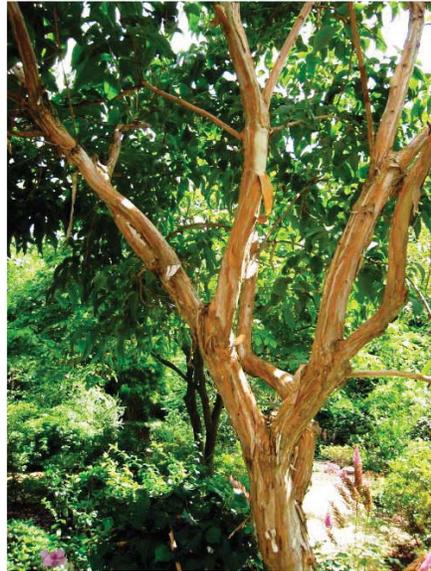
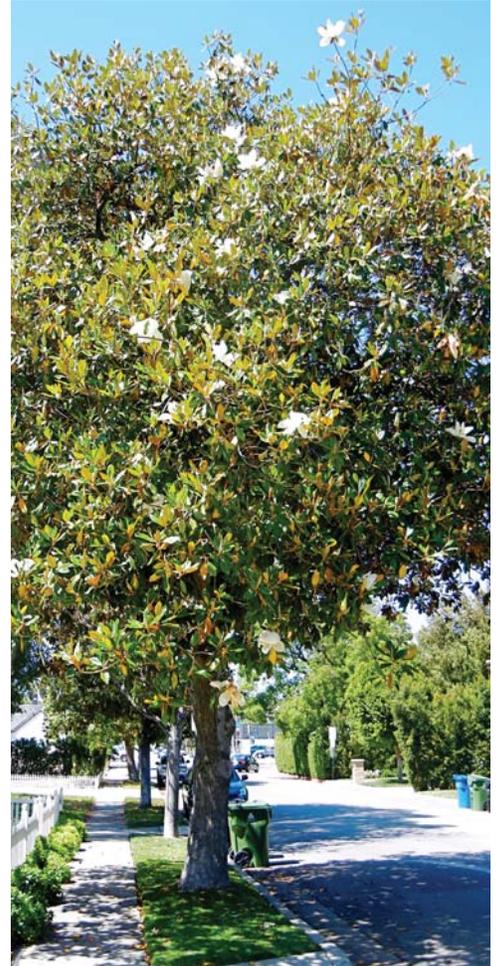




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Rieke Elementary School Tree Walk

LEARNING LANDSCAPES



Rieke 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 plant a tree at Rieke Elementary School.
- 2) The egg-shaped fruits of a Japanese snowbell.
- 3) A row of southern magnolia planted as street trees.
- 4) The foliage of a golden deodar cedar.
- 5) Twisted needles and pollen cones of a *Pinus parviflora*.
- 6) Closeup view of Zebrina western redcedar foliage.
- 7) The unusual bark of a seven-son plant.
- 8) A Tricolor beech with rosy leaf edges.

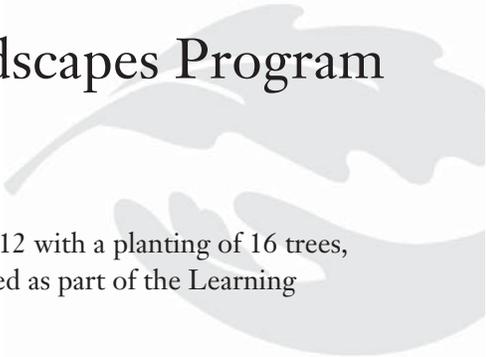
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Commissioner Amanda Fritz
Director Mike Abbate

The Learning Landscapes Program



Rieke Elementary School

The Rieke Elementary School Learning Landscape was initiated in March 2012 with a planting of 16 trees, and the collection now includes 35 trees. This tree walk identifies trees planted as part of the Learning Landscape as well as other interesting specimens at the school.

What is a Learning Landscape?

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

Community Involvement

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

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

Tree Planting Experience

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

Continued Hands-on Learning Opportunities

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

How can I get involved?

