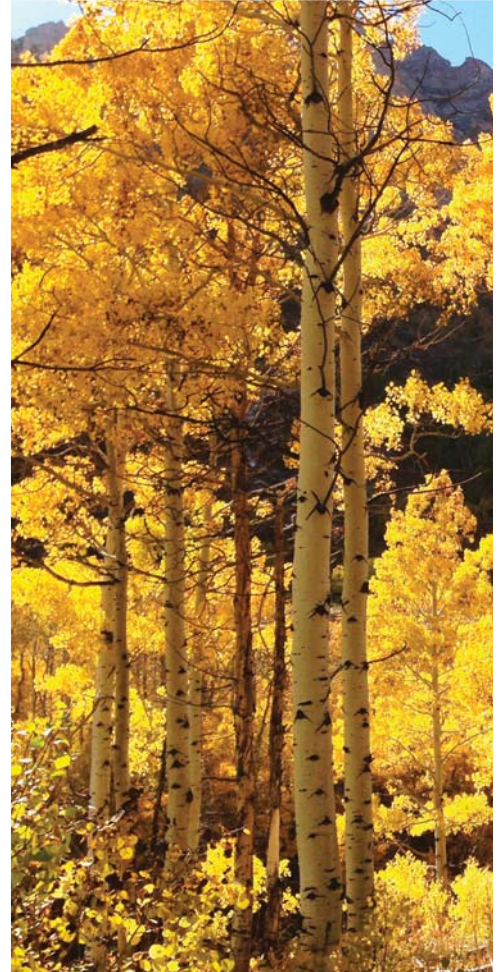




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Vernon Elementary School Tree Walk

LEARNING LANDSCAPES



Vernon Elementary 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) Students and volunteers plant a tree at Vernon Elementary.
- 2) Ripening fruits on a cascara buckthorn tree.
- 3) A stand of quaking aspen growing in the Ruby Mountains of Nevada.
- 4) Rocky Mountain Glow maple leaves beginning to turn color.
- 5) Colorado blue spruce cones forming.
- 6) The flowers of a Yellow Fever magnolia.
- 7) Students and PP&R staff plant an Oregon white oak.
- 8) The bright fall foliage that gives the northern red oak its name.

ver. 1/30/2015

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Commissioner Amanda Fritz
Director Mike Abbaté

The Learning Landscapes Program



Vernon Elementary School

The Vernon Elementary School Learning Landscape was initiated in April 2006 with a planting of 15 trees, and the collection now includes 24 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.

