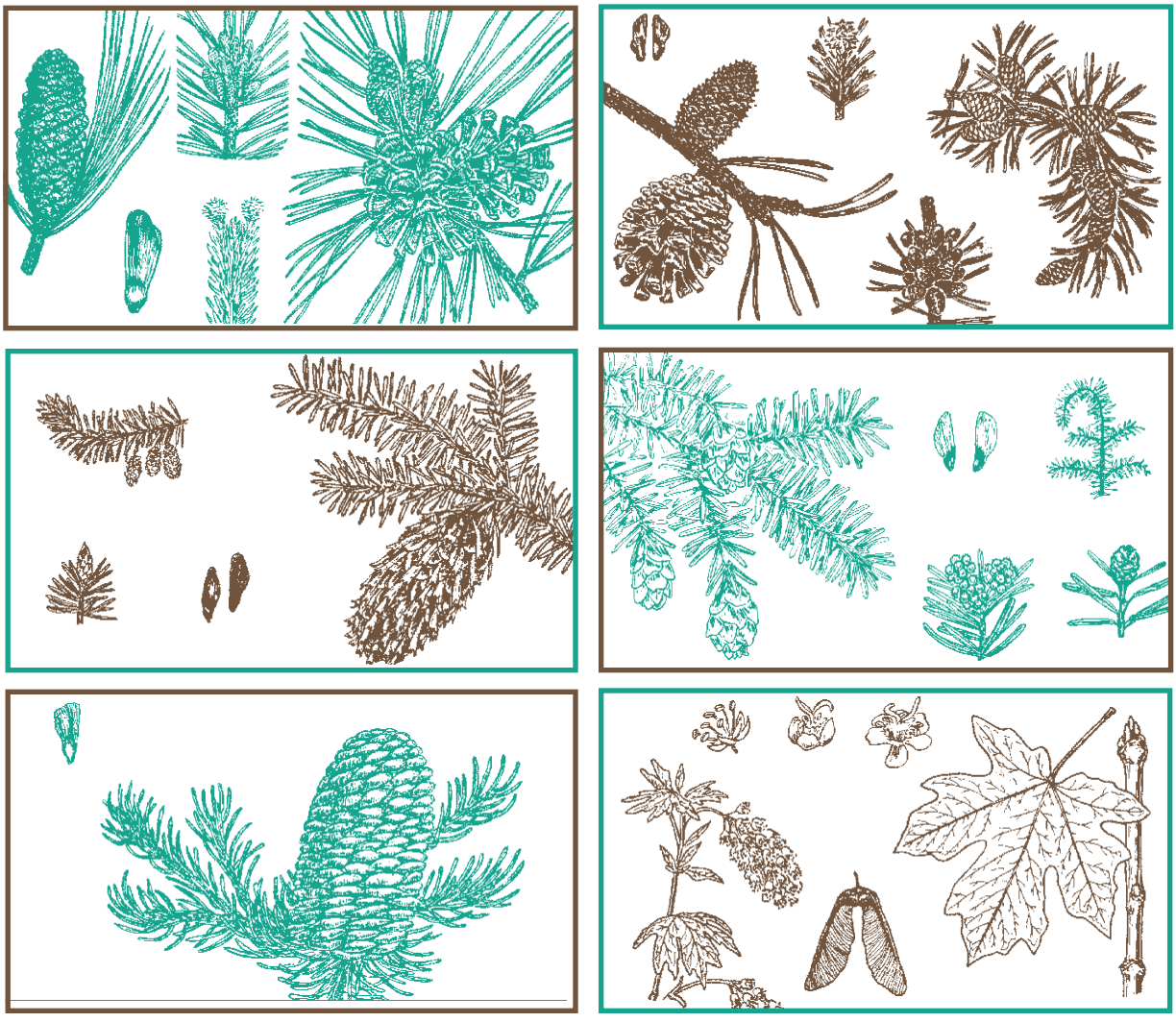
EB0440

Trees

OF WASHINGTON



Illustrations by
Mrs. Iva Shoup & Edward R. Speck. Jr.

Trees of Washington

By Milton M. Mosher, Professor of Forestry, and
Knut Lunnum, Former Extension Forestry Specialist, Washington State University*

Washington is a forested state, and its welfare is closely tied to its trees and forest industries.

This bulletin is a simple approach to dendrology, or tree identification, and covers only the most important trees. But once you know these, you can learn others easily.

Trees Are Individuals

Anyone interested in forestry should be able to identify the trees. To know different types of trees, keep in mind that trees have definite individual characteristics, just like different kinds of birds, cows, and horses. At first some of these differences seem hard to find, but with a little practice you can see them easily.

You can recognize trees in a number of ways. Leaves stand out and are easiest to see. Buds on the ends of the branches are helpful. And the twigs themselves often have individual markings. The bark of each tree differs from that of every other tree. The fruit on trees is helpful too, and often used to make final identification.

See Where the Tree Grows

It pays to notice where a tree grows since some are common in swamps while others never grow there. The general size and condition of the tree is important for identification. Trees which grow in the open develop typical crown shapes. The figures in this bulletin are only average heights and diameters, and young trees may not always measure up to them.

For best results, learn to know trees under their natural conditions. Trees found growing in yards, parks, and cemeteries are often ornamentals and not native to this state. Because of this, you cannot identify them by the key on pages 4 to 6.

Even the Same Kinds Vary

Remember that the same kind of trees often vary greatly. Do not be surprised to find that leaf size, in particular, does not fit the average figures. Sprout growth almost always has extra large leaves, and trees on poor, dry soils often have undersized leaves.

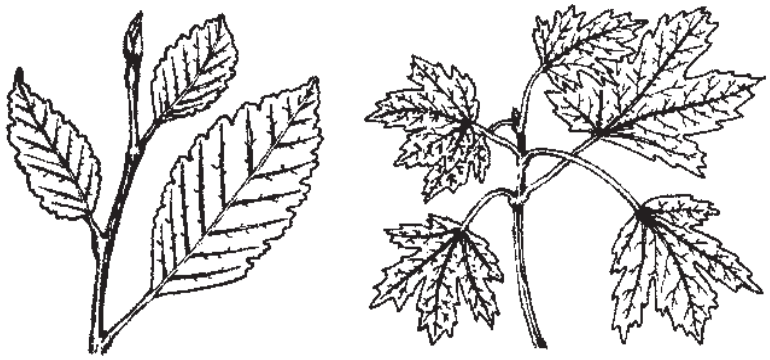
With a little practice, you can soon learn to recognize these variations in size, shape, and condition. As you learn more trees, you will naturally classify them by their similarities and differences.

Nineteen softwoods (evergreens) and thirteen hardwoods (broadleaves) are covered in this bulletin. The keys on pages 4 to 6 will help you identify the species in each group.

***Acknowledgement is made to the many staff members of WSU who made helpful suggestions. The common and scientific names used in this edition conform to the *Check List of Native and Naturalized Trees of the United States*, Agricultural Handbook 41, Forest Service, U.S. Department of Agriculture. The ranges were taken mostly from *Atlas of United States Trees*, Misc. Publ. No. 1146, U.S. Department of Agriculture, 1971.**

LEAF

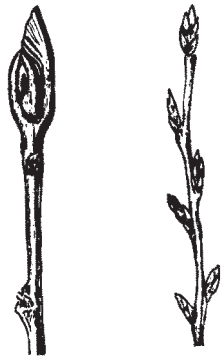
Leaf Arrangement



Alternate—Red Cedar

Opposite—Maple

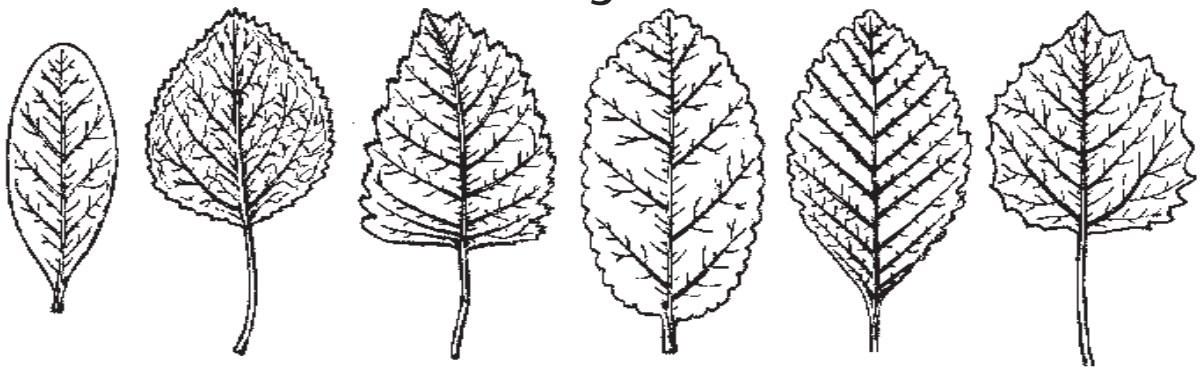
Bud Scales



None—Cascara

Many—Black Cottonwood

Margins



Entire—Madrone

Serrate—Quaking Aspen

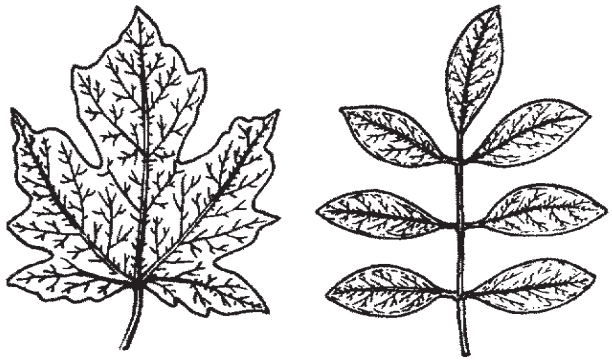
Doubly Serrate—Bigtooth Aspen

Crenate

Doubly crenate—Alder

Dentate—Poplar

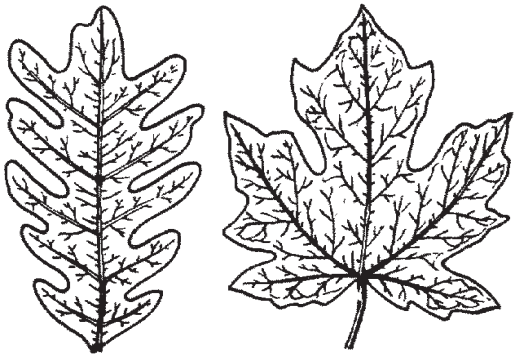
Form



Simple—Maple

Compound—Ash

Lobes



Pinnate—Oak

Palmate—Maple

TYPES

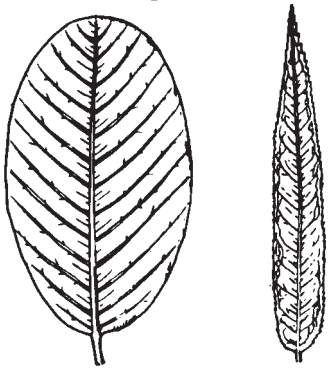
Base

Asymmetrical—Hackberry

Heart—Vine Maple

Round—Cascara

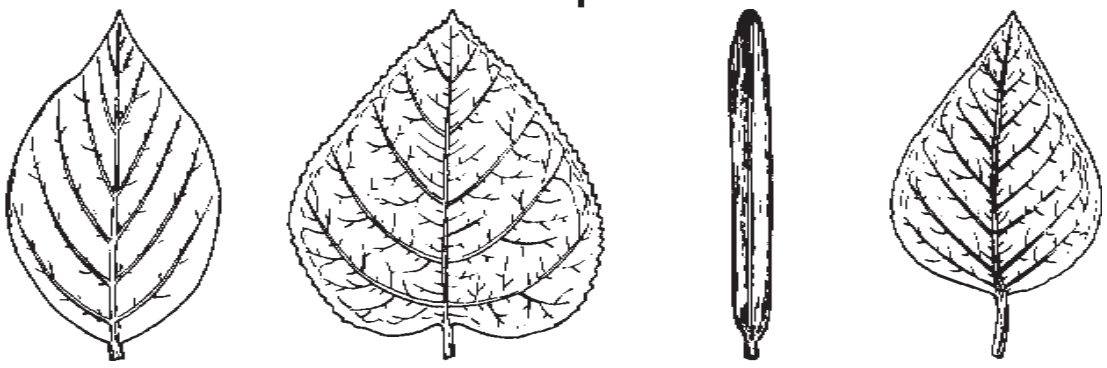
Apex



Rounded—Cascara

Point-ed—Wil-

Shape



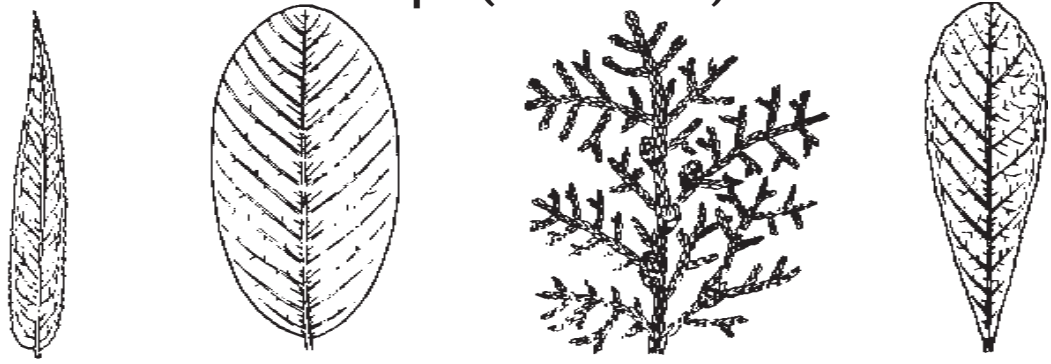
Ovate—Black Cottonwood

Heartshaped—Cottonwood

Linear—Hemlock

Triangular—Aspen

Shape (continued)



Lanceolate—Willow

Elliptical—Cascara

Scale-like—Red Cedar

Obovate—Willow

Using the Key

To use the key, compare the species with characteristics in the key. These keys are two-branched, that is, if the D part does not fit the specimen then the DD part does. The key only gives the most outstanding features of a species, and you can identify it only after you have carefully compared the sample with the full description in the main section of the bulletin.

Let's say, for example, you have a branch from a tree. Its foliage is shiny dark green with narrow leaves, so it belongs to the *coniferous* or *evergreen* group. The leaves are not in clusters on spur shoots as described in A, so it must be under AA. The leaves are scattered singly rather than in clusters of two to five, so it goes under AA, not A.

Now, the leaves are linear, which is long and narrow, and appear two-ranked, which means a row of needles on each side of the twig. So from B, we trace it to c and find peg-like projections left on the stem following leaf fall. And also under D, the leaves have short stalks, are flattened, and have two bands of stomata below. The stomata are the two faint lines of breathing holes. Apparently the sample is a hemlock. After reading E and EE, we decide that E fits best. Next turn to No. 10, *Western Hemlock*, and complete the identification of the sample.

