



**PORTLAND PARKS & RECREATION**

Healthy Parks, Healthy Portland



## Mt. Tabor Middle School Tree Walk

**LEARNING LANDSCAPES**





## Mt. Tabor Middle 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 and PP&R Urban Forestry staff plant a pine tree.
- 2) *Ginkgo biloba* leaves.
- 3) The fall color of an Accolade elm.
- 4) An umbrella pine planted at Mt. Tabor Middle School.
- 5) The bark of a Himalayan whitebarked birch.
- 6) London planetree fruit and leaves.
- 7) Students transport a tree to its planting site.
- 8) Fernleaf European beech foliage.

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Commissioner Amanda Fritz  
Director Mike Abbaté

# The Learning Landscapes Program



## Mt. Tabor Middle School

The Mt. Tabor Middle School Learning Landscape was initiated in October 2009, and the collection includes 28 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.

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

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## 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.

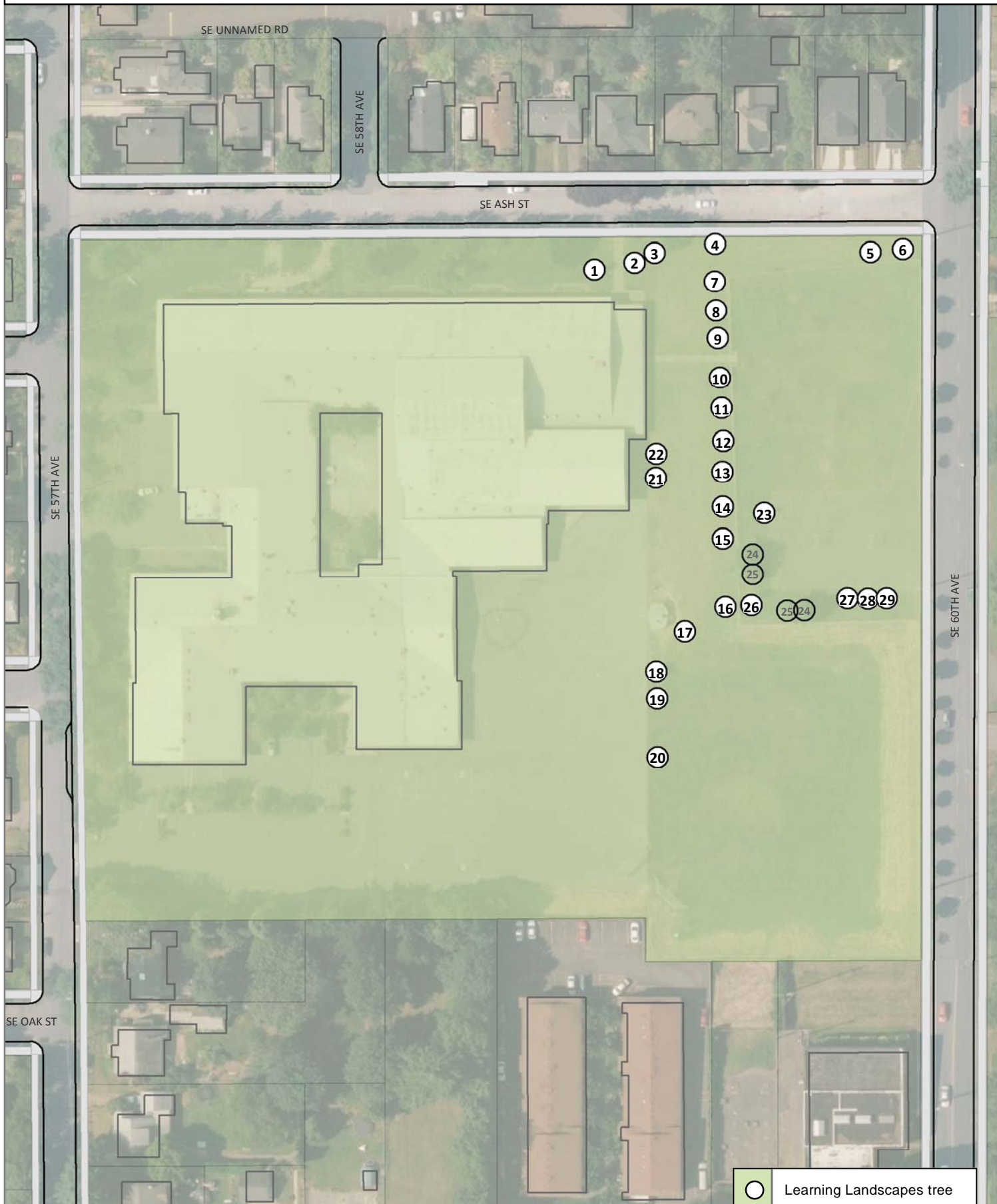
## Continued Hands-on Learning Opportunities

