KEY TO THE IDENTIFICATION OF THE COMMON CONIFER AND BROADLEAF TREES OF THE PACIFIC NORTHWEST

Almost any season is suitable for the identification of the trees in the Pacific Northwest. Possibly the most satisfying time is in the spring when you can watch the plants come to life, or in the summer when the leaves have reached their maturity.

You need not travel fifty miles to study nature. Your own back yard or your city block offers a wonderful field. Learn to recognize all of the native trees on your street.

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Suggested References for Further Study:

"Trees of Washington" - Extension Bulletin 440,
(Request from Extension Service, Pullman, Washington)

"Trees To Know In Oregon" - Extension Bulletin 697,
(Request from Extension Service, Corvallis, Oregon)

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Key for the Identification of the Forest Trees of Oregon and Washington

1. Coniferous Trees

(A) Trees with needle-like leaves. With one exception, trees in this group are called coniferous or cone-bearing trees. Also, with one exception they are evergreen.

I. Long needles arranged in bundles.

a. There are three trees which have 5 needles in the bundle:

1. Western white pine (Pinus monticola) with a slender cone 5 to 8 inches long, made up of very thin scales. Leaves soft, deep green color, 2"-4" long; bark grayish to dark gray, 3/4 - 1½" thick, broken into small coarse squares. Scattered through Cascade Mountains; rare in Coast Mountains and eastern Oregon. Its lumber is frequently called Idaho White Pine.

2. Sugar pine (Pinus lambertiana) with slender, very long (12-22 inches) cones made of thin scales. Leaves soft, yellow-green color, 2"-4" long; bark reddish-brown or cinnamon-red color, with long irregular ridges. Occurs in southern Oregon and in Cascade Mountains only as far northward as vicinity of Mt. Jefferson.

3. White-bark pine (Pinus albicaulis) with a short cone only 3 inches long made up of thick scales. Leaves 2" or less thick; cones remaining closed when ripe. A timberline tree, found in the Olympics and Cascades of Washington; the Siskiyous, Cascades and Blue Mountains of Oregon.

b. There are three trees with 3 needles in the bundle:

1. Ponderosa pine (Pinus ponderosa). This tree, with its yellow bark and long needles, is the most common tree to be found east of the Cascades and in southern Oregon. Cones 3"-5" long, ellipsoidal, with slender prickles; leaves yellow-green, 5"-11" long. On the west side it occurs occasionally in small groups scattered through the Willamette Valley.

2. Jeffrey pine (Pinus jeffreyi) grows in southern Oregon and northern California. Has cones 6"-12" long, leaves dark bluish-green, 5"-11" long. It is very similar to ponderosa pine otherwise.

3. Knobcone pine (Pinus attenuata). Cones about 4½" long, with hard knobby cone scales which remain unopened for many years. Leaves about 5" long, yellow-green, occasionally twisted. Found in southwestern Oregon.

c. There is one tree with 2 needles in a bundle:

1. Lodgepole pine (Pinus contorta). This is a dark-barked, comparatively small tree. Leaves 1"-3" long; cones 1½"-2½" long, with slender prickles; cones persistent and remaining closed on tree for a long period. Very common east of the Cascade Mountains. West of Cascades mostly along coast.

II. Many short needles arranged in bundles.

a. There are two trees which have as many as 30 or more needles to the bundle. They are unusual among the cone-bearing trees, because they are not evergreen, but shed their leaves in the fall. Only one is of sufficient importance to be mentioned here; its name is:

1. Western Larch (Larix occidentalis). Leaves flat to triangular, 14 to 30 in cluster, 1 to 1-3/4 inches long. It is sometimes called tamarack. In the fall it is easily distinquished from its associates by the color of its foliage, which becomes a bright lemon yellow. Occurs commonly east of the Cascade range; northeast through the Blue Mountains; occasionally at high elevations on the west side.

III. Short needles not in bundles but scattered singly along the twigs.

a. Trees which bear their needles on little woody projections. Dead twigs, or twigs with the needles stripped off, have a very rough surface both visibly and to the touch, because of these projections.

1. Sitka spruce (Picea sitchensis). Needles so stiff and sharp pointed that they hurt the hand when a twig is grasped. Tip of tree stiff and upright. Cones with crinkly, papery scales, 2½"-4" long. Occurs in the Coast region. Wood largely used for aeroplanes.

2. Engelmann spruce (Picea engelmannii). Very similar to Sitka spruce but a smaller tree. Leaves

soft and flexible, cones 1"-3" long. Occurs commonly east of Cascade range and occasionally on the west side below timber line.

3. Western hemlock (Tsuga heterophylla). Leaves decidedly flat, distinctly 2-ranked, rounded at apex and conspicuously grooved. Tip of tree drooping. Cones small, not over 1 inch long. Quite common throughout the Douglas-fir region of western Oregon and Washington, and in limited areas on eastern slope of Cascade range. (Do not confuse with yew).