Key to Native Coniferous Trees

A. Leaves deciduous (dropping in the fall), scattered singly or in clusters on spur shoots, cones upright on stem.....Larches
  a. Leaves triangular (three-sided); buds smooth; cones oblong, 1 to 1 1/2 inches long, smooth; twigs hairless (5) Western Larch
  aa. Leaves quadrangular (four-sided); buds covered with long, white hairs; cones rounded, 1 1/2 to 2 inches long; twigs covered in dense, wooly hairs .....(6) Subalpine Larch

AA. Leaves persistent (stay on stems the year around)
  a. Leaves in clusters of two to five with sheath (a covering) at the base of needles Pines
    b. Leaves in clusters of five, sheath deciduous Soft Pines
      c. Leaves 2 to 4 inches long, rows of stomata (white dots) on inside; cones 5 to 15 inches long cylindrical .....(1) Western Pine
      cc. Leaves 1 1/2 to 2 1/2 inches long; rows of stomata on outside; cones 2 to 3 inches long, rounded .....(2) Whitebark Pine
    bb. Leaves in clusters of two or three; sheath persistent.....Hard Pines
      c. Leaves in clusters of three or two and three on the same tree, 5 to 11 inches long; large resinous (pitchy) buds; cone 3 to 6 inches long.....(3) Ponderosa Pine
      cc. Leaves only in clusters of two, 1 to 3 inches long; rather small slightly resinous buds; cone 3/4 to 2 inches long, usually asymmetrical (lopsided).....(4) Lodgepole Pine
  aa. Leaves scattered singly on stems or in opposite pairs
    b. Leaves linear (narrow and slender looking) spirally arranged and often appearing two-ranked (row of needles on each side of twig)
      c. Peg-like projections left on stem after leaves fall
        d. Leaves with short stalks, flattened, two broad bands of stomata below, Hemlocks

e. Leaves appearing two-ranked, stomata on under surface only; light brown cone, 1/2 to 3/4 inch long ..... (10) Western Hemlock

ee. Leaves growing out from all sides of stem, stomata on both surfaces; cone 1 to 3 inches long purple to yellow-green .....(11) Mountain Hemlock

dd. Leaves without stalks, quadrangular (four-sided) or flattened; stomata not in prominent bands.....Spruces

e. Leaves flattened, yellow-green, growing at nearly right angles to the stem, sharp-pointed; cone 2 1/2 to 4 inches long .....(7) Sitka Spruce

ee. Leaves quadrangular, blue-green, tend to point toward end of stem, pointed tips; cone 1 1/2 to 2 1/2 inches long .....(8) Engelmann Spruce

cc. Stem mostly smooth after leaves fall

d. Leaves with stalks, scattered over twig or appearing in two ranks; non-resinous buds; fruit a pendant (hanging down) cone or aril (berry-like sack open at lower end)

e. Leaves usually scattered over twig or sometimes appearing in two ranks; leaf stalks same color as leaf; buds pointed; cones with three-lobed bracts (growth between cone scales) longer than scales.....(9) Douglas Fir

ee. Leaves always two-ranked; leaf stalks yellow; bud rounded; fruit a scarlet aril.....(19) Pacific Yew

dd. Leaves without stems crowded on upper side of twig; scattered or in two ranks; resinous, rounded buds; upright cones.....True Fire

e. Leaves two-ranked, 3/4 to 2 1/4 inches long; dark green, white bands of stomata on lower side; purple-green cylindrical cone 2 to 4 1/2 inches long .....(14) Grand Fir

ee. Leaves crowded on upper side of twig or scattered

f. Leaves quadrangular, grooved above, stomatiferous (lines of white spots) on all sides, 1 to 1 1/2 inches long; cone light brown to purple; bracts extend beyond cone scale, reflexed (turned back), oblong, 4 to 6 inches long ..... (15) Noble Fir

ff. Leaves flattened, smooth above

g. Leaves shiny, dark green with bands of stomata below, 3/4 to 1 1/4 inches long, crowded on upper side of twig; cone deep purple, cylindrical 3 1/2 to 6 inches long .....(12) Pacific Silver Fir

gg. Leaves blue-green, stomatiferous on both sides, 1 to 1 1/2 inches long, scattered on twig; cone, grayish-purple, oblong-cylindrical, ...2 1/2 to 4 inches long (13) Subalpine Fir

bb. Leaves scale-like, mostly closely appressed (closely pressed to the stem)

c. Twigs flattened; foliage in flattened sprays; fruit a leathery to woody cone

d. Branchlets much flattened; foliage in flattened sprays long and drooping; cone oblong; scales flattened and over-lapping .....(16) Western Redcedar

dd. Branchlets somewhat flattened; tips of leaves sharp and spreading; cone round; scales shield shape.....(17) Alaska-Cedar

cc. Twigs round; foliage spreading out in all directions; fruit berry-like Junipers

d. Leaves dark green; margins smooth; branchlets slender, fruit blue with white bloom maturing in 2 years .....(18) Rocky Mountain Juniper

Key to Native Broad-leaved Trees

A. Leaves persistent on the stem for several seasons (evergreen). Leaves dark, shiny green above and whitish beneath; fruit an orange-red drupe (cherry-like); bark reddish-brown, thin, and scaly.....(31) Pacific Madrone

AA. Leaves deciduous (falling in the fall)

B. Leaves opposite on the twig

a. Leaves simple

b. Leaves palmately (hand-like) lobed; fruit a double samara.....Maples

c. Leaves large and 8 to 12 inches across; stalks 10 to 12 inches long, five-lobed; margins of leaves entire; wings of fruit 1 to 2 inches long .....(27) Bigleaf Maple

cc. Leaves smaller 2 to 6 inches; stalks 1 to 2 inches long, seven to nine lobes; margins serrate (saw-toothed); wing of fruit 1 1/2 inches long ..... (28) Vine Maple

bb. Leaves without lobes, 4 to 5 inches long, ovate (egg-like) to obovate (broad end up); densely hairy below; fruit a red drupe ..... (30) Pacific Dogwood

aa. Leaves compound, five to seven ovate to elliptical (oval), slightly serrate leaflets, densely hairy below; fruit a samara (winged-seed) .....(32) Oregon Ash

BB. Leaves alternate on the stem, simple (nearly opposite in c)

a. Leaves lobed, lobe tips rounded, hairy below; fruit an acorn (25) Oregon White Oak

aa. Leaves entire (never lobed)

b. Buds covered in single cap-like scale; leaves long and narrow (lance-shaped) to elliptic (oval or oblong); fruit a capsule borne in an ament.....(20) Willows

bb. Buds covered by several distinct scales or naked (no scales)

c. Buds naked, covered with matter wooly hairs; leaves sometimes nearly opposite on the stem ..... (29) Cascara Buckhorn

cc. Buds covered with scales

d. Leaf margins doubly serrate (saw-toothed)

e. Margins serrate-dentate (saw-toothed and deeply indented) with a wrinkled appearance; margins slightly turned under, dark green with rusty hairs below, fruit borne in an oblong-ovoid (oval) cone .....(24) Red Alder

ee. Margins coarsely doubly serrate, dull dark green and with hairs along the veins below; fruit borne (lies) in a cylindrical cone..... (23) Western Paper Birch

dd. Leaf margins singly serrate or entire

e. Leaves unequally heart-shaped at the often entire base, roughened above; fruit orange-brown to black drupe ..... (26) Netleaf Hackberry

ee. Leaves with rounded asymmetrical (even) bases; margins crenate-serrate (scalloped); fruit a capsule borne in an ament

f. Leaf stalks flattened; leaves nearly circular in outline; buds essentially non-resinous.....(21) Quaking Aspen

ff. Leaf stalks round; leaves ovate; buds resinous (22) Black Cottonwood

1. Western White Pine

Pinus monticula Dougl.

Western White pine is a valuable timber tree. Unfortunately, it is often killed by a fungus disease, white pine blister rust. Efforts to control this disease have not been successful so far, so the species is no longer the major timber producer it once was in the state.

The wood is fine grained, soft, easily worked and used for interior finish and woodworking as well as lumber.

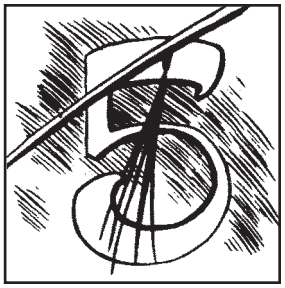
LEAVES grow in clusters of five needles, 2 to 4 inches long, blue-green, two to six white bands of stomata on the under surface.

BUDS are cylindrical, with rounded tips, about 1/2 inch long.

TWIGS are rather slender, usually hairy the first year and later without hair and dark greenish-brown.

BARK is smooth green-gray on young stems, later breaking up into dark gray rectangular plates.

FRUIT is a pendant cone, 5 to 15 inches long, cylindrical, light brown scales,unarmed.



Five needle clusters.

WOOD is pale brown, light, soft, and fine-grained.

IT IS a very large tree, 120 to 160 feet tall, 2 to 4 feet in diameter at maturity (maximum 8 feet), forming a rather open pyramidal head.

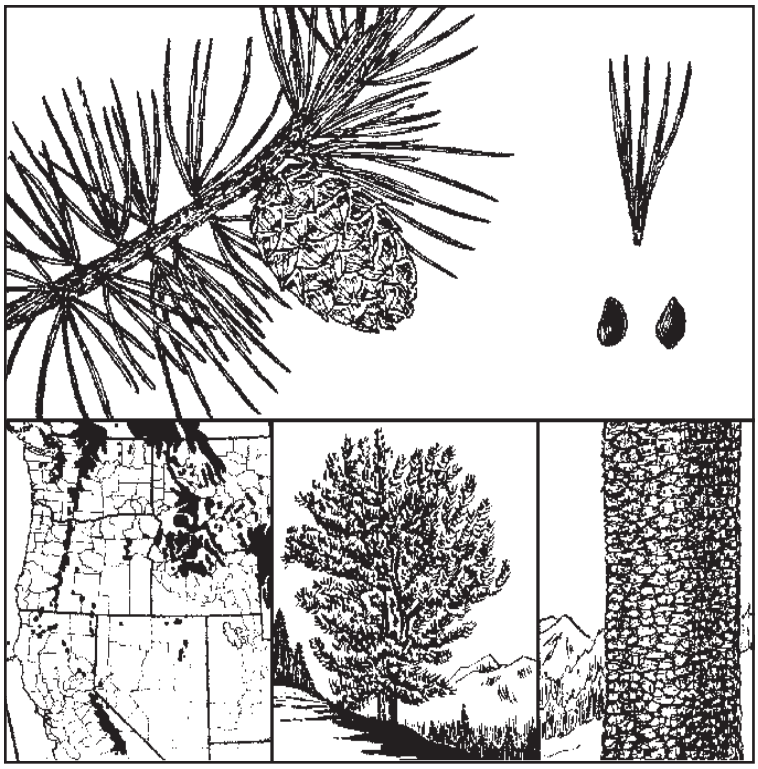
IT GROWS best on rich, moist, well-drained soils, and is found at elevations from sea level to 7,000 feet. It tolerates some shading.

WE FIND IT on both the Cascade and Olympic Mountains. It also rows in northeastern Washington and in some scattered locations in Western Washington.

IMPORTANT CHARACTERISTICS are needles in clusters of five, foliage bunched tufts at the ends of the twigs, persistent 3 to 4 years; and large, resinous, rather flexible cones.

Foliage concentrated toward end of branch.

Branches in uniform whorls; one for each year.



2. Whitebark Pine

Pinus albicaulis Engelm.

This tree is not commercially important for lumber, but protects watersheds. It is often reduced to a low or even sprawling shrubby form at the timberline and is often misshapen by the wind.

It is a common component of the wilderness scenery of the state.

Grows high on mountain.

Bark creamy white.

LEAVES grow in clusters of five each, 1 1/2 to 2 1/2 inches long, dark green, stout, and rigid, with one to three white bands of stomata on all surfaces. Persistent 5 to 6 years.

BUDS are cinnamon-brown, about 1/4 inch long; ovoid (oval) with sharp tips.

TWIGS are rather stout, cinnamon-brown, and slightly hairy for the first 2 years.

BARK is creamy-white to pale brown, and broken into scales.

FRUIT is a rounded cone, 2 to 3 inches long, purple to brown, thickened scales, and often armed. It usually disintegrates upon opening.

WOOD is pale brown, light, soft, and brittle.

IT IS a small tree, 30 to 40 feet tall and 1 to 2 feet in diameter forming a rather broad, open head. Brances are usually very flexible.

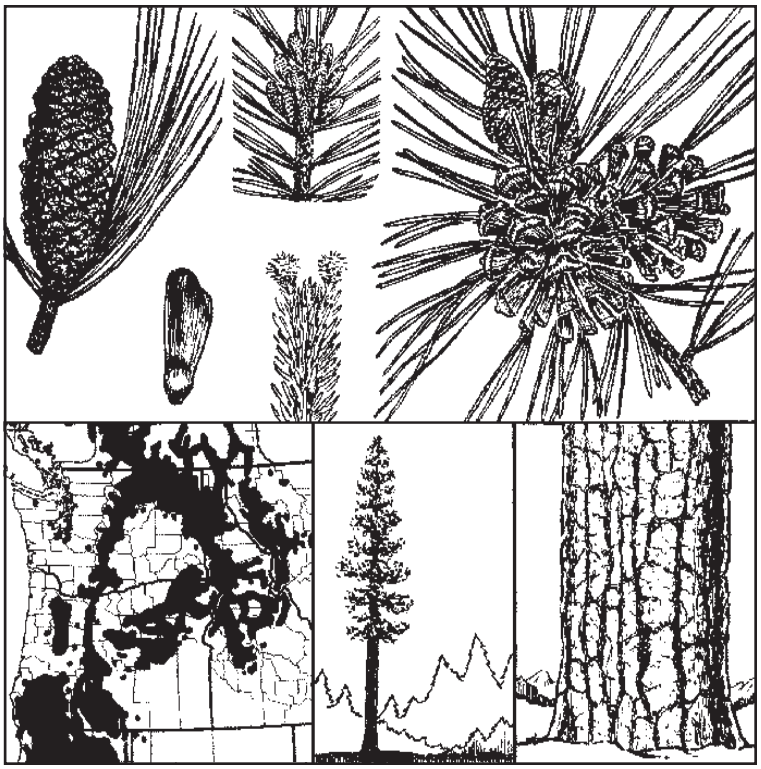
IT GROWS best on moist, well-drained soils, but is more often found on poor sites 4,500 to 8,200 feet elevation. It needs full sunlight.

WE FIND IT on the Cascade, northeastern, and Blue Mountains.

IMPORTANT CHARACTERISTICS are needles in clusters of five and clustered, small, purplish cones with thickened cone scales.

3. Ponderosa Pine

Pinus ponderosa Laws.



This tree is probably known by more names than any other native tree. Some of the most common names are western yellow pine, yellow pine, bull pine, blackjack pine, and ponderosa pine, which has become most acceptable.

Although classified as a hard pine, its wood is quite soft. It is used for millwork, interior finish and lumber. It is the most important pine in the United States.

LEAVES grow in clusters of three needles or threes and twos each, 5 to 11 inches long, stout, dark yellowish-green.

BUDS are up to 1/2 inch long with acute tips and covered with resin droplets.

TWIGS are stout, and roughened where needles have fallen off.

BARK is dark brown or sometimes cinnamon-red, irregularly divided into plates. Young, fast growing trees have nearly black bark.

FRUIT is a cone 3 to 6 inches long, rounded asymmetrical, yellow-brown, the scales armed with prickles.

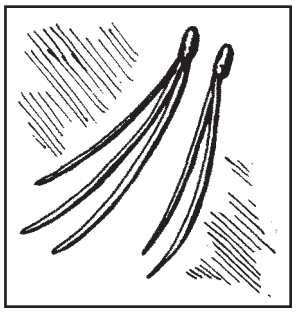
WOOD is reddish-brown, medium hard, and fine-grained.

IT IS a very large tree, 150 to 180 feet tall and 3 to 4 feets in diameter forming a round topped head, or sometimes pointed head, on better sites.

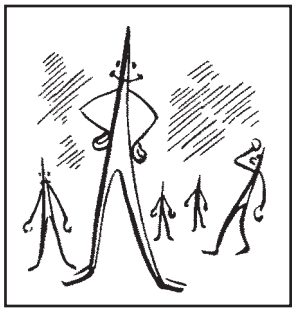
IT GROWS best on moist well-drained soils, but is extremely drought resistant, and will persist in otherwise nonforest areas. It needs full sunlight to survive.

WE FIND IT in the mountainous regions east of the Cascade Divide, especially in central and northeastern Washington, where it grows in open stands, and west of the Cascades in a few scattered locations.

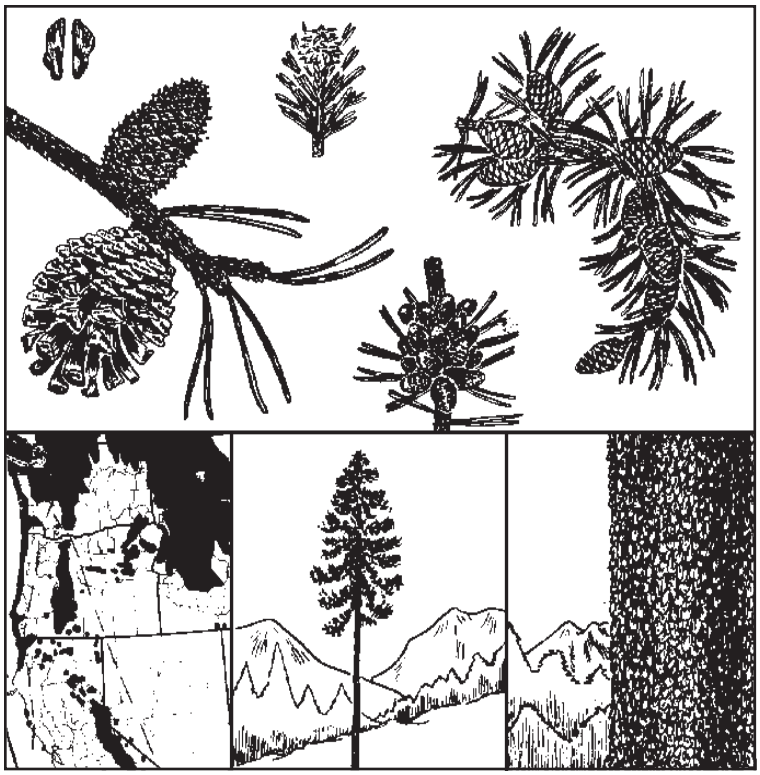
IMPORTANT CHARACTERISTICS are needles in clusters of thre eor two and three, plated cinnamon-red bark on old trees, and rounded cones with prickles on the scales.



Needles in bunches of two and three.



Longest needled pine in Washington.



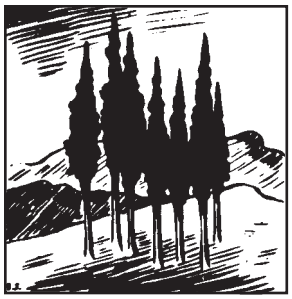
4. Lodgepole Pine

Pinus contorta Dougl.

This tree has two forms-the coast form, shore pine, and the mountain form, lodgepole. The mountain form is valuable commercially for lumber, poles, and pulpwood, while shore pine is generally too small and misformed for commercial use although it has been cut locally.

Both of these forms are being developed for Christmas trees. The mountain form is noted for forming dense, pure stands following logging and fire.

Small cones stay on tree a long time.



Grows in thick clumps —likes company.

LEAVES grow in clusters of two needles each, 1 to 3 inches long, yellow green, and often twisted.

BUDS are oval, slightly resinous, and about 1/4 inch long at first, elongating to 1 inch.

TWIGS are rather stout, and dark brown to black.

BARK is reddish-brown to nearly black, covered with loosely attached scales.

FRUIT is an asymmetrically (uneven) oval cone, 3/4 to 2 inches long, dark brown, often remaining closed for several years, with scales having small recurved prickles, often deciduous.

WOOD is pale brown, light, and fairly soft.

