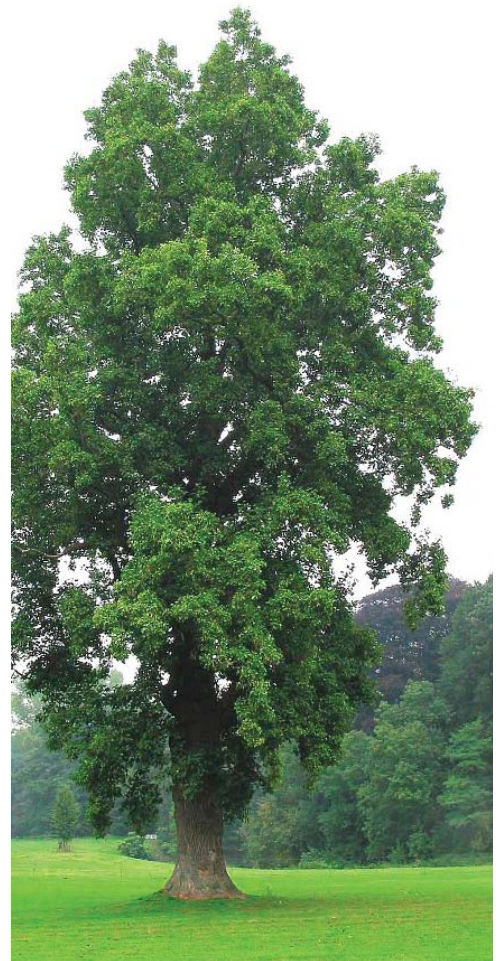




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Roseway Heights School Tree Walk

LEARNING LANDSCAPES



Roseway Heights 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) The spring flowers that give eastern redbud its name.
- 2) Students prepare to plant trees at Roseway Heights School.
- 3) A large tulip tree growing in its native range.
- 4) Students plant a *Ginkgo biloba*.
- 5) The fruits of a persimmon tree.
- 6) Nuts peek out of a spiny chestnut husk.
- 7) Bright foliage on young honey locust trees.
- 8) A scarlet oak's characteristic fall color.

ver. 1/30/2015

Portland Parks & Recreation

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Commissioner Amanda Fritz
 Director Mike Abbaté

The Learning Landscapes Program



Roseway Heights School

The Roseway Heights School Learning Landscape was initiated in April 2009 with a planting of more than 100 trees, including an orchard. 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.

