TREES *of* BELLEVUE

CITY OF BELLEVUE WASHINGTON

AMERICAN FORESTS

Advance Bellevue

Creating Community Leaders

WORKING TOGETHER TO GROW GREENER COMMUNITIES

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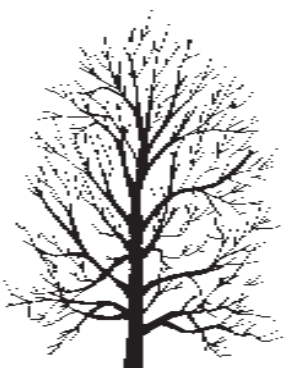
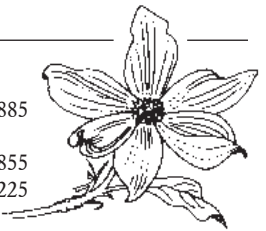


CONTACT INFORMATION

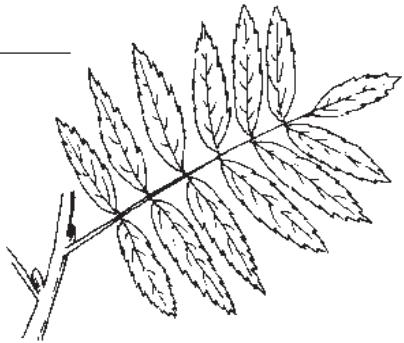


Parks & Community Services Information 425-452-6885
environmental programs
For 24-hour non-emergency assistance call 425-452-6855
Lake Hills Greenbelt Ranger Station. 425-452-7225
15416 SE 16th St
Park Resource Management 425-452-6855
maintenance, park security
Recreation Information/Registration 425-452-6885
Volunteer Opportunities 425-452-4195
Mercer Slough Nature Environmental Education Center. 425-452-2565
1625 118th Ave SE
Lewis Creek Visitor Center 425-452-4195
5808 Lakemont Blvd

RESOURCES AVAILABLE FROM PARKS & COMMUNITY SERVICES

City of Bellevue Website – www.bellevuewa.gov
Park Guide – complete map of Bellevue parks and facilities
Trail Guide – complete description of open spaces and greenbelt trail system

INTRODUCTION



Bellevue's community forest is part of our everyday surroundings. It is made up of many different kinds of trees. Some are native to the Pacific Northwest, others are exotic ornamentals brought in from other countries. Whether you enjoy walking in your neighborhood or hiking through one of Bellevue's greenbelts, this book will help you learn to identify the trees you see around you every day.

This pocket field book was developed as a cooperative project between Bellevue Parks and Community Services and the Advance Bellevue community volunteers. This field guide is intended for use by community volunteers who assist Parks staff in the stewardship of Bellevue's Community Forest.

Trees of Bellevue was developed by Bellevue Parks and Community Services as a tool to implement the CITYgreen Project. Volunteers used this pocket field guide as they assisted Park staff in the inventory of Bellevue's community forest. CITYgreen is software developed by American Forests for mapping urban ecology and measuring the economic benefits of trees, soils and other natural resources.

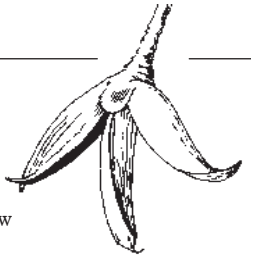
This book is dedicated to the hundreds of volunteers who donate time each year to keep Bellevue a true "City in a Park."

ABOUT THIS GUIDE

Each page in this guide describes either a single tree species or a group of related species. It is usually easiest to identify a tree by first looking at its general shape or form, and then by examining its leaves and bark. If it is still unidentifiable, a close examination of the flower and fruit may be needed. The headings and descriptions on the left of each page are mostly self-explanatory; however, consulting the glossary will help you to better understand how to use each feature of the tree in identification.

This book is arranged in two sections: broadleaves and conifers. Species pages are not alphabetical. Similar species have been placed opposite each other for easy comparison.

SIZING UP THE COMMUNITY FOREST



AN INTRODUCTION TO FORESTRY TOOLS

Knowing what a forest is composed of is the first step in forest stewardship. What species of trees does it contain? How big are they? How healthy are they?

In order to accurately determine this vital information and manage our urban forest, we measure the trunk diameter, determine tree health, and take stock of historical pruning.

SIZING UP THE COMMUNITY FOREST

THE DIAMETER TAPE: MEASURING d.b.h.

Just any old measuring tape will not work easily to measure tree trunk diameter. A special measuring tape is made for foresters so that they don't have to do a calculation every time they measure d.b.h. The diameter tape has markings that tell the diameter of the tree trunk when you wrap the tape around the trunk's circumference.

- Wrap the diameter tape around the tree trunk at 4.5' above ground (about chest height). Read the number that the zero marking meets when it goes once around the trunk. This number is your tree diameter. (Be sure you are looking at the diameter side of the tape and not the linear feet side).