IT IS a medium-sized tree, 70 to 80 feet tall, 1 1/2 to 3 feet in diameter forming a rather long, narrow, pointed head. It often grows in very dense stands. The shore pine in western Washington is usually a small, poorly formed tree, 25 to 35 feet tall. It is found on poor sites near the coast.

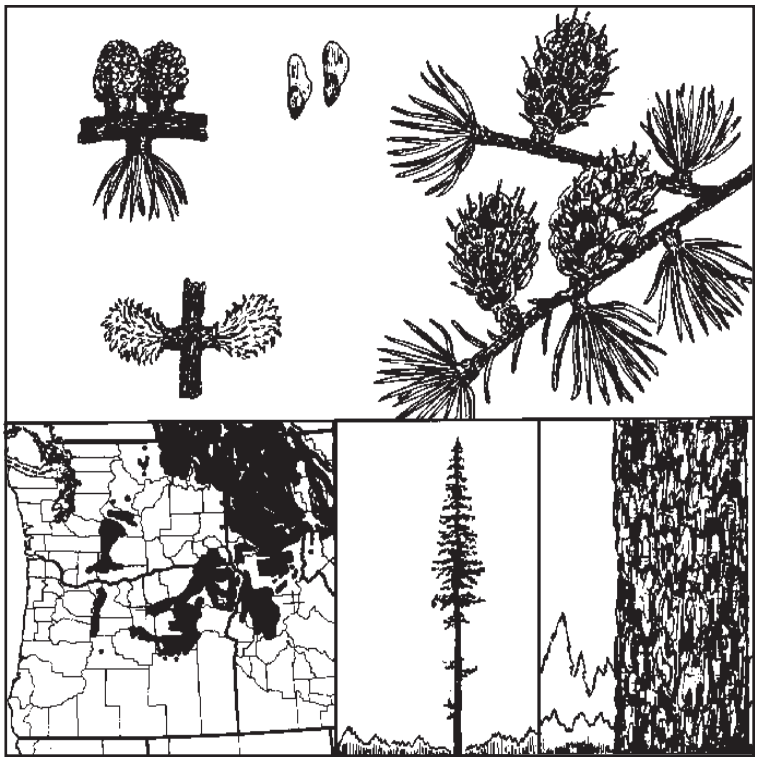
IT SEEMS TO GROW best on moist, well-drained, sandy or gravelly soils, but does well on dry sites, at elevations from sea level to 6,000 feet in the state. It needs full sunlight for growth.

WE FIND IT on the Cascade Mountains and in the northeastern and southeastern parts of the state.

IMPORTANT CHARACTERISTICS are needles in clusters of two, unopened cones remaining on branches for years following maturity. And it often grows in thick, pure stands.

5. Western Larch

Latrix occidentalis Nutt.



Western larch is a common companion of Douglas-fir in the forested areas east of the Cascade divide. Its wood is strong, quite heavy, and suitable for structural uses as well as for crossties and poles.

This species has been hard hit in recent years by an outbreak of the larch casebearer, which has defied control efforts. Larch's future status is therefore shadowed at present.

LEAVES are deciduous, scattered singly or in clusters on short spurs, triangular, 1 to 1 1/2 inches long, light green, fine tipped, and soft.

BUDS are blunt tipped, dark brown, and about 1/8 inch long.

TWIGS are stout, orange-brown, hairy at first, but soon smooth.

BARK is dark to reddish-brown, broken into oblong, scaly plates.

FRUIT is an upright cone, oblong, 1 to 1 1/2 inches long, bracts are much longer than scales and terminate in a long spike.

WOOD is reddish, heavy, hard, close-grained.

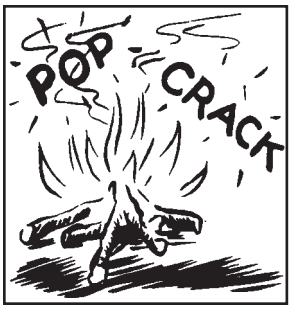
IT IS a very large tree, 140 to 180 feet tall, 3 to 4 feet in diameter, forming a narrow, pyramidal head. Butts are often much enlarged.

IT GROWS well in moist bottomlands and also on dry, gravelly soils, at elevations from 2,300 to 5,500 feet. Full sunlight is a must for its survival.

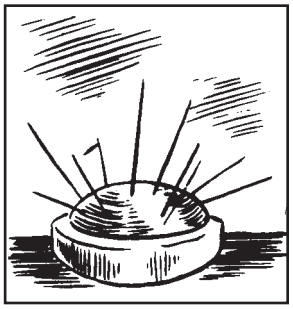
WE FIND IT on the eastern sloped of the Cascade range, the mountains of eastern Washington, and the Blue Mountains.

IMPORTANT CHARACTERISTICS are needles in clusters growing on raised cushions, sheds needles annually at the first autumn frost. The larches are the only Washington conifers that do. New spring needles are soft and light green.

Drops needles each fall—Larch trees are the only western cone bearing tree that does.



Crackles loudly when burning.



Needles stick out from cushion.

6. Subalpine Larch

Larix lyallii Parl.

Subalpine larch is a stunted, often crooked, timberline tree. It is of no commerial importance because of its small size and poor form, but it helps protect the soil on watersheds.

This is an associate of whitebark pine in the mountain wilderness areas of north central Washington.

Likes only high country (above 4,000 feet).

Cones stand upright on branches.

LEAVES are deciduous, scattered singly or in clusters on spur shoots, four-sided, rigid, blue-green, 1 to 1 1/2 inches long, and short-pointed.

BUDS are about 1/8 inch long, covered in long white hairs.

TWIGS are stout, covered with dense, wooly hairs.

BARK is yellowish-brown, loose and scaly.

FRUIT is an upright cone, 1 1/2 to 2 inches long, rounded, deep purple in color, covered with wooly hairs, bracts longer than scales, end in long spikes.

WOOD is reddish, hard, heavy, and coarse-grained.

IT IS usually a small tree, 25 to 50 feet tall, 1 to 2 feet in diameter forming a rather long, broad pyramidal head. Often smaller and malformed.

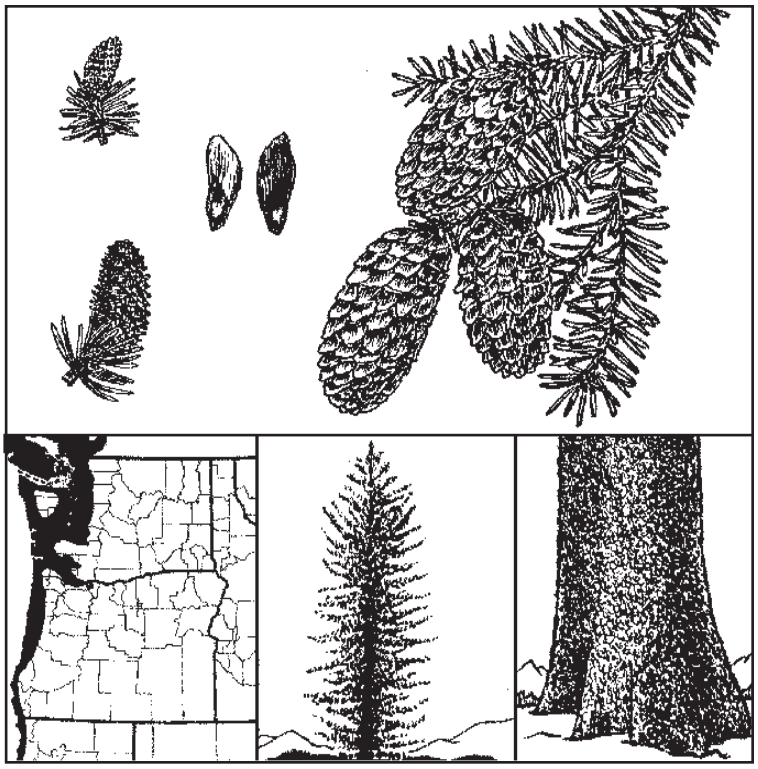
IT GROWS at elevations of 4,000 to 8,000 feet, on a variety of sites if enough moisture is present. It requires full sunlight.

WE FIND IT on both slopes of the Cascades and on high mountains in northeastern Washington.

IMPORTANT CHARACTERISTICS are needles single or in clusters on spur shoots falling off in the autumn, twigs covered with wooly hair and upright cones. It is found only at higher elevations.

7. Sitka Spruce

Picea sitchensis (Bong.) Carr.



Sitka spruce is the most important spruce in the state and contributes a considerable volume of wood to the economy. It is primarily a coastal tree and will grow very fast under ideal conditions.

It is used for lumber manufacture but is an excellent pulp species also. Its wood has a fine resonant quality and is used in some musical instruments. It is unusually strong for its weight so is ideal for the runners in wooden ladder manufacture.

LEAVES are scattered singly, and stand out at nearly right angles to the twigs, flattened, 3/4 to 1 1/8 inches long, yellow-green above, marked with white bands of stomata below, with long, sharp points.

BUDS are round with a sharp tip, light brown, about 1/3 inches long.

TWIGS are slender or sometimes stout, usually drooping, orange-brown, and without hair.

BARK is reddish-brown and broken into large, loose scales.

FRUIT is a pendant cone, oblong-cylindric, 2 1/2 to 4 inches long, yellowish-brown, and shiny at maturity with cone scales papery and ragged at tips.

WOOD is pale brown, soft, light.

IT IS a large tree, 90 to 140 feet tall, 3 to 5 feet diameter, forming a rather broad pyramidal head. On best sites it may be much larger. Often the base of the tree is much enlarged.

IT GROWS best on moist, sandy, or even swampy soils, and thrives in areas of heavy rainfall at elevations up to 3,000 feet, mostly under 1,200. It will grow in considerable shade.

WE FIND IT along Puget Sound and the fog-belt of the Coast.

IMPORTANT CHARACTERISTICS are needles scattered singly over the entire stem, leaving a woody base on the twigs when they fall off, very sharp-pointed, with bark broken into loose scales.

Bark corn-flaky—crackles when pressed or walked on.

Sharp, prickly needles.

8. Engelmann Spruce

Picea engelmannii Parry

This spruce is a slow-growing, shallow-rooted species found mostly in damp to wet bottoms in mountainous areas. At timberline, it is usually a prostrate shrub intermixed with whitebark pine and occasionally subalpine larch.

Engelmann spruce has not been used extensively, but is suitable for lumber or pulpwood. It often occurs in pure stands or patches.

My crushed needles smell bad.

I like eastern Washington.

LEAVES are scattered singly, stand out from all sides of the twigs, four-sided, 1 to 1 1/8 inches long, blue-green, with pointed tips, and marked on all sides by white rows of stomata. They give off a rank odor when crushed.

BUDS are conic, light brown, slightly reflexed scales, about 1/8 inch long.

TWIGS are slender, yellowish-brown, partly hairy for a few years.

BARK is reddish-brown, thin, and broken into large loose scales.

FRUIT is a pendant cone, oblong-cylindric, 1 1/2 to 2 1/2 inches long, light chestnut brown and shiny at maturity; cone scales are ragged at the tips, and papery.

WOOD is pale reddish-brown, light, and soft.

IT IS a fairly large tree, 90 to 120 feet tall, 1 1/2 to 3 feet in diameter, forming a narrow pyramidal head.

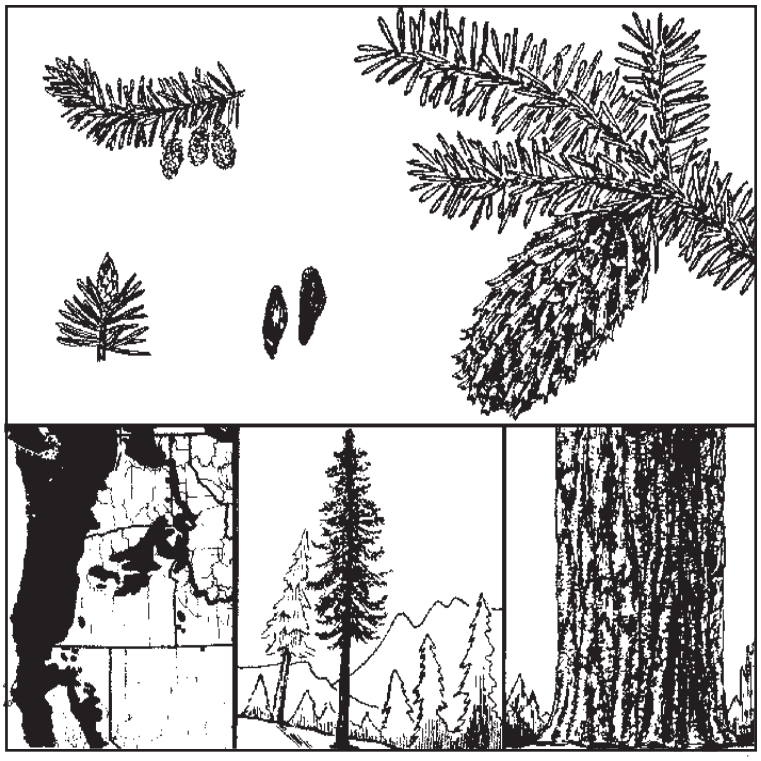
IT GROWS best on deep, rich, moist soils, from 1,000 to 7,000 feet elevation; at high altitudes the tree grows from 2 to 4 feet high. It is tolerant of shading.

WE FIND IT on the Cascades, mountains of northern and northeastern Washington, and a small area in the Olympic Mountains.

IMPORTANT CHARACTERISTICS are single needles scattered over the entire twig, with pointed tips (not nearly as sharp as the Sitka spruce) which leave a woody base on the twig when they fall: the bark also breaks into loose scales.

9. Douglas Fir

Pseudotsuga menziesii (Mirb.) Franco



Douglas-fir, also known as red fir, yellow fir, and Oregon pine, is the most important tree in the West. It is also the most important lumber species in the United States, and is used for cross-ties, piling, plywood, fuel, and Christmas trees.

There are two distinct forms of Douglas-fir. The coast form is larger with trees up to 300 feet tall and 6 feet in diameter. It is one of the fastest growing species in the United States. It grows in the Pacific slope forest often in extensive pure stands. The mountain form is an inland tree, found at higher elevations and grows only moderately fast at best. At maturity trees will be up to 130 feet tall and 3 feet in diameter.

LEAVES are scattered singly over the twigs, often in rows on opposite sides of the twigs, about 3/4 to 1 1/4 inches long, about 1/16 inch wide, and mostly blunt at the apex, yellow-green or blue-green.

BUDS are shiny brown, sharp-pointed, about 1/4 inch long.

TWIGS are slender and hairy for the first few years, yellowish at first and later becoming a dark gray-brown.

BARK is smooth on young stems, dark gray-brown, and often has resin blisters. It later becomes thick, reddish-brown, and is divided by deep, irregular fissures. Layers of light colored, corky material are mixed with the reddish-brown.

FRUIT is a cone 3 to 4 inches long, oblong-cylindric, pendant, with three-lobed bracts longer than the cone scales.

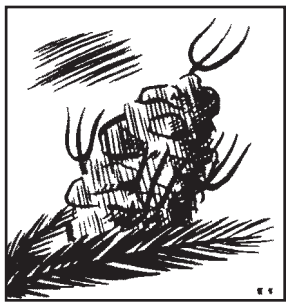
WOOD is light red or yellow, hard, and strong

IT IS a very large tgree, often over 200 feet tall, and up to 15 feet in diameter; usually having a narrow, flat-topped head in forests.

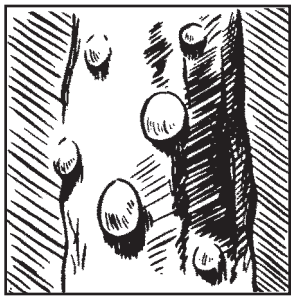
IT GROWS on a variety of sites including some of the driest. But growth is best on moist, rich soils. Growth is inhibited by much shade.

WE FIND IT in all forested sections of the state.

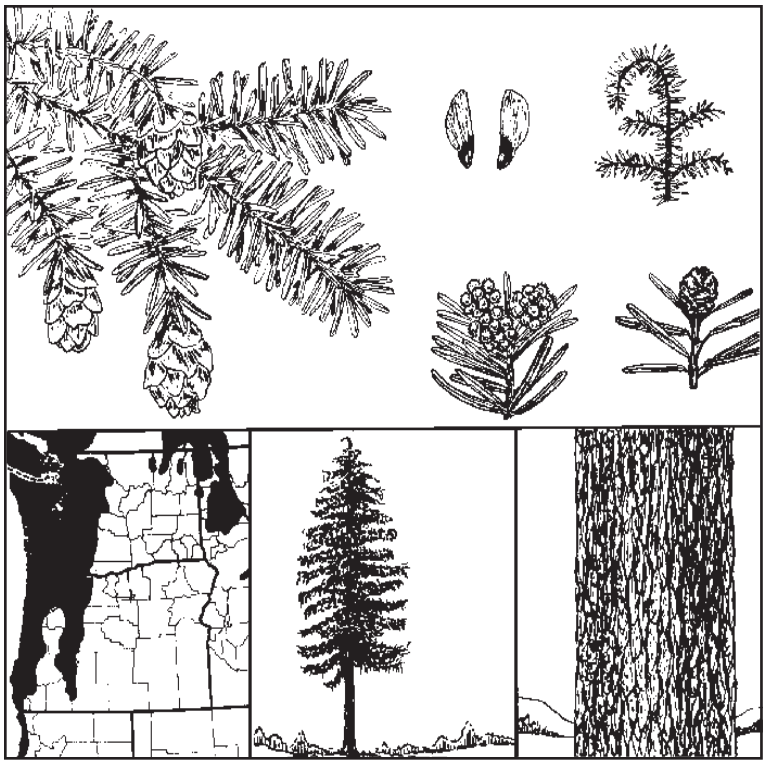
IMPORTANT CHARACTERISTICS are needles single with a twisted stem, shiny brown, sharp-pointed buds, cones with three-lobed bracts extending beyond the cone scales.