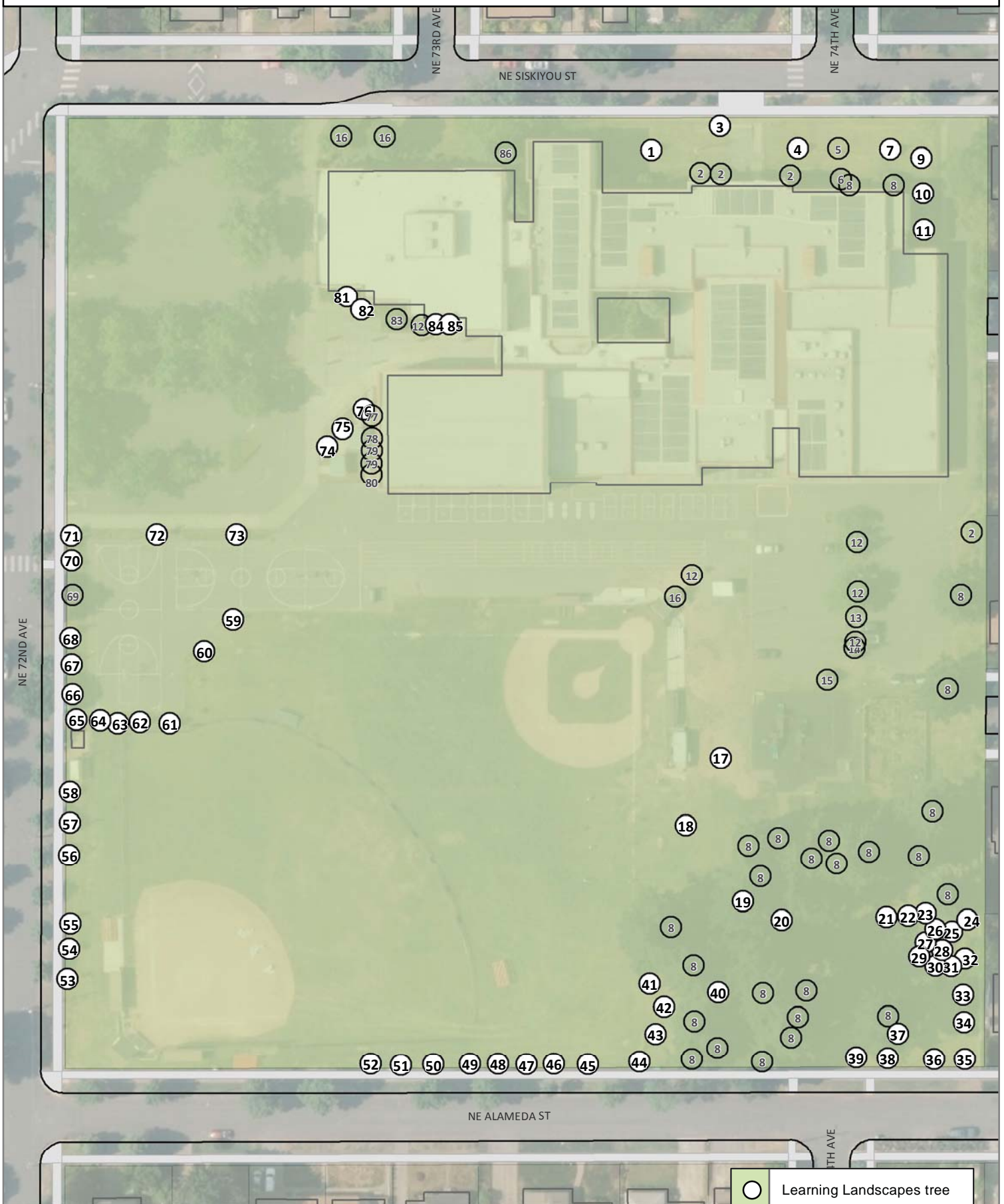
Continued Hands-on Learning Opportunities

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.

Roseway Heights School Tree Walk



Learning Landscapes

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

100 Feet



Roseway Heights School Tree Walk

Tree #	Common Name	Scientific Name
1	deodar cedar	<i>Cedrus deodara</i>
2	birch	<i>Betula</i> spp.
3	Japanese snowbell	<i>Styrax japonicus</i>
4	deodar cedar	<i>Cedrus deodara</i>
5	Japanese maple	<i>Acer palmatum</i>
6	European mountain ash	<i>Sorbus aucuparia</i>
7	giant sequoia	<i>Sequoiadendron giganteum</i>
8	Douglas-fir	<i>Pseudotsuga menziesii</i>
9-11	eastern redbud	<i>Cercis canadensis</i>
12	oak	<i>Quercus</i> spp.
13	Oregon white oak	<i>Quercus garryana</i>
14	cherry	<i>Prunus</i> spp.
15	western redcedar	<i>Thuja plicata</i>
16	Norway maple	<i>Acer platanoides</i>
17, 18	Oregon white oak	<i>Quercus garryana</i>
19, 20	Douglas-fir	<i>Pseudotsuga menziesii</i>
21, 22	apple	<i>Malus domestica</i>
23	Asian persimmon	<i>Diospyros kaki</i>
24, 25	western redcedar	<i>Thuja plicata</i>
26	peaches, nectarines, almonds, apricots, plums, etc.	<i>Prunus</i> spp.
27	hazel or hazelnut	<i>Corylus</i> spp.
28	western redcedar	<i>Thuja plicata</i>
29	pear	<i>Pyrus</i> spp.
30	Asian persimmon	<i>Diospyros kaki</i>
31	Brown Turkey fig	<i>Ficus carica</i> 'Brown Turkey'
32	western redcedar	<i>Thuja plicata</i>
33	quince	<i>Cydonia oblonga</i>
34	hazel or hazelnut	<i>Corylus</i> spp.

