICHARD SNIETKO

Special care must be taken when planting trees on sites with high water tables.



- Talk with neighbors or others who may know some of the history of the area. Did trees grow there at one time? What species grew well?
- Observe what species of trees seem to do well on similar property near the one you are thinking of planting.

**5. Slope and aspect** Some tree species are better adapted to drier south-facing slopes, while others prefer cooler and moister north aspects.

**6. Soil** It is common for landowners to have a variety of soil types on a particular parcel. Researching your soils can help determine which sites will have characteristics that could limit planting success. Soils have been mapped for most parcels in western Oregon by the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service. This information is available on a county-by-county basis and indicates the forest productivity of each soil type and suggests tree species commonly associated with each soil type (see your local NRCS office or use the online Web Soil Survey tool at <http://websoilsurvey.nrcs.usda.gov>).

Finally, remember that you will want to plant trees that match your objective for owning forestland. For example, if you are interested in a financial return through timber harvest, you may be best served by a plantation of Douglas-fir. Alternatively, if your interests lie more in providing habitat for a wide range of wildlife, you might consider planting a diverse mix of hardwoods and conifers. Your planting will be successful only when the species chosen match your desires as a landowner and the specific characteristics of the site.

## HOW WILL I PREPARE THE SITE FOR PLANTING?

Lacking a seed source, planting trees is the only way to establish a forest. Natural regeneration and seeding will work sometimes, but are much less certain than planting seedlings. Regardless of whether natural seeding or planting is selected, effective seedling establishment requires good site preparation. Site preparation has three major objectives: to reduce the amount of vegetation competing with seedlings, reduce habitat for animals that browse or girdle seedlings, and create planting sites. Site preparation can be accomplished in a variety of ways, each with advantages and disadvantages. For example, a tractor or bulldozer can have the adverse effect of removing topsoil and compacting the soil; burning can be difficult to keep under control; hand scalping is short-lived and expensive; mulch mats are expensive and provide cover for rodents; and chemicals may be controversial. Be aware that you have several options, and that it is easier to control competing vegetation before planting seedlings.



This Willamette Valley property contains several different soil series (shown here by their series numbers).

### Use chemicals safely

- Read the label and follow the instructions. The label is the law!
- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use. Don't chew gum or smoke while using chemicals.
- Know your legal responsibility. You may be liable for injury or damage resulting from chemical use.

## Species performance

Once you have a good feel for what the site conditions are, you can choose species that fit those sites. Below is a table showing tolerances of common native species to various site conditions. Listed along the top row are factors that impact how well trees will perform.

**NATIVE ECOREGIONS** These are the ecoregions in western Oregon where this species has historically grown.

**CFB** Coastal Fog Belt  
**CR** Coast Range  
**WV** Willamette Valley  
**WC** West Cascades  
**SW** Southwest Oregon

**GROWTH** This gives you a feel for how tall a tree can grow in a good location each year. When you are planting, think ahead and allow room for your trees to grow. Too often, landowners will plant more trees than the site can handle after only a few years.

**LOW LIGHT** Most trees prefer full sunlight, and some won't be able to survive in a low-light environment. Trees with 4-5 ratings will tolerate some shade, while trees with a 1-2 rating need full sun.

**ANIMALS** Big game such as deer and elk can eat certain trees to the ground if hungry. If large animals are around, planting a species with a rating of 1 is like planting lunch if you don't protect the trees.

**WET SOIL** Almost all species prefer deep, well-drained soil. Trees need water, but not too much. On sites that seem to stay wet or soggy, look for species with 4-5 ratings. And if it is too wet or flooded for long periods, do not be surprised if no tree species thrive. Some areas are just destined for wetland marshes.

**DROUGHT** Annual rainfall is variable from year to year, but also varies depending on where in the state you are located. If you are planting trees in a low-rainfall area with rocky soils, look at a species with a 4-5 rating.

