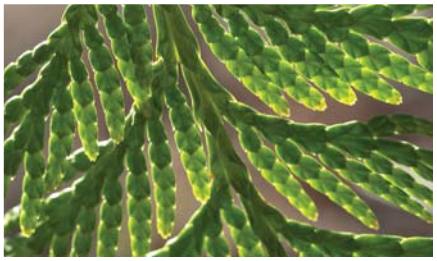
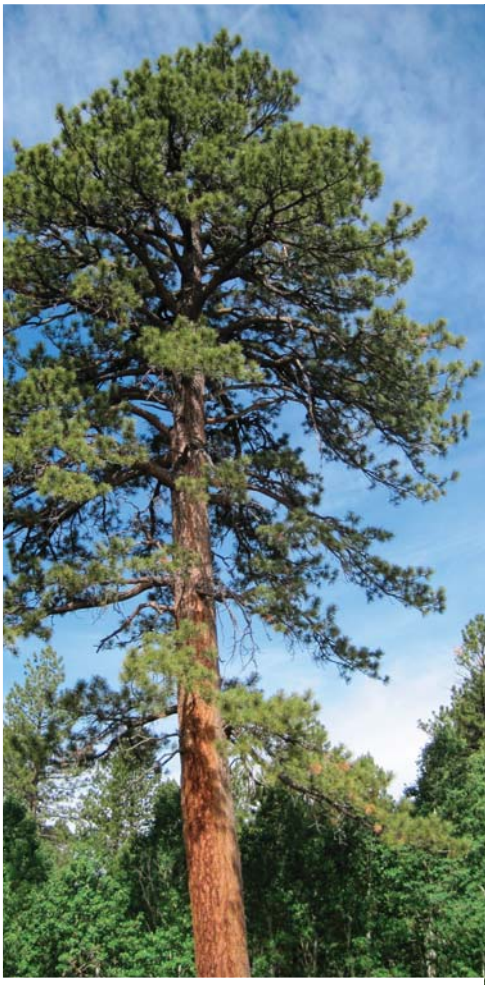
PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland





Open Meadow Middle School Tree Walk

LEARNING LANDSCAPES

Open Meadow Middle School Tree Walk 2015
Learning Landscapes

Site data collected in Summer 2014.

Written by:
Kat Davidson, Karl Dawson, Angie DiSalvo, Jim Gersbach and Jeremy Grotbo
Portland Parks & Recreation Urban Forestry
503-823-TREE trees@portlandoregon.gov
http://portlandoregon.gov/parks/learninglandscapes

Cover photos (from top left to bottom right):
1) Closeup of a ponderosa pine's pollen cones.
2) Sunlight shines through *Thuja plicata* foliage.
3) A lone ponderosa pine growing in its native range.
4) An umbrella pine planted at Mt. Tabor Middle School.
5) Large galls on the underside of an Oregon white oak's foliage.
6) *Quercus bicolor* gets its name from its two-toned leaves.
7) A young Douglas-fir getting established at Open Meadow Middle School.
8) The whorled foliage and upright cones of an eastern larch.

Photo above:
1) Oregon white oaks growing in the wild alongside vividly-colored camas lilies.

ver. 1/30/2015

Portland Parks & Recreation
1120 SW Fifth Avenue, Suite 1302
Portland, Oregon 97204
(503) 823-PLAY
www.PortlandParks.org

Commissioner Amanda Fritz
Director Mike Abbaté

The Learning Landscapes Program

Open Meadow Middle School

The Open Meadow Middle School Learning Landscape was initated in November 2013, and the collection includes nine 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.