Tree #	Common Name	Scientific Name
35	English walnut	<i>Juglans regia</i>
36	chestnut	<i>Castanea</i> spp.
37	peaches, nectarines, almonds, apricots, plums, etc.	<i>Prunus</i> spp.
38, 39	ponderosa pine	<i>Pinus ponderosa</i>
40	Douglas-fir	<i>Pseudotsuga menziesii</i>
41-44	Oregon white oak	<i>Quercus garryana</i>
45	incense cedar	<i>Calocedrus decurrens</i>
46	Oregon white oak	<i>Quercus garryana</i>
47	Greenspire littleleaf linden	<i>Tilia cordata</i> 'Greenspire'
48	tulip tree	<i>Liriodendron tulipifera</i>
49	Kentucky coffee tree	<i>Gymnocladus dioica</i>
50	London planetree	<i>Platanus x acerifolia</i>
51	scarlet oak	<i>Quercus coccinea</i>
52	Bowhall red maple	<i>Acer rubrum</i> 'Bowhall'
53, 54	Musashino zelkova	<i>Zelkova serrata</i> 'Musashino'
55	Bowhall red maple	<i>Acer rubrum</i> 'Bowhall'
56	London planetree	<i>Platanus x acerifolia</i>
57	honey locust	<i>Gleditsia triacanthos</i> forma <i>inermis</i>
58	tulip tree	<i>Liriodendron tulipifera</i>
59-63	dawn redwood	<i>Metasequoia glyptostroboides</i>
64	Greenspire littleleaf linden	<i>Tilia cordata</i> 'Greenspire'
65, 67	Himalayan whitebarked birch or Jacquemont birch	<i>Betula utilis</i> var. <i>jacquemontii</i>

Tree #	Common Name	Scientific Name
66, 68	sugar maple	<i>Acer saccharum</i>
69	flowering plum	<i>Prunus cerasifera</i>
70	Himalayan whitebarked birch or Jacquemont birch	<i>Betula utilis</i> var. <i>jacquemontii</i>
71, 73	honey locust	<i>Gleditsia triacanthos</i> forma <i>inermis</i>
72	sugar maple	<i>Acer saccharum</i>
74-76	ginkgo	<i>Ginkgo biloba</i>
77	arborvitae, eastern arborvitae or northern white-cedar	<i>Thuja occidentalis</i>
78	box elder	<i>Acer negundo</i>
79	strawberry tree	<i>Arbutus unedo</i>
80	vine maple	<i>Acer circinatum</i>
81	apple	<i>Malus domestica</i>
82	bitter cherry or Oregon cherry	<i>Prunus emarginata</i> var. <i>mollis</i>
83	Japanese snowbell	<i>Styrax japonicus</i>
84, 85	vine maple	<i>Acer circinatum</i>
86	deodar cedar	<i>Cedrus deodara</i>

Tree Facts, A to Z

apple, *Malus domestica*

Origin: Hybrid

The classic orchard apple. Thousands of cultivars exist but most are small trees - sometimes less than 15' tall but can reach 20' or more if not pruned. Very susceptible to scab, cedar-apple rust, and powdery mildew if not sprayed. Fruit size and color vary widely by cultivar - from green to yellow to red and many varied combinations in between.



arborvitae, eastern arborvitae or northern white-cedar, *Thuja occidentalis*

Origin: North America - Nova Scotia to Manitoba in Canada south to Illinois and mountains of North Carolina and Tennessee

Most often seen as a columnar hedging plant but in the wild forms a tree 20' to 30' in cultivation but can reach 40' to 50', higher in the wild. Fibrous bark is shallowly furrowed. Tree was heavily logged as the decay-resistant wood was used for fence posts, shingles, canoe frames and lodges. The bark was used to make rope. Trees are very long lived, with some individuals documented at over 1,000 years. Eastern arborvitae was the first North American tree introduced to Europe, arriving by at least 1558. Drinking a tea made from the foliage had cured French explorer Jacques Cartier's men of scurvy in the winter of 1535-36, and he bestowed the name "tree of life."