**FROST** Some areas are prone to spring frosts that may continually kill new growth on plants. Valley bottoms are particularly susceptible to this problem. Again, some plants (those with 4-5 ratings) may tolerate this factor better.



Douglas-fir can tolerate only small amounts of shade.

**Performance of Major Native Tree Species of Western Oregon**

SPECIES	Native Ecoregions	Growth*	Tolerance** to:				
			Low Light	Animals	Wet Soil	Drought	Frost
<b>CONIFERS</b>							
Douglas-fir	All	3-4	2	2	2	3	4
Grand fir	All	3-4	4	4	3	2	3
Western hemlock	All	2-3	5	3	3	1	1
Sitka spruce	CFB	3-4	3	5	2	2	1
Western redcedar	All	2-3	5	1	4	1	2
Port-Orford-cedar	CFB, SW	2-3	5	2	4	1	2
Incense-cedar	SW, WC	1-2	2	3	2	5	3
Ponderosa pine	WV, SW	2-3	1	4	5	5	5
Sugar pine	SW	2	2	4	2	2	3
Western white pine	SW	2-3	2	4	4	2	5
<b>HARDWOODS</b>							
Oregon white oak	WV, SW	0.5-1	1	4	4	5	5
California black oak	SW	0.5-1	1	4	1	5	5
Bigleaf maple	All	2-3	4	1	4	3	5
Red alder	All	3-4	1	2	4	1	2
White alder	WV, SW	2-3	1	2	5	1	2
Black cottonwood	All	1-12	1	1	5	1	5
Oregon ash	All	1-3	3	2	5	2	5
Golden chinkapin	CR, SW	1-3	3	5	3	4	5
Pacific madrone	All	1-2	2	5	2	5	3
Oregon myrtle	SW	1-2	4	4	5	3	5
Tanoak	CR, SW	0.5-1	4	5	2	3	3

\* Height growth per year in feet of planted seedlings during good growing years. Resprouting hardwoods (esp. California black oak, tanoak and Oregon myrtle) could exhibit much faster height growth.

\*\* Tolerance ranges from 1, which means species are very susceptible to this factor, to 5, which means species are not susceptible to this factor.

## Common seedling stock-types

### CONTAINER



Grown for one year in a container, usually in a controlled environment such as a greenhouse. Good for dry, rocky sites because of abundant fine roots and easy planting. Not desirable where deer browse or competing vegetation will be severe. Also known as a “plug” seedling.

### 2-0



Grown for two years in an outdoor seedbed. Inexpensive bareroot option.

### 1-1



Grown for one year in a seedbed, transplanted to a wider spacing and then grown for another year. A bit larger than 2-0 seedlings at a slightly higher cost.

### PLUG-1



Grown for one year in a container, transplanted to a bed and grown for another year. More resilient to deer browse and competing brush.

## WHERE DO I GET SEEDLINGS?

A number of private tree nurseries can supply seedlings grown from parent trees native to the same elevation and geographical zone as your property (known as seed zones). Planting seedlings from the appropriate seed zone will ensure that they will tolerate the climate and soil type where you are. Seed zone maps for a variety of native tree species can be viewed at [oregon.gov/ODF/privateforests/Pages/SeedZoneMaps.aspx](http://oregon.gov/ODF/privateforests/Pages/SeedZoneMaps.aspx).

How seedlings are produced, referred to as stock-type, is a general indication of seedling size, age and root mass. Trees are started from seeds at a nursery and can be grown in greenhouse containers or outside in prepared beds for one, two or (rarely) three years. The table on the left describes some of the stock-types commonly used in reforestation.