SIZING UP THE COMMUNITY FOREST

TREE HEALTH

In an urban environment, many factors can interfere with tree health, such as restricted root space and limited light availability. Even if its environment is not ideal, however, a tree can still survive and benefit the community for many years.

Assess tree health by comparing the selected specimen against how the same tree would look in its natural environment. Keep an eye on trees with dying crowns. Check for signs of damage in the tree's bark and leaves. Insect infestations and fungus can be a sign of poor tree health if they are chronic, but short periods of such problems are likely just the typical ebb and flow of nature. Conifers put out a large number of cones when under stress, while stressed deciduous trees may lose leaves during their growing season.

Note any injuries the tree has sustained from environmental or manmade impacts. The tree's ability to seal over wounds is a good indicator of good tree health and vigor.

SIZING UP THE COMMUNITY FOREST

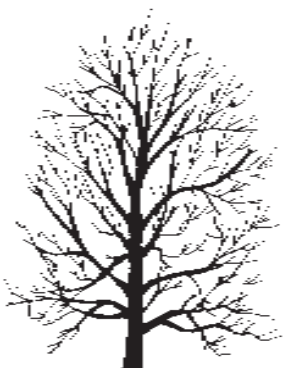
PRUNING

Trees are pruned to improve their health, aesthetic quality, and to increase safety. All pruning should be done with a clean sharp saw that will slice through the tree rather than compress and crush the tree.

Topping a tree is not considered proper pruning. Topping is the indiscriminate removal of a large portion of a tree's food producing branches in an attempt to decrease the size of the tree. This severe pruning triggers a survival mechanism within the tree, activating latent buds and causing rapid growth of multiple shoots below each cut. This creates a situation that is prone to insect and disease infestation, and poorly attached branches that are prone to breakage.

BROADLEAF TREES

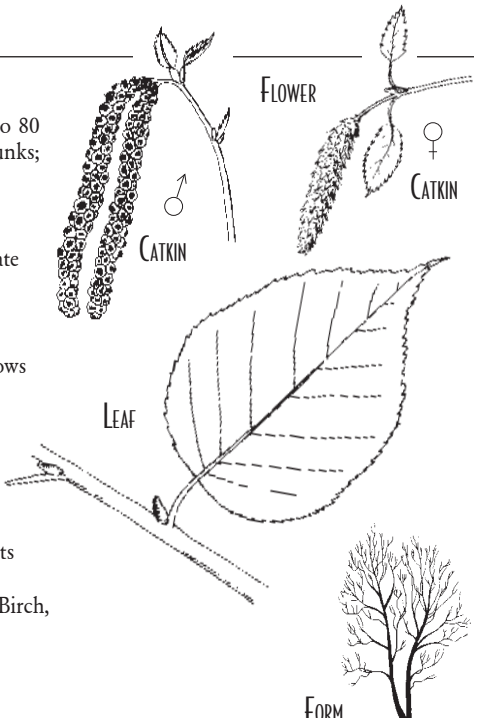
Broadleaf trees have flat leaves of various shapes and sizes, and they don't necessarily lose their leaves each year. Some broadleaf trees, such as the Pacific Madrone, keep their leaves for several years, while others, such as the Big Leaf Maple, drop them each fall.



BIRCH

Betula species

Form	40-60 (European White Birch) or up to 80 (Paper Birch) feet; can have several trunks; crown open and rounded
Leaves	Deciduous • Alternate • Simple Pointed with round base; doubly serrate edge; 2-3" long (Paper) or 1-2" (Euro.)
Bark	White; easily peeling in papery strips (Paper) or cracking to show dark furrows between white ridges (Euro.)
Flower	Tiny flowers in two kinds of catkins: ♀ catkin green and shorter; ♂ yellow, longer
Fruit	Fat green catkins of tiny winged nutlets
Tree Tip	The native species in this pair Paper Birch, was used in baskets and canoes



RED ALDER

Alnus rubra

Form 30-80 feet; clear trunk with imperfectly rounded, open crown and somewhat drooping branches

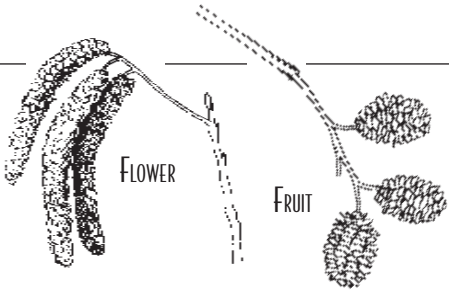
Leaves Deciduous • Alternate • Simple
Oval; pointed tip; 3-6" long x 2-3" wide; doubly toothed edges; reddish hairs along veins on underside

