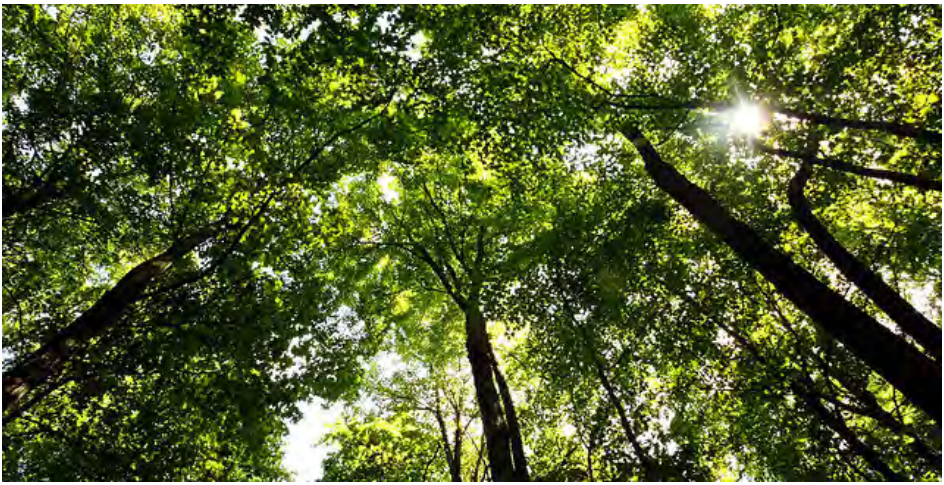

CANOPY CONNECTIONS

Tree Mapper's Field Guide

Seattle Audubon Society
for birds and nature

Canopy Connections: Tree Mapper's Field Guide

Seattle Audubon cultivates and leads a community that values and protects birds and the natural environment.

For more information, contact:

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Introduction

About Seattle Audubon Society

Mission
Seattle Audubon cultivates and leads a community that values and protects birds and the natural environment.

Vision
Seattle Audubon envisions a healthy environment in balance with nature, where people enjoy, respect, and care for the natural resources that sustain the community of life.

Since 1916, Seattle Audubon members and volunteers have continually worked for the protection, restoration and preservation of natural habitat for birds and other wildlife. This important work has never been more important than today, as the rapid growth in our region stresses many habitats and their inhabitants.

About Canopy Connections

“When one tugs at a single thing in nature, he finds it attached to the rest of the world.” – John Muir

Seattle Audubon cultivates and leads a community that values and protects birds and the natural environment; conserving habitat is critically important to the health and wellbeing of birds and the entire ecosystem.

Tree mapping is the first phase of Canopy Connections. Through tree mapping, Canopy Connections aims to create an accurate, interactive, city-wide tree database by mapping and surveying the overall health, size, location, and species of trees in Seattle’s urban forest.

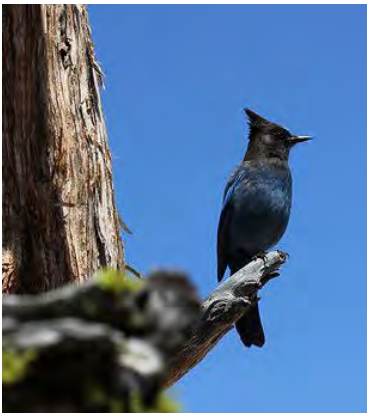
Trees are so much more than just beautiful elements of our landscape; they provide significant benefits to our wildlife, neighborhoods, cities, and region. By mapping trees, we will gain a better understanding of Seattle’s urban forest; a healthy urban forest is incredibly important for our ecosystem and urban life with crucial benefits including urban habitat for birds, carbon sequestration, stormwater mitigation, energy

useage, human health, and more.

Benefits of Urban Trees

Urban habitat

Birds and other types of wildlife need trees for food and shelter. Trees provide a place to forage for insects, spiders, seeds, or fruit, and raptors like nothing better than bringing their freshly hunted kill to the top of a tall tree for feasting. Some, like hummingbirds, rely on the nectar of flowers from trees and shrubs for food.