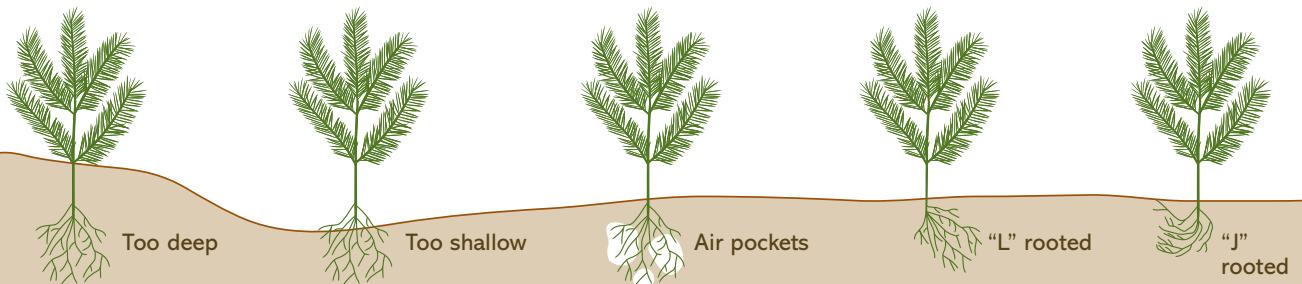
You should start contacting nurseries the spring before you want to plant so that you can reserve trees in advance. You can locate a commercial nursery using the Oregon Department of Forestry’s “Source of Native Forest Nursery Seedlings.” You can access this and other information at [oregon.gov/odf/privateforests/pages/seedlings.aspx](http://oregon.gov/odf/privateforests/pages/seedlings.aspx).

It’s also possible to find surplus seedlings locally from timber companies and land management agencies. While quality seedlings can be acquired this way, you will often have to wait until the end of the planting season for these trees to be available. You will also want to confirm that the surplus seedlings are appropriate for your seed zone and elevation and that the stock-type fits your specific site. Surplus seedlings can be located by asking around locally or by checking the Forest Seedling Network where nurseries and landowners list extra seedlings for sale: [forestseedlingnetwork.com](http://forestseedlingnetwork.com).

## HOW MUCH SPACE DO MY TREES NEED?

Commercial timber producers space trees according to species and projected thinning intervals. The following table indicates the number of trees per acre that need to be ordered for most common intervals.

The planting pattern need not be square. Good planting spots – those free of competing vegetation and perhaps shaded if on a hot, south-facing slope – are more important than precise spacing.



Planting more trees per acre is a hedge against potential losses to drought and animal damage. Higher planting densities will provide more thinning options if that is part of your plan. Remember, trees compete with grasses and shrubs for light, moisture and nutrients when they are young and with each other for the same elements when older, so denser plantings will require earlier and perhaps more frequent thinning to retain the light, moisture and nutrient balance. In western Oregon, spacings of 10x10 to 12x12 are most common in commercial plantings of Douglas-fir.

### Spacing and number of trees per acre

Spacing (feet)	Trees per acre
6 x 6	1,210
8 x 8	681
10 x 10	436
12 x 12	302
14 x 14	222

### HOW DO I PLANT MY TREES?

Once you have decided on species and spacing and have ordered seedlings, you can finally get some trees put in the ground! Tree planting can be a do-it-yourself project, but remember that it can take an experienced tree planter a full day of hard work to plant 500 trees; if you are planting a larger area, you may want to hire a crew to do the actual planting. If you do take on the task yourself, you'll want to follow these guidelines:

**Timing** The best time to plant seedlings in western Oregon is from December through March. Seedlings are dormant during these months and are better able to withstand handling and transplanting.