Open Meadow Middle School Tree Walk

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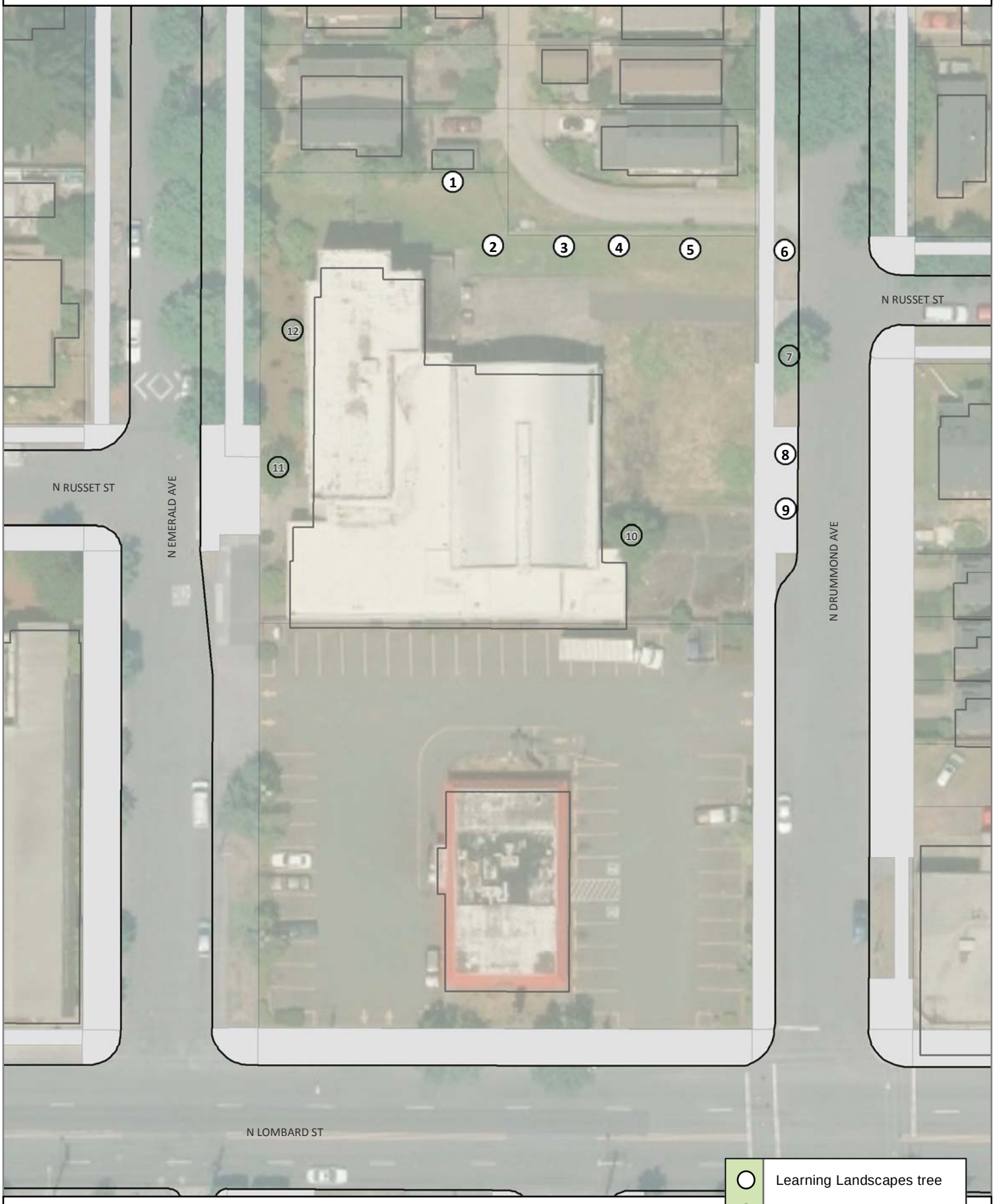


Learning Landscapes
http://portlandoregon.gov/parks/learninglandscapes

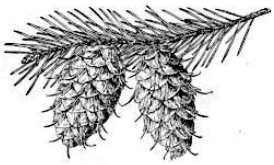
Open Meadow Middle School Tree Walk

Tree #	Common Name	Scientific Name
1	interior live oak	*Quercus wislizeni*
2	western redcedar	*Thuja plicata*
3	ponderosa pine	*Pinus ponderosa*
4	Douglas-fir	*Pseudotsuga menziesii*
5	Oregon white oak	*Quercus garryana*
6, 8	swamp white oak	*Quercus bicolor*
7	Norway maple	*Acer platanoides*
9	eastern larch	*Larix laricina*
10	tree of heaven	*Ailanthus altissima*
11	European ash	*Fraxinus excelsior*
12	eastern redbud	*Cercis canadensis*