Trees also provide a place to build a nest, perch on branches to avoid predators, and protect themselves from the wind and rain. Creating and preserving habitat allows for more opportunities for people to connect with nature, increasing the awareness and understanding that we are part of, and not separate from, our environment and the other living beings that inhabit it.

Carbon sequestration

Carbon dioxide, the greenhouse gas involved in trapping heat within Earth's atmosphere and causing global climate change, has increased in concentration levels by a third since the Industrial Revolution began[1] due to human activity, especially the burning of fossil fuels and destruction of forests. Global loss of habitat due to climate change is considered the greatest threat to birds and biodiversity; scientists have stated that we could lose 25 to 33% of all species on earth[2].

To combat this effect, carbon needs to be extracted from the atmosphere and put into long-term storage elsewhere, or sequestered. Trees have been sequestering carbon for almost 350 million years[3], using photosynthesis to convert CO2 into energy to grow. By taking care of the trees we already have and continuing to plant new ones, we can help combat climate change.

1 http://climate.nasa.gov/causes
2 http://www.audubonmagazine.org/articles/climate/audubon-view-0
3 http://www.dec.ny.gov/lands/47481.html

Reduces flooding
Trees intercept rain and reduce the volume and velocity of stormwater run-off, decreasing the magnitude of urban flooding and reducing pollution of our natural waterways by filtering toxic run-off.

Prevents of erosion and landslides
Trees reduce topsoil erosion, prevent harmful land pollutants contained in the soil from getting into our waterways, slow down water run-off, and ensure that our groundwater supplies are continually being replenished.

Reduces asthma
Trees remove air pollutants like sulfur dioxide, nitrogen oxides, and small particulates created from combustion processes (example: car exhaust). These air pollutants can contribute to asthma and other lung problems, as well as exacerbate acid rain and other damaging environmental problems.

Moderates extreme temperatures
Shade provided by trees reduces the need for air conditioning in the summer, moderating the heat island effect by reducing the heat that gets trapped in large cities like Seattle. Lessening the need for air conditioning reduces the strain on electricity generation, resulting in decreased amounts of carbon added to the atmosphere.

Provides a buffer from wind, rain, and sun
Trees help to soften the harshness of the urban landscape by reducing glare from paved surfaces, absorbing powerful winds, and sheltering us from rain.

Your Role

What does a Tree Mapper do?

When you become a Tree Mapper, you are:

- Contributing to the human and environmental health of the city and promoting the City's goal of reaching 30% canopy coverage
- Fostering a culture of urban tree stewardship
- Helping inform others about the importance of the urban forest

The City of Seattle has a goal of 30% canopy cover by the year 2036 and while the Seattle Department of Transportation (SDOT) maintains data on all public trees, much of it is outdated.

By creating and contributing to a dynamic and reliable city tree map to monitor the health, size, and diversity of the urban forest, we can help ensure the City stays on track for its 30% goal, and beyond. Because the urban forest itself is constantly changing, periodic map updates will be crucial to the success of Canopy Connections. Our vision is to create and curate a long-term means by which to build community, strengthen habitat, and conserve the urban forest.

What does tree mapping involve?

- Surveying trees on a neighborhood block, taking care to be as accurate as possible
- Adding all collected tree data to Seattle Tree Map website
- Discussing the Seattle Tree Map with interested parties

Attributes

- Enthusiasm for promoting Seattle's urban canopy
- Keen observation and documentation skills
- Ability to discern and accurately identify Seattle's most common tree species

Tree Surveying

Basics of Tree Mapping

Materials

Clipboard
Pen, pencil
Tape Measure (string or yard stick)
Thumbtack
Camera
Tree Mapper Field Guide

Step 1: Preparation and test run

1. Familiarize yourself with common Seattle tree species using the guide in this document or by searching online.
2. Walk your survey area and familiarize yourself with the lay of the land. Is it easy to determine right-of-way areas? Are there understory plantings? Are there any difficulties you may encounter?
3. Do a simple count to see if the numbers of trees on your map match the number of trees in the field.

Step 2: Conduct tree survey

1. Walk your block again; if you find new trees that are not present on the tree map, record their location.
2. For each tree present or removed, record the relevant data.
3. When you have the opportunity, engage your neighbors in conversation (you will be surprised how many come out to see what you are doing)
4. If there are questions you cannot answer or if people are interested in getting involved with Canopy Connections, let them know to contact Seattle Audubon's Conservation Manager.