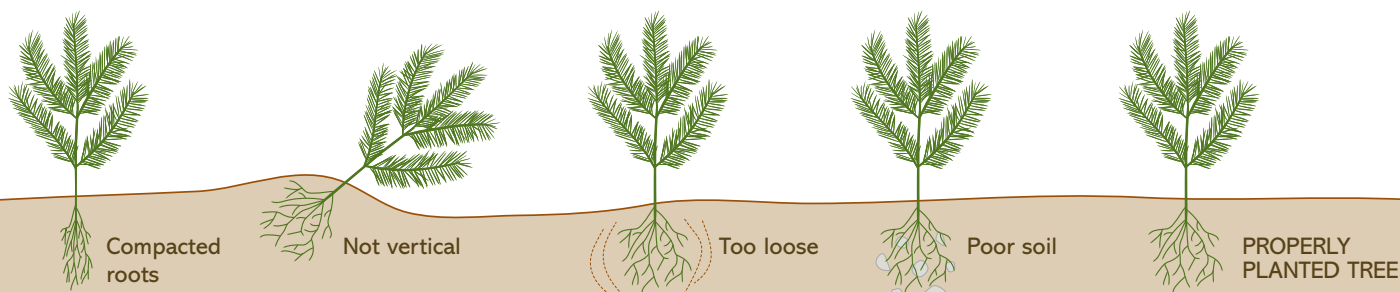
**Temperature** Seedlings out of the ground are perishable and must remain cool (between 34°F and 40°F) and moist. They must be handled gently, kept out of direct sunlight and not allowed to freeze. Most of the larger forest landowners have large walk-in coolers to store seedlings before they are planted. You can keep smaller quantities cool by wrapping the planting bags in space blankets along with blocks of ice.

**Tools** Specially designed long-bladed shovels, spades, hoedads, dibbles and augers are used to plant seedlings. For smaller projects, a common gardening shovel will suffice, but for larger jobs, consider purchasing or borrowing proper tree-planting tools.

**Technique** Planting holes should be deep enough to accommodate roots without the roots being crammed into the hole. Tamp the soil to eliminate air pockets, but be careful not to compact the soil too much.



Specialized tree-planting tools, from left: power-driven auger, long-handled and short-handled planting spade, dibble bar, and hoedad.



## Oregon Forest Practices Act

The Oregon Forest Practices Act sets standards for any commercial activity involving the establishment, management and harvesting of trees on Oregon's forestlands. The act requires private, state, county and city landowners to notify the Oregon Department of Forestry prior to implementing a variety of forest management activities. There is no minimum property size exemption from the notification requirement.

The following activities require notification:

- Site preparation for reforestation
- Applying chemicals and using petroleum products
- Precommercial thinning
- Harvesting
- Slash disposal
- Road construction

The following activities do not require notification:

- Tree planting
- Routine road maintenance
- Personal-use firewood cutting
- Collecting tree boughs, cones and similar minor forest products
- Establishment, management and harvest of Christmas trees
- Hardwood plantations harvested on rotations of 12 or fewer years
- Agricultural tree crops including nuts, fruits, seeds and nursery stock
- Ornamental, street or park trees within an urbanized area

Contact your nearest Oregon Department of Forestry Stewardship Forester for information and a copy of the notification form.

<http://knowyourforest.org/assistance-map>

## Protecting New Plantings from Competing Vegetation and Animals

Young trees are like young children; they need care and protection until they are better able to care for themselves. While trees may survive and grow with no intervention, your objectives are usually better served by helping the trees out a little. A modest investment in time and money can significantly increase seedling survival and growth compared with a more hands-off approach. In this section, we'll cover ways you can protect your trees from competing vegetation and animal damage.

### VEGETATION CONTROL

Until the roots of the newly planted tree become established in its new environment, competition from vegetation, especially grasses and invasive plants, can retard growth and cause tree mortality. Studies have demonstrated that the roots of some grasses extend as much as 12 feet down into the soil and a significant distance laterally as well. During the annual summer drought, the grass will snatch moisture from a newly planted tree.

Experiments by Oregon State University researchers have demonstrated significant increases in tree seedling survival and growth with increasing reduction in vegetative competition up to about 10 feet in every direction from your planted tree. Such a large vegetation-free area around each seedling might be undesirable if your property is being managed for multiple objectives such as wildlife habitat and recreation. Just be aware that the larger the area around the seedling kept free from competing vegetation, the greater the chance for seedling survival, with a resulting greater stem height and stem volume.

The following are among several methods you can use to release your trees from competing vegetation.

