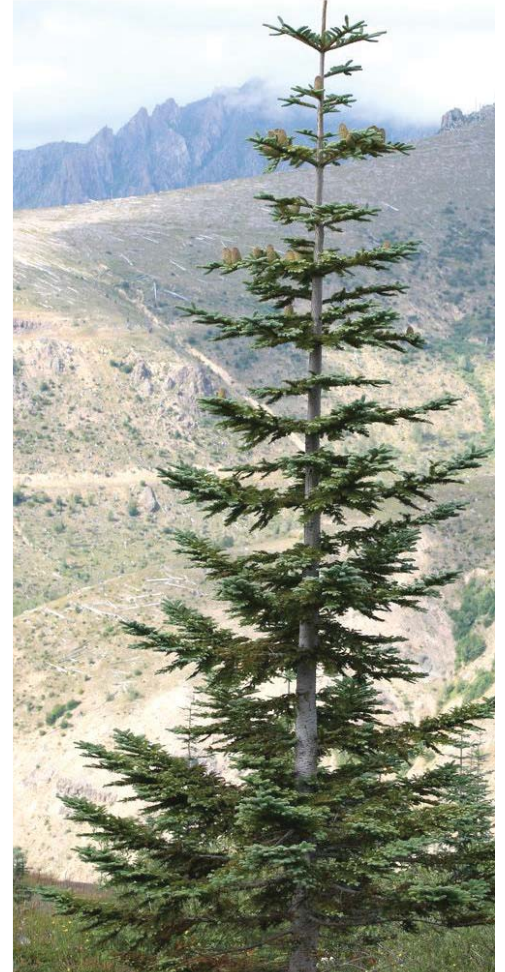




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



West Sylvan Middle School Tree Walk

LEARNING LANDSCAPES



West Sylvan Middle 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) A tiny cone and variable-length foliage on a western hemlock.
- 2) The fissured, orange trunks of ponderosa pine.
- 3) A young noble fir growing in the Mt. Jefferson Wilderness.
- 4) Closeup of *Sequoiadendron giganteum* foliage.
- 5) Students plant a tree at West Sylvan Middle School.
- 6) The characteristic pointed buds of a Douglas-fir.
- 7) A young chestnut growing at West Sylvan Middle School.
- 8) Wasp galls on the underside of an Oregon white oak leaf.

ver. 1/30/2015

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Commissioner Amanda Fritz
Director Mike Abbaté

The Learning Landscapes Program



West Sylvan Middle School

The West Sylvan Middle School Learning Landscape was initiated in January 2008 with a planting of 35 trees. This tree walk identifies trees planted as part of the Learning Landscape as well as other interesting specimens at the school.

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?

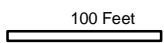
Visit <http://www.portlandoregon.gov/parks/learninglandscapes> for volunteer opportunities, to view more maps, and to learn how to plan a Learning Landscape in your community.

West Sylvan Middle School Tree Walk



Learning Landscapes

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



West Sylvan Middle School Tree Walk

Tree #	Common Name	Scientific Name
1	noble fir	<i>Abies procera</i>
2	incense cedar	<i>Calocedrus decurrens</i>
3	ginkgo	<i>Gingko biloba</i>
4	Douglas-fir	<i>Pseudotsuga menziesii</i>
5	giant sequoia	<i>Sequoiadendron giganteum</i>
6	western hemlock	<i>Tsuga heterophylla</i>
7	Oregon white oak	<i>Quercus garryana</i>
8	poplar	<i>Populus</i> spp.
9	western redcedar	<i>Thuja plicata</i>

Tree #	Common Name	Scientific Name
10	Douglas-fir	<i>Pseudotsuga menziesii</i>
11	dawn redwood	<i>Metasequoia glyptostroboides</i>
12	ponderosa pine	<i>Pinus ponderosa</i>
13-17	chestnut	<i>Castanea</i> spp.
18	pear	<i>Pyrus</i> spp.
19, 20	cherry	<i>Prunus</i> spp.
21	red maple	<i>Acer rubrum</i>
22, 23	English walnut	<i>Juglans regia</i>
24	honey locust	<i>Gleditsia triacanthos</i> forma <i>inermis</i>

Tree Facts, A to Z

cherry, *Prunus* spp.

