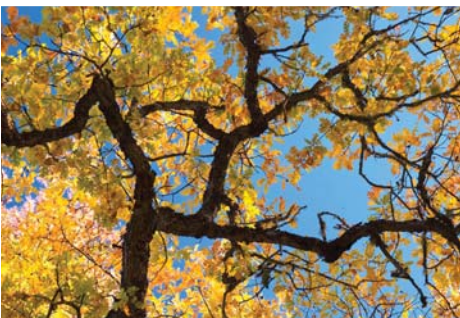
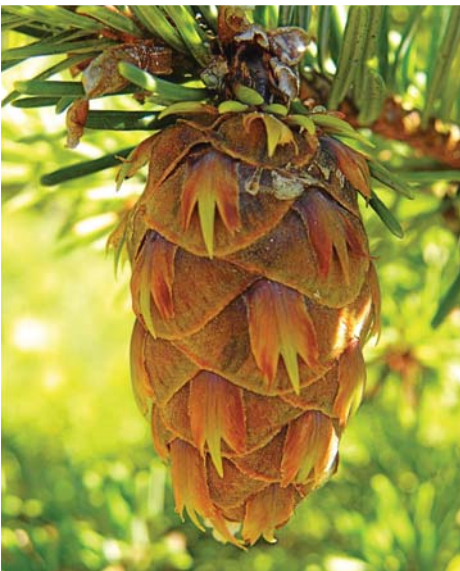




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



Beverly Cleary School at Fernwood Tree Walk

LEARNING LANDSCAPES



Beverly Cleary School at Fernwood 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 planting trees at Beverly Cleary School.
- 2) The unusual cones of an incense cedar.
- 3) A grove of *Sequoiadendron giganteum*.
- 4) Douglas-fir cones have distinctive 3-pointed bracts.
- 5) Numerous small cones of a western hemlock.
- 6) The branches and fall colors of an Oregon white oak.
- 7) Brilliant autumn leaves give the northern red oak its name.
- 8) Students learn how to plant a tree.

ver. 1/30/2015

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Commissioner Amanda Fritz
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The Learning Landscapes Program



Beverly Cleary School at Fernwood

The Beverly Cleary School at Fernwood Learning Landscape was initiated in January 2009, with a planting of 13 trees. The collection now includes 20 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.