Asian persimmon, *Diospyros kaki*

Origin: Asia - China, Japan, Korea, India, Myanmar (Burma)

Asian persimmon is a broadly spreading deciduous tree growing 25' to 45' tall.

Leaves are ovate to teardrop-shaped from 6" or more long and 3" across. Leaves are untoothed, glossy dark-green and smooth, turning red or orange in autumn. Bark is pale gray, scaly and peeling to furrowed. Male and female

flowers are small, yellow and bell-shaped, about 5/8" long. Found on young shoots and separate plants, male flowers are clustered together while females are borne singly. The orange fruit varies in flavor depending on whether the variety is astringent or non-astringent. Astringent varieties have a high tannin content, which makes the immature fruit extremely bitter. The tannin levels are reduced as the fruit matures and softens to a jelly-like consistency. Non-astringent varieties do not contain tannins and can be eaten like an apple before fully ripening. The two most popular cultivars in Portland, Hachiya and Fuyu, were developed in Japan. They don't require routine spraying.



birch, *Betula* spp.

Origin: widespread in the Northern Hemisphere

There are some 40 species of birches, all native to lands spanning the Northern Hemisphere. Wind-pollinated, they are pioneer species which colonize disturbed or vacant land, such as moraines left in the wake of retreating glaciers. Birches typically grow very fast when young but tend to be short-lived trees with weak wood. Most but not all birches are noted for exfoliating bark in shades from white to cream to tan-pink, although some have cherry-like bark. The arrival of the bronze birch borer in Portland is spelling doom for many of the city's birches, especially the paper, European white, and Himalayan species. However, birches are resistant to verticillium wilt, an often-fatal tree disease.



bitter cherry or Oregon cherry,

Prunus emarginata var. *mollis*

Origin: North America - California through Oregon and Washington to British Columbia and Idaho and northwestern Montana

Small, weedy native tree capable of reaching 50' but typically shorter, with a slim trunk with smooth gray to reddish-brown bark marked with horizontal lenticels. The thin, oval-shaped leaves are 0.8" to 3.15" with unevenly-sized teeth on both sides. Flowers are small, with five white petals and hairlike stamens; produced in clusters in spring, and insect pollinated. The fruit is a juicy red or purple cherry, which, as the common name suggests, are bitter. Readily spread by seed, which birds eat, and by underground stems, which then sprout above the surface to create a thicket. Has hybridized with introduced cherries. The Kwakwaka'wakw of British Columbia are known to have used the bark and other parts of the plant to make a medicinal poultice. The bark peels off in long fibrous strips which Native people used to make baskets and other implements.



Bowhall red maple, *Acer rubrum* 'Bowhall'

Origin: North America - cultivar of a U.S. species

In urban environments, red maple is a fast grower up to 40', but may reach three times that height in the wild. It has a round 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. 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. Native to areas of moist soils, red maples are not well adapted to Oregon's dry summers. Bowhall is one of the most widespread cultivars of columnar red maple. Introduced in 1951 by Scanlon Nursery from a tree found in Ohio, Bowhall will form a tree to 35' or 40' but only 15' wide. Upright branches growing parallel to the leader should be pruned out. Fall color is unreliable, ranging from a good orange-red to gold with hints of orange. Red flowers in spring. Bark may scald in direct afternoon sun. Tends to have surface roots.

box elder, *Acer negundo*

Origin: North America - eastern U.S.

Box elder is actually a maple, albeit an unusual one for having compound leaves. The leaflets have 3 to 5 lobes. Samaras hang in long, showy chains. This is the most widely occurring maple in North America, growing from the Atlantic seaboard up into river valleys in the Great Plains, with subspecies (*A. negundo* ssp. *californicum* and *arizonicum*) native to California and Arizona riverbanks and moist valleys. A pioneer species, box elder is a prolific reseed, which gives it an invasive quality in areas where it has been introduced. Weak wooded, the tree is short-lived (often starting to decline within 30 years). The soft, spongy wood makes poor firewood, and its weakness precludes its use as a timber tree. The foliage may be toxic to livestock, although it is occasionally browsed by wild animals. Many birds and squirrels spread the seeds.