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

Rieke Elementary School Tree Walk

Tree #	Common Name	Scientific Name
1	Snow Charm Japanese snowbell	<i>Styrax japonicus</i> 'JFS-E'
2	golden deodar cedar	<i>Cedrus deodara</i> 'Aurea'
3	bigleaf maple	<i>Acer</i> <i>macrophyllum</i>
4	Tricolor beech	<i>Fagus sylvatica</i> 'Roseomarginata'
5	ginkgo	<i>Ginkgo biloba</i>
6	Natchez crape myrtle	<i>Lagerstroemia x</i> 'Natchez'
7	Japanese white pine	<i>Pinus parviflora</i>
8	southern magnolia	<i>Magnolia</i> <i>grandiflora</i>
9	Pacific madrone	<i>Arbutus menziesii</i>
10	ginkgo	<i>Ginkgo biloba</i>
11	Dawyck Purple European beech	<i>Fagus sylvatica</i> 'Dawyck Purple'
12	California black oak	<i>Quercus kelloggii</i>
13	Zebrina western redcedar	<i>Thuja plicata</i> 'Zebrina'
14	Seven-son plant	<i>Heptacodium</i> <i>miconioides</i>
15	bald cypress	<i>Taxodium</i> <i>distichum</i>
16	Accolade elm	<i>Ulmus davidiana</i> var. <i>japonica</i> 'Morton'
17	Oregon white oak	<i>Quercus garryana</i>
18	Village Green zelkova	<i>Zelkova serrata</i> 'Village Green'
19	American beech	<i>Fagus grandifolia</i>
20	interior live oak	<i>Quercus wislizeni</i>
21-23	Oregon white oak	<i>Quercus garryana</i>
24	swamp white oak	<i>Quercus bicolor</i>
25-36	black tupelo	<i>Nyssa sylvatica</i>

Tree Facts, A to Z

Accolade elm,

Ulmus davidiana var. *japonica* 'Morton'

Origin: Asia – China, Korea, Japan

This deciduous tree was selected for its resistance to Dutch elm disease, which has devastated most American and European elms in the U.S. since 1930. The parent tree is a hybrid between two populations of the Asian elm *Ulmus davidiana* var. *japonica*. It was planted in 1924 at the Morton Arboretum in Chicago, and is also resistant to elm yellows and elm leaf beetle. Accolade is vase-shaped like American elms but doesn't grow as tall – reaching 65' when mature and 25-30' wide. Small green flowers in spring aren't showy. They are followed by papery, wafer-like samara enclosing a single seed. The dark green, toothed leaves have asymmetrical bases. Fall color is a good yellow. Accolade can scorch without adequate moisture, especially in dry Portland summers.

American beech, *Fagus grandifolia*

Origin: North America - southern Canada and the U.S., from Cape Breton Island, Nova Scotia west to Maine, southern Quebec, southern Ontario, northern Michigan, and eastern Wisconsin; south to southern Illinois, SE Missouri, NW Arkansas, SE Oklahoma, and eastern Tennessee

This is the only species of beech native to North America. It is a rounded, deciduous tree to 100' tall (the tallest to 166'). Leaves are alternate, simple, elliptical to oblong-ovate, 2.5" to 5.5" long, with 11-14 pairs of veins, each



vein ending in a sharp, distinct tooth, shiny green above, very waxy and smooth, slightly paler below. Male flowers in globose heads hang from a slender 1-inch stalk, female flowers are on shorter spikes, appearing just after leaves in the spring. Beech nuts are irregularly triangular, shiny brown and edible, found in pairs within a woody husk covered with spines, 1/2" to

3/4" long, maturing in fall. Twigs are slender, zigzag, and light brown in color. Bark is gray, smooth, thin and easily damaged. Before the Ice Ages beech trees were found clear across North America. Intolerant of drought, they have become confined to the moist, eastern half of the continent. Beech wood is used for flooring, furniture, veneer, containers and firewood.

bald cypress, *Taxodium distichum*

Origin: North America - From eastern Texas to Florida, reaching north to Delaware and southern Illinois

A deciduous conifer growing upright to 100' or more. Needles are soft, emerging light green. They are 1/2 "to 3/4" long and turn russet-



orange in autumn. Spherical cones are about an inch in diameter. Bark on older trees is reddish-brown and fibrous. The official state tree of Louisiana, bald cypress is synonymous with the bayous. Its range, however, extends from east Texas into southern Illinois and along the eastern seaboard to Delaware, usually in swamps. Despite being able to survive in waterlogged soils, bald cypress also grow well in drier soils and makes a fine street tree. Because the wood is durable, bald cypress was heavily logged for water tanks, ships, flooring, greenhouses, shingles and laundry equipment. Before the Ice Ages, these trees were widespread across the Northern Hemisphere but died out everywhere except the eastern U.S. Bald cypress seeds are eaten by wild turkeys, wood ducks, evening grosbeaks, squirrels and some waterfowl and wading birds.