#### Chemical control

A number of herbicides are registered for use in forests to release trees from competing vegetation. They can be applied from the ground or from the air to selectively control woody and non-woody plants. Used properly, herbicides can be the cheapest, safest and most effective way to control weeds.

For the proper application technique and chemical choice, see the current edition of the Pacific Northwest Weed Management Handbook. Always read and follow label directions. Also note that chemical applications in forestry situations fall under the Oregon Forest Practices Act and require the landowner to notify the Oregon Department of Forestry when chemicals are used in both site preparation and in releasing seedlings from vegetative competition.



Grasses, shrubs, and resprouting hardwoods can compete with your planted seedlings for water, sunlight and nutrients.



This Douglas-fir seedling was sprayed too late in the spring and buds were damaged. Herbicide label directions must be followed to ensure safe, effective results.



Grass was removed with a tractor prior to planting.

#### ADVANTAGES

- Low cost
- Ease of application
- Long-term control is possible
- Relatively safe

#### DISADVANTAGES

- Need some technical knowledge
- Herbicide use is often unpopular with neighbors and the public

#### Manual control

Manually controlling weeds to release seedlings from competition can be an alternative to herbicides in environmentally sensitive areas or where chemical use is undesirable. Methods include cutting with a chainsaw or chopping, pulling or using a hoe to remove grasses and forbs from an area at least 3 feet square.

#### ADVANTAGES

- Avoid possible negative environmental effects that some believe are associated with chemical use
- Little skill or experience needed

#### DISADVANTAGES

- Labor intensive
- Release may be short-lived as hardwood trees and shrubs resprout
- Work can be hazardous, especially on steep terrain

#### Grazing

Grazing livestock such as sheep or cattle can help reduce competition from woody plants, but care must be taken to manage grazing intensity so livestock don't damage your planted trees.

#### ADVANTAGES

- Can be low cost if you already own livestock
- Safe, with little labor needed

#### DISADVANTAGES

- Expensive if hiring a contract grazer
- Need to fence areas and provide water and supplementary feed
- Strong potential for seedling damage



## Mulching

Some landowners have tried mulching with straw, bark or paper to release seedlings from grass competition. It's usually quite expensive and labor intensive, but it does help control herbaceous weeds and grasses. In dry seasons, mulching can help retain spring soil moisture into the summer. Mulching won't control fast-growing hardwoods or stump sprouts.

### ADVANTAGES

- Safer than manual release
- No perceived negative effects of herbicide use

### DISADVANTAGES

- Expensive
- Mulch can create habitat favorable to rodents, which cause seedling damage
- Difficult to keep mulch in place on steep slopes and in windy conditions

## ANIMAL DAMAGE CONTROL

Following planting, you may need to consider protecting seedlings from animal damage, particularly if large populations of deer, elk, voles, rabbits, gophers or mountain beaver are present. Animals can adversely affect tree survival, growth and form, especially for the first few years after planting.

Deer and elk will browse the new growth of seedlings until they grow out of reach. This browsing will result in stunted growth and a bushy looking tree, perhaps with multiple tops. Deer and elk will also rub the stems of larger trees, which can strip off the bark and cause damage or tree mortality. Damage from deer and elk is usually greatest when these animals concentrate in an area, so providing hunting or other pressure will help reduce damage. Protective plastic tubes and deer-repellant sprays are also available. While both measures provide only temporary relief from browse, this may be sufficient to allow seedlings to grow tall enough to be safely out of reach.

Rodents such as voles, pocket gophers, mountain beavers, and squirrels can all cause damage to small seedlings, usually by barking the tree or sometimes by clipping off the entire stem at ground level. Identifying the culprit in these cases can be difficult, so you might want to check with your local OSU extension forester for help. Rodent damage can be prevented somewhat by using protective plastic tubes, but it is best to try to reduce rodent populations by limiting the amount of quality habitat (grass) and maintaining a strong predator population. In extreme cases, gophers and mountain beavers can be controlled using baits and traps.



Commercially available mulch mats can reduce competition from non-woody plants.