The tree is also host to the obnoxious box elder bug, which can invade homes in fall.

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: distributed across 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 Oregon's state fossil.

deodar cedar, *Cedrus deodara*

Origin: Asia - the Himalayas, including Pakistan, northern India, Nepal and Afghanistan

Deodar cedar is one of the true cedars and is often planted as an ornamental tree in parks and private properties. This evergreen tree averages between 40–70' in height with a straight trunk and swooping horizontal branches. The needles are green to blue-green and are singular or form in clusters that spiral along the shoots. Needles are about 1½" long and very sharp. The resinous cones are 3–5" long and sit on top of the branches like little nests. Ancient cultures have regarded deodar cedar as sacred. All of the true cedars come from areas of ancient civilization everywhere from Africa to Nepal. In North America, deodar cedar continues to be planted widely as an ornamental. It is the national tree of Pakistan.



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.

eastern redbud, *Cercis canadensis*

Origin: North America - eastern USA from southern Wisconsin south to eastern Texas and from Florida north to Pennsylvania and extreme southern Ontario in Canada

Eastern redbud is a small tree growing up to 30' tall. The gray bark furrows and flakes with age revealing a light brown underbark. The leaves (3–4" long) are heart shaped with some varieties exhibiting a purple-brown hue. The tree gets its names for its fantastic spring display of bright pink flowers and emerging pinkish-green leaflets. The fruits are a green pea shaped pod about 2–3" long. Redbud is native to North America and northeast Mexico. Trees are highly tolerant of different soils as well as drought. Some say that the flowers can be eaten fresh in a salad or fried.

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 can be seen to be 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.



European mountain ash, *Sorbus aucuparia*

Origin: Europe - Great Britain, Scandinavia, western and central Europe to the Balkans, Russia, the Caucasus and Siberia.

The most common member of the genus *Sorbus* in Portland is the European mountain ash (*S. aucuparia*). A deciduous tree with pinnately compound leaves with 4–9 pairs of leaflets and a terminal leaflet. Leaflets are elongated to lanceolate, and have a serrated edge. Bark on young trees is yellowish-gray, becoming gray-black. White flowers appear in spring in yellowish-white corymbs that are slightly unpleasant to smell. These are followed by orange to red fruit in late summer. Birds devour the fruit, spreading seeds far and wide. These quickly sprout, making European mountain ash an undesirable invasive. That is why it is not allowed as a street tree and should not be planted in yards. Parasorbic acid in the fruits makes them inedible to humans until cooked. Fall color is often gold to orange or orange-red. The tree derives its name from also having pinnate leaves and growing all the way up to treeline in its European homeland, which stretches from Scotland east into Siberia.

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 upon the variety, leaves may be green or purple. Young plants are often used as understocks for grafting other ornamental 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).

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 have 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.



Greenspire littleleaf linden,
Tilia cordata 'Greenspire'

Origin: Europe

Littleleaf linden is an alternately-branched deciduous tree growing up to 100' tall. The gray bark becomes fissured as the tree ages. The heart-shaped leaves

are about 3" around and wavy with little hairs along the surface, especially underneath where the leaf veins join. A cluster of flowers and fruit hang down from a stem connected to a long, whitish-green bract. Lindens have profuse sweet-smelling flowers in early summer that attract lots of bees. This cultivar of the European littleleaf linden is noted for having a strong central leader and good, symmetrical shape with dense branching and a faster growth rate than the species. It normally grows 40-50' tall and 25-45' wide but may exceed this height in optimal conditions. Like other littleleaf lindens, leaves turn yellow in fall but not usually all at once, reducing the effectiveness. Also like other littleleaf lindens, attracts aphids in summer when it experiences maximum drought stress.

hazel or hazelnut, *Corylus* spp.