I protect my seed with pitchforks—look at my cone.



Like all firs in early life, my bark has pitch blisters.



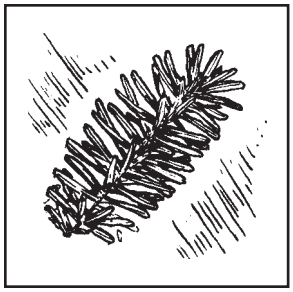
10. Western Hemlock

Tsuga heterophylla (Raf.) Sarg.

This species has become recognized as a really important tree. In coastal forests it is often found mixed with Douglas-fir or the true firs. It also occurs in sizable pure stands. It competes favorably in growth rate with the Douglas-fir but can withstand much more shading. The wood is used for lumber production and pulpwood mostly.

Western hemlock has been designated as the "State Tree of Washington."

My tip is limber and bent like a whip.



My needles are flat and short.

LEAVES are scattered singly on twigs and are usually arranged in flat rows on each side of the twig, about 1/4 to 3/4 inch long and 1/16 inch wide, on short petiole (leaf stem), rounded at apex, dark green and shiny above, marked below with white bands of stomata.

BUDS are rounded, light brown, about 1/16 inch long.

TWIGS are first light brown then reddish-brown, and hair for several years.

BARK is dark brown tinged with dark red, divided into broad flat ridges with scales; thinner than that of Douglas-fir, no corky layers.

FRUIT is a pendent cone, ovoid-oblong, 1/2 to 3/4 inch long, and light brown.

WOOD is yellowish-brown, light, and hard.

IT IS a very large tree, 125 to 175 feet talls, 2 to 4 feet diameter (smaller in eastern Washington), and forms a short pyramidal crown with a drooping leader.

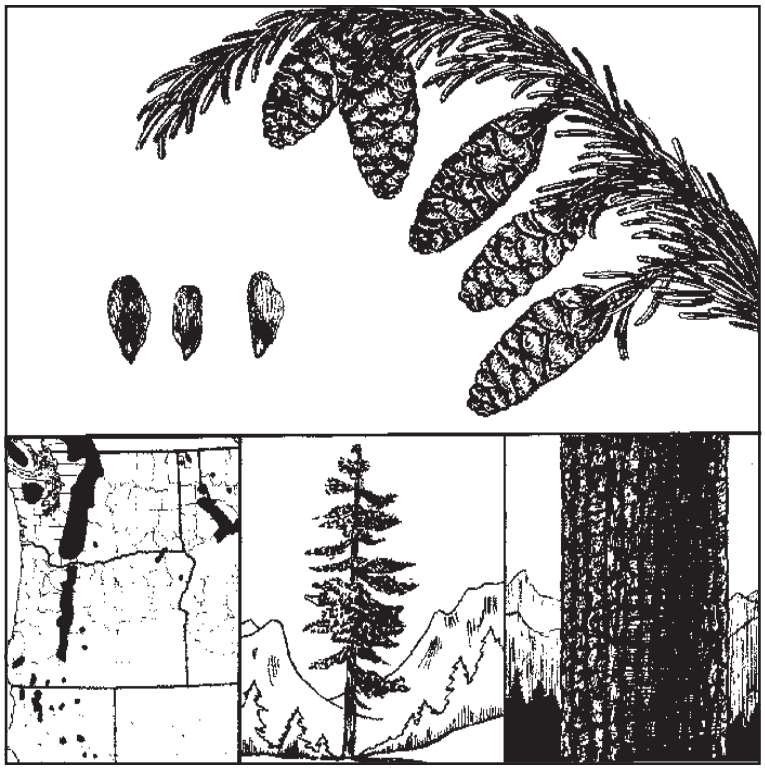
IT GROWS best on moist, humus soils and an abundance of atmospheric moisture is helpful; also grows well in the shade.

WE FIND IT west of the Cascades and in northeastern Washington.

IMPORTANT CHARACTERISTICS are single needles on the twig arranged so the branch has a flattened appearance. Woody leaf bases remain when the leaves fall.

11. Mountain Hemlock

Tsunga mertensiana (Bong) Carr.



Although mountain hemlock grows large, it often is a low, crooked, sprawling shrub when found on wind-swept areas at high elevations. It is not commercially important, but helps protect the soil on watersheds.

It is truly an inhabitant of the high Cascades and Olympics.

LEAVES are scattered singly and project from all sides of the twigs, 1/2 to 1 inch long, 1/16 wide, blue-green, blunt at the apex, grooved above and with white rows of stomata on both surfaces. They are semicircular in cross section.

BUDS are sharp pointed, brown, and about 1/8 inch long.

TWIGS are slender, pendulous (hanging) reddish-brown and hairy at first, later scaly and grayish-brown.

BARK is dark reddish-brown, deeply divided by rounded scaly ridges.

FRUIT is a pendent cone (erect until partly grown), 1 to 3 inches long, oblong-elliptical, purple to yellowish-green.

WOOD is light reddish-brown weak, and fine-grained.

IT IS a medium-sized tree, 70 to 90 feet tall, 2 to 4 feet in diameter, forming a narrow pyramidal crown with pendulous branches and a pendulous leader.

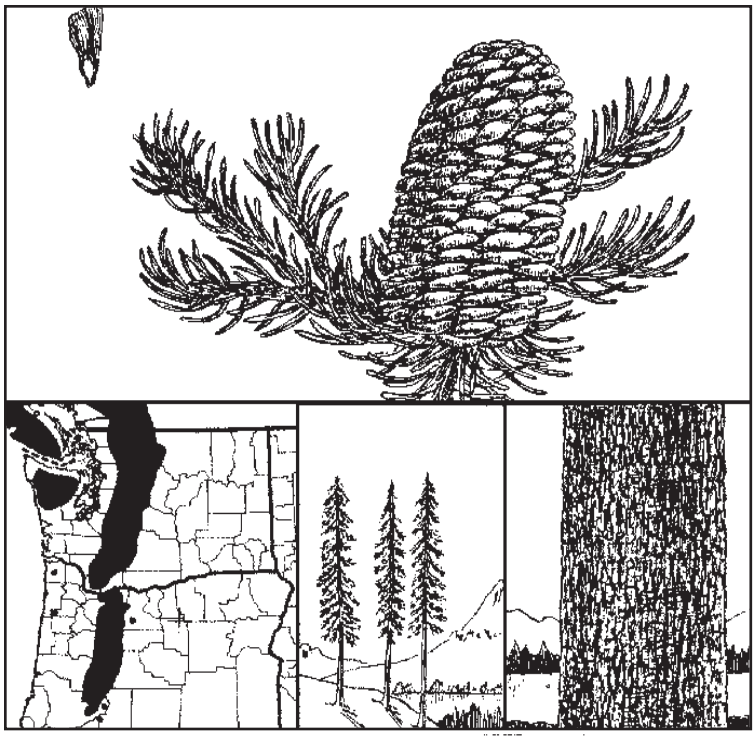
IT GROWS best in moist, well-drained soils. This timberline tree is found at elevations of 3,100 to 7,000 feet. It will grown in quite deep shade.

WE FIND IT on both slopes of the Cascades, Olympics, and in the Blue Mountains.

IMPORTANT CHARACTERISTICS are needles single and extending out from all sides of twigs, woody leaf bases are left when needles fall. This tree is found only at higher elevations.

My cones are much longer than Western Hemlock.

I like higher country than my brother the Western Hemlock.



12. Pacific Silver Fir

Abies amabilis (Dougl.) Forbes

This is one of the true firs which make up a large part of the forests in western Washington. It is found in pure stands as well as in mixture with Douglas-fir, western hemlock, western white pine, and others.

It goes by the common names of silver and white fir, and loggers may call it larch. Older trees often have rotten interiors, especially at the base. It is used for lumber and pulpwood, primarily.

Silvery sheen underside of branch.

All except upper branches droop strongly.

LEAVES are scattered singly on twigs, 3/4 to 1 1/4 inches long, flattened, and crowded towards the upper side of the twig, shiny, dark green above silvery white rows of stomata on the lower surface.

BUDS are nearly round, purplish, about 1/4 inch long, and resinous.

TWIGS are stout, light brown, slightly hairy.

BARK is dark gray, smooth at first, having resin blisters later, becomes scaly on old trees.

FRUIT is an upright cylindrical cone, 3 1/2 to 6 inches long, and deep purple. The cones fall apart on the tree after the seeds fall.

WOOD is pale brown, light, and soft.

IT IS a very large tree, 150 to 170 feet tall, 2 to 4 feet in diameter, forming a narrow crown which is often spire-like. All of the branches except the upper ones droop strongly.

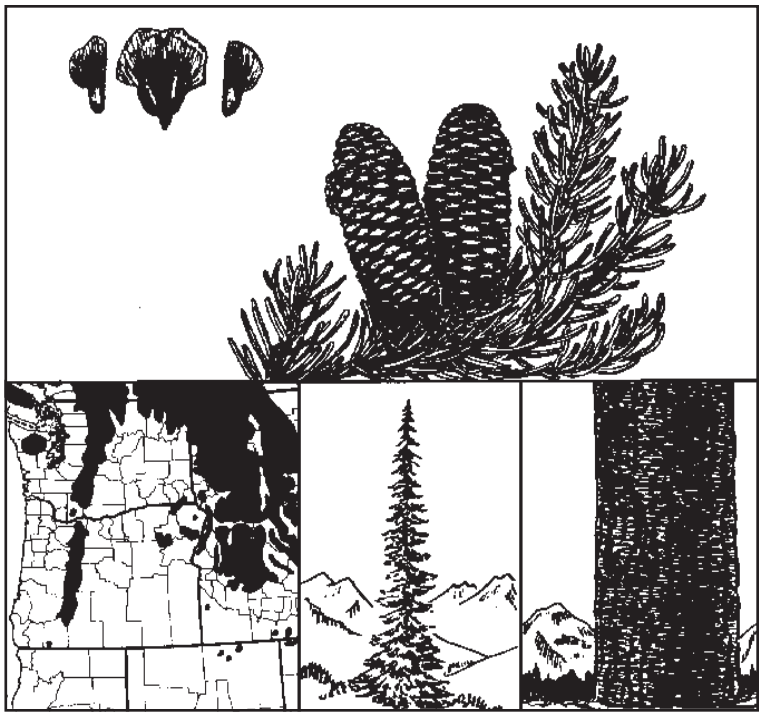
IT GROWS most abundantly on rich, moist soils, usually found at elevations from 1,000 to 5,000 feet. It is tolerant of shading.

WE FIND IT on both sides of the Cascade and Olympic Mountains.

IMPORTANT CHARACTERISTICS are single needles crowded to the top of the twig, erect cones, and silvery gray bark.

13. Subalpine Fir

Abies lasiocarpa (Hook.) Nutt.



Subalpine Fir exhibits a great variation in size, from a prostrate shrub at the timberline to a tree of 100 feet at lower elevations. This tree is one of our most picturesque trees. Its sharp, pointed, symmetrical crown identifies it with mountains and heavy snowfall.

The wood is similar to the other true firs and is used primarily for lumber and pulpwood. This species seems especially susceptible to interior defect from middle age on. Its prime value at higher elevations is for esthetics and watershed protection.

LEAVES are scattered singly, 1 to 1 1/2 inches lon, blue-green, flattened, marked on both sides by white rows of stomata.

BUDS are rounded, light brown, about 1/4 inch long, and resinous.

TWIGS are stout, light brown and hairy at first, later becoming creamy white and without hairs.

BARK is reddish-brown, divided into broad scaly plates by shallow fissures.

FRUIT is an upright, oblong-cylindric cone, 2 1/2 to 4 inches long, and dark-purple to nearly black. Cone scales fall off at maturity.

WOOD is nearly white, soft, and light in weight.

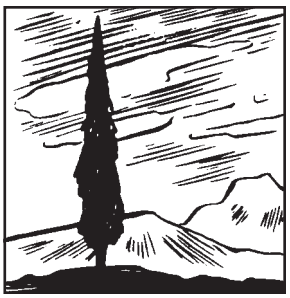
IT IS a medium to large tree, 70 to 100 feet tall, 1 1/2 to 2 feet in diameter, forming a dense, spire-like crown. Lowest branches in the crown often droop.

IT GROWS best on moist, porous soils, from 2,000 to 8,000 feet. It is not killed by shading.

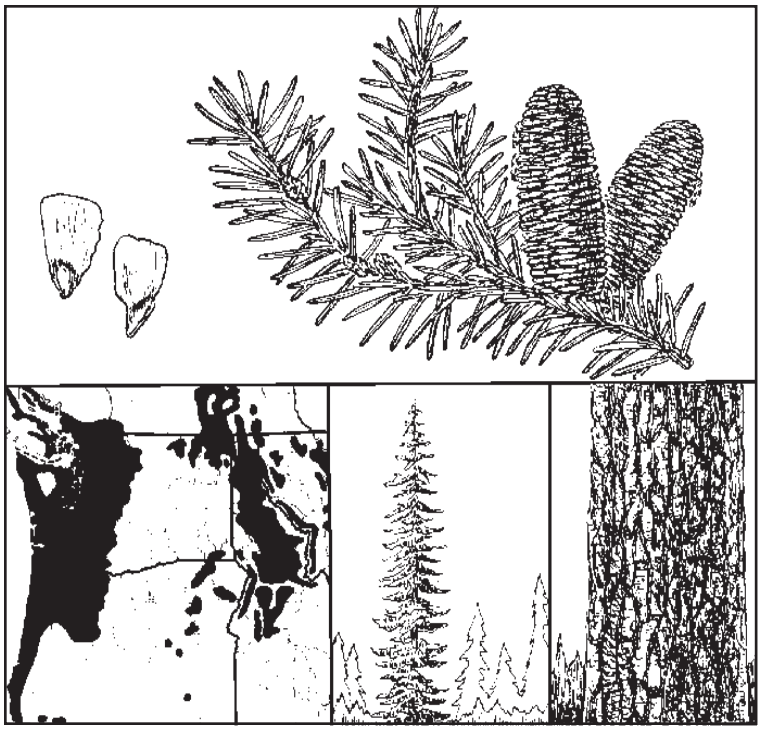
WE FIND IT on the Olympic, Cascade, and Blue Mountains, and the mountains of the northeastern part of the state.

IMPORTANT CHARACTERISTICS are single needles scattered on twigs; upright cones, usually forms a dense, spire-like crown.

You'll find me in the mountains, 2,000 to 8,000 feet.



I grow spearlike to shed the snow.



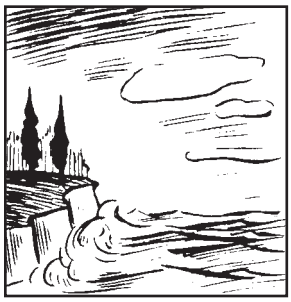
14. Grand Fir

Abies grandis (Dougl.) Lindl.

Grand fir is also known as white fir or lowland white fir. It is found throughout the forested areas of the state and is probably the most common of Washington's true firs. It may occur in pure stands but is mostly mixed with Douglas-fir, western larch, ponderosa pine, and other softwoods and hardwoods.

The wood is used mostly for lumber and pulpwood and the young trees are liked for Christmas trees. Butt and heart rot is common in grand fir from middle age and on.

You often mistake me for Hemlock, but my needles are longer.



I grow with my cousin Douglas at sea level.

LEAVES are scattered singly on twigs, 3/4 to 2 1/4 inches long, usually in two rows along the sides of the twig; dark green, marked on the lower side only by white bands of stomata.

BUDS are nearly roung, yellow-brown, about 1/4 inch long, usually resinous.

TWIGS are slender, brown, and slightly hairy at first.

BARK is grayish-brown, smooth on young stems, becoming deeply divided into flat ridges. Resin blisters are present on smooth bark. It is purplish-brown in cross-section.

FRUIT is an upright, cylindrical cone, 2 to 4 1/2 inches long, greenish-purple. Cone scales fall off at maturity.

WOOD is pale brown, soft, and light.

IT IS a very large tree, 140 to 170 feet tall, 2 to 4 feet in diameter, and usually grows on above average sites, forming a rounded head. Inland trees are smaller.

IT GROWS most commonly on deep, moist soil from sea level up to 5,000 feet in Washington. It is a shade tolerant species.

