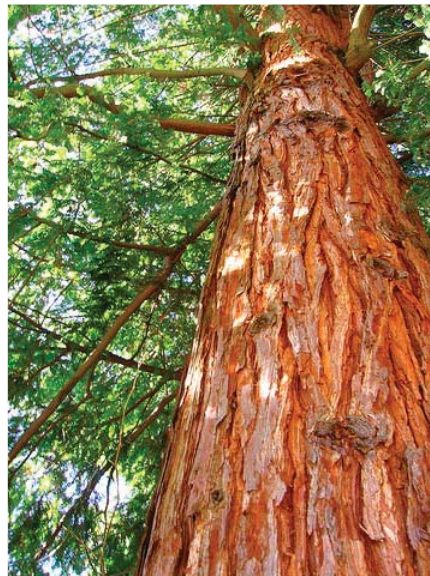
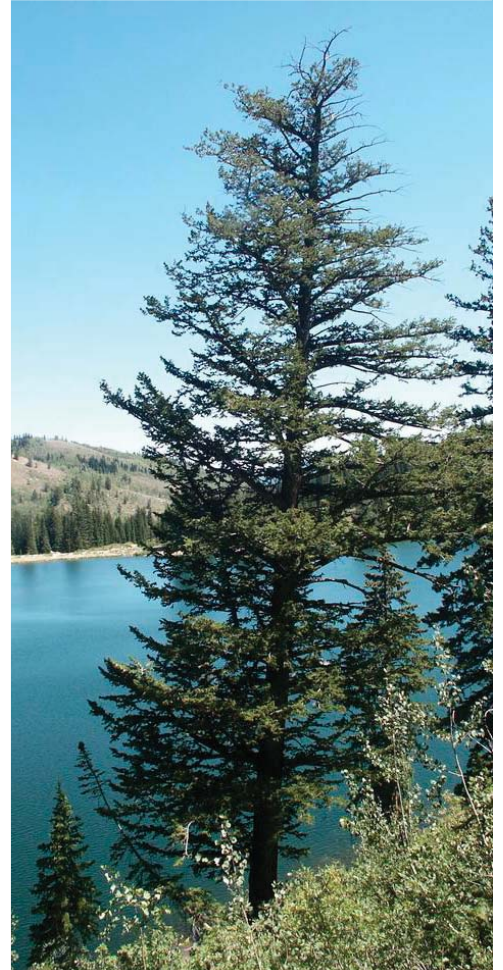




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Jefferson High School Tree Walk

LEARNING LANDSCAPES



Jefferson High School Tree Walk 2015 Learning Landscapes

Site data collected in Summer 2014.

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Cover photos (from top left to bottom right):

- 1) Barrel-shaped *Sequoiadendron giganteum* cones.
- 2) The unusual "duckbill" cones of an incense cedar.
- 3) A Douglas-fir growing in the wild.
- 4) Cones and long needles on a ponderosa pine.
- 5) Noble fir cones have a pointed bract on each scale.
- 6) The acorn and leathery leaves of an Oregon white oak.
- 7) Western redcedar bark peels in long vertical strips.
- 8) The foliage of western hemlock alternates in length.

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Commissioner Amanda Fritz
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The Learning Landscapes Program



Jefferson High School

The Jefferson High School Learning Landscape was initiated in January 2008, and the collection includes 25 trees. This tree walk identifies trees planted as part of the Learning Landscape and includes detailed information on each species.

What is a Learning Landscape?

A Learning Landscape is a collection of trees planted and cared for at a school by students, volunteers, and Portland Parks & Recreation (PP&R) Urban Forestry staff. Learning Landscapes offer an outdoor educational experience for students, as well as environmental and aesthetic benefits to the school and surrounding neighborhood. Learning Landscapes contain diverse tree species. They are designed to teach students about biology and urban forestry issues, but can also be used to teach geography, writing, history and math, and to develop leadership skills.

Community Involvement

Community-building is crucial to the success of Learning Landscapes. PP&R works with Urban Forestry Neighborhood Tree Stewards, teachers, parents, students, and community members to design, plant, establish and maintain these school arboreta. PP&R facilitates this collaboration by working with the school district, neighborhood, students and teachers to create landscapes that meet the need of the individual school community.

By involving students and neighbors in the tree planting, the community has ownership of the trees and a tangible connection to their school.

Tree Planting Experience

Learning Landscapes are planted by the school's students under the mentorship of middle or high school students and volunteers. On planting day, tree planting leaders teach students the benefits of urban trees, form and function of trees, and tree planting techniques. This leadership aspect of Learning Landscapes gives older students and volunteers the opportunity to connect with their peers, build confidence, and develop public speaking skills. Involving students and neighbors in the tree planting fosters community ownership of the trees and builds a tangible connection between school and neighborhood. This helps ensure a high tree survival rate by reducing vandalism and encouraging ongoing stewardship of the school's trees.