Origin: found across the temperate zone of the Northern Hemisphere

Oregon has one native species of hazel (*Corylus cornuta*) that usually forms a multi-stemmed small tree. Squirrels and jays plant the seeds everywhere. The commercial crop is the European hazel *C. avellana*, which also occurs in Turkey. It is attacked by eastern filbert blight. Another species from Asia Minor, *C. colurna*, makes a mid-sized street tree.



Himalayan whitebarked birch or Jacquemont birch, *Betula utilis* var. *jacquemontii*

Origin: Asia - western Himalayas, including Kashmir in India and Pakistan

Most often seen in a form which has the whitest bark of any birch grown in Portland. The bark is smooth, bright white and exfoliates in horizontal strips to reveal cream underbark. It does not develop black, blocky plates like many European and American birches. Upright growth 40' to 65'. Leaves are ovate, slightly hairy and with serrate margins. They turn yellow in autumn. Once considered resistant to bronze birch borer, it has proved to be as susceptible to fatal attacks as other birches. Grows at elevations up to 14,800' in Nepal and Kashmir. Its name in Sanskrit is *bhojpatra*. First described by western scientists in 1825. The name

jacquemontii honors French plant explorer Victor Jacquemont (1801-1832), who died tragically while plant hunting in the Himalayas. The bark has been used for over 2,000 years as writing paper, as well as bandages, umbrella covers, packing material, and roof construction. Widespread cutting for firewood has reduced the tree's numbers considerably.

honey locust, *Gleditsia triacanthos* forma *inermis*

Origin: North America - central USA from eastern Kansas and Oklahoma through 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 honey locusts are attacked by an aggressive canker in the genus *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.

Japanese maple, *Acer palmatum*

Origin: Asia - China, Japan, Korean, Mongolia and far eastern Russia near the Pacific

Japanese maple is a short tree that is sometimes described as shrubby, growing up to 50' tall. This species is highly cultivated and consists of hundreds of varieties displaying different



leaf colors and shapes. Colors can include green to variegated or dark purple, which often change to bright yellow or red in the fall. The leaves tend to have five to seven lobes with small teeth along the edges ending in a fine point. The double seeds are about 1" across and form clusters on the ends of the oppositely-arranged branches. Japanese maple is a highly popular landscape specimen in gardens because of its many varieties and forms, which were first cultivated in the 1800s. Trees are often pruned to encourage certain shapes and sizes, including Japanese maple bonsai trees.

Japanese snowbell, *Styrax japonicus*

Origin: Asia - Japan, Korea, China

Japanese snowbell is a small spreading tree, reaching about 30' at maturity. The bark is smooth gray and can develop orange along the seams as it ages. Leaves are alternate and tend to form clusters on branches. The flowers are about 1/2" long and hang down from the leaf clusters. Each flower is white and turns to an oval-shaped fruit that hangs from the branches throughout the summer. Some say the fruit resembles a small egg; others say that it is like an upside down golf ball sitting in a tee. Japanese snowbell likes moist climates with at least some sun. The small size and

growth characteristics make Japanese snowbell a common street tree planted in small planting strips throughout Portland.

Kentucky coffeetree, *Gymnocladus dioica*

Origin: North America – Western New York and Ontario, Canada across the Midwest to the edge of the prairies

Gymnocladus is Greek for “naked branch,” which describes the Kentucky coffee tree’s habit of not leafing out until late spring (often mid-May). Twigs are often thick and blunt-tipped. The ascending branches form a high, irregularly-rounded crown. Trees are usually 40–80’ but in good conditions some have reached 110’. In June, clusters of whitish-purple flowers hang inconspicuously among the leaves. Male and female flowers are on separate trees. Female trees will produce castanet-like brown pods 6” to 10” long. The six or more reddish-brown seeds inside contain alkaloid compounds that early European-American settlers would grind to make a coffee-like beverage. Compound leaves can be 2’ long, with bipinnate, pointy leaflets 2” to 2 ½” long that are green on top and lighter underneath. They turn yellow in fall. Although in the bean family, Kentucky coffee trees are not nitrogen fixers. There are only two species in this genus (the other is in China). Seldom lives more than 100 years.