Remember: *please do not enter private property to survey trees. You must be invited onto private property in order to conduct the survey. In some cases it will be difficult to determine where the public right-of-way ends and private property begins. When in doubt, err on the side of caution and do not survey the tree without permission from the property owner.*

Measuring & Identifying Trees

Measuring Tips & Tricks

To measure circumference, wrap tape measure all the way around the tree trunk at approximately 4’6” above ground level (referred to as DBH, or “diameter at breast height”) and measure where the points overlap

For larger trees: use a thumb-tack to secure the tape measure in one place and then walk around the tree to wrap it and measure (just make sure the tape stays at the same level all the way around).

For slanted trees (or trees on a slope): Measure 4’6’’ from the mid-point of the slope or along the plane of the lean.

For lumpy trees (or irregularly shaped): We don’t want to measure irregularities, so choose the narrowest, smoothest point beneath 4’6’’ and complete measurement.

For multi-trunk trees: measure each trunk as separate trees.

Identifying Tree Type

- Conifer: evergreen tree with cones and needles or scale-like leaves (example: fir, pine).
- Broadleaf evergreen: A tree with wide, dark green leaves. Many broadleaf evergreens are shrubs (example: holly).
- Deciduous: a tree that loses leaves every autumn in order to go dormant and save energy through the winter (example: Maple, Flowering Cherry).

After determining the tree type, check out the Species Guide at the back of this handbood for some common Seattle trees.

Tip: If you can’t identify certain aspects of the tree, just leave the species entry blank, don’t guess!

Evaluating Tree Health - Common Tree Damage

Tree Topping

Tree topping is the destructive and clumsy pruning practice of cutting back entire sections of large branches into stubs to decrease the size of the canopy. By removing the bulk of leaf canopy, the tree's main source of food production, topping immediately stresses the tree and causes new, weak sprouts to grow in an attempt to keep itself from starving. If the tree does not have enough stored energy reserves, it can starve. Additionally, trees can be susceptible to sun damage without its protective crown of leaves to absorb the light and heat, which can lead to bark splitting and cankers.

Topping

Tree topping can actually make a healthy tree more hazardous; the sprouts that quickly grow after damage are brittle and weakly anchored, making them more likely to break. The large wounds left by topping can leave trees vulnerable to fungi, insects, and diseases. Without sufficient energy reserves, a tree cannot close its wounds to prevent further damage. These exposed wounds can rot, causing the limbs and even the trunk to become weak and brittle.

Topping

Not-so-fun fact: because topping is not a recommended pruning practice, topped trees can leave the owner vulnerable to legal liabilities if dead branches cause property damage or hurt someone.

Vandalism

Tree vandalism is the deliberate destruction of a tree. Carving on a tree's trunk or branches is a common form, but often tree vandalism can involve girdling a trunk or branch,

Vandalism, carving

poisoning, or outright felling. Girdling is the complete removal of bark from around the circumference, rendering the tree unable to transport sugars produced by the leaves to the roots and resulting in the death of wood tissues above the point of damage.

Vandalism, girdling

Not-so-fun-fact: while we have beautiful views in the Puget Sound area, this can unfortunately motivate property owners to vandalize or kill trees to improve their view of the surrounding landscape. Though perpetrators can be heavily fined for this, they are usually not identified.

Conks

Fruiting bodies from fungi of the Basidiomycota phylum, commonly known as conks. Conks are an indicator of decay within the tree. Conks can be found on live or dead trees as well as fallen logs and stumps. While many occur on already decaying wood, some will also actively decay the tree.

Conk

Cankers

Cankers are localized dead areas appearing on any structural part of the tree. Cankers can have many causes (mechanical damage, insect invasion, disease or fungi, environmental damage from frost or sun) and can vary in scale from a small isolated section of a branch to massive dead zones on the trunk. Trees under stress are more likely to develop cankers.

Cankers

Vines

Vines, particularly English Ivy, will aggressively climb any available surface, including trees. Vines can out-compete native species for light, space, water, and nutrients. As it climbs it can reach into the top of a tree's canopy, where

in extreme cases it can block light from reaching the host tree.