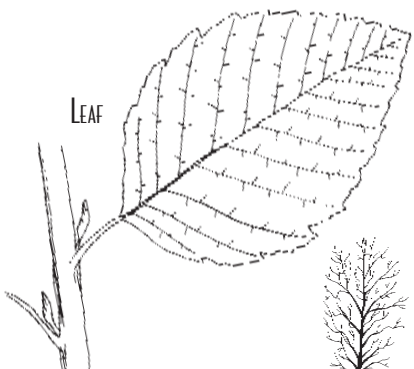
Bark Light gray; usually with white splotches of lichen

Flower Yellow-orange; minute; in 6" catkins

Fruit Small, brown, woody cone-like structure; $\frac{1}{2}$-$1\frac{1}{4}$" long; staying on tree over winter

Tree Tip Alders have a 'nitrogen fixing' ability which keep soils fertile.

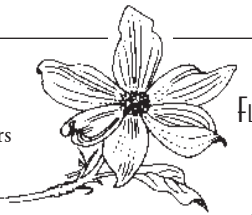




DOGWOOD

Cornus species

FORM	10-40 feet; small trees or shrubs; branches often appearing to grow in horizontal layers
LEAVES	Deciduous • Opposite* • Simple Leaves oval with acutely pointed tips; veins parallel and curving to follow the smooth leaf edge *a few species aren't oppositely branched
BARK	Dark brown and scaly (Flowering Dogwood) or smooth except at base (Pacific Dogwood)
FLOWER	True flowers tiny, greenish yellow, and in clusters surrounded by 4 (Flowering Dogwood) or 4-6 (Pacific Dogwood) white to pale pink petal-like bracts
FRUIT	Bright red oval fruits (3/8" long) in dense clusters



FLOWER

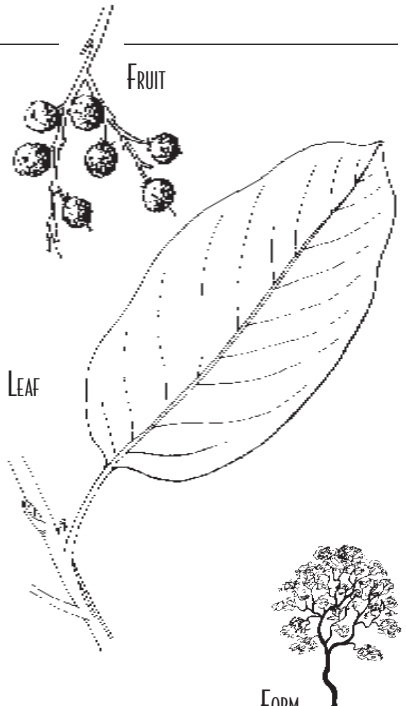
LEAF

FORM

PACIFIC MADRONE

Arbutus menziesii

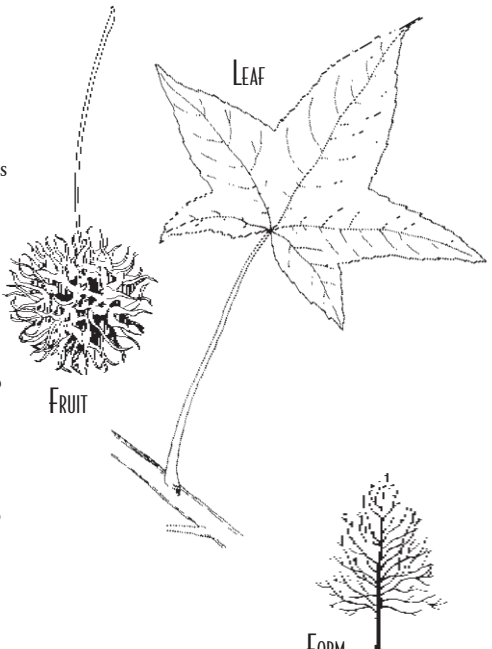
Form	20-100 feet; twisted trunk; round to irregular open crown
Leaves	Evergreen • Alternate • Simple Oblong to oval; leathery; usually smooth-edged, but toothed on young growth; 3-6" long
Bark	Reddish brown; peeling off in papery layers to show paler bark underneath
Flower	Small, bell-shaped; white; $\frac{1}{4}$" long; in large clusters
Fruit	Orangish red, somewhat fleshy "berry"; granular surface; 1/3" diameter
Tree Tip	For humans, the berries are inedible, but birds and animals love them.