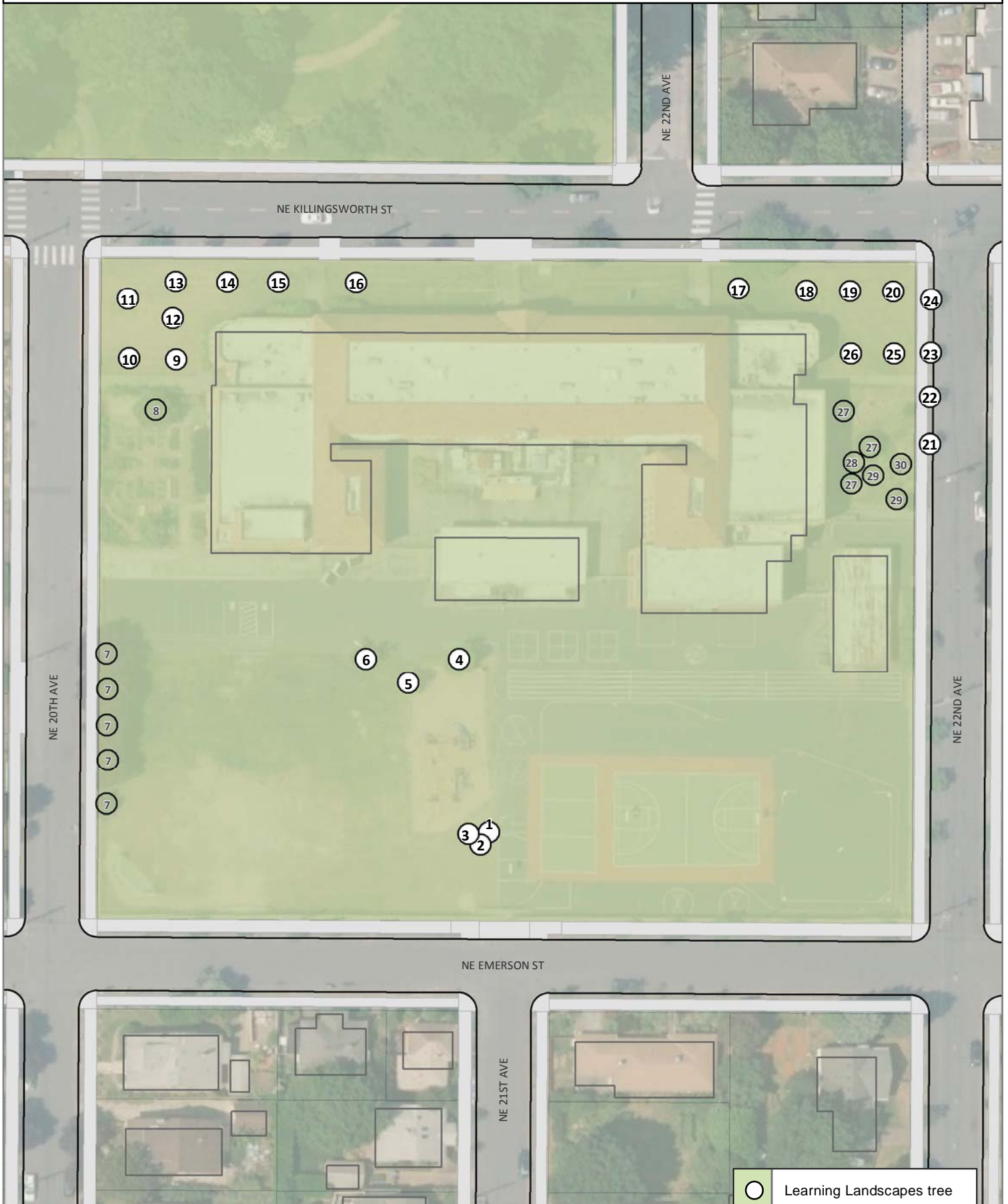
Continued Hands-on Learning Opportunities

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.

Vernon Elementary School Tree Walk



Learning Landscapes

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

100 Feet



Vernon Elementary School Tree Walk

Tree #	Common Name	Scientific Name
1-3	Oregon white oak	<i>Quercus garryana</i>
4	London planetree	<i>Platanus x acerifolia</i>
5	tulip tree	<i>Liriodendron tulipifera</i>
6	northern red oak	<i>Quercus rubra</i>
7	flowering plum	<i>Prunus cerasifera</i>
8	mulberry	<i>Morus spp.</i>
9	ginkgo	<i>Ginkgo biloba</i>
10	incense cedar	<i>Calocedrus decurrens</i>
11	Douglas-fir	<i>Pseudotsuga menziesii</i>
12	Oregon white oak	<i>Quercus garryana</i>
13	Douglas-fir	<i>Pseudotsuga menziesii</i>
14	cascares buckthorn	<i>Rhamnus purshiana</i>
15	Japanese flowering cherry	<i>Prunus serrulata</i>
16	Yellow Fever magnolia	<i>Magnolia x 'Yellow Fever'</i>
17, 18	swamp white oak	<i>Quercus bicolor</i>
19	dawn redwood	<i>Metasequoia glyptostroboides</i>
20	quaking aspen	<i>Populus tremuloides</i>
21-24	Rocky Mountain Glow maple	<i>Acer grandidentatum 'Schmidt'</i>
25	Colorado blue spruce	<i>Picea pungens</i>
26	swamp white oak	<i>Quercus bicolor</i>
27	red alder	<i>Alnus rubra</i>
28	redosier dogwood	<i>Cornus sericea</i> Syn. <i>C. stolonifera</i>
29	cherry	<i>Prunus spp.</i>
30	black hawthorn	<i>Crataegus douglasii</i>