Vines can also significantly increase the weight load on trees that they have overtaken, making them susceptible to toppling. If the vines grow especially thick, they can decrease air and light circulation resulting in microclimates that cause affected areas of the tree to rot.

English ivy in particular is known to harbor Xylella fastidiosa, a harmful bacterium that can infect many types of beneficial trees. Some vines will spiral around a tree causing permanent damage to its trunk and branches.

English ivy beginning to overtake a tree

Suckers

Suckers, also known as water sprouts, root sprouts, or basal shoots, are stems that grow from the roots of a tree or shrub. They can be caused by root damage, but they are also a natural habit for most plants as a way to reproduce without using seeds. They are a problem for tree health because they steal resources from the main tree to grow.

Suckers

Tree health checklist

- Does the tree have dead branches?
- Is there discoloration, abnormal growths, or spots on the branches, leaves, fruit, or flowers?
- Are there holes, cracks, cankers, conks, or signs of decay present?
- What is the condition of the tree canopy? Are there large gaps?
- Are the leaves twisting or curling, dead around the edges, wilted or drooping? Do they have spots, holes, bumps, or growths?
- Is there sap or other material oozing from the tree?
- Is there an overabudance of insects present?
- Has the tree been topped, heavily pruned, or girdled?
- Are there suckers emerging from the trunk or branches?
- Is the tree at risk of being overtaken by vines or ivy?
- Is the tree at risk of growing into overhead electrical wires?

Sharing Information

An important aspect of being a Canopy Connections Tree Mapper is representing Seattle Audubon, spreading the word about habitat conservation, and informing and engaging the public about urban conservation issues.

Below is some suggested messaging to help you communicate to others who you are, what you are doing, and why urban habitat is so important.

While out surveying, people will often ask what you're doing. Use it as an opportunity to engage them on how surveying neighborhood trees contributes to urban habitat conservation, and represent Seattle Audubon by being friendly and professional.

Frequently Asked Questions:

What you are doing?
I'm participating in a Seattle Audubon tree mapping project called Canopy Connections. We're surveying and mapping trees in Seattle to contribute to the interactive, city-wide tree database (www.seattletreemap.org) to track the health of Seattle's urban forest.

Is this project unique to Seattle?
Many other cities across the world have already created similar websites which document urban trees in public spaces.

Where can I access the online map?
The URL is <www.seattletreemap.org>. You can also learn more about Canopy Connections and other Seattle Audubon conservation efforts at <www.seattleaudubon.org>.

Why bother to document trees online?
The city of Seattle has a goal to reach 30% canopy cover by 2036 and we want to make sure Seattle is on track! If we can accurately document the size and species of our city's trees, we can better understand our progress towards meeting that goal.

The software on the Seattle Tree Map will calculate exact benefits of each tree including: how much carbon the tree absorbs, how much

wastewater it filters, and how much it saves the city in mitigation costs.

After surveying Seattle's trees, what's next?
The Tree Census is the first phase of Canopy Connections. After we have compiled a reliable inventory of tree data, we'll be able to effectively plan tree plantings and other direct service events to benefit the urban forest.

Because the urban forest itself is constantly changing, periodic mapping updates will be crucial to the success of this project. Our vision is to create a long-term means by which to build community, strengthen habitat, and conserve the urban forest for birds, nature, and our communities.

Helping to survey and steward the trees in my neighborhood sounds fun! How do I get involved?
Contact Seattle Audubon's Conservation Manager at 206-523-8243. You can also go online (<www.seattleaudubon.org> and <www.seattletreemap.org>) to learn more about urban habitat conservation and find out about upcoming tree survey trainings.

Remember: provide outreach cards to residents who seem interested in learning more or getting involved.

Some people may invite you to survey trees in their yard or on their property. As long as the homeowner explicitly gives you their permission, then you can survey private trees. Otherwise, respect private property and take care not to trespass.

The Seattle Tree Map

In collaboration with dedicated volunteers and city-wide partners, Seattle Audubon created a collaborative, interactive map of Seattle's urban forest, the Seattle Tree Map.