AMERICAN SWEETGUM

Liquidambar styraciflua

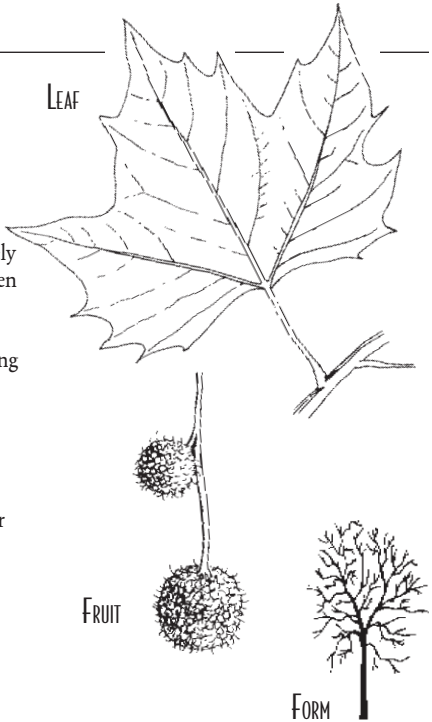
Form	60-75 feet; clear, straight trunk; crown pyramidal early in life, rounded later
Leaves	Deciduous • Alternate • Simple Star-shaped; 5-7 pointed, deep lobes; edges finely serrated; 4-6" in length and width
Bark	Gray-brown; thick; deeply furrowed with rounded ridges
Flower	Yellow-green; tiny; in clusters
Fruit	Prickly sphere the size of a cherry tomato (1-1 1/2" in diameter); one per stalk; composed of many beaked, seed-bearing capsules
Tree Tip	Seen along many of Bellevue's streets. Do not confuse with London Plane Tree.



LONDON PLANE TREE

Platanus x acerifolia

Form	70-100 feet; straight clear trunk; pyramidal crown becomes very large, open and wide spreading at maturity
Leaves	Deciduous • Alternate • Simple Palmate; 3-5 shallow lobes; leaf edge coarsely toothed; to 10" wide and 8" long; dark green above, pale beneath
Bark	Mottled gray, olive green, and cream; flaking off in plates
Flower	Tiny; grouped separately in small round clusters; males yellow, females reddish
Fruit	Globed shaped multiple fruit; usually 2 per stalk
Tree Tip	Can be confused at first with maples, or sweet gum. Also known as Sycamore.



MAPLE FAMILY

Acer species

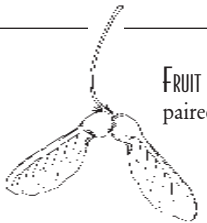
General Three ornamental maples found in Bellevue are shown at right. Two native species are described more in-depth in the next two pages. The following applies to all maples.

Form Deciduous trees or shrubs

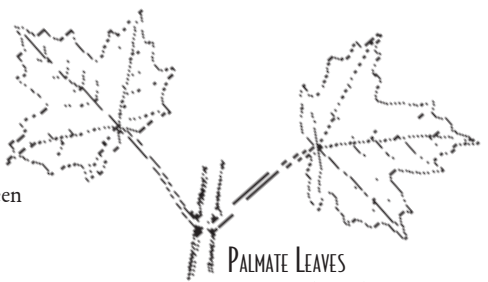
Leaves Deciduous • Opposite • Simple
Palmate leaves always opposite on the branch; lobed to various degrees

Flower Small and non-showy, usually in clusters: dark red (Japanese and Red) or yellow-green (Norway)

Fruit Always paired, winged seeds; called 'helicopters' by children for the way each half of the pair spins to the ground when dropped



Fruit
paired, winged seeds



Palmate Leaves
opposite branching

Japanese Maple
Acer palmatum

25'

Norway Maple
Acer platanoides

80'

Red Maple
Acer rubrum

80'

BIGLEAF MAPLE

Acer macrophyllum

Form	30-100 feet; can have several main trunks; massive, spreading crown
Leaves	Deciduous • Alternate • Simple Palmate; 3-5 deep lobes; enormous: 8-14" in length and width
Bark	Green when young; dark gray-brown, deeply furrowed, with mosses and ferns growing abundantly when older
Flower	Greenish-yellow and tiny ($^1/_4$"); hanging in elongated clusters
Fruit	Pairs of winged seeds; coarsely hairy at acute-angled juncture
Tree Tip	Produces 'canopy roots' which harvest nutrients from the moss and debris which collect in the branches. Native.

VINE MAPLE

Acer circinatum

Form Up to 30 feet; spreading, multi-stemmed shrub

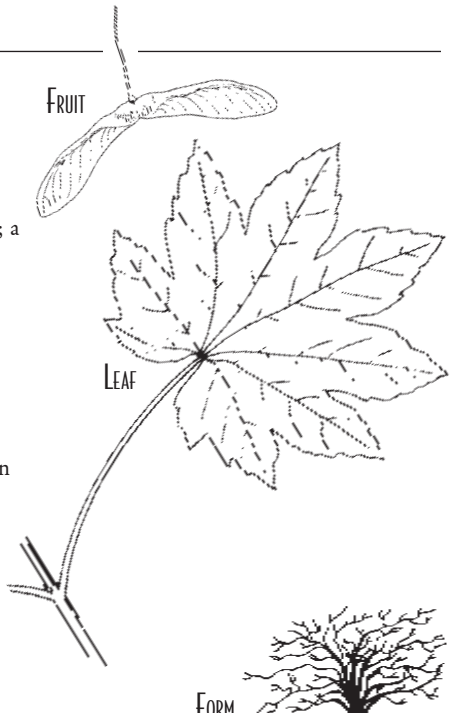
Leaves Deciduous • Opposite • Simple
Palmate; 7-9 pointed lobes; serrated edges; a little larger than your palm:
$4\,3/4$" in length and width