TIM DELANO

Rigid plastic netting can provide relief from deer browse.



ROBERT GILMAN

Squirrels can bark and girdle pole-sized trees.

## Tending Your Trees

Some have interpreted the adage “It’s not good to fool with Mother Nature” to mean trees can just be left without management and nature will take care of them. While that may be true of natural ecosystems in wilderness areas, there are many factors that make this strategy a flawed one for small acreage woodland owners in western Oregon. Large-scale insect and disease epidemics, wildfires and mass blowdown of trees might be acceptable conditions in a wilderness area, but they do not meet the objectives for most small acreage owners, particularly if a dwelling is involved.

Private forest owners use a variety of management techniques to ensure that their forests remain healthy and are able to achieve their intended objectives.

A healthy forest generally does not mean a forest without any death or damage from insects, disease or animals. Tree death in the forest is a natural process, so it becomes a matter of managing the amount of death, rather than trying to prevent it altogether. Having some dead trees large enough to produce cavities for woodpeckers and other cavity nesting birds is an important wildlife objective, and a good reason not to try to remove all trees that die. On the other hand, if an infestation of bark beetles begins to kill multiple trees, refusing to salvage trees may allow the attack to spread, killing whole areas of trees.

Deciding when to intervene and which tools to use is what foresters call silviculture. Silviculture is both a science and an art. There are certainly scientific principles that can explain how trees and forests will respond to various treatments. Deciding when to apply which treatments and how to apply them depends as much upon landowner objectives as anything else. This forms the art of silviculture. You may need the help of a professional forester and possibly a wildlife biologist to better understand these dynamics in your forest.



STACY SAVONA

Dead and dying trees will often need to be removed when they pose a risk to people, property and power lines.

### THINNING

The most common tool used in silviculture is thinning, which means removing some trees so that the remaining trees have more light and other resources to grow. All plants have a predetermined size-density relationship, meaning that at a given density (trees per acre) individual plants can only grow to a certain

size. To get larger, some plants must either die or be removed. This relationship has been well researched by foresters, and they have a good sense for the optimal spacing for tree growth: Managing tree growth with thinning requires staying above a minimum spacing and far enough above the optimal spacing to allow for growth until the next

#### Optimal spacing for various tree species

Species	Optimal spacing (in feet) at		
	6" diameter	10" diameter	16" diameter
Douglas-fir	8	12	17
Western hemlock	6	10	14
Western redcedar	7	11	16
Grand fir	8	12	18



Stand on left was planted at an 8x8 spacing and left, while stand on right was thinned to a 12x12 spacing. Note the smaller diameter and increased mortality in the 8x8 stand. Trees in the 12 x 12 stand had room to grow and are consequently much healthier.



thinning. A general rule for Douglas-fir, for example, says that minimum adequate spacing can be estimated by the number of inches of diameter, measured at breast height (DBH, 4.5 feet above ground on uphill side of tree). Using this method, a 12-inch-diameter tree would need a minimum of 12 feet to the nearest 12-inch tree, while a 20-inch tree would need 20 feet. If you were thinning a forest, you would want to provide for future growth, so Douglas-fir forests are commonly thinned to spacings of diameter plus 4 or 5 feet.

### PRUNING

Pruning is another technique commonly used by forest landowners. Removing lower branches while the tree is growing into adulthood achieves several important objectives. Access to the forest is improved for hiking, grazing animals or other uses. Pruning also reduces the chance that fires will climb up into the crowns and explode into crown fires. Finally, pruning can provide significant improvements in wood quality, particularly for high-value hardwood species such as walnut, alder and oak. Before you prune, make sure that you understand the basic techniques and timing, because a poor pruning job can lead to stem decay and other problems.

### FERTILIZING

Some forest landowners consider fertilizing their trees. Forest trees commonly have a mat of beneficial fungi on their roots, called mycorrhizae, that help them extract nutrients from the soil much more efficiently than garden plants. Therefore, it is generally a rare situation that soils in western Oregon are so nutrient poor that survival of planted trees is an issue. On some sites, particularly those degraded by farming or other means, some nutrient additions may help. You will need to get professional help in sampling your soil and / or trees to assess the need for nutrient additions.