This project was started with the help of Azavea, a Philadelphia-based software company that created Open Tree Map—a mapping program which allows anyone to sign up and enter tree data for their city.

Based on the tree's species and trunk diameter, a program from the U.S. Forest Service called i-Tree is able calculate the precise ecosystem benefits the tree provides. The information provided includes pounds of carbon dioxide removed from the atmosphere, gallons of water conserved, kilowatt hours of energy conserved, pounds of air pollutants reduced, and the equivalent dollar values for each benefit.

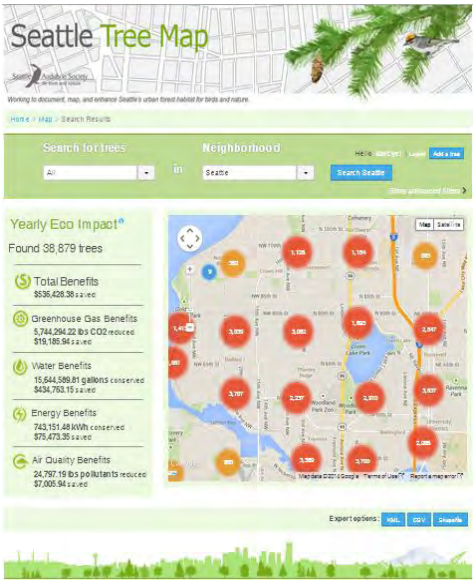
The data provides a way to easily explain not only how trees are actively making our environment better, but how they are saving the city and the public money as well.

Head over to www.SeattleTreeMap.org to get started!

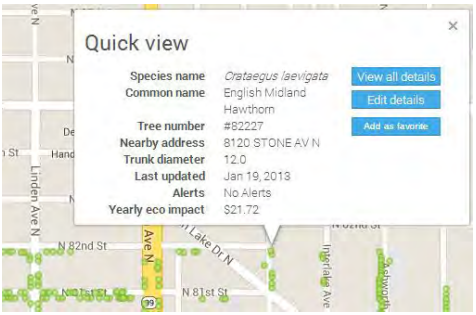
How to add a tree

1. Login or create an account on the home page
2. In the upper right hand corner, click the blue "Add a Tree" button.
3. Type in an address near the tree and click "Show on Map"
4. There is an orange dot in the center of the map; click and drag this dot to the location of the tree you would like to add. If there is already a tree at this location, it will show up under "Nearby Trees" to the right of the map.
5. If your tree is already in the database, click "Edit". If not, proceed to enter the species name, or genus of the tree if you do not know the exact species.
6. After adding the species, scroll down to "Optional Fields" under Step 3. Try to fill out as many of these fields as you can to the best of your abilities.
7. Click "Add this Tree!" to save and you are done!

How to search for trees



1. Navigate to the home page and click “Explore the Tree Map”.
2. Use the “Search for trees” to navigate which tree genus or species you are looking to find, or just leave it at the default “All” if you would like to see all species.
3. Select which neighborhood you would like to see, or to get a bird’s eye view of the whole city leave it at the default “Seattle”.
4. Click “Search Seattle” and then wait while your results load. This may take a few seconds or more depending on your search parameters; loading hundreds of thousands of trees may take a few moments!



5. Once your trees load, explore the map and check out the Yearly Eco Impact benefits! Note than if you pan around the map or zoom in, the results will change based on what trees you are viewing as you move around the map. Trees are organized into clusters, with warmer colors like red and orange representing higher numbers of trees, and cooler colors like blue representing lower numbers of trees.
6. If you want to zoom into a specific area, click on the map on the spot you wish to magnify.
7. Once you zoom in far enough, you will be able to see green dots representing individual trees. Click a dot to view that tree, update it’s details, or add it as a favorite tree.
8. Have fun exploring and contributing to the Seattle Tree Map!

Species Guide: Common and Important Varieties in Seattle

This guide is intended to provide a basic orientation to a few key tree species in Seattle. It is by no means a comprehensive collection, but rather aims to list a few common and important trees. While those listed below only represent a small fraction of all species in Seattle, they are either prevalent in public planting spaces or very important to the ecosystem.

If you encounter a tree species not listed in this booklet, take a picture and collect a few samples (leaf, flower, fruit/seeds) to identify later.