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 known as lacewood.

Musashino zelkova, *Zelkova serrata* 'Musashino'

Origin: Asia – Japan, Korea, China, Kuril Island of Russia

The most common species of zelkova in Portland is Japanese zelkova, *Z. serrata*. It has simple, serrate-edged leaves that are tapered at the tips. Zelkovas have a dense, oval head, but Japanese zelkovas tend to be more vase-shaped and spreading. Musashino grows to 45’ tall and was selected for its extremely narrow, columnar growth habit to only 15’ wide. Same leaf shape and bark characteristics as the species. Fall color is yellow. The small flowers of all zelkovas are greenish and lack petals. The female flowers are borne in the leaf axils while the male flowers cluster at the base of the shoots. Zelkovas are resistant to verticillium wilt.



Norway maple, *Acer platanoides*

Origin: Europe – from Scandinavia and western Europe (but not the British Isles) east to Ukraine, Russia, Georgia, Armenia, Turkey and Iran

Norway maple is a deciduous tree with a spherical to oval crown growing 40–70’ tall. Like other maples, branching is opposite. Gray bark develops shallow vertical crevices, the coarse texture providing a place for moss to take hold. Leaves range from 4–7” wide with 5 to 7 lobes spreading from the center like fingers from a hand and each lobe coming to a point. Fruit is a winged seed, about 2” straight across. If you pull a leaf off the tree, a milky white sap emits from the leaf stem, unique to this species and bigleaf maple. There are many cultivars of Norway maple, with colors ranging from green (yellow in autumn) to reddish purple.

Norway maple's hardy nature and strong shading capacity make it one of the most prevalent trees planted in urban environments. The tree's robust nature causes it to occasionally escape into natural habitats, shading out native woody species.

oak, *Quercus* spp.

Origin: distributed across North and South America, Europe, Africa and Asia, with centers of diversity in Mexico and China

Some 450 to 600 species of oaks make identification difficult, especially since they freely hybridize. There are three main types of oaks - white, red or black, and golden. California oaks in the red/black oak category are being hard hit by sudden oak death, especially *Q. kelloggii*, *Q. agrifolia* and the related genus *Lithocarpus densiflorus*. Typically thought of as deciduous trees with lobed leaves, more and more evergreen oaks are showing up in Portland, many with non-lobed leaves. Based on molecular genetics analysis, oaks are estimated to have separated from chestnuts about 60 million years ago. Oaks first appear in the fossil record in North America 55 to 50 million years ago. Most species arose within the genus between 22 and three million years ago. During this period, oaks became the most dominant tree type in the Fagaceae family. The geographical center of oak diversity is North America. At least 220 species occur on this continent, chiefly in Mexico.

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.

peaches, nectarines, almonds, plums, apricots, etc., *Prunus* spp.

Origin: Asia - thousands of years of cultivation have obscured origins but China, Iran and Afghanistan are cited as the native homelands of many fruit trees in Prunus.

The non-cherry cultivated fruit members of the genus *Prunus* are small trees with insect-pollinated white or pink flowers in spring and fruits with hard stones. Peaches and nectarines are both *P. persica*, *P. dulcis* is the edible almond, and *P. triloba* var. *multiplax* is the flowering almond. Plums are *P. domestica* with others like the Italian plum, *P. cocomilia*. Apricots are *P. armeniaca* with other apricots like *P. mume* (Japanese apricot) and *P. sibirica* (Siberian apricot).

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 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.

quince, *Cydonia oblonga*

Origin: Asia - Iran, Azerbaijan, Armenia, Georgia, Uzbekistan, Tajikistan, Afghanistan, Pakistan and the state of Kashmir in India

A fruit-bearing small tree 16' to 25' tall by 13' to 19' wide. The deciduous leaves have entire margins with fine white hairs. They are borne alternately along the branches. The fruit is 3" to 5" long and 2" to 3" wide, green ripening to yellow. Quince has been cultivated for its fruit since ancient times, and may have been grown before apples were domesticated. It was well known to the ancient Greeks and figured in many legends, being the golden fruit that Hippomenes dropped to slow Atalanta in their mythic race. Quince were sacred to Aphrodite and were offered to brides at weddings in ancient Greece. Romans stewed them with honey. They have been grown in England since 1275, and were common fixtures in colonial American gardens. Their susceptibility to fireblight has caused them to be rare in modern U.S. gardens.