Tree Facts, A to Z

Douglas-fir, *Pseudotsuga menziesii*

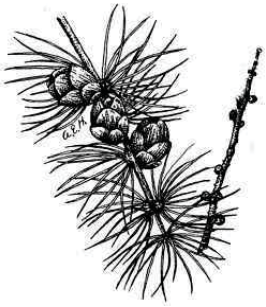
Origin: North America - from British Columbia south to Oregon, Washington, California, Idaho and western Montana with a subspecies in the Rocky Mountain states and into northern Mexico



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 larch, *Larix laricina*

Origin: North America - from Alaska east across Canada to Newfoundland and in the USA in Minnesota, Wisconsin, Michigan, New York and New England



Larches, also called tamarack, are deciduous conifers. Eastern larch grows up to 60' tall. Trees are extremely hardy and straight, with conical shapes. Needles are borne on woody pegs in clusters of 20–40. Mature bark is furrowed and flakes off in irregular shapes leaving reddish-orange patches. In the spring, larch needles are paler than other conifers, turning yellow in the fall. Cones are small and tulip-like, occuring in small bunches and having very few scales. The native western larch (*Larix occidentalis*) is similar but grows to about three times the height and has cones that are larger and upright on the branches.

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 name for its fantastic spring display of bright pink flowers. 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 and drought. Some say the flowers can be eaten fresh in a salad or fried.

European ash, *Fraxinus excelsior*

Origin: Europe - from Ireland and England east to Scandinavia, western, central and eastern Europe through the Balkans and Greece, to Ukraine, southern Russia, the Black Sea coast of Turkey to Georgia, Armenia, Azerbaijan and Iran

European ash grows to about 20–25' tall with a high-reaching, broad canopy. Gray bark appears slightly braided as it ages. Branching is opposite with newer branches and outer bark giving off a yellow hue. The tips of each branch contain large black velvety buds. The lacey compound leaves vary in size (about 8" long) with 13–25 toothed leaflets that provide a serrated, fern-like look. In autumn, the leaves turn shades of golden yellow. The fruit is a winged seed that hangs down in large clusters and can persist on the tree into winter. Ash wood is prized for its flexibility and strength and has been harvested for tools, furniture, walking sticks, and even early airplanes. Ash has also been used to heal many skin maladies. Ash resists pollution and pests, although Emerald Ash Borer is a new threat. The structure and small size of many varieties make European ash a great street tree for narrow planting strips and under low-hanging wires.

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 ¾ to 1 ½ 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".

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.

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.

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. The seeds are consumed by a wide range of wildlife.

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.

tree of heaven, *Ailanthus altissima*

Origin: Asia - China

From China, tree of heaven over the past 200 years has became the most widely naturalized invasive tree species worldwide. Deciduous, 40' to 60' tall, it is alternately branched. Pinnately compound leaves 18" to 24" long with 13 to 25 lanceolate-ovate leaflets give the tree a tropical appearance. Stems are often covered with short, fine, velvety down. They smell rank when crushed. Grows rapidly, up to 5' in a single season. Male flowers often have a foul smell, female flowers usually none. Female trees produce huge numbers of samara-like seeds 1.5" long and half an inch wide. These vary in color from yellow-green to a showy orange-red. Tree of heaven can sprout and grow almost anywhere, including cracks in asphalt and gutters. The tree colonizes almost any neglected urban space, such as vacant lots and alleys, and is highly tolerant of pollution. It will often resprout when cut. It is the tree featured in the book "*A Tree Grows in Brooklyn*." It has become a runaway pest in the Columbia Gorge.

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.