Please note that the measurement number with each picture correlates to the average leaf length of that species.

Deciduous

Cherry (*Prunus serrulata*)
Leaves are dark green, glossy, oval-shaped with tapered ends, simple, arranged alternately, with serrated edges. White or pink large flowers in the early springtime. Mottled bark often streaked with distinct, horizontal white stripes. There are several varieties and cultivars of this species.

Cherry

Plum (*Prunus cerasifera*)
Two common varieties of plum in Seattle have long, oval, purple leaves with finely serrated edges and pointed ends; narrower towards the base. Flowers are pink or white blossoms arriving in early spring. Fruit is small and fleshy with a pit, color ranges from yellow/red to deep purple.

Plum

Maple (*Acer spp.*)
There are hundreds of varieties of Maple, but the most common species in Seattle are the Red, Norway, Japanese, Vine, and Bigleaf Maples. Leaves are distinct, palmate (having several lobes whose midribs all radiate from one point), opposite, and simple. Winged seeds are easily recognizable and have a symmetrical shape with a "helicopter" style spinning movement when dropped.

Red Maple (*Acer rubrum*)
Flowers, twigs, and fruit are all varied shades of red. Commonly has three lobes, but when five lobes are present the three at the terminal (end of the leaf) end are larger than the two near the base.

Norway Maple (*Acer platanoides*)
Unlike other maples, the mature specimens bark does not become rough. Tends to be invasive, but is planted due to its tolerance of poor soils and urban pollution.

Japanese Maple (*Acer palmatum*)
There are many cultivars of this species and leaf shapes and colors can vary greatly. May have multiple trunks joining near the base of the tree at ground level. Trees can often take on a dome-like form. Leaves may have five, seven, or nine sharply-pointed lobes, and many have intricate filigree-like lobes.

Vine Maple (*Acer circinnatum*)
Native to the Pacific Northwest and closely related to the Japanese Maple. Commonly grows as a large shrub, 15' - 26' tall. Leaves contain between seven

Red Maple

Norway Maple

Japanese Maple

Vine Maple

and eleven lobes, the leaf profile being almost circular.

Bigleaf Maple (*Acer macrophyllum*)
Also known as Oregon Maple, this species has the largest leaves of any maple. Large leaves can become up to 24” wide, with five deeply incised lobes.

Bigleaf Maple

Apple/Crabapple (*Malus spp.*)
Apple species from this genus have leaves that are simple and alternate, either elliptical or egg-shaped, and pinnately veined. Leaf edge is finely serrated, with the apex of the leaf being pointed. Leaves are green above with paler underside. Flowers are red, pink, or white, 5-petaled, and arranged in a cluster originating from a common point, similar to the ribs on an umbrella. Fruit are small and apple-like, characteristics vary depending on the cultivar.

Crabapple

English Hawthorne (*Crataegus laevigata*)
Leaves are small with 3 - 5 shallow, forward pointing lobes and deeply v-shaped veins. Branches are dark and woody, with thorns up to 1” long. Produces white or pale pink flowers in mid-May. Fruits are dark red or purple and apple-like. Also known as Midland Hawthorn, Woodland Hawthorn, or Mayflower.

Hawthorne

Oak (*Quercus spp.*)
The Oak genus is divided into Red Oaks and White Oaks. Though over 500 species of Oak exist, all Oaks are easily distinguished by leaves with four or more pronged spokes emerging from the center vein. Red Oak leaves have pointed

bristle-tipped lobes while White Oak leaf lobes are rounded. Bark is dark gray-brown with furrows or scales. Flowers are small and yellow, occurring in slender, cylindrical clusters which droop down from the branch (catkin formation). All Oaks can be identified by their acorns if fruiting. Note that while Oaks are deciduous, leaves often stay on the branches through winter.

Northern Red Oak

Northern Red Oak (*Quercus rubra***)**
Recognizeable by its bark, which features ridges that seem to have shiny stripes down the middle, going all the way down the trunk. Leaves have seven to nine shallow lobes.

Pin Oak (*Qurcus palustris***)**
Leaves have five or seen deep lobes; the negative space between each lobe generally forms a U-shape. Can give off a strange, unpleasant odor.