Bark Gray-brown; smooth

Flower Small and white ($1/4$"); maroon sepals underneath; hanging in clusters

Fruit Pairs of smooth, winged seeds joined at an obtuse angle; to $1\,1/4$" long

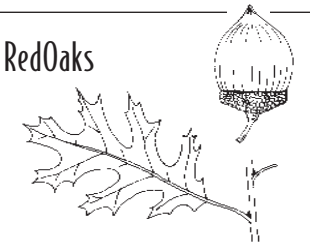
Tree Tip Called circinatum to indicate the circles formed when tall branches bend to the ground and sprout roots.



OAKS

Quercus species

Form	Trees and shrubs of a wide variety. The family is divided into 2 groups: red oaks and white oaks.
Leaves	Deciduous* • Alternate • Simple Red oaks: pointed bristle-tipped lobes; White oaks: rounded lobes *some are evergreen, but none here
Bark	Dark gray-brown; furrowed or scaly
Flower	Tiny, yellow; occurring in short, catkin-like clusters
Fruit	Acorn; inside of shell hairy (Red Oaks) or not hairy (White Oaks)
Tree Tip	Though oaks are deciduous, the leaves stay on the branches through winter and give trees a dead appearance

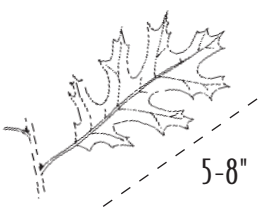


Northern Red Oak

Quercus rubra

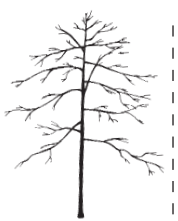
Scarlet Oak

Quercus coccinea



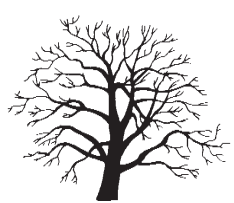
Pin Oak

Quercus palustris



Oregon White Oak

Quercus garryana



WILLOW, POPLAR, ASPEN, COTTONWOOD

Salix species & Populus species

General These 4 trees have similar flowers and fruits, but present variations on one another in foliage.

Form Large, fast growing trees; may be multi-trunked. See right for heights.

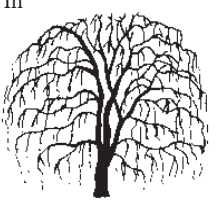
Leaves Deciduous • Alternate • Simple
All have round-toothed edges and acutely pointed tips
Willow-usually long and skinny; Poplar-rounded triangular leaves; 2-3" long x 1-3" wide; Aspen-nearly circular; 1-3" across; Cottonwood-as poplar, but more elongated; 5-6" long, 2-4" wide

Flower Small; non-showy; in either drooping or erect catkins; male and female on separate plants

Fruit Tiny capsule is surrounded by white silky or cottony hairs. In catkins.

Tree Tip The hairs on the seeds help them float on wind and water.

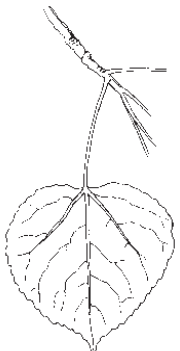
Weeping Willow
Salix babylonica



30'-70'

Quaking Aspen

Populus tremuloides



20'-
60'

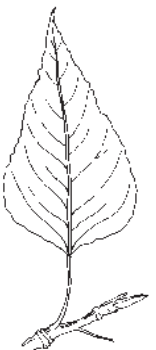
Lombardy Poplar

Populus nigra var. italica

40'-
80'

Black Cottonwood

Populus trichocarpa



80'-
125'

MOUNTAIN ASH

Sorbus species

Form Up to 30 feet; small tree or shrub with slender trunk; round, somewhat irregular but graceful, open crown

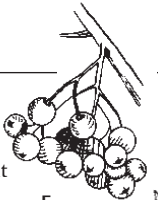
Leaves Deciduous • Alternate • Compound
9-15 pointed (European) or 7-11 rounded (Sitka) leaflets

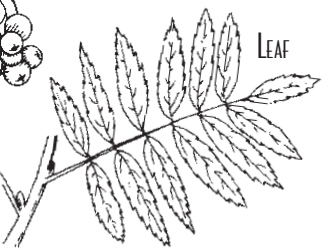
Bark Thin, gray, smooth

Flower Small white flowers in flat-topped clusters

Fruit Bright red "berries" which look like tiny apples; borne in dense clusters

Tree Tip The Mountain Ashes are not related to the Ashes; they are actually a part of the rose family. The fruit is similar to apples, also in the rose family.