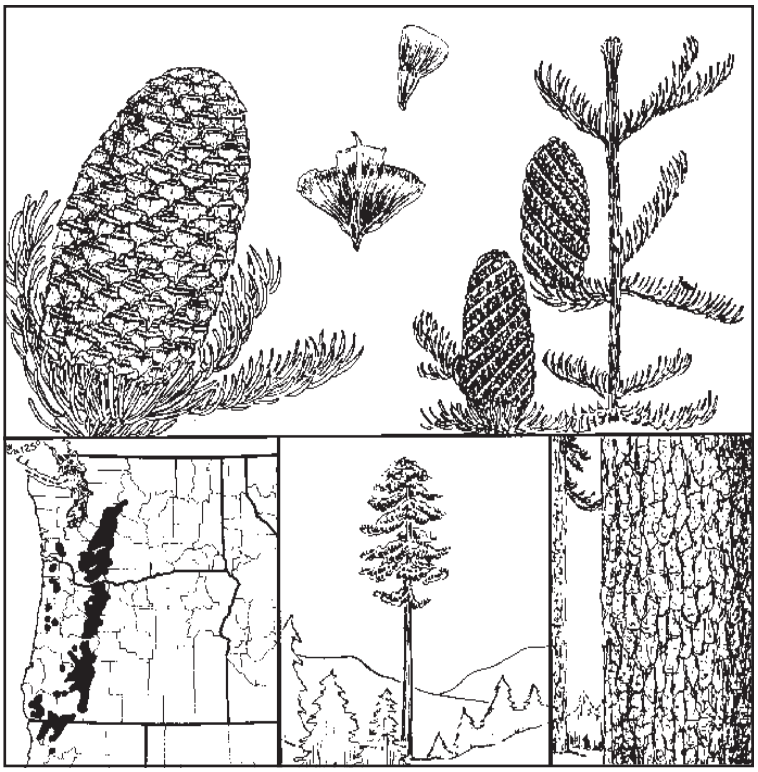
WE FIND IT in all of the state except for the central eastern part.

IMPORTANT CHARACTERISTICS are needs single, arranged on the twig to give a flattened appearance, the cone is upright.

15. Noble Fir

Abies procera Rehd.

The name noble fir fits this tree well for it is the largest of the Washington true firs. It also produces the highest quality timber of any of the true firs. Loggers sometimes call it larch. The wood is used for lumber, interior finish, and even some structural members are produced. It is an intermediate elevation mountain species nearly limited to the Cascades in distribution. Unfortunately older trees suffer from wood rotting fungi attack and fire often kills noble fir because of its thin bark.



LEAVES are scattered singly on stem, 1 to 1 1/2 inches long, four-sided, grooved on the upper side, mostly arranged on the top side of the twig, blue-green, with white rows of stomata on all sides, and pointed tips.

BUDS are oblong, blunt, brown, about 1/8 inch long, and resinous.

TWIGS are slender, dark brown, and slightly hairy.

BARK is dark gray, smooth for many years, with resin blisters. In old trees the bark divides into rectangular plates by deep fissures.

FRUIT is an upright, oblong cone 4 to 6 inches long, and yellow-brown to purple. The bracts, which are longer than the cone scales, are reflexed at the tips. The extended bracts completely enclose the cone. Cone scales fall off at maturity.

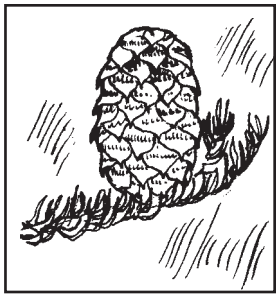
WOOD is reddish-brown, light, and rather hard.

IT IS a very large tree, 160 to 200 feet tall, 4 to 6 feet in diameter, forming a rather hard, rounded head. It needs nearly full sunlight for good growth.

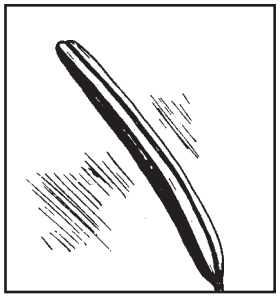
IT GROWS on rich, moist soil best, but does well even on poor, rocky soils, at elevations of 2,000 to 5,000 feet.

WE FIND IT on both slopes of the Cascade Mountains.

IMPORTANT CHARACTERISTICS are single needles at the top of the twigs, four-sided and grooved on top, with upright cones.



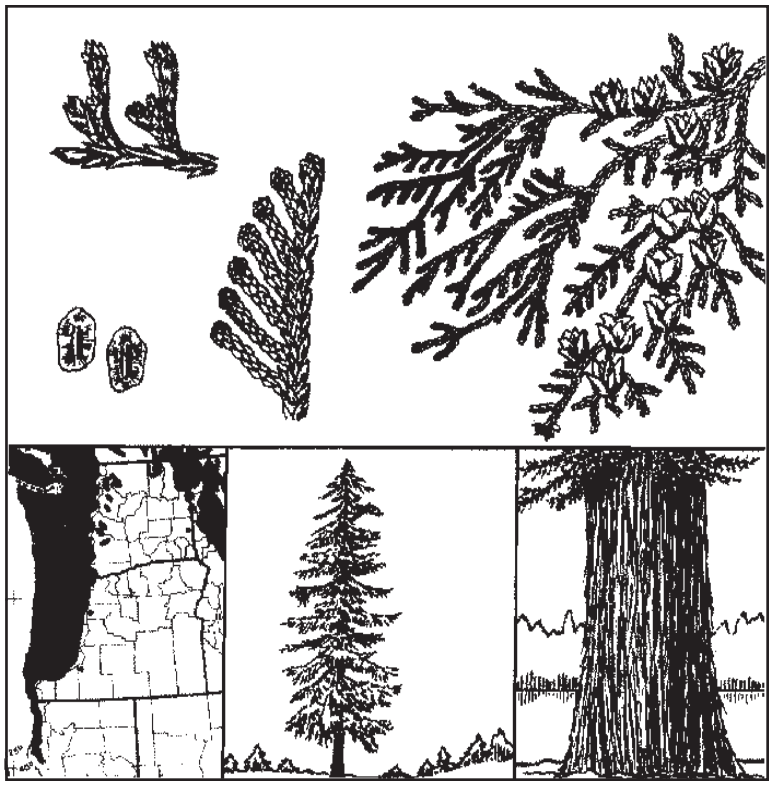
My cones are erect with bracts longer than the scales.



My needles are four sided, with a groove on top.

16. Western Redcedar

Thuja plicata Donn



Western Redcedar is one of the important species in the state, and reaches its greatest sizes near the coast.

Practically all of the wooden shingles and shakes made in the United States are made of western redcedar. It is also used extensively for poles, fence posts, boat building, interior finish, and lumber. Wood of this tree resists decay very well.

Not only is the wood of western redcedar valuable, but the tree itself is a highly prized ornamental. Butt rot is common, even at fairly young ages.

LEAVES are scale-like, ovate and long pointed, about 1/4 inch long, closely appressed leaves overlap in pairs at right angles, dark yellow-green, and usually without conspicuous glands.

BUDS are minute and scaly.

TWIGS are slender, much flattened, and drooping.

BARK is bright reddish-brown, divided into broad rounded ridges, and broken on the surface by long, narrow, stringy scales.

FRUIT is an erect cone, about 1/2 inch long, oblong, and dark brown.

WOOD is a reddish-brown heartwood, nearly white sapwood, woft, light, and brittle. Has a distinctive odor and is durable in contact with the ground.

IT IT a very large tree, 150 to 200 feet tall, 3 to 5 feet in diameter, forming a narrow, open, conical head with long, pendulous branches. Usually somewhat smaller east of the Cascades.

IT GROWS mostly on low, moist, or wet bottomlands, and occasionally on dry slopes, at elevations from sea level to 4,000 feet.

WE FIND IT scattered over most of the state except for the central and southeastern parts. It will continue to grow when heavily shaded.

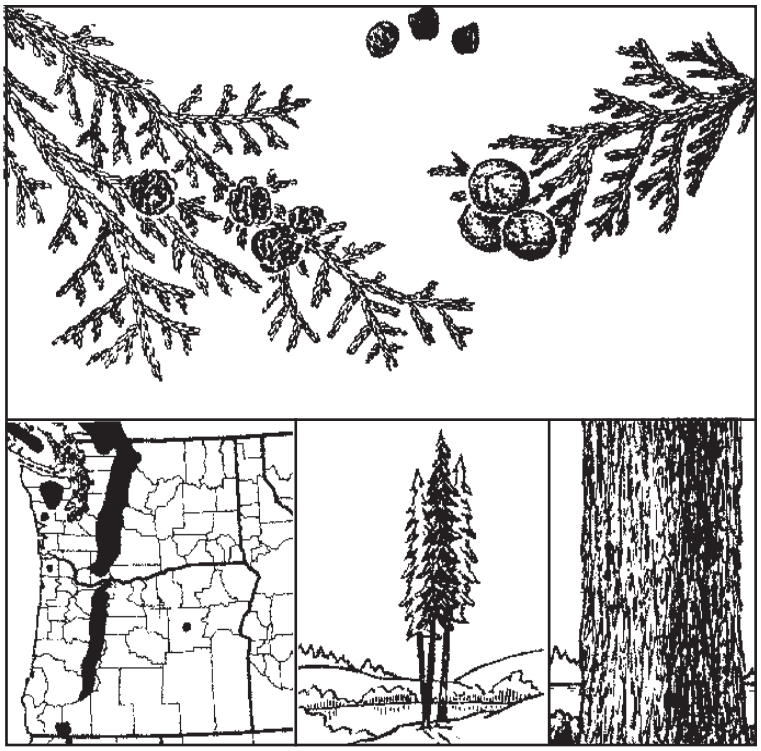
IMPORTANT CHARACTERISTICS are overlapping, scale-like needles, with a distinctive resinous odor when crushed. Cones are upright and the trunk is fluted with stringy bark.

My cones cluster like a swarm of bees on the branch ends.

My bark is distinctive.

17. Alaska-Cedar

Chamarcyparis nootkatensis
(D. Don) Spach



Alaska-cedar is also known as yellow cypress and yellow cedar. It reaches its best development north of Washington in British Columbia. The wood is used for boat building, interior finish, furniture, and other lumber purposes.

Although this species is a mountain tree growing to timberline, it does well when placed at lower elevations. Its pendulous branches and tendency to produce several stems have made it a favorite ornamental.

LEAVES are scale-like, 1/8 inch long, closely appressed (closely pressed on stem), blue-green, usually without glands on the back, and opposite in pairs. Tips of leaves are often free and sharp-pointed.

BUDS are minute.

TWIGS are slender, and reddish-brown.

BARK is grayish-brown, narrow, irregular, scaly ridges.

FRUIT is an upright, rounded cone, 1/4 to 1/2 inch in diameter, reddish-brown, four to six sheild-shaped scales with a pointed projection.

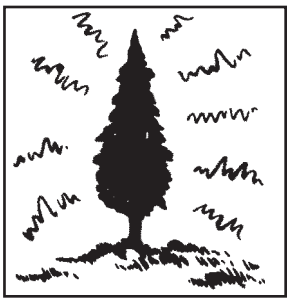
WOOD is yellow, hard, fine-grained, rather brittle, strong resinous odor, and durable in contact with the ground.

IT IS a medium-sized tree, 70 to 90 feet tall, 3 to 4 feet in diameter, forming a conical head with many pendulous branches and a fluted trunk.

IT GROWS on moist, rich soil at elevations of 2,000 to 7,500 feet. It is shade tolerant.

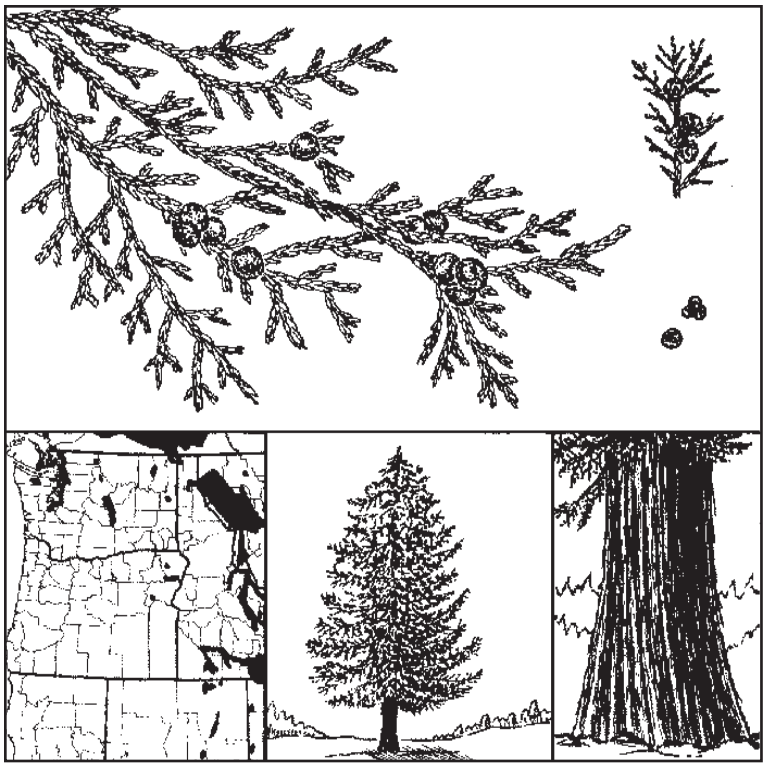
WE FIND IT on both the Cascade and Olympic Mountains. It is most abundant on the west slopes of the Cascade Mountains.

IMPORTANT CHARACTERISTICS are overlapping scale-like needles with strong resinous odor when crushed, pendulous (hanging) branches, fluted trunk with flaky bark, cone small and upright.



I'm sometimes called Stinking Cedar.

I'm found mostly in the mountains of Washington.

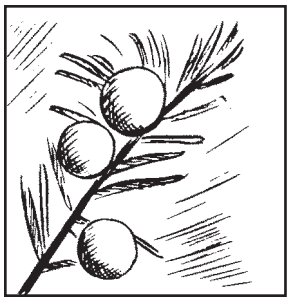


18. Rocky Mountain Juniper

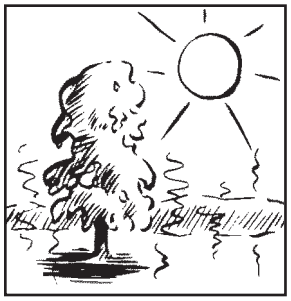
Juniperous scopulorum Sarg.

This is the most important native juniper in Washington. Because the wood is durable, it makes good fence posts and is usable for the same things as Eastern redcedar, *Juniperious virginiana* L., which is resembles in many ways.

Two other junipers native to Washington are the Western juniper, *Juniperious occidentalis* Hook, and common juniper, *Juniperous communis* L. The latter is a low, shrubby plant which never reaches tree size in Washington.



Little, round, smooth cone.



I'm found in dry places and grow scraggly.

LEAVES are scale-like, about 1/8 inch long, dark green, closely appressed, mostly glandular (small swellings) on the back, and covered with a white bloom. There are usually some awl-like needles also.

BUDS are minute.

TWIGS are slender, reddish-bown, and scaly.

BARK is reddish-brown, broken into flat ridges with shredded scales.

FRUIT is a berry-like, round cone, about 1/3 inch in diameter, blue, and covered with a white bloom (film). It requires two years to mature.

WOOD is reddish, hard, fine-grained with a distinct odor.

IT IS a small tree, 30 to 40 feet tall, 1 to 2 1/2 feet in diameter, and often reduced to a prostrate shrub on dry, exposed mountain sides, the branches often droop.

IT GROWS best on moist, sandy, or gravelly locations, but can also live on poor sites where it is usually shrubby in nature. It grows at elevations from sea level to 9,000 feet. It needs full sunlight for growth.

WE FIND IT scattered throughout the eastern part of the state and in some of the dry sections of the Olympics and islands of Puget Sound.

IMPORTANT CHARACTERISTICS are scale-like needles usually covered by a powder-like bloom, and a berry-like type of fruit.

19. Pacific Yew

Taxus brevifolia Nutt.

The crooked nature of Pacific yew and its scattered occurrence prevent it from becoming commercially valuable. It's wood, however, is one of the best for archery bows. And because of its great durability in contact with the soil, it makes excellent fence posts.

It occurs invariably as an understory tree in various mixed coniferous forests. It persists for decades unless the overstory is removed exposing it to full sunlight. The rate of growth is slow.

LEAVES are scattered singly on twigs, 3/4 to 1 inch long, dark green above, paler below, with short yellow stalks, usually arranged in a row along each side of twig.

BUDS are minute.

TWIGS are slender and reddish-brown.

BARK is reddish-brown, and broken by broad fissures into scaly ridges.

FRUIT is a rounded seed partly enclosed by a scarlet, fleshy aril (berry-like with bottom end open).

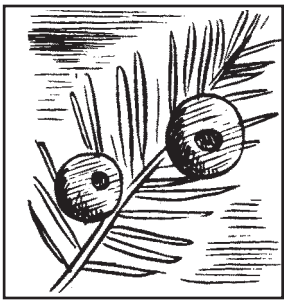
WOOD is dark reddish-brown, hard, heavy, and strong.

IT IS a small tree 20 to 50 feet tall, 1 to 1 1/2 feet in diameter, forming an asymmetrical head often branching to the ground. The trees are commonly *limby* and poorly formed. It is a shrub in eastern Washington.

IT GROWS in deep, rich, moist soils near lakes and streams at elevations from sea level to 8,000 feet, often in dense shade.

WE FIND IT scattered from the coast to the Cascade Divide, on the mountains of northeastern Washington, on the Blue Mountains and occasionally along streams in eastern Washington.

IMPORTANT CHARACTERISTICS are single needles arranged to give the twig a flattened appearance, no white bands on the under side, and a fleshy type of fruit.



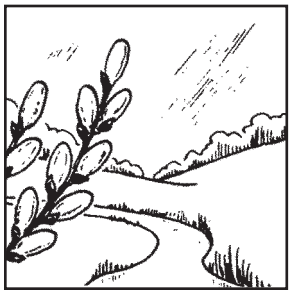
I have a red berry-hollow on end.

I usually grow under other trees and am never very large.

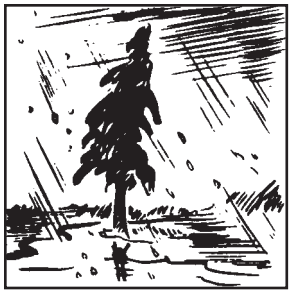
20. Willows

Salix species

There are 12 species and several varieties of willow native to Washington. Because most are relatively small trees of shrubby in nature and mainly noncommercial species, they are treated as a group here. These characteristics identify only the genus *Salix*, rather than any individual in that genus.