Pruning is a labor intensive process.

TIM DELANO



Professional loggers and arborists can fall trees safely and efficiently.

## When Trees Need to Be Removed

Trees may need to be removed for a host of reasons. Tree diseases, danger from falling, potential income and room for expansion are common situations. The situation or scale of the removal will also determine if removal is going to be a large expense or income producing.

The following is a checklist of items to consider if you wish or need to have trees removed. The focus here is on urban to “slightly rural” situations.

- Extent of removal** Is this situation one tree in danger of crashing onto a house, or is it five acres of thinning? Within some city boundaries, any tree removal will need authorization of some sort, and this varies from city to city. Tree removal in the case of a thinning on rural property will be governed by the Oregon Department of Forestry, and you must file a “Notification of Operation” application with your local office.
  - Why are permits needed? First, lumber mills will need to receive a copy or reference to an ODF notification application with each load of logs it receives. This helps thwart timber theft, as each load can be traced to a landowner/location. Second, there may be a number of environmental protection concerns that need to be addressed before and during removal.
- Property location/jurisdiction/permits** Is the property within a city or urban growth boundary, or is it rural? The regulations you are to follow will largely be determined by the extent of tree removal and the jurisdiction. If you are unsure of exactly how your property is classified, check with your county assessor or planning department. As a general guide, consider the following course of action:
  - Find out if your property is within city, urban growth area or rural boundaries.
  - Contact your local Oregon Department of Forestry Stewardship Forester to help sort out which rules may apply to your situation. Within some cities and within some urban growth areas, the Oregon Department of Forestry will have jurisdiction. At least the stewardship forester can provide information regarding who else should be contacted.
- Property boundaries** Trees on one side of a property line often look exactly like those across a line. If you are unsure exactly where the property line runs and who owns which trees, a survey may be justified. Tag or mark all property lines. If an outside party is removing the trees, make them aware of the tag boundary.



When you plan to remove trees near a property boundary, lines need to be clearly marked.

- Taxes** Anytime there is money to be spent or made, taxes may be a consideration. In the case of logging, a number of taxes may be possible. The names of these possible taxes are:
  - **Forest Products Harvest Tax:** This tax is paid on all logging on all forest property. The first 25 thousand board feet (MBF) are exempt.
  - **Property tax:** If your property is in Designated Forestland and in the Small Tract Forestland Option, you will pay a severance tax on harvested timber. This is a tax paid in lieu of property tax and is based on the volume of the harvested timber on those properties in this tax program.
  - **Federal and state income taxes:** Income and expenses incurred in tree harvests involve some unique tax treatments, including long-term capital gains, depletion, Section 631 and a host of other considerations. These are best understood before starting a logging operation or setting up a contract. It is a good idea to seek professional assistance from a tax advisor and/or a professional forester.
  
- Finding help** Again, the situation will determine the type of help needed. If you need a hazard tree removed near a home, an arborist is needed (search online or look up “Tree Care” or “Tree Removal” in the Yellow Pages). These are people with training and insurance to cover taking trees down, often piece by piece, near homes. If proximity to houses is not a factor, then a logging professional (search online or see “Loggers” or “Foresters” in the Yellow Pages) is likely the person to call.
  
- Insurance** The firm or individual you hire should have coverage on the types of risks encountered in the job. For example, when removing a hazard tree near a home, the insurance should cover any potential damage to the home as well as injury to workers or people on the property. Loggers should carry a number of insurance policies including a Loggers Broad Form policy.
  