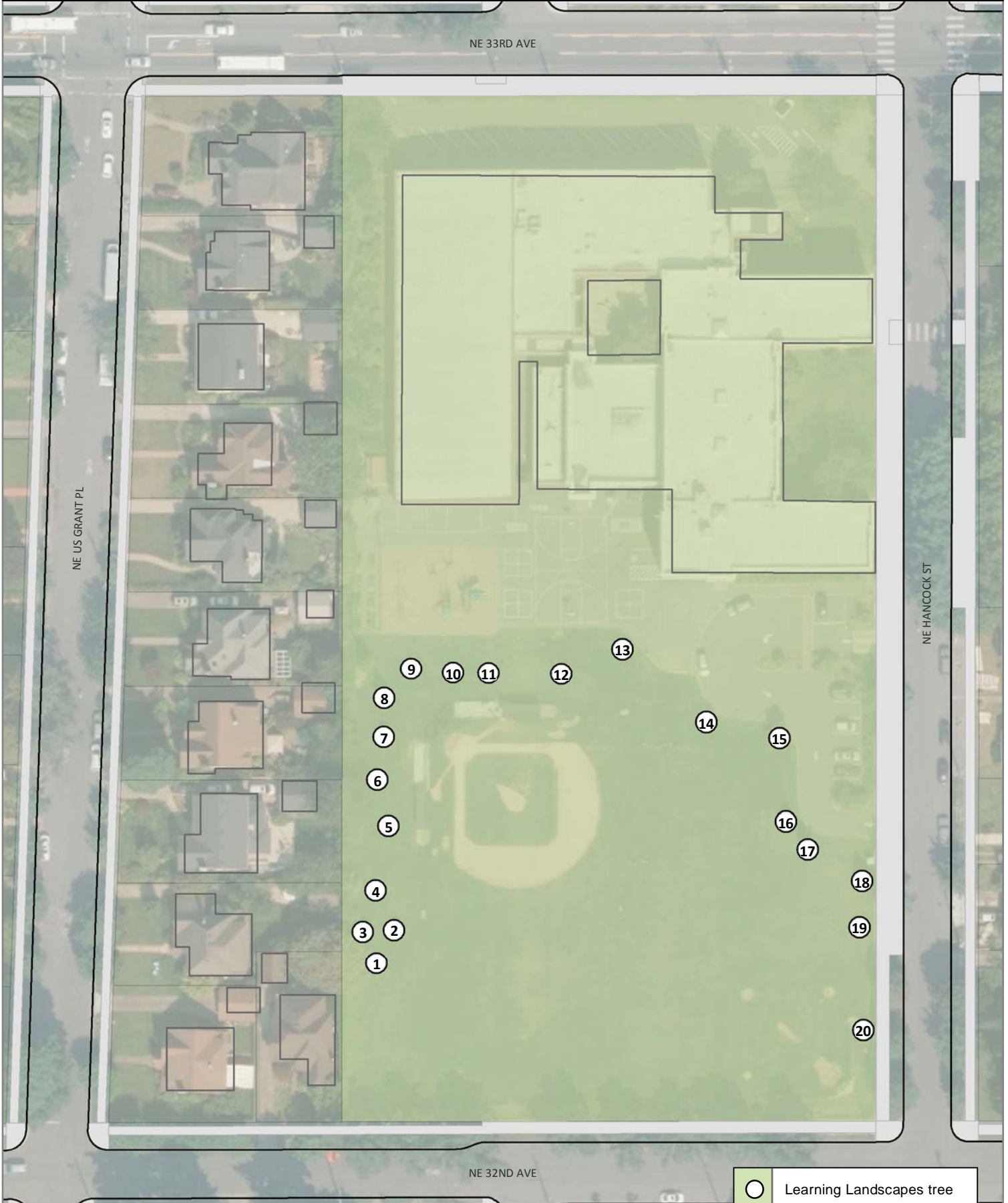
Continued Hands-on Learning Opportunities

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.

Beverly Cleary School at Fernwood Tree Walk



Learning Landscapes

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

Beverly Cleary School at Fernwood Tree Walk

Tree #	Common Name	Scientific Name
1	western hemlock	<i>Tsuga heterophylla</i>
2, 3	incense cedar	<i>Calocedrus decurrens</i>
4	noble fir	<i>Abies procera</i>
5, 6	Oregon white oak	<i>Quercus garryana</i>
7	Douglas-fir	<i>Pseudotsuga menziesii</i>
8, 10	western redcedar	<i>Thuja plicata</i>
9	European silver fir	<i>Abies alba</i>
11	incense cedar	<i>Calocedrus decurrens</i>
12	Oregon white oak	<i>Quercus garryana</i>
13	northern red oak	<i>Quercus rubra</i>
14, 15	vine maple	<i>Acer circinatum</i>
16, 17	incense cedar	<i>Calocedrus decurrens</i>
18	giant sequoia	<i>Sequoiadendron giganteum</i>
19	bald cypress	<i>Taxodium distichum</i>
20	dawn redwood	<i>Metasequoia glyptostroboides</i>

Tree Facts, A to Z

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 ½ "to ¾" 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.

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.



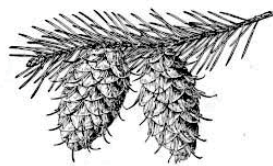
New leaves (about 1" long) are lime green, turning darker green through the summer and orange in fall. The cones (about 1" round) are green earlier in the season and turn to brown before ripening. Dawn redwood flourished in North America in the Miocene age (5 to 25 million years ago) and left a fossil 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.