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.

# Mt. Tabor Middle School Tree Walk





Learning Landscapes

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

100 Feet



-  Learning Landscapes tree
-  other tree



# Mt. Tabor Middle School Tree Walk

Tree #	Common Name	Scientific Name
1	bigleaf maple	<i>Acer macrophyllum</i>
2, 3	Himalayan whitebarked birch or Jacquemont birch	<i>Betula utilis</i> var. <i>jacquemontii</i>
4	umbrella pine	<i>Sciadopitys verticillata</i>
5, 6	Oregon white oak	<i>Quercus garryana</i>
7	incense cedar	<i>Calocedrus decurrens</i>
8	grand fir	<i>Abies grandis</i>
9	ginkgo	<i>Ginkgo biloba</i>
10	Pacific madrone	<i>Arbutus menziesii</i>
11	Kentucky coffeetree	<i>Gymnocladus dioicus</i>
12	honey locust	<i>Gleditsia triacanthos</i> forma <i>inermis</i>
13	black tupelo	<i>Nyssa sylvatica</i>
14	fernleaf European beech	<i>Fagus sylvatica</i> 'Asplenifolia'
15	Dawyck Purple European beech	<i>Fagus sylvatica</i> 'Dawyck Purple'
16	London planetree	<i>Platanus x acerifolia</i>
17	ginkgo	<i>Ginkgo biloba</i>
18	Accolade elm	<i>Ulmus davidiana</i> var. <i>japonica</i>
19	fernleaf European beech	<i>Fagus sylvatica</i> 'Asplenifolia'
20	western redcedar	<i>Thuja plicata</i>
21, 22	Armstrong maple	<i>Acer x freemanii</i> 'Armstrong'
23	bigleaf maple	<i>Acer macrophyllum</i>
24	Douglas-fir	<i>Pseudotsuga menziesii</i>
25	bigleaf maple	<i>Acer macrophyllum</i>
26	ash	<i>Fraxinus</i> spp.
27-29	ponderosa pine	<i>Pinus ponderosa</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.

### Armstrong maple, *Acer x freemanii* 'Armstrong'

Origin: North America

A narrowly upright hybrid between red maple (*A. rubrum*) and silver maple (*A. saccharinum*). Grows fast to 50' up to 70' but only 15' wide. Silver-gray, thin bark can scald in hot afternoon sun. Five-lobed leaves are deeply cut. Fall color is only fair - a yellow-orange.



### ash, *Fraxinus* spp.

Origin: widespread across much of Europe, Asia and North America

This tree is one of the 45 to 65 ash species or cultivars but the particular type is unknown. Ash species have compound leaves and cream to white colored flower clusters with single-winged seeds called keys. Oregon's only native ash is *Fraxinus latifolia*.

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**bigleaf maple, *Acer macrophyllum***

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*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'.



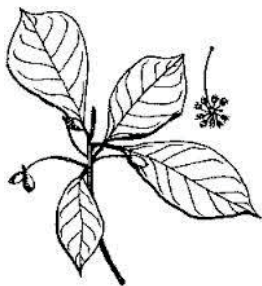
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**black tupelo, *Nyssa sylvatica***

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*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.

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**Dawyck Purple European beech, *Fagus sylvatica* 'Dawyck Purple'**

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*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 1/2" 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 woolly 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.