Pin Oak

American Sweetgum (*Liquidambar styraciflua***)**
Alternate, simple, star-shaped leaves with 5 – 7 points, deep lobes, and serrated edges. Produces a prickly, spherical shaped (1" – 1½" diameter) seed year-round. Flowers are small, yellow-green, and grouped in clusters. Easily confused with Maple and London Plane Tree.

Sweetgum

Linden (*Tilia spp.***)**
The most common species of the Linden genus in Seattle is the Littleleaf Linden. Leaves are alternate, simple, heart-shaped, glossy, and have serrated edges. When flowering: blooms appear in late June to early July and are small, fragrant yellow or white blossoms appearing in

Littleleaf Linden

many branched clusters extending several inches. Fruits hang in clusters and are hard, small, round, and fuzzy.

London Plane (*Platanus × acerifolia*)
Distinct mottled gray bark that flakes off in plates. Leaves are dark green with pale undersides, alternate and palmate with 3 – 5 shallow lobes. Produces round, clustered seeds which are similar to but less prickly than Sweetgum seeds. Flowers are small, yellow or red, and grouped in small clusters. Easily confused with Maple and Sweetgum.

London Plane

Honey Locust (*Gleditsia triacanthos*)
Compound alternate leaves, both singularly (older trees) and doubly (younger trees) pinnate (arranged on each side of a common axis; resembling a feather). Leaves are 5 – 8" long with 15 to 30 leaflets. Leaflets are yellow-green, ½ to 1½" long, egg-shaped or elliptical. Each stalk has an even number of leaves with no single (terminal) leaf at the tip. Flowers are small and greenish-yellow, hanging in in clusters 2 – 3" long. Branches may have long thorns, although thornless varieties are common. When fruiting: fruits are 6 – 8" long, flattened, brownish pods resembling pea-pods. Fruits contains many brown, flattened oval seeds.

Honey Locust

Green Ash

Ash (*Fraxinus spp.*)
The Ash genus is characterized by leaves that are oppositely attached (opposite branching present throughout tree structure) and pinnately compound (generally 5 – 9 leaflets) with a single terminal leaf at the end of the branch. Leaves may be finely toothed or have

Narrowleaf Ash

smooth edges. Narrow to oval leaflets. Common Ash trees planted are Narrowleaf Ash (*Fraxinus angustifolia*) and Green Ash (*Fraxinus pennsylvanica*). If present, seeds are shaped like single wings and occur in clusters.

Horse Chestnut (*Aesculus hippocastaneum***)**
Easy to identify this unique tree, leaves are opposite and palmately compound with 5 - 7 leaflets. Flowers are commonly white with a red dot. The fruit has a green spikey shell containing one seed.

Horse Chestnut

European Hornbeam (*Carpinus betulus***)**
Leaves are alternate with prominent veins that seem to undulate across the leaf surface, giving it a corrugated or fluted appearnce. Sharply serrated margin and pointed tip. Flowers form in long yellowish-tan catkins that hang down in clusters. Fruit is a small, long nut, surrounded by a leafy structure.

European Hornbeam

Serviceberry (*Amelanchier spp.***)**
Leaves are alternate and simple, with outlines that range from being pointed at both ends to nearly rounded all around. Produces berry-like pomes as fruit, which can be red to nearly purple-black. Margins are often serrated.

Serviceberry

Callery/Bradford Pear (*Pyrus calleryana***)**
Leaves are alternate and oval to heart-shaped, 2 – 3” long. Glossy, deep green top and pale underside, with finely serrated edges and a pointed tip. White flowers appear in large clusters in late

Callery/Bradford Pear

April to early May. Flowering is often so dense that the entire tree appears white. Produces small, hard, brown, inedible berries.

Dogwood (*Cornus spp.*)
Small tree with opposite, simple, oval-shaped leaves. When in bloom, blossoms cover the entire tree but what appear to be flowers are actually large white bracts surrounding a cluster of very small yellowish flowers. Common specimens in Seattle include the Kousa Dogwwod (*Cornus kousa*), Common Dogwood (*Cornus florida*), and Pacific Dogwood (*Cornus nuttallii*). Fruit from the Kousa and Pacific varieties are large, pinkish-red, compound berries, while the Common Dogwood fruits are a cluster of two to ten small drupes. While the Kousa and Common Dogwood flowers have four bracts, the Pacific Dogwood blossoms may have up to eight.