4. Mountain hemlock (Tsuga mertensiana). Needles similar to those of western hemlock, except that they are arranged very thickly on the twigs and do not make flat sprays. Cones 1-3 inches long. Along the coast ranges of Washington and Oregon, and at timber line in Cascade range.

b. Trees which do not bear their needles on woody projections. Dead twigs or those from which the needles have fallen off feel comparatively smooth to the touch.

1. Douglas-fir (Pseudotsuga taxifolia). Needles pointed, but not stiff like spruce, nor in flat, comb-like sprays like yew. This is the most common tree of western Oregon and Washington. Its red conical-shaped buds at the tips of the twigs are unlike those of any other tree. It is distinguished from the balsam firs of the region by the fact that its cones hang downward and have little three-pointed bracts which extend beyond the scales, and also that its cones do not fall apart when ripe. West of the Cascade range it forms large pure forests and is the chief timber tree of the northwestern United States. Though commonly called a fir, it is not closely related to the balsam firs.

2. Grand fir (Abies grandis). Needles appear to grow only from the two sides of the twigs and thus form a comparatively flat spray, especially on the lower branches. Needles twisted or half-turned at their bases. Cones 2"-4" long, greenish, borne upright and fall apart when ripe. A large and fairly common tree at low altitudes, along the coast and mountains of Washington and Oregon. Also found in north central Washington and northeastern Oregon. (Also called "White fir.")

3. Pacific silver fir (Abies amabilis). Needles grow thickly on the top as well as the sides of the twigs. Needles twisted at their bases. Cones 3½"-6" long, purplish, borne erect, and fall apart on ripening. This tree grows in pure bodies at middle elevations, but below timber line.

4. Noble fir (Abies procera). Needles grow thickly from all sides of the twig, more or less 4-angled. Those on upper branches turn upward stiffly. Needles not twisted at their bases. Cones purplish, borne upright, about 4½"-7" long, fall apart when ripe. Pointed bracts which extend beyond the cone scales distinguish it from every other kind of Abies except one of very limited occurrence in southern Oregon (Abies magnifica-shastensis). Occurs at higher elevations but below timber line, often mixed with silver fir and Douglas-fir. Frequently miscalled "larch" and is the tree from which Larch Mountain (in Oregon) gets its name.

5. Alpine fir (Abies lasiocarpa). Needles grow thickly from all sides of the twigs. Needles not twisted at their bases. Cones 3"-4" long, purplish, borne erect, fall apart on ripening. Tree forms characteristic spire-like crowns and is the most common tree at timber line.

6. Pacific Yew (Taxus brevifolia). Comb-like arrangement of leaves in flat sprays, similar to hemlock but leaves are sharp pointed. Trees short, rarely over 30 feet tall; trunk more or less fluted; bark conspicuously thin, reddish color, with papery scales. Many small sprays of foliage scattered along trunk and larger branches. Fruit is red, berry-like and not a woody cone. Rather common in the Douglas-fir woods on west side of Cascades. Rare on east side.

(B) Trees with very small scale-like leaves. Fruit a very small cone, some berry-like in appearance. Branchlets very much flattened, and characteristically drooping. These trees also belong to the class of coniferous trees.

I. Cones longer than broad, with thin scales.

1. Western redcedar (Thuja plicata). Cones about 1/2" long, only a little longer than broad with many

scales (8-12). Leaf scales short without long bases. One of the important timber species of western Washington and Oregon; less common on east side. Wood splits easily, is very durable and is used extensively for shingles.

2. Incense-cedar (Libocedrus decurrens). Cones much longer than broad, with 6 or less scales. Leaf scales with long bases. Common in Cascade Mountains from about opposite Eugene southward into southern Oregon.

II. Cones almost spherical with thick scales.

1. Port Orford white-cedar (Chamaecyparis lawsoniana). Restricted locality near coast from Coos Bay southward. Very important timber tree within its range. Admired for its praceful, drooping branches and symmetrical pyramidal form. Bark 2 to 8 or 10 inches; branchlets slender; leaves bright green, glandular; cones 1/4" to 1/2" diameter. Cone-scales umbrella-shaped.

2. Alaska yellow-cedar (Chamaecyparis nootkatensis). Much like Port Orford white-cedar but occurs only at high elevations. Best stands are found in Cascade range of northern Washington and on the Olympic peninsula. Range extends along both sides of Cascade range through Oregon and Washington at the higher elevations. Bark thin, rarely over 1/2"; branchlets stout; leaves prickly to the touch, dark blue-green; cones 3/8"-1/2" diameter.

