

# Extension Forestry

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## Characteristics of Tree Species Common in Douglas County



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

- Most common west coast tree
- Fast growing on good sites, likes mineral soil
- Does not tolerate extreme wet or dry conditions
- Shade intolerant
- Often forms dense pure stands following fire
- Well suited to Douglas County's north and east facing slopes
- Oldest authentically dated tree was 1400 years old (500 years is more common)
- Growth extremely limited after 200 years
- May form tap root in deep soil, but more commonly stays near the surface
- Low root pressure
- Root system about diameter of crown
- Difficult to achieve natural regeneration after harvest
- Tallest specimen 330 feet.
- 250 feet height and 6 feet diameter common in old forests.

### Pacific Silver Fir (*Abies amabilis*)

- Gray trunk and rigid, symmetrical crown with branches perpendicular to crown
- Maritime climate
- Cool summers
- 38 to 262 inches precipitation
- Must have adequate soil moisture
- Wide range of soils, prefers well-drained
- Found at high elevation in Douglas County (3500 to 6000 ft)
- Commonly associates with hemlock
- Can produce epicormic branches
- Can exceed 200 ft height and 24 inches in dbh
- Maximum reported age is 590 years
- May develop taproot
- Flat, shallow root system on poorly drained or shallow soils
- One of the most shade tolerant species in the Northwest

### White Fir (*Abies concolor*)

- Rogue/Umpqua Divide, high elevations
- Wide variety of soils and soil conditions
- Growth best on moderately deep, well drained sandy-loam and clay-loam soils
- Frost sensitive
- Dry sites
- Very shade tolerant, but less so than western hemlock and perhaps western redcedar
- Grows best in full sunlight
- Adaptable rooting habit
- May reach 180 feet tall and 65 inches dbh

### Grand Fir (*Abies grandis*)

- Rapid growing
- Has reached 231 ft height and 79 inches dbh
- Wide range in western Oregon and Washington
- Grows well on wide variety of soils
- Prefers deep, rich alluvial soils of valley bottoms
- May produce taproot
- Lives 250 to 300 years maximum
- Shade tolerant - more so than Douglas-fir, less so than hemlock
- May reach 250 ft in height and 60 inches in dbh

### Subalpine Fir (*Abies lasiocarpa*)

- Smallest fir species
- Long, narrow conical crown
- Grows in cool, wet climate
- High elevations in Oregon
- Tolerates both wet and dry sites
- May reach 100 ft height and 24 inches dbh
- May exceed 250 years age
- Very shade tolerant
- Wide range of soils
- Generally shallow rooted
- Susceptible to windthrow

**California Red Fir (*Abies magnifica*)**

- Rogue/Umpqua divide, Crater Lake, Diamond Lake
- Limited to high elevations (5300 to 5900 ft)
- Cool/cold and moist climates
- Often found on young soils
- High stand densities
- Adaptable rooting habit
- Relatively shade tolerant
- Grows best in full sunlight
- Reaches 200 ft in height and 5 ft in diameter

**Noble Fir (*Abies procera*)**

- Crater Lake, Diamond Lake
- 200 ft tall and 5 ft in dbh
- Prefers moist, maritime climate
- Grows primarily at higher elevations (3500 to 5500 ft)
- Tolerates wide range of soils
- Must have adequate soil moisture
- Slow initial growth
- Commonly reach 45 to 60 inches dbh and 130 to 175 ft tall
- Largest is 278 ft tall and 108 inches dbh
- Frequently found in mixed stands
- Moderately windfirm
- Intermediately shade tolerant - least shade tolerant of any American true fir

**Western Hemlock (*Tsuga heterophylla*)**

- Humid areas of Pacific coast & northern Rockies
- Thrives in mild, humid climate with frequent fog and precipitation during growing season
- Confined to north aspects, stream bottoms, and seepage sites in dryer climates
- Grows on variety of soils, but growth decreases on compacted or clayey soils
- Does not tolerate surface water - needs 6 inches to 3 feet of drained soil
- Very shade tolerant
- Shallow rooted
- Very susceptible to fire and windthrow
- Sunscald possible in thinnings
- Grows in dense stands (up to 10,000 stems/acre)
- May reach 700 years age, but trees over 300 virtually stop growing
- Commonly reach 200 ft height and 40 inch dbh (max = 259 ft and 108 inch dbh)

**Yew (*Taxus brevifolia*)**

- Small shade-loving conifer often found in mature conifer stands
- Shade tolerant
- Usually an understory tree
- Slow growing
- May reach 24 inches dbh and 50 ft height
- Has hard, heavy, decay-resistant wood
- Prefers deep, moist, rocky or gravelly soils
- Dioecious (separate male and female flowering plants)