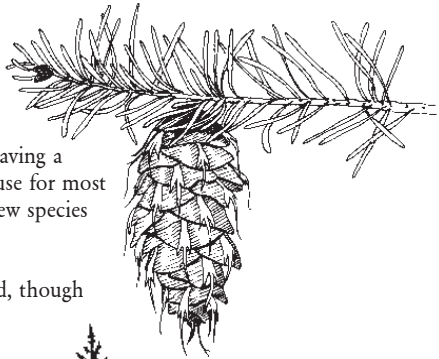




European Mountain Ash
Sorbus aucuparia

Sitka Mountain Ash
Sorbus sitchensis

CONIFERS



The conifers are set apart from the broadleaves by having a different kind of seed. Conifers get their name because for most species, their seeds are found in cones. There are a few species whose cones look more like fruits, however.

Most conifers keep their needle-like leaves year-round, though there a few which drop them each fall.

DOUGLAS FIR

Pseudotsuga menziesii

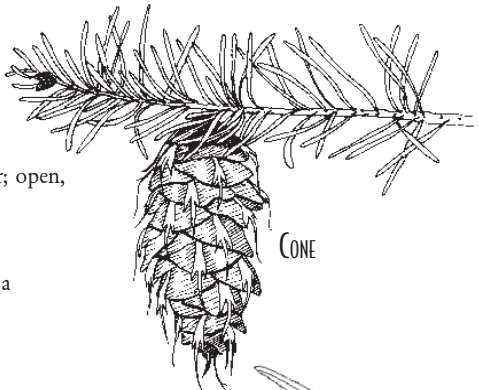
Form 100-250 feet; older branches breaking off to leave lower trunk clear; open, spire-like crown

Leaves Evergreen • Single Needles
$1\frac{1}{4}$" flat needles; pointed tip; having a petiole

Bark Dark brown-almost purplish; heavily furrowed

Cone Distinctive pendant cone with 3-pronged bracts (mouse tails and feet as the story goes) extending out underneath each scale; 4" long

Tree Tip Very common native. You can tell it is not a true fir because of the raised scars left on the twigs, the petioles of the needles, and the pendant cones.



Form

SUBALPINE FIR

Abies lasiocarpa

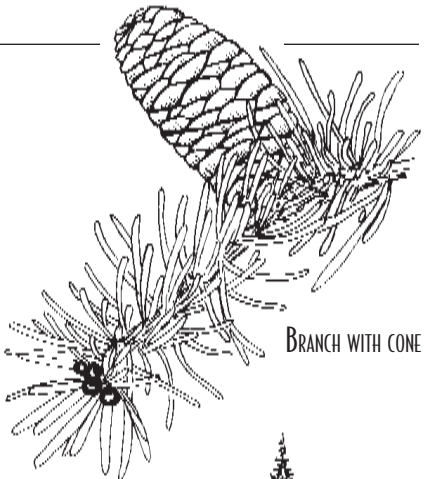
Form 100 feet; narrowly conical, spire-shaped tree

Leaves Evergreen • Single Needles
Dark green needles; notched at tip; white stripes underneath

Bark Light gray; smooth but covered in sap-filled blisters

Cone Barrel-shaped cones sit upright on branches; center spire remains once scales are gone

Tree Tip You can tell this is a true fir because it leaves clean, round, dish-shaped scars on the twig when removed; it has an upright cone; and the needles do not have a petiole. Only true firs have all of these characteristics together.



Branch with cone

Form

PINE FAMILY

Pinus species

Form Conifers of various heights; branches arranged around a straight trunk like a bottle brush- "whorled branching"

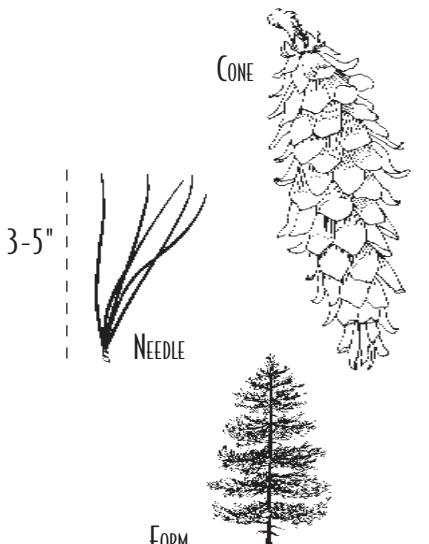
Leaves Evergreen • Bundled Needles
Needles are bundled together in fascicles of 1-5; needle number and length are shown for 4 species commonly found in Bellevue

Cone Cones have hard woody scales and vary in shape and size (noted at right).
They are usually hanging down off the branch.