III. Cones, berry-like in appearance.

1. Sierra juniper (Juniperus occidentialis). Occurs only on east side of Cascades in dry situations bordering the desert. Short thick, conical trunk; heavy crooked branches. Branchlets about 1/10" diameter. Leaves scale-like, except often needle-like near ends of rapid growing shoots. Fruit is a blue berry-like cone about the size of a currant, 1/4"-1/3" diameter; seeds 2 or 3. Commonly used for fence posts.

2. Broadleaf Trees

(A) Trees with buds, leaves, and young branches arranged in pairs along the stem, the two in each pair usually on opposite sides. This is called opposite branching.

a. There is one tree with opposite branching whose leaves are made up of several distinct leaflets, i.e., compound.

1. Oregon ash (Fraxinus Oregona). Usually found bordering creeks and rivers. Not over 60 to 70 feet tall or 4' in diameter. Leaves 5" to 14" long and made up of 5 to 7 leaflets. Seeds single, 1"-2" long and 1/4"-1/3" wide, with long wings. Of not much importance commercially.

b. There are three trees with opposite branching whose leaves are conspicuously lobed; all are maples.

1. Bigleaf maple (Acer macrophyllum). It is easily distinguished from other maples by its large leaves, 7 to 14 inches broad. It is the common maple in moist locations west of the Cascades. Seeds attached in pairs, with long wings.

2. Vine maple (Acer circinatum). Leaves small, 3"-4" broad with 7-9 main lobes. A small tree rarely stands erect, its slender stems usually sprawling over the ground, hence its name vine maple. Grows in moist locations in the dense woods. Of no commercial value.

3. Douglas maple (Acer glabrum douglasii). A small shrub-like tree along draws and moist places at higher elevations. Leaves deep green, 3"-4" broad, 3-5 distinct lobes.

c. There is one tree with opposite branches whose leaves are single and not lobed.

1. Western Dogwood (Cornus nuttalli). The common dogwood of the west slope, much admired because of its wealth of white blossoms in the spring. Rarely over 50' tall.

(B) Trees with buds, leaves, and young branches arranged singly along branch, first on one side and then on the other. Called alternate branching.

a. There is one tree with alternate branching whose leaves are lobed.

1. Oregon White oak (Quercus garryana). Leaves 4"-6" long and 2"-5" wide. Nut 1"-1½" long enclosed at the base in a shallow saucer-shaped cup.

b. There are two trees with alternate branches whose leaves are thick and leathery and evergreen.

1. Gold/chinquapin (Castanopsis Chrysophylla). Ordinarily a rather small tree, 70'-80' high and 3'-4' in diameter. Leaves long and narrow, shiny green above, and conspicuously coated with golden yellow powder (scales) beneath. Fruit is a nut enclosed in a prickly coat not unlike the common chestnut bur. Common on west side of Cascades.

2. Madrona (Arbutus menziesii). Leaves light colored on underside but not coated like chinquapin; also broader in proportion to length. Easily recognized by its smooth, red trunk and branches devoid of bark. Fruit, a red berry borne in conspicuous clusters. Very common in southern Oregon.

c. There are two trees with alternate branching whose buds are quite sticky.

1. Northern black cottonwood (Populus trichocarpa hastata). Common poplar found along streams on both sides of the Cascades and to the east. Buds over 1/2" long and very sticky; leaves much longer than broad, 3"-4" long and 2"-2½" wide, and rather tapering at apex.

2. Quaking Aspen (Populus tremuloides). Mostly east of Cascades. Easily distinguished from other poplars by its conspicuously whitish, smooth trunk, and small trembling leaves. Leaves about as broad as long, with quickly tapering apex; buds less than 1/2" long. One of the few trees which occurs native in both eastern and western United States.

d. There are several trees with alternate branching, whose leaves are conspicuously straight-veined, somewhat similar to those of the elm. Only two of sufficient importance to be mentioned here.

1. Red alder (Alnus rubra). A comparatively small tree, very common along streams and lower slopes. Bark smooth, ashy gray. Fruiting body a small woody cone which hangs on tree after seed is disseminated. Leaves about two-thirds as broad as long; edges coarsely toothed. Buds peculiar in being raised on short stems and smooth, not scaly.

2. Cascara buckthorn (Rhamus purshiana). A small tree widely scattered throughout Oregon, particularly on west side, but nowhere very plentiful. Somewhat similar to alder in general appearance. Leaves, however, are two or more times longer than broad, with edges finely toothed. Fruit is a blue-black berry the size of a pea. Bark, which is very bitter to the taste, possesses medicinal properties which cause it to be collected extensively.

e. There are quite a number of trees - the willows whose leaves are characteristically long and narrowly pointed, with ear-shaped leaf-like appendages at the base of the leaf stem. They are very difficult to tell apart, and have little economic value.