- Obtaining bids and referrals** Prices and quality of work vary. As with any contractor you may hire, obtain a number of bids and ask for references. Memberships in professional associations and additional training can also provide some assurance of work quality. In the area of tree service, look for bonding and insurance notations and professional designations such as “Certified Arborist,” “National Arborist Association” or “International Society of Arboriculture (ISA).”
  - For loggers, you will need to find someone interested in small jobs. Look for references such as “Member of Professional Logging Association” or “Associated Oregon Loggers.” Having a contract in place that identifies the scope and cost of the project is highly recommended.



TIM DELANO

When done safely, burning is an efficient way to dispose of logging debris. Check first to make sure burning is allowed in your area.

- Remember that trees can have significant value, especially if you are selling a large number of conifers or a particularly desirable hardwood such as black walnut. Make sure you seek out multiple bids from reputable operators to ensure that you are fairly compensated for high-value trees.

- After logging** Logging and tree removal are messy. Trees have lots of branches, and the equipment used to remove and transport logs may be large. As you discuss your project with your contractor, make sure that both of you are clear about the details of cleanup and removal of material. In many areas, burning of material may not be permitted, so you may be limited to chipping, grinding, removal or letting debris decay onsite.

## Putting It All Together: Management Planning

A written management plan can assist in guiding your forest management activities by describing your site conditions, recording the decisions you make and why, and detailing your goals and objectives. It is a valuable document that may substantiate requests for grants and reforestation tax credits. It allows your family to understand what you did and why. It need not be very detailed, but it pulls together in one place the information needing to be considered in establishing and managing your forest. Compiling a variety of information on your property will enable you to establish realistic goals and objectives, make better use of the resources you have, avoid mistakes, prevent losses, and preserve your ideas for future generations. Various resources such as workshops and templates exist to help you draft a plan yourself, or you can seek out cost-share assistance to have a professional forester write a plan for you. Contact your local county OSU extension forester for information or visit [KnowYourForest.org](http://KnowYourForest.org).

## Where to Get Help

Once you decide to establish or manage trees, the question becomes where you can get the information and expertise necessary to complete the project. Oregon has a very good system of help available to landowners who want to undertake a tree project. Here are some sources of help to consider:

**Consulting foresters** Consultants offer individual assistance and will act on your behalf for a fee. In addition to getting their names from your local OSU extension forester or ODF stewardship forester, you can also locate them online. Their professional organization is the Association of Consulting Foresters. Information is available online at [www.acf-foresters.org](http://www.acf-foresters.org).

**Oregon Department of Forestry** Stewardship foresters located throughout Oregon are available to assist forest landowners with technical forestry questions and provide planning assistance for woodland projects. Call your local State Forestry office, or access them online at [odf.state.or.us](http://odf.state.or.us).

**Oregon Small Woodlands Association** The Oregon Small Woodlands Association is a member-based association that represents small woodland owners in Oregon. This organization provides members with opportunities to get together with others with similar interests and collaborate on a variety of common issues. Information is available online at [www.oswa.org](http://www.oswa.org).

**Oregon State University Forestry and Natural Resources Extension Service** Offices in each county provide a variety of educational materials on forest tree establishment and management. Extension foresters and trained Master Woodland Managers offer frequent workshops and tours for woodland owners. You can phone your local county office, or access them online at <http://extension.oregonstate.edu>.

**Oregon Tree Farm System** The Oregon Tree Farm System is the local chapter of the American Tree Farm System. OTFS administers the Tree Farm certification and Outstanding Tree Farmer of the Year programs for family forest landowners. Information is available online at [www.otfs.org](http://www.otfs.org).

**Oregon Woodland Cooperative** The Oregon Woodland Cooperative is a group of more than 70 private family forestland owners in Oregon. Since 1980, OWC members have helped other members improve their ability to sustainably manage their woodland and market their woodland products over the long term. Information is available online at [www.oregonwoodlandcooperative.com](http://www.oregonwoodlandcooperative.com).

### KnowYourForest.org

KnowYourForest.org is a one-stop shop for information related to the tending of your woods. In addition to contact information for the professionals and organizations mentioned above, you will also find videos, publications and instructions on a range of forest topics.





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