scarlet oak, *Quercus coccinea*

Origin: North America - southern Ontario Canada and eastern USA from New England to Appalachia, west to Indiana with a disjunct population in southern Missouri

Scarlet oak is closely related to red oak, but its leaves flame scarlet in the autumn. Trees seldom exceed 80', but can live more than 150 years. Bark is dark brown, smooth and shallowly ridged with age. Male flowers are yellow-green drooping catkins; females are

inconspicuous and appear separately on the same plant in late spring. While foliage is green, the leaves may be distinguished by their extra bristled teeth flaring out from the lobes—noticeably more than the pin and red oaks'—and deep O-shaped notches between the lobes. Acorn cups shaped like tops enclose about half of the ¾" nut. If it transplanted as well as its relatives, it would be much more popular in urban environments. It must be grown from seed or pampered, but will eventually thrive in gardens or parks. The scarlet oak is the official tree of the District of Columbia, where the twenty-third president, Benjamin Harrison, planted one at the White House. The scarlet oak has been cultivated since 1691.

strawberry tree, *Arbutus unedo*

Origin: Europe - Ireland, Iberia, France, Italy to the Balkans, Greece and North Africa

A shorter relative of our native madrone, the strawberry tree of Europe matures at about 20-25'. Both it and madrone are broadleaf evergreens in the same family as rhododendrons. Both have bell-shaped white flowers in large clusters that bloom in fall and winter. The bark of strawberry tree is gray-brown and does not peel like madrone. Strawberry trees also have slightly larger fruits than madrone. These emerge green before turning orange and red when fully ripe, usually in fall. Insipid when fresh, they are readily eaten by birds. The fruit is used to make a variety of jams, foods and liqueurs in Europe. In Spain, Madrid's coat of arms features a bear eating the fruit of this tree. This tree was among the exotics Thomas Jefferson planted at his Monticello estate. Usually lives 60 to 90 years.

sugar maple, *Acer saccharum*

Origin: North America - eastern Canada, eastern USA from Maine to northern Georgia west to Arkansas and north to Minnesota

Sugar maples grow to 70' tall with a round canopy and straight trunk. Mature trees have furrowed, plated bark. Leaves (about 5" wide) have 3 or 5 lobes, and turn yellow to crimson in fall, although color is not as pronounced in Portland as in the northeast United States and Canada. Winged seeds (about 1"



wide) form a 45 degree angle. In winter, sugars stored in roots move to the buds, producing a sugary sap. Native Americans were the first to tap this sap. Forty gallons of sap are boiled to make one gallon of syrup. Maple syrup is a valuable commodity and livelihood for rural residents. Both Vermont (1949) and New York State (1956) claim the sugar maple as their official state tree. Acid rain and global warming may push sugar maples north. Sugar maples can reach 300–400 years of age in native forests, producing strong wood. In cities, trees are more susceptible to drought and disease.

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.



vine maple, *Acer circinatum*

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

Native from southern British Columbia into coastal California, vine maple is most frequently seen as a multi-stemmed shrub in the forest understory

beneath taller trees. Its branches will twist and curve to reach sunlight pouring in from any break in the canopy, giving the tree the epithet of "octopus tree" for its often odd shape. If trained as a sapling to have a single trunk, vine maple can attain heights of 15' or more, and usually as wide or wider. More closely related to Japanese maples than other U.S. maples, vine maple has attractive 7 to 9-lobed leaves that are 3" to 4" across. These turn gold to orange or red in fall, but are subject to scorching if grown in full sun. Vine maple is not well adapted to urban settings and should be planted in conditions resembling moist forest. The small flowers are reddish to purple, the samaras have red wings, and the young shoot growth is red, making it easy to find something red on the tree year-round.

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 provincial tree of British Columbia.