Everyone knows our flowers (pussy willows) that come out in late winter.



We like lots of moisture.

LEAVES are alternate, usually lanceolate (long and narrow) to elliptical (oval or oblong), commonly with no stalk or only a short one, leaf margins run from entire to coarsely toothed.

BUDS are not terminal buds, lateral buds appressed to stem with a single cap-like scale.

TWIGS are all variations of sizes, colors, and hairiness, but mostly rather slender.

BARK is smooth, greenish-gray, when young, usually darker and furrowed in old trees.

FRUIT is capsule born in an ament (catkin).

THEY GROW as shrubs to small trees.

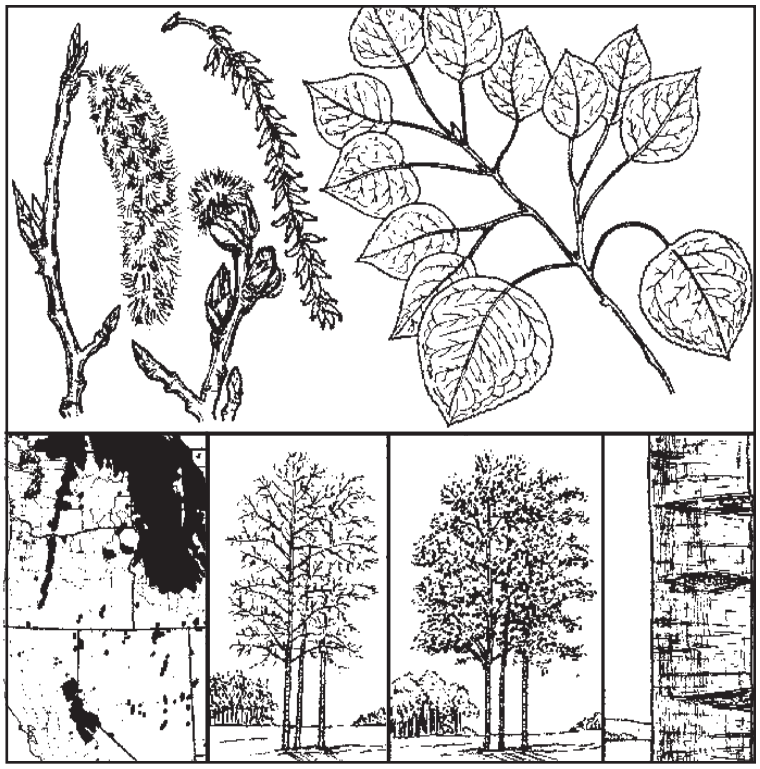
THEY ARE most commonly found in moist or wet areas close to streams, lakes, or swampy places.

WE FIND the several species scattered over the entire state.

IMPORTANT CHARACTERISTICS are alternate lanceolate (lance-like) leaves, single, cap-like bud scales, mostly shrubby in form.

21. Quaking Aspen

Populous tremuloides Michx.



The name golden aspen, P. *tremeuloides aurea* Daniels, is also used because of fall leaf color. Another variety, P. *tremuloides vancouveriana* Sarg., grows on the shores of Puget Sound. Its leaves are quite hairy at first, later mostly free of hair and roughened above, base rounded or heart-shaped, coarsely crenate-serrate.

This species, including varieties, is not commercially valuable here. In eastern Washington, aspen is common in the valleys and on northern slopes.

LEAVES are alternate, simple, rhombic to nearly circular or broad ovate, often entire or crenate-serrate, green above, pale on the lower surface, rounded to wedge-shaped at the base, up to 4 inches long, and turn golden yellow in autumn. Stalks are flattened.

BUDS are about 1/4 inch long, reddish-brown scales, slightly resinous. TWIGS are slender, reddish-brown, and lustrous.

BARK is pale greenish-white to yellowish-brown in young trees, and later with brownish-black fissures and ridges.

FRUIT is a capsule, maturing in late spring, seeds small, and silky-haired.

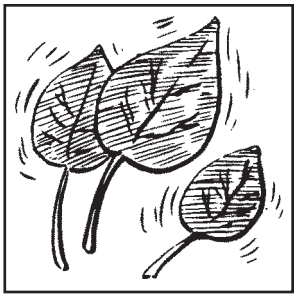
WOOD is ligth brown, soft, and weak.

IT IS a medium sized tree, 50 to 60 feet in height, 1 to 2 feet in diameter, fast-growing and short-lived, forms narrow round-topped crown.

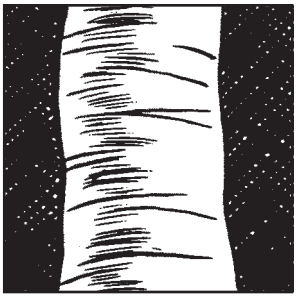
IT GROWS well on mineral soil and exposed sites, often found in dense stands on areas logged or burned off. It is intolerant of shade.

WE FIND IT scattered over the entire state but more common in the northeast portion.

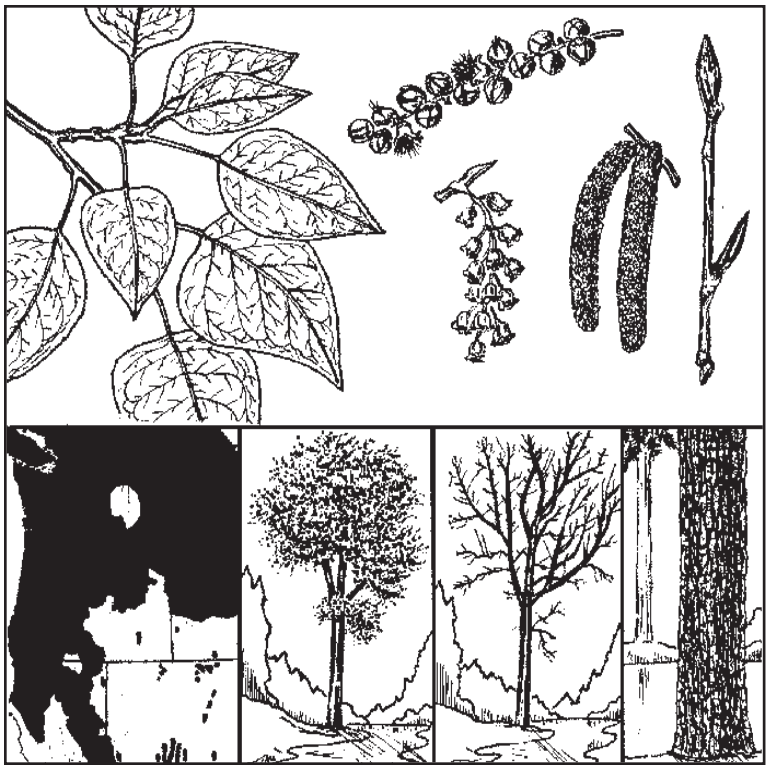
IMPORTANT CHARACTERISTICS are leaves simple and alternate, quiver in a very light breeze making the tree appear to be moving, bark pale greenish-white.



My leaves are almost constantaly quivering.



My bark is beautiful, smooth, greenish white.



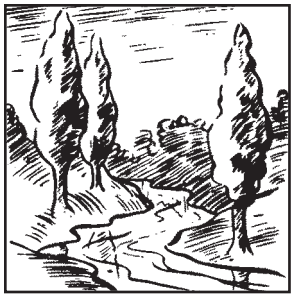
22. Black Cottonwood

Populous trichocarpa Torr. & Gray

Black cottonwood is the largest of the hardwoods native to the state. This is also the principal cottonwood native to Washington. It is used for paper pulp, fuel, and surface veneer on plywood.

The tree is a common companion of the state's undeveloped streams where is grows along the shorelines and forms limited pure stands on the surrounding bottomlands.

When my buds open in spring I perfume the air.



I grow along streams and all moist places in western Washington.

LEAVES are alternate, simple, usually ovate, finely crenate-serrate, rounded or heart-shaped at the base, stalk-rounded, dark green above, rusty brown to silvery below, and 3 to 4 inches long.

BUDS are about 3/4 inch long with 6 or 7 visible scales, resinous, and with fragrant odor when crushed, terminal buds somewhat larger than lateral ones.

TWIGS are mostly slender, and light orange to yellow-brown.

BARK is yellow-brown on limbs and smooth grading into a grayish-brown and furrowed on lower trunk of tree.

FRUIT is a three-valved, hairy capsule.

WOOD is light-weight and dull brown in color.

IT IS a very large tree in western Washington—usually over 120 feet—and 2 to 4 feet in diameter. In eastern Washington it is a large tree 80 to 120 feet. The tree forms a narrow, round-topped crown.

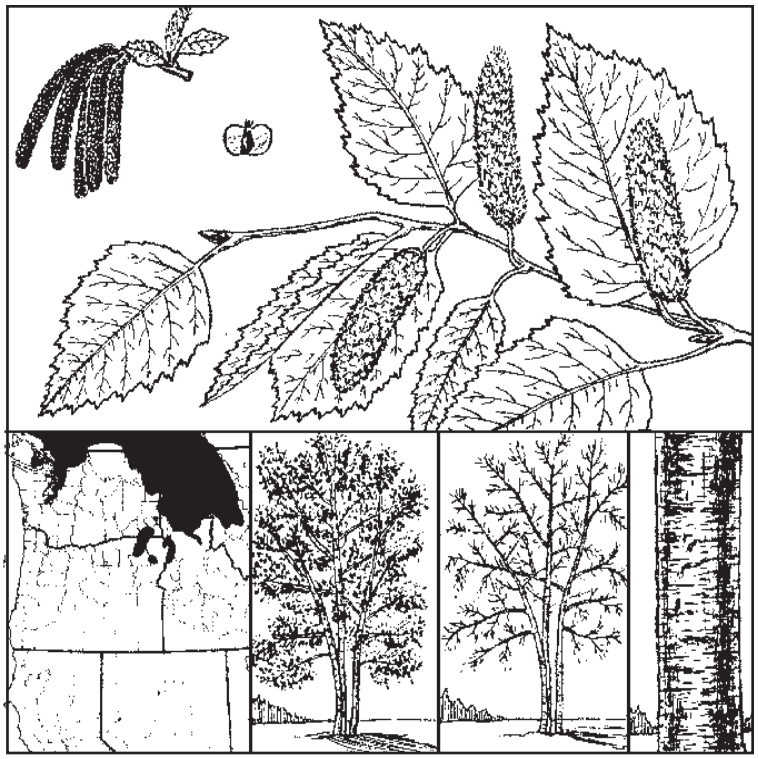
IT GROWS best on moist, sandy, or gravelly soils of river bottoms and requires full sunlight.

WE FIND IT scattered over the entire state.

IMPORTANT CHARACTERISTICS are leaves alternate, simple; buds resinous with a fragrant odor; yellow-brown branches.

23. Western Paper Birch

Betula papyrifera commutata
(Reg.) Fern.



There is not enough paper birch to make it of much commercial importance. When available it is in demand for furniture.

Another variety, *Betula papyrifera subcordata* (Rydb.) Sarg., is found in southeastern Washington. The leaves are similar in shape but smaller, 2 to 2 1/2 inches, and slightly heart-shaped at the base. It is a small tree, 25 to 40 feet tall and 1 to 1 1/2 feet in diameter.

LEAVES are alternate, simple, ovate, short to long, pointed at apex, rounded to heart-shaped at the base, and usually coarsely doubly serrate, dark green above and paler below, 3 to 4 inches long; stalks glandular, hairy.

BUDS are about 1/8 to 1/4 inch long, pointed, and orange-brown.

TWIGS are slender, orange-brown, often glandular, covered with long hairs at first.

BARK is dark orange-brown or white with long horizontal lenticels, separates easily into papery layers.

FRUIT is cylindrical cone 1 1/4 to 1 1/2 inches long. Cone scales deciduous.

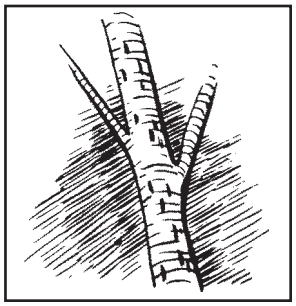
WOOD is light, strong, hard, light brown in color.

IT IS usually a medium size tree but also reaches a height of 100 feet, and a diameter of 2 to 3 feet. Branches are often pendulous on older trees. It forms a round-topped crown.

IT GROWS on rich, moist, sandy, and gravelly soils along streams, lakes, and natural openings in the forest. And prefers mineral soil for seed germination, covering burned or logged over areas. It is intolerant of shade.

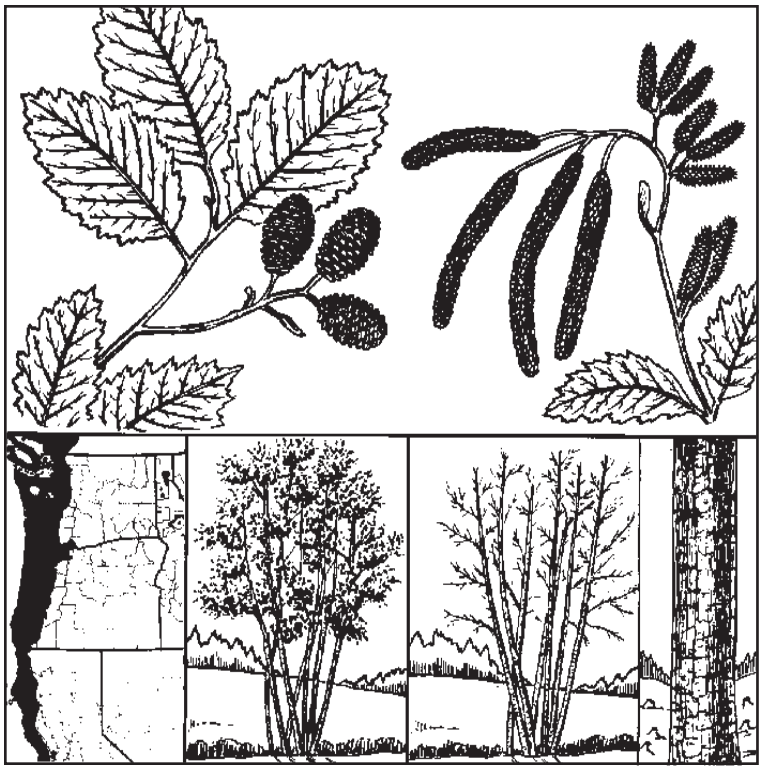
WE FIND IT in northwestern, northeastern, and extreme southeastern Washington.

IMPORTANT CHARACTERISTICS are leaves simple, alternate; bark is orange-brown to white and papery.



My bark appears to be wound around my trunk like strips of tape.

My seed grows in a cylindrical cocoon-like tube.



24. Red Alder

Alnus rubra Bong.

Red Alder is generally considered to be the most important hardwood in the state. Used for furniture, pulpwood, and fuel wood primarily, it is the only alder reaching commercial size.

This tree is perhaps the most visible species along the roadways of western Washington. It is a short-lived species but is so aggressive in seeding in on every available opening that it often forms the prime species on naturally regenerated sites.

Three other alders native to Washington are the Sitka alder, thin-leaf alder, and white alder. These are not considered separately here as they are shrubby to small trees and nonimportant commercially.

My seed is borne in a small cone.

I'm one of the first trees to show up after logging.

LEAVES are alternate, simple, ovate-elliptical, serrate-dentate with small gland-tipped teeth, rusty hairs on principal veins below, dark green and without hair above, wrinkled, 3 to 5 inches long, 1 1/2 to 3 inches wide.

BUDS are about 1/3 inch long, dark red covered with scale-like hairs.

TWIGS are usually slender, round or slightly three-angled, bright red to reddish-brown.

BARK is grayish-white to bluish-gray, smooth or with tiny waxy growths; irregularly-plated on older trees; inner bark bright red-brown.

FRUIT is an oblong to rounded, pendent cone, 1/2 to 1 inch long, circular nutlets. Cone scales persistent.

WOOD is light brown tinged with red, light, soft, wark, and brittle.

IT IS a tree from 80 to 130 feet tall, often only 30 to 50 feet tall, 10 to 36 inches in diameter. It develops a shallow, spreading root system and a narrow crown and grows rapidly.

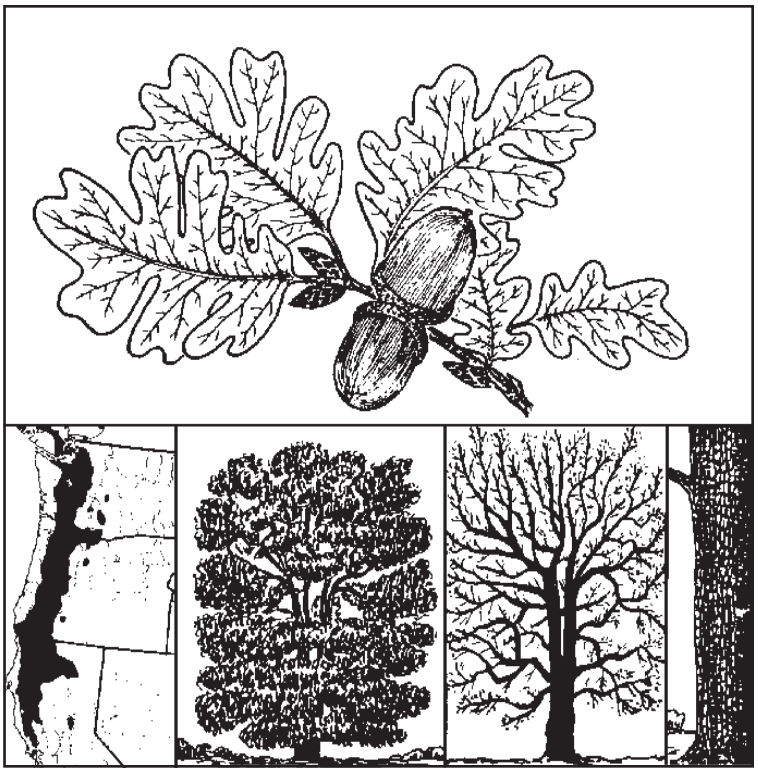
IT GROWS best on moist, rich bottomlands and lower slopes or damp benches. It often forms dense stands and is one of the first trees to appear after a burn or logging operation. It is shade intolerant.

