



PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Vestal Elementary School Tree Walk

LEARNING LANDSCAPES



Vestal 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) Unripened *Celtis occidentalis* fruits.
- 2) Spiky *Sequoiadendron giganteum* foliage.
- 3) The fall color that gives red maple its name.
- 4) Young dawn redwood cones.
- 5) Students plant a tree at Vestal Elementary School.
- 6) Showy white bracts surround the flowers of a kousa dogwood.
- 7) The unusual bark of a large Persian ironwood.
- 8) Deeply veined leaves on a Valley Forge American elm.

ver. 1/30/2015

Portland Parks & Recreation

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Commissioner Amanda Fritz
Director Mike Abbate

The Learning Landscapes Program



Vestal Elementary School

The Vestal Elementary School Learning Landscape was initiated in November 2009 with a planting of 22 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.

Vestal Elementary School Tree Walk



Learning Landscapes

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

100 Feet



Vestal Elementary School Tree Walk

Tree #	Common Name	Scientific Name
1	red maple	<i>Acer rubrum</i>
2	Himalayan whitebarked birch or Jacquemont birch	<i>Betula utilis</i> var. <i>jacquemontii</i>
3	Persian ironwood	<i>Parrotia persica</i>
4	zelkova	<i>Zelkova</i> spp.
5	common hackberry	<i>Celtis occidentalis</i>
6	dawn redwood	<i>Metasequoia glyptostroboides</i>
7	ginkgo	<i>Ginkgo biloba</i>
8	London planetree	<i>Platanus x acerifolia</i>
9	American yellowwood	<i>Cladrastis kentukea</i>
10	Persian ironwood	<i>Parrotia persica</i>
11	red maple	<i>Acer rubrum</i>

Tree #	Common Name	Scientific Name
12	kousa dogwood	<i>Cornus kousa</i>
13	Valley Forge American elm	<i>Ulmus americana</i> 'Valley Forge'
14, 15	Douglas-fir	<i>Pseudotsuga menziesii</i>
16	Western white pine	<i>Pinus monticola</i>
17, 18	giant sequoia	<i>Sequoiadendron giganteum</i>
19	dawn redwood	<i>Metasequoia glyptostroboides</i>
20, 21	ponderosa pine	<i>Pinus ponderosa</i>
22	American hornbeam or blue beech	<i>Carpinus caroliniana</i>
23	Persian ironwood	<i>Parrotia persica</i>
24	ginkgo	<i>Ginkgo biloba</i>
25	incense cedar	<i>Calocedrus decurrens</i>

Tree Facts, A to Z

American hornbeam or blue beech, *Carpinus caroliniana*

Origin: North America - Ontario, Canada south through the eastern USA to Florida

A broadly oval small deciduous tree to 20-25'. Narrow leaves 4" to 5" long have doubly toothed margins and 8-12 straight parallel veins. Fall color ranges from gold to excellent shades of orange and in some specimens fiery red. Bark is smooth, light gray or grayish-brown and often sinuous, giving rise to its other common names of blue beech or muscledwood. American hornbeam grows along streams in its native habitat, so it appreciates summer watering in Portland to look its best. In cultivation since 1812 but much rarer in Portland than the fastigiate European hornbeams.



American yellowwood, *Cladrastis kentukea*

Origin: North America - Appalachia, southern Missouri and north Arkansas

This deciduous broadleaf tree is one of the rarer U.S. trees in the wild. It is found most commonly along streams draining the western slopes of the Allegheny Mountains in Tennessee and Kentucky, with outlying populations in northern Arkansas and southern Missouri. Prefers fertile, well-drained soils. Usually 30-40' high with equal spread but can reach 60'. Compound leaves have 5 to 11 broad leaflets 3-4" long, turning butter yellow in fall. In late May-early June the tree blooms spectacularly with wisteria-like white flowers in clusters 12-14" long at the ends of twigs. Trees don't flower until they are typically at least 10-12' tall, and may flower only in alternating years. Small, flat bean-like pods follow the flowers and ripen in September. Bark is smooth and gray. The heartwood is a clear yellow, hence the tree's name. The wood was occasionally used for gunstocks but has never been commercially important. Lives 100-200 years.

common hackberry, *Celtis occidentalis*

Origin: North America - from the Great Plains east to the Atlantic seaboard as far south as northern Georgia and east-central Texas

Hackberry is an alternate-branching, deciduous tree growing 50–80' tall. The leaves are 2" to 4" long, pointed and toothed with three main veins branching out at an uneven base. Young bark is smooth and light gray, but it soon develops corky warts and abundant warty ridges. It bears



numerous sweet red then purple pea-sized berries that birds love and supports a wide range of galls and mites on the foliage. The hackberry is closely related to elms, but is resistant to Dutch elm disease. The canopy spreads wide like an elm, but is more "O"-shaped rather than "V"-shaped. This tree thrives in towns and cities, but is frequently referred to as "the unknown tree," because its values are understated compared to other majestic urban trees. The name "hackberry" is thought to derive from *hagberry*, a Scottish name for a cherry species.

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.

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).



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, often described as "nature's stink bomb," with a stench that's 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.



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 proven 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.