Tree Facts, A to Z

black hawthorn, *Crataegus douglasii*

Origin: North America - Oregon, Washington,

A widespread little tree in moist fields and along streams at lower elevations in Oregon and Washington. Distinguished by slender thorns 1/2" to 1" long, they are one of the few native Northwest trees (the other notable example being vine maple) which have orange to red fall color. Flowers in spring are white, resembling those of apple trees. The small, black fruits are 1/2" long and contain three to five rock-hard seeds. The fruits are important food for birds, bears and other mammals. In semi-arid country, black hawthorn is the preferred nesting tree for magpies, who weave their stick pile nests in nearly every tree as the thorns discourage intruders.

cascares buckthorn, *Rhamnus purshiana*

Origin: North America - Oregon, Washington, northern Idaho, British Columbia and California

In the wild a multi-stemmed shrub but in street plantings a single-trunked tree 30' to 40' tall. The thin bark varies from dark brown to ashy gray, often with chalky white patches. The bark has a strong laxative effect. In bad economic times many people have supplemented their income by harvesting cascares, stripping the bark in the spring



when the sap is running so it can be made into a commercial laxative. The development of synthetic laxatives has cooled the market for wild bark. Small greenish flowers are borne in clusters among the leaves in spring. Dark purple fruits about 1/3" of an inch long follow flowers. These contain a bitter chemical with a strong laxative effect. Although birds and raccoons will feed on the fruit, they are considered inedible for humans. Elliptic leaves have parallel veins in a chevron from midvein to leaf edge, with blades 2 1/2" to 6" long. They turn yellow to golden brown in autumn. Occasionally a tree will have hints of orange to red.

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.

Colorado blue spruce, *Picea pungens*

Origin: North America - Rocky Mountains in Utah, Colorado, Arizona, New Mexico, Wyoming, and Idaho

Colorado blue spruce is a cone-shaped evergreen tree up to 65' tall on average with some trees over 100' tall.

The scaly bark is light gray, sometimes peeling off to reveal orange brown bark underneath. Needles are about 1" long, sharp, and circle around the branches. The mature fruit is a stout brown cone about 4" long with scales that some people say look tooth-like. The native range begins in the mountains of Wyoming and Idaho and extends to Arizona and New Mexico. Another name for this species is blue spruce, after the mint bluish-green needles. Many farms in Oregon produce different cultivars of blue spruce for the Christmas tree market. Colorado blue spruce is also the state tree of Colorado. German botanist Georg Engelmann (1809-1884), who lived in Missouri and studied Western U.S. pines, was the first to scientifically describe this one.



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 Hoyt Arboretum became the first in North America to grow a tree to produce seeds in millions of years. Dawn redwood is 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.



flowering plum, *Prunus cerasifera*

Origin: Asia - western Asia

The cherry plum, or flowering plum, is a small, deciduous tree. The species name *cerasifera* means that it bears cherry-like fruit, which happen to be edible. They usually cannot be recognized until their incredibly early flowers appear before winter is over, or until fruit of some sort appears. Some varieties bear red fruit, while others bear yellow or purple. Leaves are broad and boat-shaped with long, tapering points

and fine saw-toothed edges. Depending on the variety, leaves may be green or purple. Young plants are often used as understocks for grafting other ornamental trees.

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 an 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.

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.

Japanese flowering cherry, *Prunus serrulata*

Origin: Asia - northern and central China, Korea and Japan

Usually seen in one of the innumerable cultivar forms, flowering cherry typically grows 20' to 35'. One of the most variable characteristics of flowering cherry is the flowers. They can be anything from white to pink, single or double, from 1/2" to 2 1/2" across. Usually they are quite showy but last only a short time in spring. Fall color is usually good - from orange to red. Surface roots tend to lift sidewalks. The foliage is susceptible to numerous blights and diseases including viruses, cankers and borers, which shorten the life of the tree. 'Kwanzan' is the hardiest and one of the most popular cultivars grown in Portland, having deep-pink, double flowers.