WE FIND IT extending from the coast to the Cascade Mountains.

IMPORTANT CHARACTERISTICS are alternate, simple leaves; smooth grayish bark; fruit in a small cone.

25. Oregon White Oak

Quercus garryana Dougl.



Oregon white oak is the only oak in the state. There is very little of it cut even though its fuel value is greater than that of any other tree growing in Washington. It is cut locally for fuel, furniture, and wedges.

This is a slow growing species and is often poorly formed. It is commonly found in limited pure stands on dry, rocky sites where other species will not grow.

LEAVES are alternate, simple, oblong to obovate, five to seven rounded lobes, dark green and smooth above, paler and with brownish hairs below, 4 to 6 inches long, stems hairy.

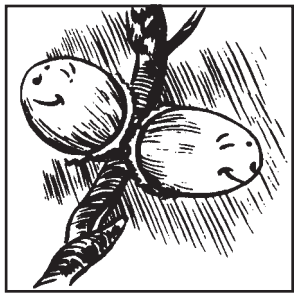
BUDS are about 1/3 to 1/2 inch long, rounded, and covered with rusty, matted hair.

TWIGS are stout, reddish-brown, and densely hairy at first.

BARK is grayish-brown, scaly smooth on younger stems, and broken up into narrow fissures on older trees.

FRUIT is an acorn (nut), 1 to 1 1/4 inches long, enclosed at base by a shallow cup, short stalked, or sessile.

WOOD is strong, hard, light brown.



My fruit is an acorn.

My leaf is many lobed.

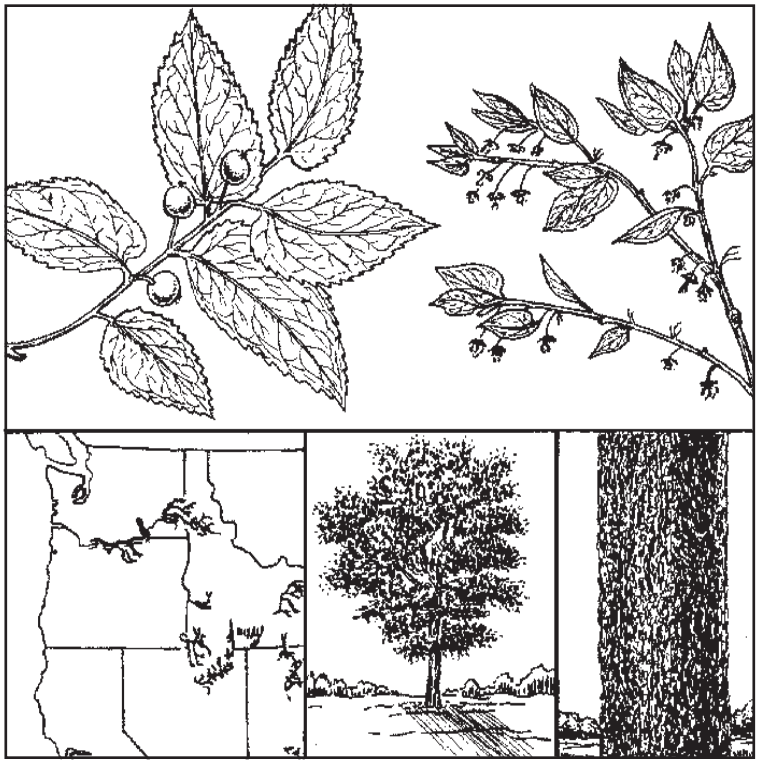
IT IS a medium-sized tree, 60 to 70 feet tall, and 2 to 3 feet in diameter. Forms a broad, round head, and it usually occurs singly or occasionally in small pure stands.

IT GROWS IN practically any type of soil, but a rich loam is best. It is shade intolerant.

WE FIND IT in western Washington, and the Columbia, and Yakima River valleys.

IMPORTANT CHARACTERISTICS are leaves alternate and pinnately-lobed (see leaf diagrams); fruit is an acorn.

I grow on dry gravelly soils.

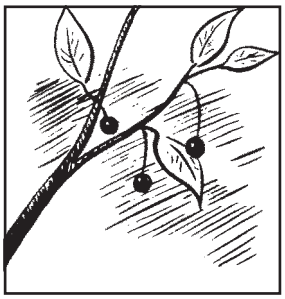


26. Netleaf Hackberry

Celtis reticulata Torr.

Netleaf hackberry is a scrubby, non-valuable species except perhaps for erosion control and to a limited extent for browsing (brush feed for animals).

Another Hackberry species, *Celtis occidentalis* L., has been planted widely in Washington. It has escaped cultivation to a limited extent and has several varieties which are used as ornamentals.



My fruit is small and cherry like, hanging singly from the base of the leaf.

My bark is rough and warty.

LEAVES are alternate, simple, broadly ovate to oblong-ovate, long tapering at apex and unequally heart-shaped at base, coarsely serrate, green on upper surface, paler below and with a conspicuous network of veinlets; 2 to 3 inches long.

BUDS are minute and dark brown.

TWIGS are slender, angled, reddish-brown, and often hairy.

BARK is grayish-brown, roughened by criss-crossing ridges and fissures.

FRUIT is a nearly round drupe, 1/3 to 1/2 inch in diameter, orange-brown to black. Flesh of fruit is nearly dry.

WOOD is yellow-brown, heavy, somewhat soft.

IT IS a small tree, 15 to 20 feet high, or often shrubby. Usually found growing singly.

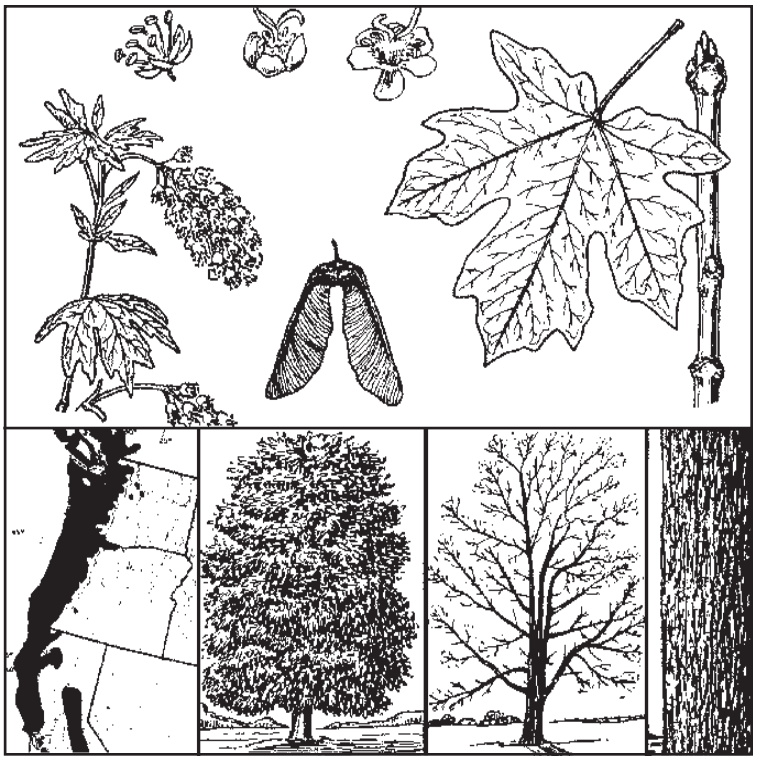
IT GROWS along streams and on dry, rocky hillsides, usually in full sunlight.

WE FIND IT mostly in southeastern Washington.

IMPORTANT CHARACTERISTICS are alternate, simple leaves, and cherry-like fruit.

27. Bigleaf Maple

Acer macrophyllum Pursh



Bigleaf maple is the most important maple native to Washington. Like red alder, it is used primarily for furniture and fuel wood. It is also a good street and shade tree.

This species grows rapidly and is found in mixture with western Washington trees. It is used comonly for ornamental purposes also.

LEAVES are opposite, simple, palmately (hand-like) five-lobed, terminal lobe often three-lobed, margins entire, heart-shaped at base, green above, paler below, 8 to 12 inches long, with stalk 10 to 12 inches long.

BUDS are blunt, and about 1/4 inch long, with scales reddish to green.

TWIGS are rather stout, dark reddish-brown, with large lenticels.

BARK is brown to grayish-brown, smooth on younger parts, and darker and furrowed on trunks of older trees.

FRUIT is a double samara, wings 1 to 2 inches long, somewhat divergent (spreading), with a hairy seed covering. Triple samaras are fairly common.

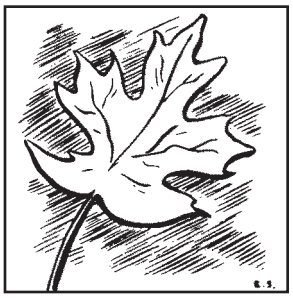
WOOD is light, soft, close-grained, brown, and weak.

IT IS a medium-sized tree, 60 to 80 feet tall, with a diameter of 2 to 4 feet. A narrow crown is normal unless grown in the open, when it becomes much broader.

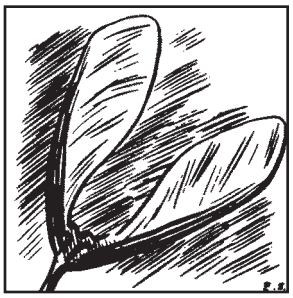
IT GROWS best on rich bottomland soils. Tree usually grows in association with other species. It is shade tolerant.

WE FIND IT mostly west of the Cascades, but also in Chelan and Klickitat counties on the east side of the mountains.

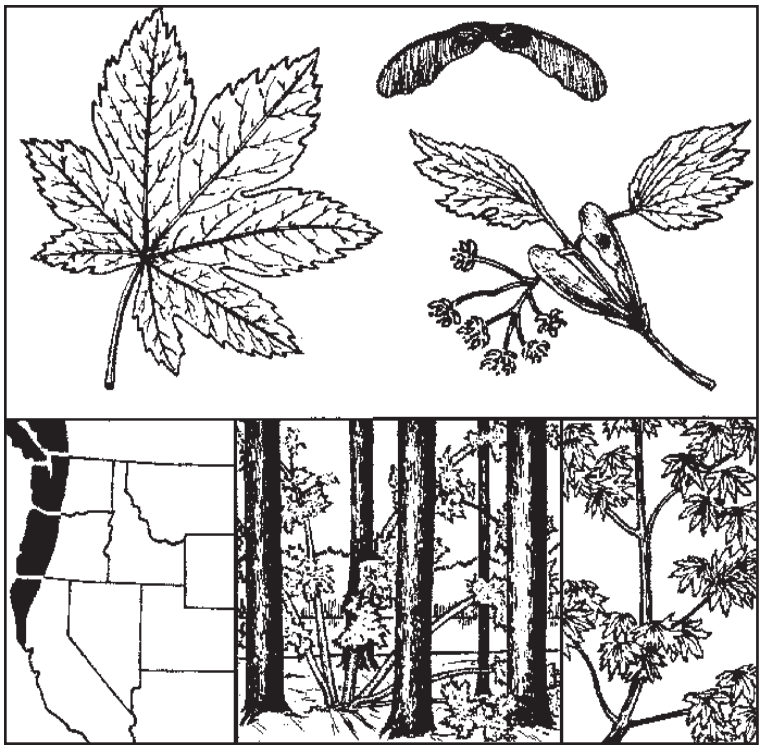
IMPORTANT CHARACTERISTICS are opposite, large, deeply palmately-lobed (hand-like) leaves growing on long stems; and large-winged seed.



Know me by my big leaf.



My seed is in winged pairs.



28. Vine Maple

Acer circinatum Pursh

Vine maple is a noncommercial species from the lumber standpoint. But because of its colorful foliage it is used to a limited extent as an ornamental, and is one of the most valuable Coast maples for browsing. It is an excellent fuel wood. Its tendency to form thickets, which hinders desirable tree reproduction, often makes this an objectionable species. It is usually an understory tree in mixed coniferous forests.

I have vine-like tendecies.

We grow in clumps.

LEAVES are opposite, simple, 2 to 6 inches long, circular, heart-shaped at the base, and palmately seven to nine-lobed, doubly serrate, reddish when young, turning green at maturity, and lacking hair except for axillary tufts below. Leaves turn scarlet in the autumn.

BUDS are about 1/8 inch long, blunt, and bright red.

TWIGS are slender, pale green to reddish-brown, usually covered with a bloom.

BARK is grayish-brown to a reddish-brown, thin, and smooth.

FRUIT is a double samara (winged), wings 1 1/2 inches long, and wide spreading.

WOOD is nearly white to light brown, hard, and heavy.

IT IS a small tree, 15 to 25 feet high, up to 1 foot in diameter. Gets its common name, vine maple, from its often crooked, vine-like appearance. It is often shrubby, and sometimes grows in pure clumps.

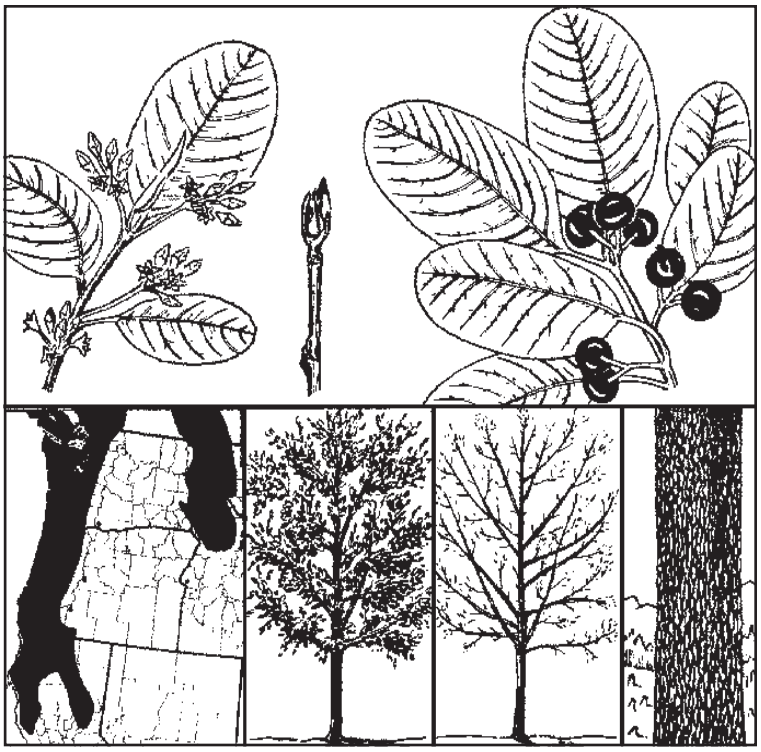
IT GROWS along streams and in river bottoms on moist, rich soils. It is shade tolerant.

WE FIND IT scattered in the region west of the Cascades and in some places on the eastern slopes of the Cascades.

IMPORTANT CHARACTERISTICS are opposite, palmately (hand-like), many-lobed leaves, often low and shrubby to vine-like.

29. Cascara

Rhammus purshiana De Candolle



Althought the wood of the cascara tree is not used, the bark is peeled from the trees and the medicine, cascara sangrada, is extracted. This makes a fairly important local industry on the west side of the state.

Cascara occurs as a scattered understory tree in mixed coniferous forests. Ths tree grows rapidly from seed. If the peeled tree is cut down, subsequent sprouts will replace it in short order.

LEAVES are alternate to nearly opposite, simple, oblong, ovate to broad elliptical, rounded or short-pointed to apex, mostly rounded at base finely serrate to nearly entire, dark green above, covered with long hairs below, 2 to 6 inches long.

BUDS are naked, with matted, wooly hairs, terminal buds much larger than laterals.

TWIGS are slender, reddish-brown, with or without hair.

BARK is dark to light brown, smooth or often scaly.

FRUIT is drupaceous, black with two to three greenish seeds.

WOOD is light brown with a reddish tinge, soft, fairly heavy.

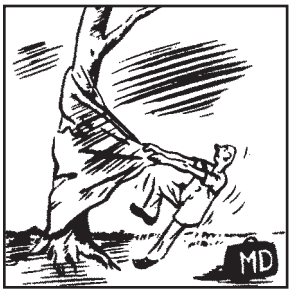
IT IS a small tree, 30 to 40 feet high, and 6 to 15 inches in diameter, forming a narrow crown. It grows singly or in groups.

IT GROWS best on moist, rich soil, but trees can grow on poor sandy or gravelly soils. It is common on burned over areas and is quite shade tolerant.

WE FIND IT on the Coast and Puget Sound region and across the northern part of the state.