**Redwood (*Sequoia sempervirens*)**

- Mild, very humid climate
- Coastal region of northern California and far southern corner of Oregon
- Prefers fog
- Deep sandy loam or gravelly loam soils, likes flood plains
- Will not tolerate high levels of sodium or magnesium in soil
- Will reproduce vegetatively
- World's tallest tree (200 to 300 ft common, record is over 360 ft)
- Can reach over 240 inches diameter (dbh)
- No taproot, lateral roots large and wide-spreading
- Usually a dominant tree, yet very tolerant of shade
- Grows in very dense stands

**Giant Sequoia (*Sequoiadendron giganteum*)**

- Natural range is west slope of Sierra Nevada in central California
- Humid climate with dry summers
- Temperatures below -12 degrees F. limit range
- Deep, well-drained sandy loam soils
- Will grow on shallow, rocky soils if subsoil moisture is available
- 4500 to 6500 feet elevation
- Natural reproduction is tenuous - requires very specific conditions
- Long-lived and massive
- Commonly reach 250 ft in height and 120 to 240 inches dbh
- Many individuals 2000 to 3000 years old
- Forms significant taproot
- Shade intolerant

**Port-Orford-Cedar (*Chamaecyparis lawsoniana*)**

- Not a true cedar
- Range includes southwest Douglas County
- Cool wet winters and hot dry summers
- Moderate to high rainfall, fog common
- Grows on sand dunes, bogs, intermittent stream margins, and drier sites
- Best growth on deep soils from weathered sedimentary rock
- Prefers concave or sheltered slopes with seepage
- Relatively slow growing
- May exceed 560 years age
- May grow to 160 ft height and 40 inch dbh
- Shade tolerant
- Dense stocking common

**Western Redcedar (*Thuja plicata*)**

- Not a true cedar
- Prefers boggy habitats
- Can tolerate sites too dry for hemlock
- 28 to 260 inches of rain
- Susceptible to frost damage and windthrow
- Wide range of soils
- Tolerates low soil fertility but responds very well to fertile sites

**Western Redcedar (*Thuja plicata*) (continued)**

- Raises soil pH
- Prefers disturbed mineral soil seedbed
- Extensive rooting without taproot
- Will reproduce vegetatively
- Establishes in dense stands (1000/acre)
- Very shade tolerant (but less than hemlock)
- Found as high as 7500 ft in Oregon
- 200 ft tall and 10 feet or more in diameter
- Commonly lives 800 to 1000 years (2000 rare)

**Incense-cedar (*Calocedrus decurrens*)**

- Not a true cedar
- Slow growing
- Drought tolerant
- More shade tolerant than Douglas-fir
- Tolerates shade as seedling
- Prefers open sunlight as pole or mature
- Spreading and extensive root system
- Susceptible to root rots, especially annosus
- Grows on variety of soils
- May exceed 500 years age
- May reach 225 ft height and 150 inch dbh

**Sitka Spruce (*Picea sitchensis*)**

- Largest of world's spruces
- Grows in narrow strip along Pacific coast
- Requires humid air, likes summer fogs
- Best on deep, moist, well-aerated soils
- Growth poor on swampy sites
- Requires relatively high amounts of Ca, Mg, P
- May live 700 to 800 years
- Has reached 280 ft in height and over 16 ft dbh (current record tree is near Seaside OR)
- Shade tolerance between Doug-fir & hemlock
- Branches epicormically when opened to sunlight
- Susceptible to windthrow
- Great variability in rooting habit

**Ponderosa Pine (*Pinus ponderosa*)**

- Prefers coarse-textured soils
- Tolerates wide range of climate and elevations
- Tolerates low soil fertility
- Often found in groups of similar-aged trees rather than true uneven-aged structure
- Fire resistant when mature
- 300 to 600 year lifespan
- Vigorous taproot (3 to 6 feet)
- Intolerant to shade
- Holds 2 to 3 years needles, so crown has tufted appearance

**Jeffrey Pine (*Pinus jeffreyi*)**

- Primarily a California species, reaches into southwest corner of Douglas County
- Similar in appearance and wood characteristics to ponderosa pine