bigleaf maple, *Acer macrophyllum*

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

The largest leaves of any maple are found on this Pacific Northwest native. The species name means "big leaf", which is an apt description for the 5-lobed leaves 8" to 12" across. They turn yellow to rich gold in fall. Like Norway maples, the leaf stems exude a milky sap when cut. The greenish flowers hang in showy clusters in early spring and are insect pollinated. The tree's deep taproot helps it find water in dry summers. The tree produces prolific amounts

of seed, some of which are eaten by Douglas squirrels, finches and evening grosbeaks. The many not eaten readily germinate and send up thousands of seedlings. These grow with astonishing speed, which is one reason bigleaf maple has been able to invade disturbed areas. Suppression of fire has benefitted bigleaf maples, which have encroached on formerly fire-maintained savannas at the expense of Oregon white oaks. The tree grows from southern British Columbia into northern California, from sea level to 3,000'.

black tupelo, *Nyssa sylvatica*

Origin: North America - eastern USA from eastern Texas and eastern Missouri across the South and north to New York, New England and southern Ontario, Canada

Black tupelo is an 80' tall broadleaf deciduous tree native to the eastern United States. The leaves are smooth and long (up to 6"), emerging as clusters and twisting at different angles from the ends of branches. Trees are dioecious, with males and females occurring on different plants. A cluster of blue berries (smaller than 1/2") emerge from the end of the leaf clusters. These flowers and fruits are important food sources for bees and birds. The leaves turn from green to fiery red and yellow in autumn. The berries are said to taste bitter to humans but are an important food source for birds. This species likes wet habitats and is being planted more frequently as a street tree in Portland, especially in bioswales.



California black oak, *Quercus kelloggii*

Origin: North America - from southern Oregon through California

Famous for being the dominant oak in the valley of Yosemite National Park, this deciduous tree can be found as far north as south-central Oregon. It occupies more land than any other California hardwood tree, and is an important lumber tree. California black oak normally grows from 30' to 80' tall but can reach 100' or more in favorable sites. Trees typically live 100 to 200 years, but some individuals are known to have attained 500 years. Acorns are more than an inch long.

Dozens of bird and mammal species favor them for their nutritive value as did Native American tribes. Leaves are lobed and turn brown to gold or even orange in fall. They provide important fodder for browsing deer and livestock. Bark is grayish-brown and becomes fissured with age.

Dawyck Purple European beech,

Fagus sylvatica 'Dawyck Purple'

Origin: Europe - a columnar purple-leaved cultivar of a tree native from England, western and central Europe to Scandinavia

One of the largest and most stately deciduous trees, European beech can easily reach several hundred years of age and grow to 100' tall. Trees grow out and upward, creating a full, oblong shape. The bark is smooth and gray; older trees have prominent folding in the bark around branches, knots, or wounds, resembling elephant legs. Carving into the smooth bark of beech trees can harm the active growing layers and make it more susceptible to disease. Branching is alternate, with thick, prominently margined leaves. Leaf edges are generally toothed and wavy. The nuts, enclosed in hairy husks about ½" long, are an important wildlife food and have been harvested by people as well. European beech has been cultivated for particular shapes and colors, including weeping, slender, and purple varieties. Beeches are also subject to infestation by the beech wooly aphid, which appear as hairy white patches, usually on the underside of leaves. These rarely cause serious harm. Similar in foliage shape and color (dark purple) to the purple-leaved European beeches, this cultivar was introduced in 1973. It remains narrowly upright but can reach 40-60' tall. Inconspicuous flowers in spring.



