



WACD Plant Materials Center

DOUG FIR

Common Name: Douglas Fir

Scientific Name: *Pseudotsuga menziesii* ~ There are two subspecies of Douglas Fir; the Coast Douglas Fir (*Pseudotsuga menziesii* var. *menziesii*) which occurs along the Pacific coast and western Cascades, and the Rocky Mountain or Blue Douglas Fir (*Pseudotsuga menziesii* var. *glauca*) which is found further inland.



Distribution: The native range of the Coastal Douglas Fir extends from the Coastal Range of California in the south, to central British Columbia in the north. It extends from the Pacific Coast up the west slope of the Cascades to 5,000 elevations. Rocky Mountain Douglas Fir is found in mountain areas of northeastern and eastern Washington and throughout the Rocky Mountains, at elevations up to 8,000 feet.

Growth Habit: Douglas Fir can reach 200 feet high and the trunk can grow up to 4 feet in diameter.

Adaptability: Douglas Fir is adapted to grow throughout the range described above. It grows on soils that vary from moist to dry. It is not very tolerant of soils that are compacted or poorly drained. Young seedlings and saplings will tolerate some shade, but require ample sunlight to reach maturity.

Comments: The importance of Douglas Fir to the region cannot be understated. It is a major component of forests throughout North America, and one of the world's most valuable timber species. Browsing damage caused by deer, elk, and rodents can result in significant damage to young seedlings and saplings, and may require appropriate protection.





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GIANT SEQUOIA

- Common Name:** Giant Sequoia
- Scientific Name:** *Sequoiadendron gigantea*
- Distribution:** Giant Sequoia is not native to Washington. It occurs naturally in a narrow belt along the west slope of the central Sierra Nevada mountains.
- Growth Habit:** As the name implies, Giant Sequoia grows to become a large tree. The tallest specimen is the 'General Grant' tree in Kings Canyon National Park, which is 310 feet tall and its trunk is 347 inches in diameter at breast height. The oldest known Giant Sequoia is 3200 years old.
- Adaptability:** Giant Sequoias have been grown in Washington for decades, with numerous large specimens and groves resulting. It requires ample sunlight and well-drained, moist soils in order to thrive. Excess shade, heavy wet soils, and insufficient moisture can result in death.
- Comments:** Giant Sequoia is used primarily as an ornamental in the region. Its value as a timber tree for this region has been studied. There is an 80 year-old plantation in Belgium with trees that have grown rapidly and are becoming large.





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GRAND FIR

Common Name: Grand Fir

Scientific Name: *Abies grandis*

Distribution: Grand Fir occurs through out the Northwest US, and southern British Columbia. In Washington, it is commonly found at low to mid elevations that range from sea level to 1500 feet west of the Cascades, and 1,500 to 5,000 feet east of the Cascades.



Growth Habit: Grand Fir lives to an average age of 250 years, although trees can be found over 300 years old. During that time they can grow from 140 to 200 feet tall, with a trunk that can reach 60 inches in diameter. Its growth rate is rapid as a sapling and young pole. Growth rates of 31 to 35 inches per year have been noted in Western Washington, which nearly equals that of Douglas Fir.

Adaptability: Grand Fir is adapted to a wide range of sites. It often occurs in moist sites such as valleys and stream bottoms. It is also found as an upland species, growing on drier soils, particularly in the inland Northwest.

Restoration: Grand Fir is an adaptable restoration species. When planted in moist sites, it can grow vigorously enough to compete with other species. On drier upland sites it often occurs as a shade-tolerant understory species, eventually growing to a dominant climax species when conditions are suitable.

Comments: Grand Fir was first named by the Botanist David Douglas because of its great height, although its height is intermediate for true firs of the region. Its needles are perhaps its most distinctive feature. They are exceptionally large, flat, and dark green among true firs, and are strongly flattened along the stem in 2 very distinct ranks of needles, which smell 'catty' when crushed. In fact, this distinctive odor is the reason *Abies grandis* has another lesser used common name; Stinking Fir.



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NOBLE FIR

Common Name: Noble Fir

Scientific Name: *Abies procera* (syn. *A. nobilis*)

Distribution: The native range of Noble Fir is limited to the Cascade and Coastal Ranges of the Pacific Northwest, particularly along the west slope and crest. It is usually found at elevations ranging from 3,000 to 5,000 feet.



Growth Habit: Noble Fir can reach 200 feet tall and the trunk can grow up to 4 feet in diameter.

Adaptability: Noble Fir is adapted to grow throughout the region. It grows on a wide range of soils, providing adequate moisture and drainage is available. It grows on all landforms, from rugged slopes to valley bottoms, although stands are better suited to gentle terrain. It is not tolerant of much shade.

Comments: Noble Fir is important ecologically, culturally, and economically. Its wood is the strongest of the true firs, as well as the largest. Its lumber is valued in the building industry. The high strength to weight ratio of the lumber has also made it useful in aircraft production, most notably the British Mosquito fighter in WW II. Noble Fir has become an ever increasingly important species in the Christmas tree industry.