London planetree, *Platanus x acerifolia*

Origin: Europe - a hybrid between the North American Platanus occidentalis and European Platanus orientalis

London planetree is a deciduous tree growing to 115' tall. The bark peels back in plates, revealing light gray, yellow, and even orange hues of underlying bark. Shedding bark is a way for the tree to shed pollutants and breathe with new bark again. Older trees develop bumps that make the bark look like dripping candle wax. The thick leaves (about 5–8" long) are fuzzy beneath when young and have a similar shape as maple leaves. There are three to five main lobes radiating out from the center of the stem. The edges of leaves are toothed, tapered, and pointy. The spiky round fruits (about 1" diameter) are also unique, spaced out along a stem like beads on a necklace. London planetree may be the most popular urban street and park tree planted across the United States and Europe. Tree populations that are clones tend to become diseased easily. London planetree also grows quickly and has been grown for timber, especially for a particular expensive type of wood called lacewood.

mulberry, *Morus* spp.

Origin: across North America, Eurasia and North Africa

Alternate-branching trees with glossy leaves of different forms, including mitten-shaped. Mulberries are grown for their fruits, particularly *M. nigra* from Eurasia. In China the leaves of the white mulberry *M. alba* are fed to silkworms. Because the fruit stains, fruitless male trees of *M. alba* have been used as street trees. The one species native to North America, *M. rubra*, is seldom seen in Portland. Mulberries are resistant to verticillium wilt.



northern red oak, *Quercus rubra*

Origin: North America - eastern Canada and eastern USA from the eastern edge of the Great Plains east to the Atlantic and south to Alabama, Georgia and Arkansas

Northern red oaks are a tall (up to 150') tree native to eastern North America. Their bark has narrow fissures. The branches and canopy often begin high up on the tree, making it easy to walk beneath them. The branch arrangement is alternate. The leaves (up to 8" long) are thick and waxy. They are light lime green in spring, turning dark green in summer, and gold to crimson red in fall. Each leaf is deeply lobed, with each lobe ending in a fine, almost prickly point. The acorns are round and robust with a thin cap. The acorns, which take two years to mature, are an important food source for wildlife, especially squirrels that like to bury and store acorns in the fall. The wood is fast growing and hardy, and is used in cabinetry, furniture and flooring. Northern red oak is often planted in parks and urban areas as a large shade tree. It is the state tree of New Jersey and the provincial tree of Canada's Prince Edward Island.

Oregon white oak, *Quercus garryana*

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

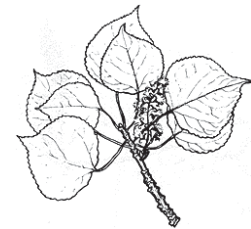
Oregon white oak is a deciduous tree growing up to 90' tall. Branches are dense and wide, with limbs of solitary trees reaching to the ground. The leaves

(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.

quaking aspen, *Populus tremuloides*

Origin: North America

Quaking aspen is a slender, alternate-branching tree averaging 60' high. The gray to white bark looks similar to birch bark, with horizontal lines (lenticels) and eye-shaped knots. The deciduous leaves are 2–3" long and 2" across, dark green, and pale green underneath. There are several large teeth on the rounded edges, ranging from 1/16– 1/4" deep. The flowers and fruits emerge from the end of stems, in a long hanging structure called a catkin. In its natural habitat, quaking aspen grows in large thickets as hundreds of tree stems containing the same genetic code are linked through the root system. Root systems can be hundreds of years old. Often the first tree to colonize after disturbance, the leaves shake in the wind—an adaptation thought to allow wind to pass through the trees without knocking them over.



red alder, *Alnus rubra*

Origin: North America - Oregon, Washington northern California, northern Idaho, SE Alaska and British Columbia, Canada

The largest, most common Pacific Northwest alder is the red alder. This deciduous, broadleaf tree is typically 60' to 80' tall. The largest on record was over 140'. Fast growers, they are very short-lived trees, often declining rapidly after just 60 years. The smooth bark is often covered with a light-colored lichen. The leaves

are 4-6" long with rounded teeth on the edges. They grow from sea level to 3,000 feet, mostly west of the Cascades, with a few groves in wet areas as far east as northern Idaho. They prefer moist soils and are common along streams, where they form pure stands. Native Americans valued the bark as a medicine (it contains salicin, the pain-relieving ingredient in aspirin) as well as a red dye, which they used to dye fish nets to make them harder for fish to see. They also made wooden utensils from the wood. Once considered a trash tree by loggers, the wood is now valued for cabinetry. Alder wood is preferred for smoking salmon.