**Jeffrey Pine (*Pinus jeffreyi*) (continued)**

- Very cold hardy
- Drought hardy
- Adapted to short growing seasons
- Tolerates shallow, infertile, loamy to clayey & serpentine soils
- Will grow on any well-drained soil
- Widely associating with incense-cedar
- Grows more slowly than ponderosa pine during sapling stage, but more rapidly during pole stage
- May live 400 to 500 years
- May reach 200 ft height and 90 inch dbh
- Very windfirm
- Shade intolerant
- Holds needles for 5 to 8 years, so has more full crown than ponderosa pine

**Lodgepole Pine (*Pinus contorta*)**

- 4 varieties, we have 2 in Oregon: shore pine (var. *contorta*) and Rocky Mountain lodgepole (var. *latifolia*)
- Grows under wide variety of climatic conditions
- Relatively resistant to frost injury
- Very intolerant of shade, best in full sunlight
- Wide variety of soils, usually moist
- Tolerates bogs as well as dry, sandy sites
- Tolerates extremely infertile soils
- Prolific seed producer
- Cones are persistent and often serotinous
- Non-serotinous cones are prevalent in Oregon
- Regenerates in dense stands following fire
- May live 300 to 400 years, but this is rare
- May reach 20 inches dbh and 100 ft tall
- Taproots common in deep soil
- Shallow rooting common where hardpan or water table is encountered

**Sugar Pine (*Pinus lambertiana*)**

- Tallest and largest of the pines
- Reaches 200 ft in height and 60 inches dbh
- Occasionally exceed 500 years age
- Found at 1100 to 5400 ft elevation
- Temperature and precipitation vary widely
- Wide range of soil conditions
- Best on well-drained, acidic soils
- Often found on steep and rugged terrain
- Develops deep taproot
- More shade tolerant than ponderosa pine, but less so than incense-cedar and Douglas-fir

**Western White Pine (*Pinus monticola*)**

- Found in Cascade Range
- Commonly 190 ft tall and 70 inches dbh
- Has reached 239 ft in height and 78 inches dbh
- Maritime climates, wet winters & dry summers
- Tolerates wide range of soils
- Prefers deep porous soils

**Western White Pine (*Pinus monticola*) (continued)**

- Most common on poor, sandy soils
- Reaches 300 to 400 years old, rarely 500 years
- Root habit depends on soil conditions
- Roots tolerate dense soil
- Intermediate in shade tolerance
- Achieves dominant position in stand only following wildfire or clearcutting

**Hardwoods**

**Red Alder (*Alnus rubra*)**

- Most common hardwood in Pacific Northwest
- Lowland species
- Usually found within 125 miles of ocean and at elevations below 2400 feet
- Humid climates
- Needs 25 inches rain per year or access to ground water
- Tolerates wide range of soils
- Tolerates poor drainage and some flooding during growing season
- Prevalent along streams and in swamps or marshes
- Will sprout vigorously from stump when young
- Rapid juvenile growth
- Extensive, fibrous root systems
- Intolerant of shade - only black cottonwood requires more sunlight
- May experience epicormic branching following thinning
- Short-lived, maximum age is about 100 years
- Trees over 35 inches dbh are rare
- May reach 130 ft height on good site

**Bigleaf Maple (*Acer macrophyllum*)**

- Leaves up to 24 inches across
- Wide range of temperature and moisture conditions
- Often near streams and springs but also found on dry sites
- Prefers well-drained alluvial soils - growth is poor on shallow, rocky soils
- Sprouts prolifically after being cut
- Rapid juvenile growth
- Generally 50 ft tall and 20 inches dbh
- Has been known to exceed 100 ft in height and 130 inches dbh
- Maximum age appears to be about 200 years

**Black Cottonwood (*Populus trichocarpa*)**

- Largest of the American poplars
- Largest known hardwood tree in Western North America
- Wide range throughout Pacific Northwest
- Best growth in humid coastal forest, but tolerates dry climates
- Grows on variety of soils
- High soil acidity may restrict establishment
- Found at up to 5000 ft elevation in Cascade Range
- Forms extensive pure stands on alluvial soils
- Sprouts readily from cut stumps

**Black Cottonwood (*Populus trichocarpa*) (continued)**

- Cuttings easily rooted
- May attain pulpwood size in 10 to 15 years
- Grows well for as long as 200 years
- Exceptional trees have attained 120 inches dbh and 200 ft height
- Very intolerant of shade - grows best in full sunlight

**Oregon Ash (*Fraxinus latifolia*)**

- Common in riparian habitats
- May reach 250 years of age
- Fast growing during juvenile period, slow growing later
- Prefers cool summers and mild winters
- Occasionally found as high as 5000 ft elevation, usually not higher than 3000 ft
- Prefers poorly drained, moist bottom land with deep soil rich in organic matter
- May reach 80 ft in height and 30 inches dbh
- Generally shallow rooted
- Intermediate shade tolerance
- Self pruning is rapid where side shade is present