Continued Hands-on Learning Opportunities

Once planted, Learning Landscapes are used by teachers and parents for service and leadership projects. Students and teachers continue to build projects around the trees with opportunities to water, prune, weed and mulch. These dynamic landscapes change year after year, depending on student and teacher interests, as new trees are planted and added to the collection.

How can I get involved?

Visit <http://www.portlandoregon.gov/parks/learninglandscapes> for volunteer opportunities, to view more maps, and to learn how to plan a Learning Landscape in your community.

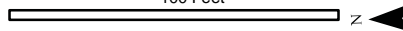
Jefferson High School Tree Walk



Learning Landscapes

<http://portlandoregon.gov/parks/learninglandscapes>

100 Feet



Jefferson High School Tree Walk

Tree #	Common Name	Scientific Name
1-8	Oregon white oak	<i>Quercus garryana</i>
9	incense cedar	<i>Calocedrus decurrens</i>
10	noble fir	<i>Abies procera</i>
11	ponderosa pine	<i>Pinus ponderosa</i>
12	giant sequoia	<i>Sequoiadendron giganteum</i>
13	incense cedar	<i>Calocedrus decurrens</i>
14, 16	ponderosa pine	<i>Pinus ponderosa</i>
15	noble fir	<i>Abies procera</i>
17	Douglas-fir	<i>Pseudotsuga menziesii</i>
18	western redcedar	<i>Thuja plicata</i>
19, 20	western hemlock	<i>Tsuga heterophylla</i>
21	western redcedar	<i>Thuja plicata</i>
22	Douglas-fir	<i>Pseudotsuga menziesii</i>
23	western redcedar	<i>Thuja plicata</i>
24	ponderosa pine	<i>Pinus ponderosa</i>
25	Douglas-fir	<i>Pseudotsuga menziesii</i>

Tree Facts, A to Z

Douglas-fir, *Pseudotsuga menziesii*

Origin: North America - from British Columbia south to Oregon, Washington, California, Idaho and western Montana with a subspecies in the Rocky Mountain states and into northern Mexico

Not a true fir, Douglas-fir may grow up to 250' tall and 10' in diameter, although specimens have been found that are 330' tall. Young trees sometimes emit long columns of sap through the bark. The needles (about 1" long) are green above and blue-green underneath with two white lines running parallel to the length. Needles are dense and scattered around

the stem. The cones are about 3½" long with distinct bracts sticking out. Some say the bracts look like a pitchfork or the hind legs and tail of a mouse. The tree also has a strong pine-like scent which can be smelled by crushing the needles or walking through a forest dominated by Douglas-fir. Douglas-fir has been the state tree of Oregon since 1939 and has been used as the main source of construction lumber for Oregon and the rest of the United States. Douglas-fir is also harvested for Christmas trees.

giant sequoia, *Sequoiadendron giganteum*

Origin: North America - California in the Sierra Nevada

Giant sequoias are the world's largest tree by volume. The tallest can reach over 250' - shorter than the world's tallest trees - their coastal redwood cousins. Long lived trees, the oldest



(as determined by ring count) was 3,500 years old. Millions of years ago the trees were widespread around the planet, growing in the Arctic during warmer periods in Earth's history. The trees eventually died out everywhere but in the Sierra Nevada of California. Restricted in nature now to only a few dozen isolated groves in a narrow elevational band between 4,500 and 7,100 feet, the trees were first discovered by Western scientists in the 1850s. Bark is fibrous. Needles are in flat sprays, sometimes with a decided bluish-gray color. Cones are small (1.6 to 2.8 inches long).

incense cedar, *Calocedrus decurrens*

Origin: North America - from Oregon south into California and northern Baja California in Mexico.

Evergreen conifer with single straight trunk and capable of reaching 185'. Usually densely branched, columnar in form (broader in nature but with narrow forms common). The



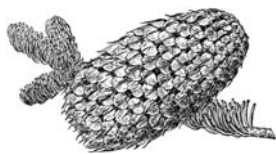
needles are held in flattened sprays. Golden-yellow pollen is shed in winter and early spring. Oblong cones

have 3 alternating pairs of scales with a bump just below the tip. Bark is smooth on young trees but becomes fibrous and reddish-brown with age. Highly decay-resistant wood is light, soft and fragrant, giving rise to the tree's common name in English. Primarily used to make pencils but also used in the Far West to make fenceposts or shingles. Trees can live 350 to 500 years. Only two other species in *Calocedrus* are known – both in Asia.

