# *Fraxinus latifolia* Benth. Oregon Ash

**Oleaceae Olive family**

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Oregon ash *(Fraxinus latifolia)* is the only native species of ***Fraxinus*** in the Pacific Northwest. It is commonly found in riparian habitats and is not managed for timber production. This tree may reach the age of 250 years and is fast growing the first third of those years, then grows slowly. The seeds are eaten by birds and squirrels. The wood is most used as fuelwood.

## Habitat

### Native Range

Oregon ash (fig. 1) is found from northern Washington to southern California. Some trees found growing wild in southwestern British Columbia are thought to have come from seed disseminated by planted ornamentals (14). In Washington, Oregon ash grows along the shores of Puget Sound, in the western Cascade Range, and along the southwestern coast, but not in the Olympic Mountains (22). It grows along the Columbia River from the coast east to The Dalles in Oregon (22). In western Oregon, it occurs from the coast into the western Cascades and is prominent in the valleys-particularly the Willamette Valley (2). More than 2.5 million $m^3$ (90 million $ft^3$) of growing stock occur in Oregon and Washington *(12).* In California, Oregon ash is found in the north Coast Ranges as far south as Santa Clara County *(10).* It also grows in the Sierra Nevada and in the delta region of the Great Valley. The species is prevalent in the canyons of the Pit and Sacramento Rivers (7).

### Climate

In the northern part of its range, Oregon ash grows where summers are generally cool and humid and winters are usually mild (22). Mean annual temperatures are 8" to 9" C (46" to 48" F), and temperatures are usually not extreme. Precipitation ranges from 1500 to 3000 mm (59 to 118 in) annually and is generally well distributed from fall through spring. July and August are often rainless. In the valleys of western Oregon, mean annual temperatures are 11" to 12" C (52" to 54" F), and annual precipitation averages 510 to 1020 mm (20 to 40 in) (3). In the southern part of its range, Oregon ash grows where summer temperatures are high and precipitation is low; humidity varies from high to low, depending on proximity to the Pacific Ocean (22).

### Soils and Topography

Although Oregon ash is sometimes found growing as high as 1520 m (5,000 ft) in elevation, it usually does not occur higher than 910 m (3,000 ft) (6). Its preferred habitat is poorly drained, moist bottom land with deep soil rich in humus (fig. 2). In the central Willamette Valley of western Oregon, it is most commonly found on sites with silty clay loams and clays (4). The species also grows in sandy soils or moist, rocky, gravelly soils (2,221. It often follows streams and swamps in ribbonlike fringes (2) and is characteristic in seasonally flooded habitats (3). Oregon ash is also found on adjacent forest sites at higher elevations, in old fields, and along roads (2). It grows on Alfisols, Inceptisols, Mollisols, and Ultisols.

### Associated Forest Cover

In the northern part of its range, Oregon ash is occasionally found in small pure stands, but it is usually associated with other trees, such as red alder *(Alnus rubra),* bigleaf maple *(Acer* ***macrophyllum),*** black cottonwood ***(Populus trichocarpa),*** Oregon white oak ***(Quercus*** *garryana),* and various willows *(Salix* spp.) *(2,3,8,22).* In its drier habitats, it also grows with Douglas-fir ***(Pseudotsuga menziesii)*** and grand fir *(Abies grandis) (2,6,22).* Associated species in southwestern Oregon and northern California are California-laurel ***(Umbellularia*** *californica),* white alder ***(Alnus rhombifolia),*** California sycamore *(Platanus racemosa),* California black oak ***(Quercus*** *kelloggii),* Oregon white oak, and ponderosa *(Pinus* ***ponderosa)*** and Digger pines *(P.* ***sabiniana)*** *(8,22).* Oregon ash is an associate in the following forest cover types, Red Alder (Society of American Foresters Type 221), Black Cottonwood-Willow (Type 222), Port Orford-Cedar (Type 231), and Oregon White Oak (Type 233).

Understories in the riparian communities of western Oregon valleys vary from almost nothing under dense stands or in areas with recent silt deposits to herbaceous-typically sedges-r dense shrubby types *(3,4).*