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 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.

golden deodar cedar, *Cedrus deodara* 'Aurea'

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

Golden deodar cedar is an evergreen, cone-bearing tree known since 1866 and admired for its light-yellow new needles. These slowly darken to yellow-green over the summer. Slower growing than the species, which is native to the western Himalayas, where it is the national tree of Pakistan. Aurea develops an open, upright pyramidal shape at a young age. May grow 40' tall or more with time. The branch tips dangle softly downward. With time, the trunks and branches become picturesque. The female cones are held upright on the upper branches and are large and egg-shaped. The smaller male cones are elongated and shed large amounts of yellow pollen in spring. Deodar cedars require full sun and ample room to achieve their best color and ultimate size. Deodar cedar is extremely adaptable, growing well on a wide range of soil pH and types so long as they are well drained.

interior live oak, *Quercus wislizeni*

Origin: North America - California on upland slopes below 5,000' and in the Mexican state of Baja California

An evergreen oak native to California and noted for its drought and heat tolerance. Can reach 70' but is usually shorter. Often as broad as they are tall and densely branched. Leaves are leathery, elliptical, and

up to 3 inches long. They can be smooth, toothed or spiny like a holly. On young trees, bark is smooth and light gray, becoming fissured and darker with age. Narrow acorns are cone-shaped and $\frac{3}{4}$ to 1 $\frac{1}{2}$ inches long. They sit deeply in their cup and take up to two years to ripen. Many birds and animals eat the acorns and shelter in this tree. The trees survive in areas receiving as little as 15" of rain annually or up to 50".

Japanese white pine, *Pinus parviflora*

Origin: Asia - Japan

This evergreen conifer grows 25' to 50' high (up to 70' in the wild) with a similar or greater spread at maturity. Dense and pyramid shaped when young, developing wide-spreading branches and a flat top with age. Bark is smooth and gray when young, becoming darker gray and scaly on older trees. Needles are in bundles of 5 and blue-green to grass-green in color. Cones are 1.5" to 4" long, oval to nearly cylindrical, and spread widely when ripe. The most common form is the gray-green leaved form *P. densiflora* forma *glauca*, which usually reaches 45'. Tolerant of clay soils and salt spray. The tree has long been grown in China and Japan as a subject for bonsai. One variety in Japan is called *hime-ko matsu* with a more northerly variety known as *kita-goyo*. First scientifically described in 1842 by Philipp von Siebold (1796-1866). In cultivation in the United States since the Civil War (1861).

Natchez crape myrtle, *Lagerstroemia x 'Natchez'*

Origin: Asia - hybrid between a Chinese Lagerstroemia indica and the Japanese species L. fauriei; hybridized by Don Egoff at the U.S. National Arboretum

One of the most commonly planted hybrid crape myrtles because of its rich, cinnamon red-brown exfoliating bark; big panicles of showy white summer flowers; red-orange fall color; excellent resistance to powdery mildew; enhanced cold hardiness; and upright growth to 30' with a spread of 35'. Natchez was released commercially by the U.S. National Arboretum in July 1978. A Japanese and Chinese crape myrtle had been crossed in 1964 and this seedling with its superior red-brown bark was selected for propagation in 1969.

Oregon white oak, *Quercus garryana*

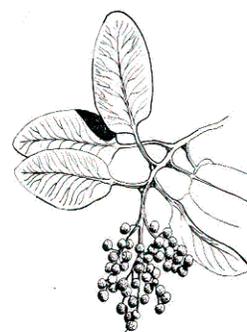
Origin: North America - southern British Columbia, Canada through Washington and Oregon west of the Cascades and northern California

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.

Pacific madrone, *Arbutus menziesii*

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

The Pacific madrone is a native broadleaf evergreen that can grow up to 100'. Young bark is chartreuse and smooth, while the older bark is dark brownish-red and peeling. Leaves are simple, alternate, oblong, 3-5" long, and are dark green on top and light green or golden-scaly below.



Margins are smooth or finely serrated. Stems and trunks tend to lean and twist. Flowers are white, urn-shaped, and fragrant in large drooping clusters. The fruit is orange-red, pea-sized with a pebbly surface, and appears in the fall. British plant hunter Archibald Menzies first described the species based on trees seen on the Olympic Peninsula in 1792. A Straits Salish story describes the madrone as the tree used by the survivors of the Great Flood to anchor their canoe to the top of Mount Newton (B.C.)

To this day, the Saanich people do not burn madrone in their stoves because of the important service this tree provided long ago.