Origin: widespread across the northern temperate zone

This tree is one of many domestic and wild cherry trees, both fruiting and ornamental, although the specific type is unknown. Trees will usually have white to pink flowers in spring (some in winter) with dark bark with horizontal lenticels when young. Leaves are often oval-lanceolate, typically with a drip tip and veined. Fruits - if produced - have hard seeds inside red to yellow or purple fruit.



chestnut, *Castanea* spp.

Origin: temperate regions of the Northern Hemisphere

There are 8 to 9 species spread across Eurasia to North America. Leaves are long and thin with serrated edges. Trees are wind pollinated, producing cream-colored catkins in early summer, followed by spiny husks containing edible nuts.

dawn redwood, *Metasequoia glyptostroboides*

Origin: Asia - central China

Dawn redwood grows to about 120' tall, smaller than both the coast redwood and giant sequoia. The deciduous stems are in an opposite branching pattern, while previous year shoots and buds are spaced spirally around the branches. New leaves (about 1" long) are lime green, turning darker green through the summer and orange in fall. The cones (about 1" round) are green earlier in the season and turn to brown before ripening. Dawn redwood flourished in North America in the Miocene age (5 to 25 million years ago) and left a fossil record embedded in rocks across the Oregon landscape. However, the tree was thought to be extinct until a small grove was discovered in China in the 1940s. Seeds were collected and sent to arboreta around the country to reintroduce the species, and Portland's Hoyt Arboretum became the first location in North America to grow a tree to produce seeds in millions of years. Dawn redwood is officially Oregon's state fossil.



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.



English walnut, *Juglans regia*

Origin: Asia - native from southwest China across the Himalayas and Iran to the southern Balkans; most common in Kyrgyzstan

Grown for its nuts, wood and beauty, English walnut can reach 100' tall, although it more frequently is 50' with a comparable spread. It has compound leaves with 7-9 leaflets to 6" long, with the terminal leaflet being the largest. Leaves are smooth and aromatic when bruised. Bark is pale gray, smooth and fissured on old plants. Male and female flowers are small, without petals, and clustered in catkins. Male flowers are hanging, yellow-green catkins growing to 4" long. Female flowers are short, and are borne separately on the same plant in late spring to early summer. The fruit is a nut enclosed in a green husk to 2" long. Walnuts can be distinguished from other pinnate-leaved trees by cutting a shoot in half along its length; the pith is divided into compartments which resemble a ladder's rungs. Despite its common name,

this species, first mentioned in records from ancient Babylon, is thought to have originated near Persia and is sometimes called the Persian walnut.

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).



ginkgo, *Ginkgo biloba*

Origin: Asia - China

Ginkgo is a pyramidal to rounded deciduous tree growing 60' to 100' tall. The bark has vertical scales, becoming deeply furrowed in maturity. The branches are alternate with leaves emerging from prominent ½" long nodes along the stem. Each node displays a whorl of approximately 5-7 fan-shaped leaves that flow upwards or towards the ground. There are separate male and female trees. The female tree produces edible fruit about ¾" long, which has been described as "nature's stink bomb," with a stench often compared to rancid butter, funky cheese, wet dog, or vomit due to the butyric acid in the fruit. Only one species of ginkgo tree remains in this ancient tree family that dominated forests millions of years ago.