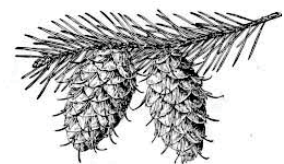
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**Douglas-fir, *Pseudotsuga menziesii***

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*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.

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**fernleaf European beech,**  
*Fagus sylvatica* 'Asplenifolia'

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*Origin: Europe - England, western and central Europe to Scandinavia*

Rarely seen in Portland, this old cultivar of European beech has deeply dissected green leaves providing a ferny appearance. Leaves turn brown in fall. Broadly oval shaped tree with typical smooth, gray, "elephant-hide" bark. Grows to 50' tall by 40' wide.

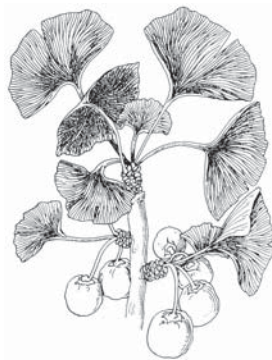
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**ginkgo, *Ginkgo biloba***

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*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 in urban settings.

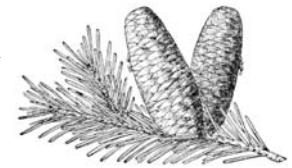
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**grand fir, *Abies grandis***

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*Origin: North America - Oregon, Washington, Idaho, northern California, western Montana and British Columbia, Canada*

Grand fir is abundant in moist forests in both coastal lowlands and mountains up to 5,500 feet. Grand firs have stiff, horizontal branches in whorls from



a straight central leader growing 100' to 150' or higher (more than 200' in Olympic National Park). Unlike other conifers, grand firs can develop twin new leaders if the top dies. Gray or reddish-brown bark is furrowed and divided into narrow, flat plates. Cones are 4" long, green to reddish and covered with smooth scales, sitting upright on the branches. The soft, white wood is pulped to make high-quality paper. Native Americans along the Columbia used the flat branches for bedding and floor mats. A brown dye from the bark was used in making baskets by the Straits Salish tribe.

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

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*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 other 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 more than 2,000 years as paper, as well as

bandages, umbrella covers, packing material, and roof construction. Widespread cutting for firewood has reduced the tree's numbers considerably.

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**honey locust, *Gleditsia triacanthos* forma *inermis***

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*Origin: North America - central USA from eastern Kansas and Oklahoma though 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 trees are attacked by the aggressive canker *Thyronectria*.

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**incense cedar, *Calocedrus decurrens***

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*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.

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**Kentucky coffeetree, *Gymnocladus dioica***

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*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 1/2" 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.

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**London planetree, *Platanus x acerifolia***

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*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 called lacewood.

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**Oregon white oak, *Quercus garryana***

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*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.




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**Pacific madrone, *Arbutus menziesii***

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*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.

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**ponderosa pine, *Pinus ponderosa***

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*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.




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**umbrella pine, *Sciadopitys verticillata***

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*Origin: Asia - A relict species restricted to the islands of Honshu and Kyushu in Japan.*

An evergreen conifer with distinctive dark green needles in whorls from the main trunk and branches.

Slowly grows 30' to 40' (in the wild they can reach up to 120'). Needles can turn bronze in winter, although they remain dark green in the cultivar 'Wintergreen.' Fossil cones, needles and pollen of *Sciadopitys* dating back more than 200 million years have been found. Studies have shown that much of the amber around the Baltic was from resin flowing from umbrella pines millions of years ago. Over time, umbrella pine became extinct in Europe and elsewhere, becoming restricted to Japan. There it is found in moist mixed forests, most abundantly in the mountains of central Honshu. The tree is considered near-threatened due to forests where it occurs being replanted to monocultures of Japanese cedar. Long cultivated in Japan where it is called *koyama*. The white wood is durable, water resistant, fragrant and often used to make serving vessels. Umbrella pine was introduced to the West in 1860.

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**western redcedar, *Thuja plicata***

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*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.