redosier dogwood, *Cornus sericea* Syn. *C. stolonifera*

Origin: North America - native across most of the continent from Newfoundland, Canada to central Alaska, south to West Virginia and west through Nebraska to higher elevations in the Rocky Mountain states, New Mexico, Arizona, California, Oregon and Washington

This native shrub to small tree has many common names due to its wide distribution across Canada and the northern and western U.S. Oregonians typically call it redosier dogwood but is also known as red-twig dogwood. Both refer to the red to reddish-brown stems, which are especially showy in the fall after the leaves drop. Usually under 10' tall but occasionally to 15', with the national champion in Idaho recorded at 26'. Acuminate leaves are 2" to 5" long and 1" to 2.5" wide. Flat-topped corymbs of dull white flowers appear in late spring. Produces round, white fruits 1/3" across in summer, which are eaten by wildlife. Some Plateau Indian tribes ate the berries to treat colds and to slow bleeding. The Ojibwe used redosier dogwood bark as a dye by taking the inner bark and mixing it with other plants or minerals. Highly susceptible to twig blight, leaf spot, scale, and bagworm infestations.



Rocky Mountain Glow maple, *Acer grandidentatum* 'Schmidt'

Origin: North America - Rocky Mountain region

Bigtooth maples are believed to be a type of sugar maple adapted to the drier, rockier conditions of the

Rocky Mountains. As such, they tolerate the West's drier summers and wet winters better than their East Coast cousins. Rocky Mountain Glow is a cultivar introduced by Schmidt Nursery in Boring, OR. It was chosen for its fall color, which in good years is orange to red, although some years may be only a passing yellow with reddish hints. Grows fast into an oval-shaped tree only 25' tall by 15' wide. The leaves as the name suggests have few but larger teeth along the margins.

swamp white oak, *Quercus bicolor*

Origin: North America - from Missouri to New England and southern Ontario in Canada

Usually a 60-70' tree in open situations, swamp white oak can reach 100' when grown close to other trees. Leaf margins are toothed or wavy. Leaves are usually wider toward the end than at the stem. Scaly bark is distinctive, especially in young trees.



It peels back in ragged curls to reveal green inner bark. Bark on older trees is irregularly grooved with flat ridges. A member of the white oak family. Deer, ducks, geese, and other animals are attracted to this tree's 1" long acorns. Acorns are a light chestnut-brown color and occur in pairs at the end of stems. Most abundant in western New York, Pennsylvania and Ohio but exists in small groves as far west as Missouri and as far south as Kentucky. Wood was used for barrels, flooring, interior finish and mine timbers. It is one of the more important white oaks for lumber production. The swamp white oak has become a popular landscaping tree. More than 400 were planted in the new September 11 Memorial Plaza in Manhattan.

tulip tree, *Liriodendron tulipifera*

Origin: North America - eastern USA across all the southern states and north to Michigan, New York and southern Ontario, Canada

The tulip tree is the tallest broadleaf native tree in eastern North America, ranging from Florida to Nova Scotia. It has a pyramidal form and grows 100-150' tall but can reach 200' tall! Bark is light

gray and corky, with older specimens demonstrating an intricate lattice pattern of vertical ridges. It is a valuable timber tree that is easy to spot by its nearly square leaves, which grow to 6" or longer. The leaves are dark green above and bluish-white beneath, turning yellow to gold in autumn. The flowers are 2.5" long and consist of six pale-green tepals (sepals that look like petals) arranged like a tulip surrounded by three horizontally-spread, green tepals. The beautiful flowers are frequently overlooked because their greenish color blends with the foliage. The fruit is a conical, pale brown cluster. It is the state tree of Kentucky, Tennessee and Indiana.

Yellow Fever magnolia, *Magnolia x 'Yellow Fever'*

Origin: Asia-North America hybrid between the Chinese Magnolia denudata and the American M. acuminata var. subcordata

This deciduous hybrid between the Chinese *Magnolia denudata* and the yellow-flowering *M.*

acuminata var. *subcordata* grows 20' to 40' tall and 10' to 20'

wide. Goblet-shaped flowers are yellow in bud but open as cream-colored flowers. Bloom begins before the leaves in spring but foliage quickly engulfs the later flowers. Blooms are 6" to 8" across and fragrant. Fall color is a light yellow-brown. Trees are not especially drought tolerant.