Kousa Dogwood

Conifers

Western Redcedar (*Thuja plicata*)
An important northwest native conifer. Leaves are tiny yellowish-green flat scales which overlap to make a braided pattern and are arranged in sprays or “fronds.” Leaves are strongly fragrant. Cones are small, egg-shaped, and woody, and sit upright on the twig. Bark is reddish brown, fibrous, and composed of long strips which tear off easily.

Western Redcedar

Douglas Fir (*Pseudotsuga menziesii*)
Leaves are flat, single needles about 1¼” with blunt or slightly rounded tips. Needles surround the twig on all sides. Bark is dark

Douglas Fir

brown and heavily furrowed. Cones are very distinct, 3 – 4 inches long, with three-lobed bracts (specialized leaf structure) emerging from and extending beyond each cone scale. Cone bracts somewhat resemble mouse tails.

Pine Varieties (*Pinus spp.*)
Many species present in Seattle and across the northwest, all pine trees are easily identifiable because needles are long, think and attached in clusters of 1 - 5. Common pine varieties in Seattle are the Shore Pine and Western White Pine.

Shore Pine

Western Hemlock (*Tsuga heterophylla*)
Important native tree with short, spirally arranged flat needles with rounded tips. Petioles (the stalk of the leaf which attaches it to the twig) are short but distinct. Cones are numerous, egg-shaped, brown, about 1 inch long, scaly, and pendulous.

Fun fact: Western Hemlock is the state tree of Washington.

Western Hemlock

Broadleaf Evergreens

Pacific Madrone (*Arbutus menziesii*)
Leaves are oval, dark, shiny, and characterized by a green glossy top and pale bottom. Cinnamon-colored bark peels in thin flakes to reveal smooth green bark underneath. Flowers are white or pinkish, fragrant, bell-shaped, and gathered in drooping clusters. When fruiting, produces orange-red berries.

Pacific Madrone

English Holly (*Ilex aquifolium*)
Invasive species popular as winter holiday decoration; leaves are a shiny dark green on the upper surfafce and lighter below. Very thick almost leathery, and about 2-5” long. Younger leaves and those on the lower limbs have three to five sharp spines along the margin which alternate pointing up and down. Older leaves and those that are higher up on the tree do not have spines. Fruit is a small red drupe favored by birds, occuring on female plants only.

English Holly

Credit
Photos used in this species guide credited to Seattle Audubon or the City of New York Parks & Recreation 2005 Census Leaf Key.

Download online at <http://www.nycgovparks.org/sub_your_park/trees_greenstreets/treescount/2005_Census_Leaf_Key_Final.pdf>. Learn more at <http://www.nycgovparks.org/trees>

Seattle Audubon Society
for birds and nature

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Thank you for helping protect and enhance Seattle's urban forest habitat!

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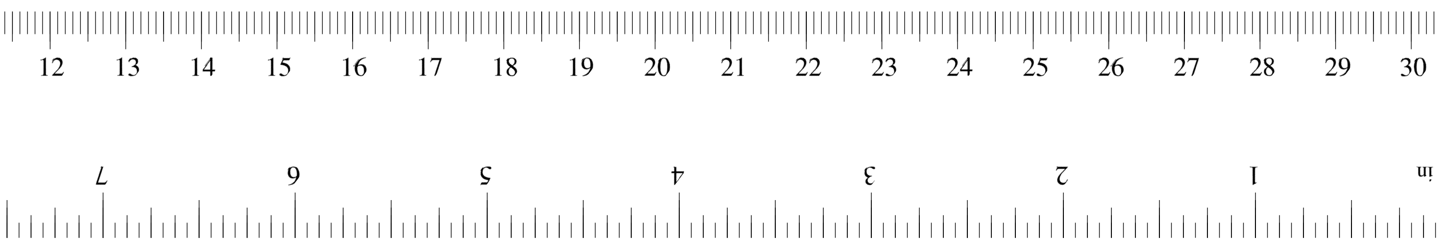
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