Tree Tip You will need to use a combination of several of the above features to make a positive identification. You can see that Scotch pine and Lodgepole Pine could easily be confused!

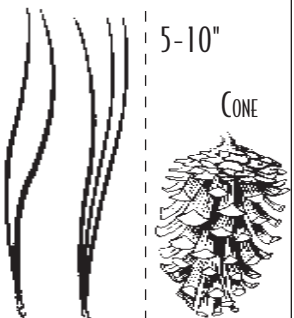
Western White Pine

Pinus monticola



Ponderosa Pine

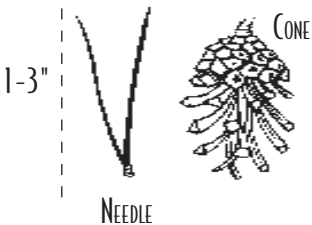
Pinus ponderosa



Form

Scotch Pine

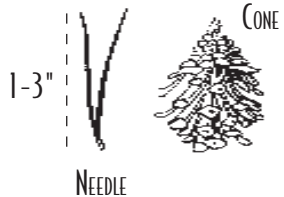
Pinus sylvestris



Form

Lodgepole Pine

Pinus contorta



Form

REDWOOD and SEQUOIA

Sequoia sempervirens & Sequoiadendron giganteum

Form — Both are giants, reaching over 200 feet at maturity; strongly cone-shaped in form; redwoods having a more open crown, sequoias a dense crown which reaches to the ground

Leaves — Evergreen.
Redwood: pointed needles arranged in a single plane along twig segments Sequoia: short, sharp-pointed scales; sheathing the entire twig

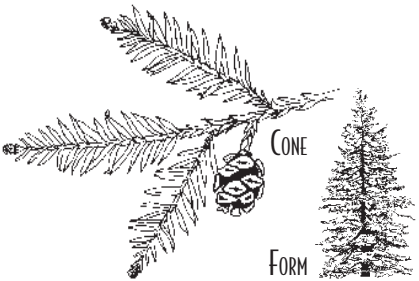
Bark — Both species have thick, fibrous reddish brown bark; deep vertical furrows

Cone — Pendant egg-shaped cones. Redwood: cone is open; $^{3}/_{4}$–1" long
Sequoia: cone closed; 2-3 $^{1}/_{2}$" long

Tree Tip — These two trees are not native.

California Redwood

Sequoia sempervirens



Giant Sequoia

Sequoiadendron giganteum

WESTERN HEMLOCK

Tsuga heterophylla

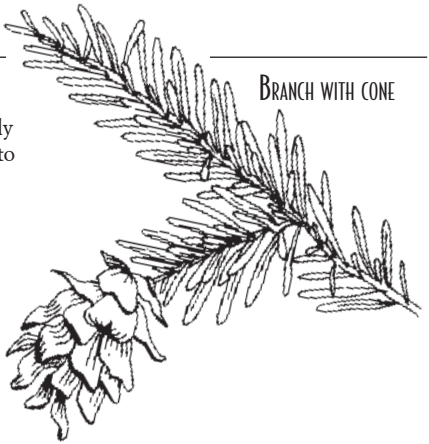
Form 125-175 feet; pyramidal with a conspicuously drooping top; sweeping, feathery branches to ground when open-grown

Leaves Evergreen • Single Needles
Needles are different lengths; extending horizantally from twig

Bark Gray-brown and scaly

Cone Diminutive cones for such a big tree; $^3/_4$" in length; always pendant

Tree Tip Hemlocks are an important native species which indicate a healthy, mature forest. The scientific name is fitting: Tsuga means hemlock and heterophylla means "different leaves."



Branch with cone

Form

INCENSE CEDAR

Calocedrus decurrens

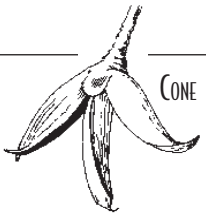
FORM 100-150 feet; narrowly pyramidal, sometimes with more than one main axis; short specimens used in hedges

LEAVES Evergreen • Scales
Each leaf is a tiny, pointed scale $\frac{1}{8}$" in length; scales sheath entire twig

BARK Red brown; scaly to fibrous

CONE Unique cone which is oblong when closed, but opens to show 6 scales; $\frac{3}{4}$-1 $\frac{1}{2}$" long

TREE TIP Examine leaves to avoid confusing this one with Western Red Cedar. Cones differ as well. Also known as Libocedrus decurrens.