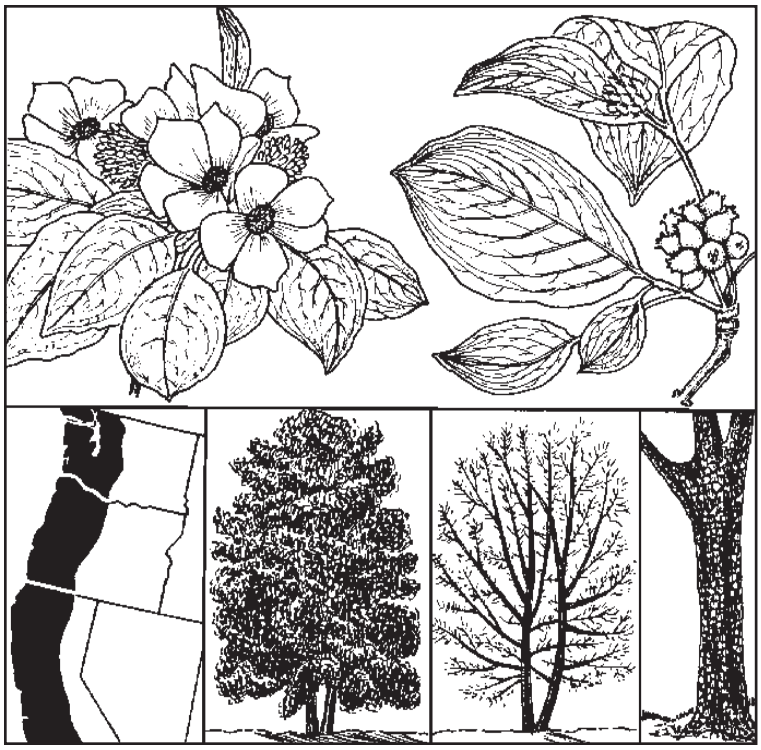
IMPORTANT CHARACTERISTICS are mostly alternate, simple leaves; buds without bud scales; cherry-like fruit.

My leaf buds are not covered.



My bark is peeled off and used for medicinal purposes.

My leaves are alder-like but more distinctly veined and darker green.

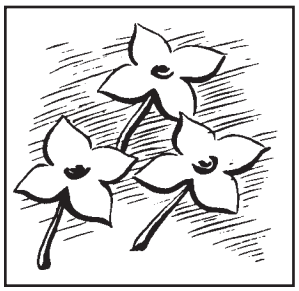


30. Pacific Dogwood

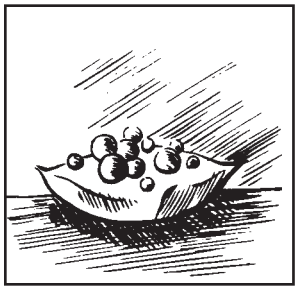
Cornus nuttallii Audubon

Pacific dogwood makes an excellent ornamental species. During its flowering season in the spring, it adds color and beauty to many western Washington highways. The flowers are mostly white and very conspicuous. Autumn flowers are also quite common.

It is not a timber species, although its wood is suitable for ornaments and cabinet wood.



Know me by my white flowers of spring.



Cluster of red berries set on a cushion.

LEAVES are opposite, simple ovate (egg-shaped) to obovate (big end up), pointed at apex, wedge-shaped at base, slightly crenate-serrate (scalloped and toothed), green above and somewhat hairy, densely hairy below, 4 to 5 inches long.

BUDS are about 1/3 inch long, nearly round, light green, and somewhat hairy.

TWIGS are slender, usually angled, with a greenish-purple bloom.

BARK is thin dark brown and smooth with a reddish cast, trunks of old trees with scaly plates resemble an alligator's skin.

FRUIT is a drupe, bright red or orange-red, 1/2 inch long, rounded and flattened, one or two seeds.

WOOD is light reddish-brown, hard, heavy, and strong.

IT IS a small tree, 30 to 50 feet high, and 1 to 2 feet in diameter. Crown is usually long and narrow in the open and shorter in forest-grown trees. Grows in mixtures or small clumps.

IT GROWS in rich, well-drained, loamy, or gravelly soil, valley bottoms, and lower mountain slopes. This tree is shade tolerant.

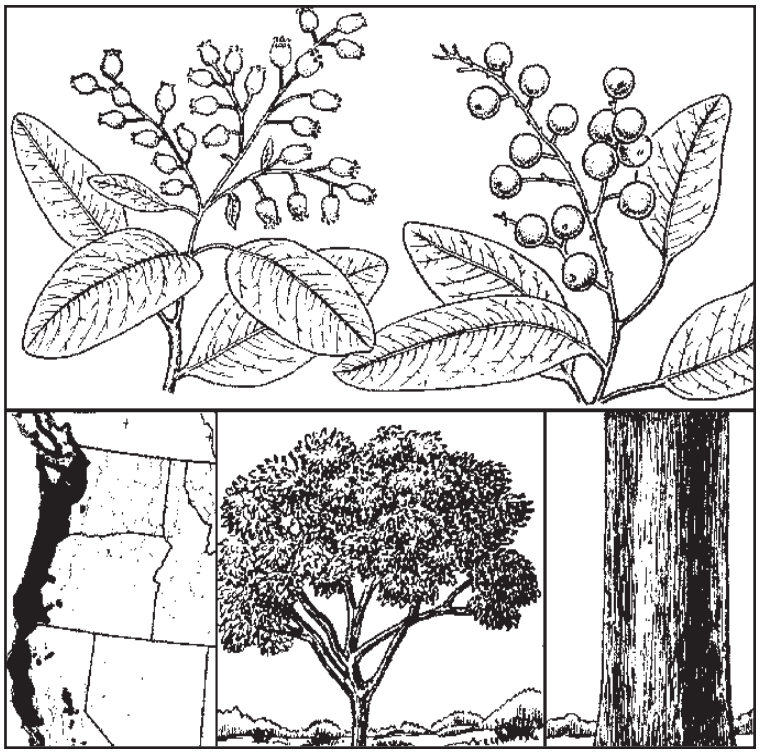
WE FIND IT throughout western Washington.

IMPORTANT CHARACTERISTICS are leaves opposite; showy, white flowers; and smooth, reddish-brown bark on most trees.

31. Pacific Madrone

Arbutus menziesii Pursh

The reddish-brown, scaly bark of madrone, or madrona, as it is often called, is the most unusual feature of this species. You can recognize it from some distance by this feature alone, and considerable color is added to the surrounding area by this tree. It is not a valuable timber species.



LEAVES are alternate, simple, evergreen, oval to oblong, abruptly short-pointed, rounded or somewhat heart-shaped at the base, margins are entire and turned under; thick leaves are dark green and lustrous, often white below, and 2 1/2 to 5 inches long.

BUDS are about 1/3 inch long, blunt, and bright brown.

TWIGS are slender, light reddish-orange to greenish.

BARK is thin, scaly, reddish-brown and shedding.

FRUIT is a bright orange-red drupe, nearly round, and about 1/2 inch long.

WOOD is heavy, brittle, pale, and reddish-brown.

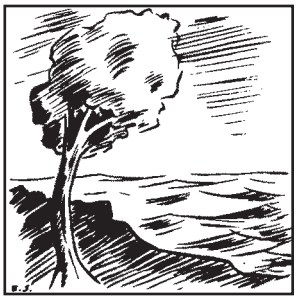
IT IS a medium to large tree, 60 to 90 feet tall, and 2 to 3 feet in diameter. Very often a small tree of about one half the above dimensions. Usually forms a round-topped crown. Grows mostly in mixed stands.

IT GROWS on moist, rich, rocky, or loamy soil that is well drained; often found along streams and near the Coast. It grows well in shade.

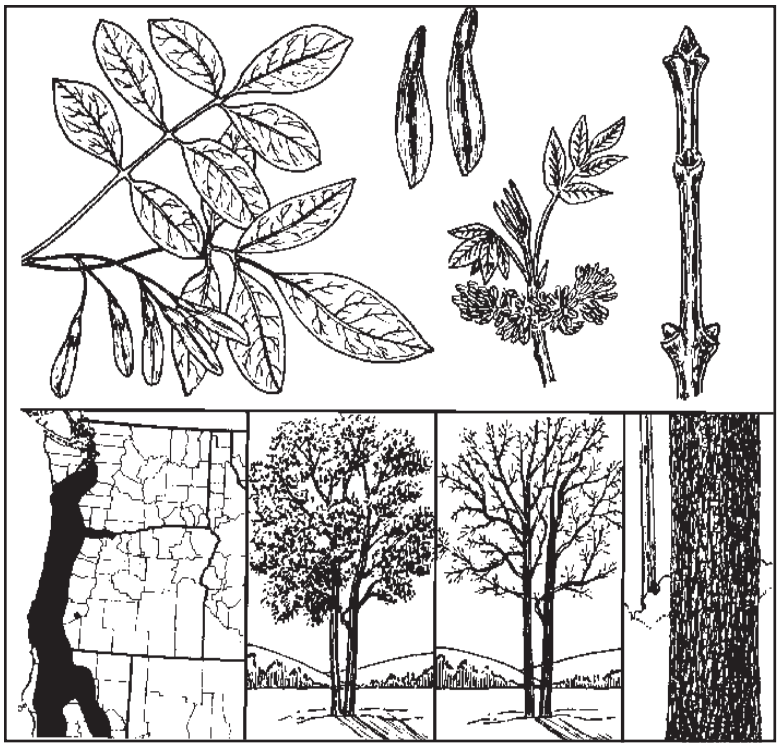
WE FIND IT on the Coast, and in the Puget Sound and Hood's Canal regions especially.

IMPORTANT CHARACTERISTICS are alternate, simple, evergreen leaves; and reddish-brown scaly bark.

I do not discard my leaves in the fall.



I only grow near salt water.



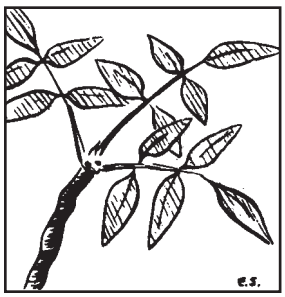
32. Oregon Ash

Fraxinua latifolia Benth.

Oregon ash is not a valuable tree, but is one of the few broad-leaf species reaching tree-size in this state. It makes satisfactory fuel wood when seasoned and if it grew in dense stands, it would undoubtedly be used more.

It grows quite rapidly and forms limited pure stands along water courses and in swamps. It also accurs in mixed forests where adequate moisture is present.

My seed is in clusters and single winged.



My leaf is compound.

LEAVES are opposite, pinnately (see leaf diagram) compound with five to seven ovate to elliptical (oval or oblong) or obovate leaflets, remotely serrate, light green above but usually densely hairy below. Leaves 5 to 14 inches long, leaflets 3 to 7 inches long.

BUDS are acute terminal buds about 1/4 inch long, often covered with rusty hairs.

TWIGS are stout and covered with hairs.

BARK is a dark, grayish-brown, with criss-crossing fissures on trunks.

FRUIT is an oblong, single samara (winged), somewhat compressed seed cavity, 1 to 2 inches long.

WOOD is brown, light, hard, and often brittle.

IT IS a medium-sized tree, 60 to 80 feet tall, and 2 to 3 feet in diameter. Usually has a narrow crown.

IT GROWS best on rich, moist soil but also quite well on more sandy soils with enough moisture. Pure stands are not common except occasionally along stream banks. It requires mostly full sunlight.

WE FIND IT west of the Cascade Mountains, except for the Olympic Mountains.

IMPORTANT CHARACTERISTICS are opposite, pinnately compound leaves; fruit elongated, dry, and winged.

Glossary of Terms Used

For illustrations see drawings pages 2–3

ACORN: The seed of the oak tree (nut).

ACUTE: Pointed, sharp.

ALPINE: High mountain areas.

ALTERNATE: To change over, leaves growing out from stem on opposite sides alternately. For example, leaf arrangements of alder.

AMENT: The scaly flower spike of trees such as the willow, birch, or cottonwood.

APEX: Tip or point.

APPRESSED: Close pressed to the stem like the scaly leaves of the cedar.

ARIL: Fleshy seed coat or covering such as on the fruit of the yew tree.

ASYMMETRICAL: Without proper proportions; unbalanced, unequal.

AXIL: The inside angle between the branch and the leaf.

AXILLARY: In the angle between leaf and main parts of stem. Buds are often axillary.

BLOOM: The cloudy or chalky substance such as that on grapes or plums (glaucous).

BRACT: The small, leaf-like growth from the axil of which a flower or its pedicel proceeds. When several or many flowers are produced near each other the accompanying bracts are apt to be of smaller size, or of different shape or character. Example: the pitch fork bracts on Douglas-fir cones.

CAPSULE: The dry seed container such as that of the poppy, snapdragon, or poplars.

COMPOUND-LEAF: Those in which the blade consists of two or more separate pieces, upon a common leaf stalk or support. The ash and walnut have compound leaves.

CONE: The fruit of the pine, fir, or other cone-bearing trees.

CONIC: A geometric shape like that of an ice cream cone upside down.

CONIFEROUS: Cone-bearing trees, like pines and larches.

CRENATE: The edges of leaves scalloped into rounded teeth.

CRENATE-SERRATE: Same as crenate except rounded teeth further saw-toothed.

CYLINDRICAL: Like a cylinder.

DECIDUOUS: Falling off; said of trees whose leaves are dropped each autumn.

DENDROLOGY: Tree study includes identifying.

DENTATE: Toothed; said of leaves whose edges are toothed and the teeth point outward; instead of forward.

DOUBLY-SERRATE: Doubly saw-toothed, large saw teeth have small saw teeth cut in their edges; see serrate.

DRUPE: A fleshy fruit with a single bony seed such as the cherry or plum.

DRUPACEOUS: Like or pertaining to a drupe; like a stone fruit.

ELLIPTICAL: Oval or oblong, with the ends regularly-rounded, like an ellipse.

ELONGATED: Stretched out in length; long and slender.

ENTIRE: The margins smooth, not at all toothed, notched, or divided.

EVERGREEN: Trees whose leaves remain on over the first winter, as most coniferous trees.

FISSURE: A split of division, a crack.

FOLIAGE: Leaves.

GLANDULAR: Furnished with glands.

HARDWOOD: Any broad-leaved tree.

LANCEOLATE: Lance-shaped.

LATERAL: Belonging to the side.

LEAFLET: One of the divisions or blades of a compound leaf.

LENTICELS: Breathing pores in the bark, such as in the birches.

LINEAR: Narrow and flat, the margins parallel; said of a narrow leaf, several times longer than wide. For example, pine needle.

LOBE: One section of the leaf that is not divided.

MARGINS: Outer edges of leaves.

OBLONG: Longer than broad with nearly parallel sides.

OBLONG-CYLINDRIC: Like an oblong cylinder.

OBOVATE: Same as ovate, except broader end upwards.

OPPOSITE: Directly across from; on the other side; pertaining to the position of leaves on the stem or the branching of trees.

OVATE: Shaped like an egg, with the broader end downwards.

OVOID: Ovate or oval in a solid form.

PALMATE: Palm-shaped, when the leaflets or the divisions of a leaf all spread from the apex of the petiole, like the hand with outspread fingers. Example: the veins on the maple leaf.

PENDENT: Hanging down.

PENDULOUS: Somewhat hanging or drooping.

PERSISTENT: Said of leaves remaining on the branches over the first winter; hanging on longer than usual.

PETIOLE: A leaf stalk, the stem of the leaf.

PINNATE: When leaflets are arranged along the sides of a common petiole. Also referring to the way the veins are arranged in some leaves, pinnate, or feather veining.

PROJECT: Stick out.

REFLEXED: Bent outwards or backwards.

RESIN: Pitch.

RHOMBIC: Having the shape of a rhomb; roughly diamond-shaped with rounded corners.

SAMARA: A winged-fruit. The seed of bigleaf maple is a double samara.

SCALES: Wrappings or covering such as that protecting most leaf and flower buds during dormant season; also the flaky part of the bark.

SCALLOPED: Uneven and jagged.

SERRATE: Margin cut into teeth pointing forward; beset with teeth, pertaining to the margins of leaves which are saw-toothed.

SERRATE-DENTATE: Having a combination of serrations and dentations, such as red alder.

SESSILE: Attached directly at the base without a stem.

SHEATH: Covering.

SIMPLE LEAF: A leaf with one blade; leaves such as that on alder, maple, and cottonwood.

SOFTWOOD: Cone-bearing trees; same as coniferous trees.

SPECIES: A specific kind of tree, for example, bigleaf maple as against vine maple.

SPIRALLY: Twisting and turning.

SPUR SHOOTS: Little shoots that come out from the main branch.

STALK: The stem, petiole, or handle.

STOMATA: Breathing pores of leaves appear as white dots on coniferous leaves.

STOMATIFEROUS: Having breathing pores on .. stomata.

SYMMETRICAL: Uniform, similar in the number of parts of each set.

TERMINAL: The top end or main leader. For ..... example, the top-most bud from which the tree increases its height each season.

TWO-RANKED: In parallel rows on each side of twig, pertaining to the arrangement of leaves on the stem. For example, the leaf arrangement of the western hemlock.

UNARMED: Unprotected. Without spines or prickles.

INDEX

Issued by Washington State University Extension and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. WSU Extension programs and policies are consistent with federal and state laws and regulations on nondiscrimination regarding race, sex, religion, age, color, creed, national or ethnic origin; physical, mental or sensory disability; marital status, sexual orientation, and status as a Vietnam-era or disabled veteran. Evidence of noncompliance may be reported through your local WSU Extension office. Trade names have been used to simplify information; no endorsement is intended. Reprinted November 2003. Subject code 400. D. EB0440


WASHINGTON STATE UNIVERSITY
EXTENSION