noble fir, *Abies procera*

Origin: North America - Washington and Oregon

Noble fir is the largest of the true firs. The crown is conical and rounded at the tip. Bark is blistered on young trees, turning purplish gray to reddish brown on mature trees, with flattened ridges. Needles are white on both surfaces and curve at the base like a hockey stick. Unlike other firs, each needle runs parallel to the twig for about 1/8" before it curves away. Branches are short and nearly horizontal. Barrel-shaped cones sit upright and are 4" to 6" long. Cones have thin scales with rounded "shoulders," and fall apart in the late fall after the seeds have ripened. The cones are wrapped in paper-thin bracts separating seeds from the cone scales. While all conifers have bracts, the noble fir is the only species having bracts large enough to be visible outside the cone. Noble firs are among true firs, or balsam firs, so named because of tiny pockets of resin (balsam) in their bark. They were used extensively to reforest Mt. St. Helens after its 1980 eruption.



Oregon white oak, *Quercus garryana*

Origin: North America - southern British Columbia, Canada through Washington and Oregon west of the Cascades and northern California

Oregon white oak is a deciduous tree growing up to 90' tall. Branches are dense and wide, with limbs of solitary trees reaching to the ground. The leaves (3–6" long) are thick and shiny with rounded lobes.

A distinguishing feature is the presence of galls on the underside of leaves or small twigs. The galls are the home of little wasps that lay their eggs inside oak leaves. The fruit of the Oregon white oak is an acorn about 1" long that protrudes from a narrow cap. These trees prefer open grassland habitats where they cannot be shaded out by other species. Oregon white oak was once one of the predominant trees in the Willamette Valley, but has declined to only 1% of its original range due to land development for farms and cities, and a reduction in wildfires. The tree's nickname, Garry oak, is after Nicholas Garry, the secretary of Hudson's Bay Company who helped botanist David Douglas.

ponderosa pine, *Pinus ponderosa*

Origin: North America - from British Columbia, Canada south through the Northwest and other Western states east to Nebraska and south to northern Durango and Tamaulipas states in Mexico.

Ponderosa pine is the most widely distributed pine in North America after lodgepole pine. In 1826 David Douglas first named the tree *ponderosa* after the ponderous, or heavy, wood. These evergreen trees grow up to 180' tall and may live 500 years or more in the wild. Needles are 5–10" long and grow in bundles of three. Cones are egg-shaped and 3–5" long. As ponderosa pines age, their bark turns from a dark brown to a yellow or orange hue, giving older trees the nickname "yellow bellies" or "punkins." For a sweet surprise, cuddle up with a yellow belly and smell the cracks in the bark—it's reminiscent of baking cookies with sweet tones of vanilla and butterscotch. Lumber is valued for light construction and millwork. Native Americans who lived near ponderosa pines had many medicinal uses for the tree, and some also used the roots to make a blue dye. The seeds are consumed by a wide range of wildlife.



western hemlock, *Tsuga heterophylla*

Origin: North America - Alaska to California

Narrow, pyramidal conifer growing slowly to 100'. Some trees in Olympic National Park are over 200' tall. Short needles give a soft, fine effect. Branches tend to hang down, giving



a weeping appearance. Gray bark. Western hemlock grows from Alaska's Kenai Peninsula through coastal British Columbia, Washington and Oregon to the coastal redwood forests of northern California. It can be found as far east as northwest Montana and northern Idaho in valleys receiving at least 32" of rain a year. It grows from sea level to 5,000'. The tree is similar to mountain hemlock but has smaller cones, less than an inch long versus 1.5" to 3" long for its mountain relative. Western hemlock occurs at lower elevation and does not range as far south in the Cascades as mountain hemlock. Being shade tolerant, western hemlock eventually becomes the dominant tree in undisturbed forests. The wood is used in construction, pilings, poles, gym floors and wood pulp. Washington's state tree since 1947.

western redcedar, *Thuja plicata*

Origin: North America - British Columbia, Canada south through Washington, Oregon, northern Idaho and northwest Montana south to northern California; also in the Alaska Panhandle

Western redcedar can grow up to 200' tall and greater than 10' in diameter.

This evergreen has flat, waxy, scale-like leaves that resemble the pattern of ferns. On the underside of the leaves is a white chalk-colored pattern of "X" shaped marks. The branches usually hang down from the trunk in a hook-like fashion. The bark is dark brown, fibrous, and peels off easily in small strips. The cones (about ½" long) form at the tips of the scale-like leaves and open upon maturity. Western redcedar has been used for outbuildings and sheds because the wood is resistant to rot. Native Americans used the wood for canoes and totem poles. The bark can be harvested and was used for blankets, clothing, ropes, nets and even baby diapers. Western redcedar is the official provincial tree of British Columbia.