CONE

SCALES

BRANCH WITH CONES

FORM

WESTERN RED CEDAR

Thuja plicata

Form 150-200 feet; broadly pyramidal; trunk buttressed at base; lower branches drooping and J-shaped

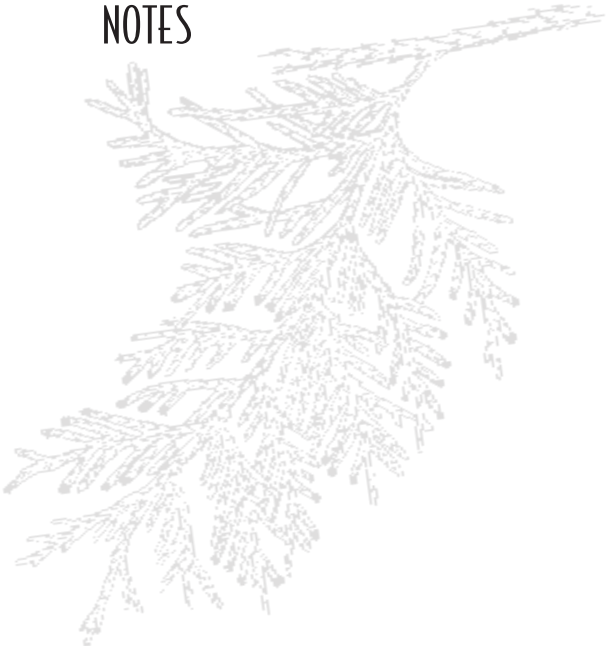
Leaves Evergreen • Scales
Foliage in flat sprays "fronds"; leaves are tiny scales $^1/_4$" long; overlapping to make a braided pattern

Bark Silvery gray outer bark; reddish inner bark; very fibrous

Cone Egg-shaped and woody; having 10 scales; sitting upright on twig; $^1/_2$" long

Tree Tip Another very important Northwest native. The bark and wood are fragrant and rot-resistant: the bark can be made into rope; the wood is both a traditional and modern building material.

NOTES



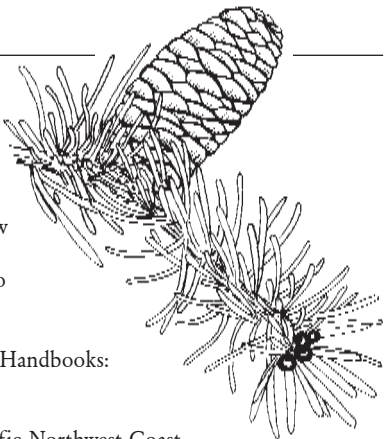
GLOSSARY

Word	Definition	Examples
Alternate	leaves arranged singly along stem; not *opposite*	Red Alder
Blade	the broad portion of a leaf	
Canopy	the uppermost layer of foliage in a forest or a single tree	
Compound leaf	a leaf composed of several *leaflets*; a leaf whose blade is completely divided into several leaflets	Mountain Ash
Crown	the upper part of the tree, all of its branches and leaves together; similar to canopy	
Deciduous	leaves falling off once a year	London Plane Tree
Drip line	the area around the base of a tree within the outside edge of the crown; also called drip zone	
Evergreen	leaves staying on year after year	Pacific Madrone; Western Red Cedar
Form	height and general shape of the tree	

GLOSSARY (cont'd.)

Fruit	the seed-bearing structure of the tree nutlets of the maple	A fir cone; the winged
Leaf	identified by having a tiny bud hidden between the leaf *petiole* and the twig leaf of a maple tree	A single needle of a
Leaflet	one of the small leaf-like structures in a *compound* leaf; distinguished from a leaf because there is no bud hidden between the leaflet petiole and the axis it is attached to	Mountain Ash
Lobe	a shallow division in a simple leaf	Oregon White Oak
Opposite	leaves arranged in pairs along a stem so that 2 leaves are opposite each other	Maple Family
Petiole	the stalk of the leaf which attaches it to the twig	
Shrub	a many-stemmed woody plant, usually less than 30 feet tall	Vine Maple
Simple Leaf	a leaf whose blade is whole and not completely divided into leaflets	Dogwood, Vine Maple
Tree	generally a single-stemmed woody plant growing at least 20 feet tall at maturity	Big Leaf Maple

REFERENCES



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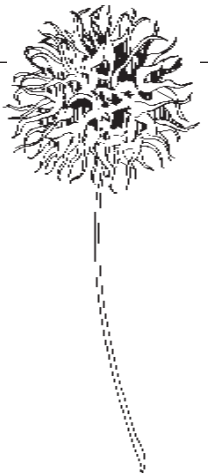

American Sweet Gum
Birch
Black Cottonwood
California Redwood
Dogwood
Fir – Douglas, Grand, Subalpine
Giant Sequoia
Incense Cedar
Lombardy Poplar
London Plane Tree
Maple – Big Leaf, Japanese, Norway, Red, Vine
Mountain Ash
Oak – Northern Red, Oregon White, Pin, Scarlet
Pacific Madrone
Pine – Lodgepole, Ponderosa, Scotch, Western White
Quaking Aspen
Red Alder
Weeping Willow
Western Hemlock
Western Red Cedar