The tree was at one point thought to be extinct, and it is rumored that Chinese monks saved some of the last ginkgo trees from a large fire. Ginkgos are often planted in cities for their unique beauty and hardiness to urban conditions.

honey locust, *Gleditsia triacanthos* forma *inermis*

Origin: North America - central USA from eastern Kansas and Oklahoma though Illinois, Indiana and Ohio east to Virginia and southern New England, plus southern Ontario, Canada

A thornless variety that varies in height from 30' to 70' tall with a comparable spread. The national champion thornless honey locust is 104' - taller than the 78' national species champion. Virtually every cultivar grown in cities is derived from this variety, usually from northern seed sources that have winter hardiness. The pinnately or bipinnately compound leaves are 6 to 8 inches long, with small leaflets 1/3 to 1" long. These cast a light shade, permitting grass to grow well beneath the trees. The leaflets turn yellow and drop early in the fall. Generally this form is open-spreading but most cultivars of it have a narrower form. Once considered trouble-free, the tree was often used to replace elms lost to Dutch elm disease in the 1950s through 1970s. Widespread planting has caused the emergence of serious pest issues, particularly in the Midwest where trees are attacked by the aggressive canker *Thyronectria*.



incense cedar, *Calocedrus decurrens*

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

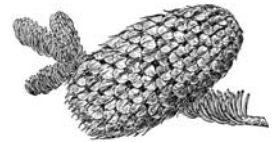
Evergreen conifer with single straight trunk and capable of reaching 185'. Usually densely branched, columnar in form (broader in nature but with narrow forms common). The needles are held in flattened sprays. Golden-yellow pollen is shed in winter and early spring. Oblong cones have three alternating

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.

pear, *Pyrus* spp.

Origin: coastal and midly temperate regions of Europe, North Africa and Asia

Pears have long been cultivated in Asia and Europe, with numerous hybrids and selected cultivars. Some pear trees are grown more for their ornamental flowers and fall color than for fruit. Others are important food crops. Flowers are usually white in spring. Trees are deciduous.

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 at 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

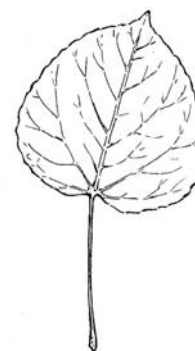


bark—it's reminiscent of baking cookies with sweet tones of vanilla and butterscotch. Lumber is valued for light construction and millwork. Native Americans who lived near ponderosa pines had many medicinal uses for the tree. Some Native Americans also used the roots of ponderosa pine to make a blue dye. The seeds are consumed by a wide range of birds and by chipmunks and squirrels.

poplar, *Populus* spp.

Origin: widespread across most of the Northern Hemisphere

Large genus of deciduous trees that includes the popular Lombardy poplar and quaking aspen. Poplars hail from North America, Europe and Asia. In Oregon they are known as cottonwoods, from the fluffy, white, floating seeds in early summer. Black cottonwood is native to the Portland area and is the dominant tree along the Columbia River. Usually fast-growing and often seen along rivers and streams. Drawbacks are weak wood, susceptibility to a host of diseases and pests, and short lifespan.



red maple, *Acer rubrum*

Origin: North America - eastern Canada, eastern USA from Minnesota to Maine south to Florida and east Texas

In urban environments, red maple is a fast grower up to 40', but in the wild it may reach three times that height. It has a roundish to diamond-shaped crown. Bark is smooth, luminous gray with patterned lines, and furrowed when old. New twigs are shiny, reddish, and have white flecks. Leaves are opposite, 3-5" long with three major lobes, turning brilliant red, orange-red or yellow in the fall. The tree explodes into deep red flowers before the leaves emerge in spring. Fruit is a double-winged samara, joined at an angle usually larger than 45 degrees with bulbous seeds which are reddish



at first and brown when ripe in the summer. Red maple is toxic to horses, and the alluring scarlet leaves cause massive destruction of horses' red blood cells when ingested. Trees adapt to local conditions and over generations, northern trees have become more cold-tolerant while southern trees have become more heat-tolerant. Neither is very drought tolerant.

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 1/2" 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.