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PONDEROSA PINE

Common Name: Ponderosa Pine, Yellow Pine, Bull Pine

Scientific Name: *Pinus ponderosa*

Distribution: The native range of Ponderosa Pine extends from southern Canada to Mexico. In this region it is found primarily in forested areas of central and eastern Washington up to elevations of 4,000 feet, with a few isolated packets west of the Cascades.

Growth Habit: Ponderosa Pine can grow to over 100 feet tall and the trunk can reach 3 feet in diameter.

Adaptability: Ponderosa Pine is adapted to grow throughout the region. It grows in a wide range of soils, where adequate moisture and drainage is available. It is usually found in areas that receive from 14 to 30 inches of precipitation annually, with much of coming in the form of snow in the winter. It is tolerant of minimal precipitation in the summer months, although it typically survives seasonal droughts better in medium and coarser textured soils, where moisture is less tightly bound in the soil. It is generally considered intolerant of shade. Ample sunlight is important for good vigor.

Comments: Ponderosa Pine is one of the most widely distributed pines in western North America. Ponderosa Pine forests provide a valuable source of timber, as well as providing important wildlife habitat. Young seedlings and saplings are at risk to damage from rodents, deer and elk, as well as trampling from livestock, therefore seedlings may require protection.





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WESTERN LARCH

Common Name: Western Larch, Tamarack

Scientific Name: *Larix occidentalis*

Distribution: Western Larch is predominantly found in the Northeast region of Washington. It also occurs sporadically along the east slope of the Cascades at elevations above 3,000 feet, and in the Blue Mountains in southeast Washington between 2,000 and 4,500 feet.

Growth Habit: Western Larch is the only *deciduous* conifer currently native to this region. Dawn Redwood (*Metasequoia glyptostroboides*), another deciduous conifer, was present until 13 million years ago, when an ice age obliterated it. Larch is a vigorous, upright tree. It can exceed 150 feet tall, with a straight trunk that grows to 3 feet in diameter.



Comments: Western Larch is an important commercial species. The wood is strong with a long, straight grain. It is used in construction where exceptionally strong wood is required. It is often found as a pioneering species, and is therefore a good species for use in open, disturbed restoration sites. Its seeds are eaten by several species of birds and mammals, and grouse eat the fallen needles. Its bright gold autumn color is valued in the ornamental industry, and even more spectacular in large native stands.





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WESTERN RED CEDAR

Common Name: Western Red Cedar

Scientific Name: *Thuja plicata*

Distribution: The native range of Western Red Cedar extends along the Pacific coast from Humboldt County, California, north to Southeast Alaska. It occurs inland from the coast up the western slope of the Cascades to 3,500 feet elevation, usually in moist soils. It is also found along the east slope of the Cascade and in Northeastern Washington, where it occurs less than 5,000 feet in moist areas such as creek bottoms.



Growth Habit: Western Red Cedar can grow to over 150 feet tall, and trunk diameter can exceed 6 feet in a good, open site. It also grows in the shade as an understory species, but at a much slower rate.

Adaptability: Western Red Cedar is adapted to grow through out the range mentioned above. It will grow in full sun to shade, although the growth rates can be very slow in deep shade. Western Red Cedar grows in a wide range of soil types, but it is best adapted to soils that are moist and fine textured. It can be abundant in forested swamps, and riparian areas. It can also be found on drier upland sites, west of the Cascades.

Comments: Western Red Cedar is an ecological, economic, and culturally valuable species in the region. It is often a vital component of healthy, functioning riparian habitat. A mature tree provides shade, stream-side stabilization and wildlife habitat. Browsing damage caused by deer, elk, and rodents can result in significant damage to young seedlings and saplings, and may require appropriate protection.





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WESTERN WHITE PINE

Common Name: Western White Pine

Scientific Name: *Pinus monticola*

Distribution: The native range of Western White Pine extends from eastern California northwards to central British Columbia. It is most predominant in Washington State in the northeast region. They can also be found growing natively along the western slope of the Cascades and through the Puget Sound basin. Their population in this area has been reduced considerably over time though.

Growth Habit: Western White Pine can reach over 200 feet high and the trunk can grow up to 6 feet in diameter. In areas unaffected by White Pine Blister Rust, specimens can be found over 300 years old. Mature trees typically have long straight trunks with minimal tapering and a narrow crown.

Adaptability: Western White Pine is adapted to grow throughout the region at varying elevations. It tolerates a wide range of precipitation and temperature regimes. It is best suited to sites that are well drained with good exposure however.

Comments: Western White Pine has been a very important timber species in this region historically. It still is, but to a lesser degree due to a disease that was devastating to endemic populations. White Pine Blister Rust is a fungal disease that can kill trees across large areas. Over time, trees that have shown some resistance to this pathogen have been selected for breeding stock. Trees resulting from this process have been placed in seed orchards to produce White Pine Blister Rust resistant seeds for propagation. The PMC grows only trees that are propagated from White Pine Blister Rust resistant seed.