European silver fir, *Abies alba*

Origin: Europe - central and southern Europe from the Pyrenees in Spain and France east to Serbia, Bulgaria and Poland

The only widespread fir in Europe, this upright evergreen conifer can reach 150' to 200' tall. Silvery stomatal bands lie underneath the needles, which are arranged to the side of the twigs, with notched or pointed tips. Light gray bark becomes checkered with age. Cylindrical cones are purplish or green, maturing to reddish-brown. They have downward curving bracts. This is an important timber tree in western and central Europe, where forests are managed to encourage fir regeneration. In the 17th century, tall trees were used as ship masts. Most of its wood today is used for plywood and veneer as it is evenly grained, light, and easily worked. Minor uses are for soundboards in musical instruments, boxes, wood carving, and sometimes joinery. In the southern Balkans it hybridizes with Greek fir (*Abies cephalonica*) to produce the hybrid *A. x borisregis*.

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).

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 3 alternating pairs of scales with a bump just below the tip. Bark is smooth on young trees but becomes fibrous and reddish-brown with age. Highly decay-resistant wood is light, soft and fragrant, giving rise to the tree's common name in English. Primarily used to make pencils but also used in the Far West to make fenceposts or shingles. Trees can live 350 to 500 years. Only two other species in *Calocedrus* are known - both in Asia.



noble fir, *Abies procera*

Origin: North America - Washington and Oregon

Noble fir is the largest of the true firs. The crown is conical and rounded at the tip. Bark is blistered on young trees, turning purplish gray to reddish brown on mature trees, with flattened ridges. Needles are white on both surfaces and curve at the base like a hockey stick. Unlike other firs, each needle runs parallel to the twig for about 1/8" before it curves away. Branches are short and nearly horizontal. Barrel-shaped cones sit upright and are 4" to 6" long. Cones have thin

scales with rounded “shoulders,” and fall apart in the late fall after the seeds have ripened. The cones are wrapped in paper-thin bracts separating seeds from the cone scales. While all conifers have bracts, the noble fir is the only species having bracts large enough to be visible outside the cone. Noble firs are among true firs, or balsam firs, so named because of tiny pockets of resin (balsam) in their bark. They were used extensively to reforest Mt. St. Helens after its eruption in 1980.

northern red oak, *Quercus rubra*

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

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

Oregon white oak, *Quercus garryana*

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

Oregon white oak is a deciduous tree growing up to 90' tall. Branches are dense and wide, with limbs of solitary trees reaching to the ground. The leaves (3–6" long) are thick and shiny with rounded lobes. A distinguishing feature is the presence of galls on the underside of leaves or small



twigs. The galls are the home of little wasps that lay their eggs inside oak leaves. The fruit of the Oregon white oak is an acorn about 1" long that protrudes from a narrow cap. These trees prefer open grassland habitats where they cannot be shaded out by other species. Oregon white oak was once one of the predominant trees in the Willamette Valley, but has declined to only 1% of its original range due to land development for farms and cities, and a reduction in wildfires. The tree's nickname, Garry oak, is after Nicholas Garry, the secretary of Hudson's Bay Company who helped botanist David Douglas.

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 hemlock, *Tsuga heterophylla*

Origin: North America - Alaska to California

Narrow, pyramidal conifer growing slowly to 100'. Some trees in Olympic National Park are over 200'

tall. Short needles give a soft, fine effect. Branches tend to hang down, giving a weeping appearance. Gray bark. Western hemlock grows from Alaska's Kenai Peninsula through coastal British Columbia, Washington and Oregon to the coastal redwood forests of northern California. It can be found as far east as northwest Montana and northern Idaho in valleys receiving at least 32" of rain a year. It grows from sea level to 5,000'. The tree is similar to mountain hemlock but has smaller cones, less than an inch long versus 1.5" to 3" long for its mountain relative. Western hemlock occurs at lower elevation and does not range as far south in the Cascades as mountain hemlock. Being shade tolerant, western hemlock eventually becomes the dominant tree in undisturbed forests. The wood is used in construction, pilings, poles, gym floors and wood pulp. Washington's state tree since 1947.

western redcedar, *Thuja plicata*

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

Western redcedar can grow up to 200' tall and greater than 10' in diameter.

This evergreen has flat, waxy, scale-like leaves that resemble the pattern of ferns. On the underside of the leaves is a white chalk-colored pattern of "X" shaped marks. The branches usually hang down from the trunk in a hook-like fashion. The bark is dark brown, fibrous, and peels off easily in small strips. The cones (about 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 official provincial tree of British Columbia.