Seven-son plant, *Heptacodium miconioides*

Origin: Asia - China

Seven-son plant was only introduced in the USA in 1980 after botanists from Arnold Arboretum brought back plant material from China. Since then this deciduous broadleaf has become available as a garden shrub. It can be trained into a small street tree with a single leader growing to 15-20' and about 10' wide. The long leaves have a prominent drip tip. The leaves have deep veins which run parallel to the midrib. They can take on apricot shades in fall, although this varies. Seven-son is most noticeable for the whorls of white flowers that appear in late summer in Portland. These are followed by rosy-pink, star-shaped calyces which persist for several weeks and are almost as showy as the flowers. Bark is light cream to tan and often peels vertically. Habitat destruction has made this plant vulnerable to extinction in its native China.

Snow Charm Japanese snowbell,

Styrax japonicus 'JFS-E'

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. Rarely seen before the 1990s on Portland's streets, nurseries have altered the situation in the past two decades by introducing popular new cultivars. Japanese snowbell is now common as a young street tree in small planting strips in Portland. So far relatively free of pests or diseases in Portland. Snow



Charm reaches 20' tall by 20' wide. Bell-shaped white flowers appear in profusion in late spring. Leaves are somewhat larger than Snowcone and the form is more spreading and less upright, closer to the species form. Also resists winter twig dieback. Fall color is a drab yellowish-green.

southern magnolia, *Magnolia grandiflora*

Origin: North America - from eastern Texas across the coastal southern states to North Carolina

Southern magnolia grows to about 80' tall. The leaves have a dark green waxy surface and a fuzzy red-brown underside. This species is native to the southeastern United States and has been cultivated as an urban or yard tree for 250



years. The oldest specimen in Portland was planted in the 1890s on SW 2nd Ave. Flowers don't appear until the tree is at least twenty years old. However, some would say the flowers are worth waiting for. Each milky white and strongly fragrant flower can be up to a foot in diameter, which some people have said is akin to the size of a dinner plate. The large petals fall off leaving a large green fruit (up to 4" long) which some people say looks like a pickle. In the southern United States, evergreen magnolias have been planted in hurricane regions because of their wind-resistance.

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. Over 400 were planted in the new September 11 Memorial Plaza in Manhattan.

Tricolor beech, *Fagus sylvatica* 'Roseomarginata'

Origin: Europe - a variegated cultivar of a tree native from England, western and central Europe to Scandinavia

Three different beech clones with purple leaves variegated in cream and pink edges may have become confused in the nursery trade ('Roseomarginata', 'Tricolor' and 'Purpurea Tricolor'). In all respects the trees look like the regular purple beech form in shape, size and leaf form. Inconspicuous flowers. Brown fall color.

Village Green zelkova, *Zelkova serrata* 'Village Green'

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

The most common species of zelkova in Portland is Japanese zelkova - *Z. serrata*. All have simple, serrated-edged leaves with tapered tips. The tree is vase-shaped and has a dense, oval head. 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. Village Green is a shorter, broader cultivar than Green Vase, reaching a maximum height of around 40-60' with a 30-50' spread. Princeton Nursery patented the tree in 1964 and introduced it to commercial nurseries as a street tree with resistance to Dutch elm disease and elm leaf beetle, and rusty red to orange fall color. Spring flowers aren't showy. Wingless drupes ripen

in fall but are inconspicuous. Bark is smooth when young but flakes as the tree ages to reveal jigsaw puzzle patterns of orange-brown inner bark. Rapid growth in both height and caliper.

Zebrina western redcedar, *Thuja plicata* 'Zebrina'

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

Western redcedar can grow up to 200' tall and greater than 10' in diameter. This evergreen has flat, waxy, scale-like leaves that resemble the pattern of ferns.



On the underside of the leaves is a white chalk-colored pattern of "X" shaped marks. The branches usually hang down from the trunk in a hook-like fashion. The bark is dark brown, fibrous, and peels off easily in small strips. The cones (about 1/2" long) form at the tips of the scale-like leaves and open upon maturity. Western redcedar has been used for outbuildings and sheds because the wood is resistant to rot. Native Americans used the wood for canoes and totem poles. The bark can be harvested and was used for blankets, clothing, ropes, nets and even baby diapers. Western redcedar is the official provincial tree of British Columbia. Resistant to verticillium wilt. Zebrina is a variegated cultivar, growing slowly to 20' to 30' and only 10-15' wide on a broadly pyramidal tree. Bands of yellow fall across the flat sprays of foliage on this evergreen conifer. The yellow banding is less intense in warm summers and during humid weather. Best color is seen in sunnier situations.