**Willow (*Salix* spp.)**

- Wide variety of species common in wet sites
- No timber value in Douglas County
- Used in basket weaving and other crafts
- Generally small and bushy in appearance

**Oregon White Oak (*Quercus garryana*)**

- Principal native oak in Oregon
- Diverse climates, ranging from cool and humid to hot and dry
- Grows on wide range of soils and sites
- Most competitive on poor sites
- Tolerates site conditions ranging from extremely dry to very moist
- One of few species that survive well on sites that cycle between extremely wet and extremely dry
- Sprouts abundantly from dormant buds following cutting or fire
- May reach 90 ft tall and 40 inches dbh on good sites
- Often stunted and of poor stem form on low quality sites
- Deep taproot and well-developed lateral root system
- Intermediate shade tolerance, but not tolerant to sustained overtopping by other trees

**California Black Oak (*Quercus kelloggii*)**

- Most common California oak, range stops just south of Eugene
- Does not grow near Pacific Ocean
- Climate typified by hot dry summers and cool moist winters
- Does not tolerate wet soils (so not commonly found where clay content is high)
- Found at 450 to 1000 ft elevation
- Commonly found mixed with Oregon White Oak and/or Madrone in Douglas County

**California Black Oak (*Quercus kelloggii*) (continued)**

- Sprouts profusely after trees are cut or burned
- Most commonly regenerated by sprouting following fire
- May live to be 500 years old
- Seldom exceeds 130 ft in height and 5 ft diameter
- Large spreading lateral roots and may form multiple tap roots
- Moderately shade tolerant in early life but becomes progressively intolerant to shade as it matures - will not tolerate overtopping for extended periods

**Madrone (*Arbutus menziesii*)**

- One of the most widely distributed tree species on the Pacific coast
- Broadleaved evergreen
- Prefers mild temperatures and prolonged cloudy periods
- Prefers wet, mild winters and cool, relatively dry summers with long frost-free periods
- Wide range of soils and terrains
- Generally not found above 3000 ft elevation in Douglas County
- Associates with wide range of tree species
- Reproduces mainly by stump sprout
- Sprouts exhibit rapid initial growth
- Generally slow growing beyond juvenile stage
- Tall and stately on good sites, low and shrubby on poor sites
- May exceed 500 years age in some instances
- Seldom exceed 110 ft height and 60 inches dbh
- Trees 50 to 60 years old often have well developed root burl from which extensive root system spreads
- Requires partial shade for regeneration from seed, and increasing light as tree develops
- Intermediate in shade tolerance
- Persistent foliage

**California-Laurel or Myrtlewood (*Umbellularia californica*)**

- Broadleaved evergreen with leaves persisting 2 to 6 years
- Broad range of climates ranging from cool and humid to hot and dry
- Tolerates wide range of soil conditions if soil moisture conditions are favorable
- Sprouts prolifically from root collar
- Often multiple-stemmed
- May reach 80 ft in height and 30 inches dbh
- Has been reported as large as 175 ft in height and 159 inches dbh
- Generally slow growing (particularly in height)
- Usually develops deep and spreading root system, but exceptions are common in southern Oregon
- Shade tolerant

**Golden Chinkapin or Giant Chinkapin (*Castanopsis chryso-phylla*)**

- Broadleaved evergreen
- Often found intermixed in conifer-dominated stands
- Found near sea level in Coast Range to over 5000 ft in Cascade Range, with shrub form found as high as 6000 ft

**Golden Chinkapin or Giant Chinkapin (*Castanopsis chryso-phylla*) (continued)**

- Climate characterized by winter precipitation and summer drought
- Found in wide variety of topographic position
- Pure stands are uncommon
- Sprouts prolifically when injured, cut, or lightly burned
- Sprouts grow rapidly in height
- Adapted to frequent fire regimes
- May exceed 150 years age
- May reach 150 ft in height and 6 ft dbh
- Tolerates sites with low fertility
- Shrub form is quite tolerant of shade, tree form is less so (intermediate shade tolerance)

**References**

Burns, Russell M., and Barbara H. Honkala. 1990. *Silvics of North America. Volume 1, Conifers. Volume 2, Hardwoods.* USDA Forest Service. Agricultural Handbook 654.

Jensen, Edward C., and Charles R. Ross. 1994. *Trees to Know in Oregon.* Extension Circular 1450. Oregon State University Extension Service and Oregon Department of Forestry.