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.



kousa dogwood, *Cornus kousa*

Origin: Asia – Japan, Korea

A deciduous broadleaf tree growing 20-30' with equal spread. Less prone to anthracnose than the native Pacific dogwood (*Cornus nuttallii*) or eastern dogwood (*C. florida*). The species' true flowers are small and yellow-green, but are surrounded by four showy white bracts that sit above the leaves and appear in May after the leaves come out (American dogwoods flower before or as the leaves come out). There are many hybrids, cultivars and a Chinese subspecies, and some of these have pink-tinged bracts around their flowers. Gumball-sized, deep pink, puckered fruits appear in fall. These are eaten by monkeys in Japan and Korea. Bark on older trees flakes in patches to create a nice mottled cream and gray effect. Fall color is usually orange to red. Trees do not tolerate drought very well and need summer irrigation to thrive.

London planetree, *Platanus x acerifolia*

*Origin: Europe - a hybrid between the North American *Platanus occidentalis* and the 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.



Persian ironwood, *Parrotia persica*

Origin: Asia – Alborz Mountains of Iran, Talish Mountains of Azerbaijan and the Caucasus

Native to Iran's Alborz Mountains, where it forms part of the lush Caspian-Hyrcanian forest, and the Caucasus. A deciduous tree, Persian ironwood grows 20' to 45' high and often spreads as wide. Leaves are dark green in color and veined. Fall color varies from pure yellow to shades of orange, red or purple; multiple colors are often on the same tree. Small red shaving-brush flowers without petals appear in late winter but aren't showy. Slow growing, Persian ironwoods have strong wood; their

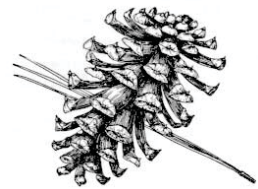


branches rarely break in wind or ice storms. With age, patches of bark flake off, giving their trunks a lovely cream and gray mottling. Generally free from pests and diseases. Persian ironwood is in the same family as witch hazels. Rare in Portland before the 1990s, it has become a widely planted this century due to its drought tolerance, strong wood, lack of messy fruits and good fall color.

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.



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.

Valley Forge American elm,
Ulmus americana 'Valley Forge'

Origin: North America - cultivar of a U.S. species introduced by the National Arboretum

Once one of the most common street trees in cities from the Great Plains to the Atlantic seaboard, the American elm has been decimated since the appearance of Dutch elm disease in 1930. Because they were not as densely populated in Portland as in other U.S. cities, the tree still persists here. Tall (to 140') and vase shaped, these majestic trees have deep green, heavily veined leaves 3-6" long with doubly serrate margins. Flowers emerge before the leaves and are followed by thousands of papery-winged seeds that flutter from the tree. The tree is also susceptible to elm leaf beetle, phloem necrosis, and other pests and diseases. Of all the American elms selected for resistance to Dutch elm disease, Valley Forge had the best resistance, though it is not immune. It is also subject to attack by aphids and, more seriously, elm yellows. Introduced in 1995 by the National Arboretum. Develops a broad, vase shape with arching limbs to 70' tall and 70' wide. Good yellow fall color.



western white pine, *Pinus monticola*

Origin: North America - Oregon, Washington, Idaho, Montana into British Columbia, Canada

An Oregon native pine found from the Cascades east into Idaho (where it has been the official State tree

since 1935), northwestern Montana and north into British Columbia. They have a pyramidal form and typically reach 90' to 160' but the national champion is 219'. The needles are 2 to 4' long and borne in bundles of five. Cones are erect and grow to 6"-10". They develop from green or purple to a yellow-brown when mature. Seeds are shed in September and October. The wood is straight-grained and easily worked, giving it a high commercial value. It is used for doors, door and window frames, moldings, matches and toothpicks. In 1910 a fungal disease called white pine blister rust was accidentally introduced from Europe. Since the rust's arrival, more than 90% of western white pines have been lost in their original territories. Scottish plant collector David Douglas first reported seeing this tree on the slopes of Mt. St. Helens in 1825.

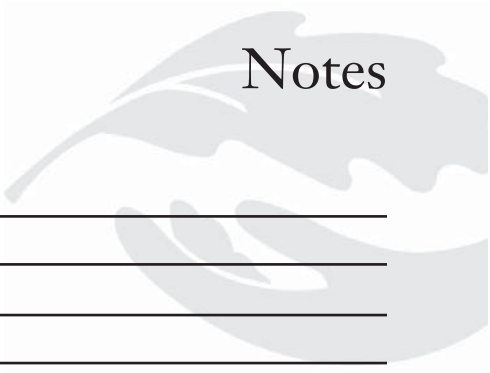
zelkova, *Zelkova* spp.

Origin: Asia

The most common species of zelkova in Portland is Japanese zelkova - *Z. serrata*. However, there are a few other species - *Z. carpinifolia* from the Caucasus, and *Z. sinica* and *Z. schneideriana* from China. All have simple, serrate-edged leaves. The species from eastern Asia are more tapered at the tips, while those of *Z. carpinifolia* are somewhat blunter. The Caucasian zelkova's bark is typically smooth and gray but will flake on older trees. The tree has a dense, oval head. Japanese zelkovas tend to be more vase-shaped and spreading. 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. *Z. sinica* has fewer veins and larger, smoother fruits than the other species.



Lined writing area consisting of 30 horizontal lines.



Notes

Lined writing area with 28 horizontal lines.