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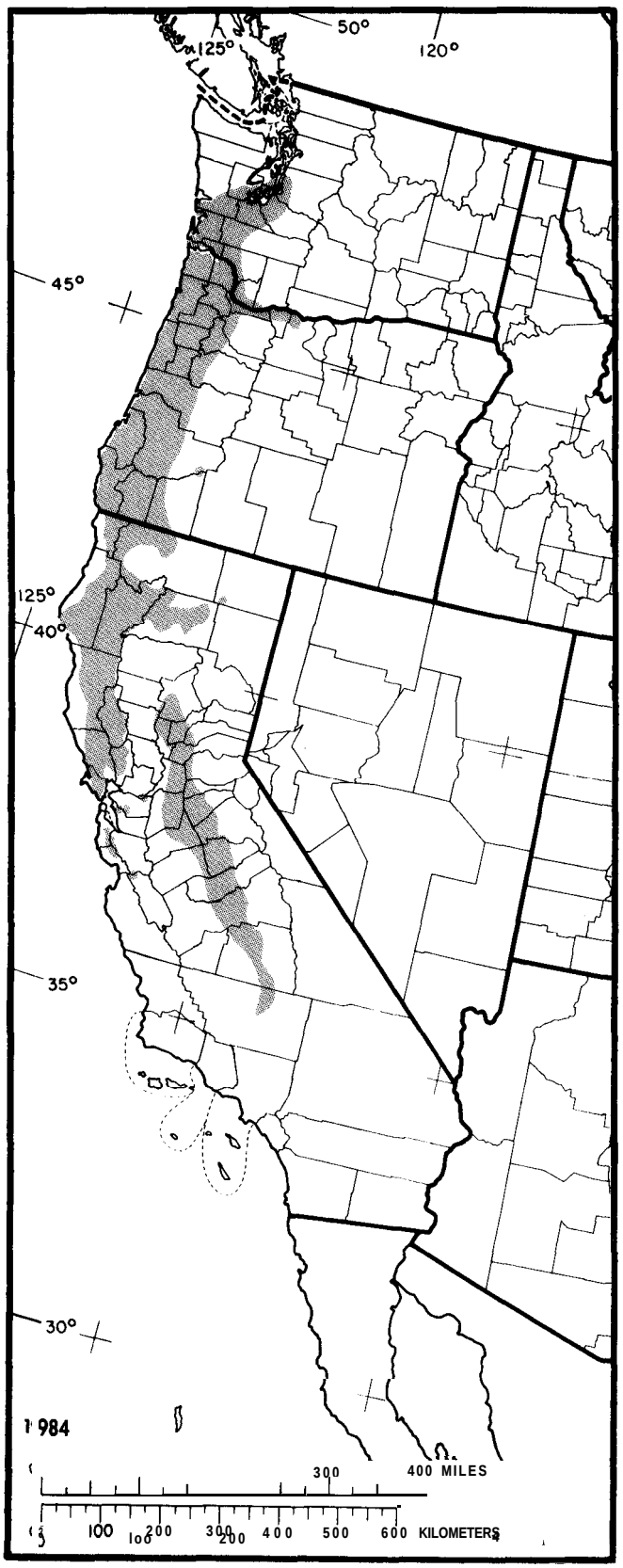


## Life History

### Reproduction and Early Growth

**Flowering and Fruiting-Oregon** ash is dioecious; its small greenish flowers appear in dense, glabrous panicles with the leaves in April or May *(8,25)*. The fruits, oblong to elliptical samaras, ripen in August or September. They are 3 to 5 cm (1.25 to 2 in) long and 3 to 9 mm (0.1 to 0.33 in) wide, including the wing, and are light brown when mature *(10,18)*.

**Seed Production and Dissemination-Seeds** are produced about the 30th year *(2)*. Oregon ash is an abundant annual seeder in open stands or as isolated trees *(22)*, but heavy crops occur at 3- to 5-year intervals in forest stands (2). Seeds are dispersed by wind in September or October. There are usually 22,000 to 31,000 cleaned seeds per kilogram (10,000 to 14,000/lb) (25). Most seeds of ash have dormant embryos and require cool, moist stratification to germinate (25). They have medium to high germination and persistent viability. Germination is best and seedlings are most abundant on moist or wet soils rich in organic matter. Germination is scanty in sandy or gravelly stream bottoms where seeds are carried away by floods (22).

**Seedling** Development-Germination is epigeal. Seedlings grow in height rapidly in rich soils and slowly in poor soils (22). They are somewhat tolerant of shade when quite young *(16)*. Growth is rapidly checked by drought, but seedlings survive drought well *(21)*.

**Vegetative Reproduction-Sprouts** from stumps are common and vigorous *(2,10,21)*.

### Sapling and Pole Stages to Maturity

**Growth and Yield-Oregon** ash has moderately rapid growth for 60 to 100 years and attains a height of 18 to 24 m (60 to 80 ft) and a d.b.h. of 40 to 75 cm (16 to 30 in) in 100 to 150 years on good sites *(16,22)*. Individuals may grow twice as large and reach 200 to 250 years of age under favorable conditions, although they generally grow slowly after their first hundred years (22). The largest known specimen is 18 m (59 ft) tall and 668 cm (263 in) in circumference *(15)*. In drier parts of its range and at higher elevations, Oregon ash is often smaller than

**Figure** *1-The native range of Oregon ash.*

**Figure** *2-Oregon ash along a stream in the Willamette Valley, OR. Oregon white oak, a common associate, is present on the right side* ***of*** *the stream.*

8 m (25 ft) tall and 15 to 20 cm (6 to 8 in) in d.b.h. *(22).*

**Rooting Habit-The** root system is moderately shallow but very fibrous and wide spreading *(2,21).* The trees are windfirm *(2,8,21).*

**Reaction to Competition-The** species is classed as intermediate in tolerance of shade ***(1).*** Individuals self-prune quickly with side shade, and forest-grown trees have long, clean trunks and narrow, short crowns with small branches (22). Overtopped trees respond well to release (16). Open-grown trees on moist sites have short trunks and wide, round-topped crowns with large limbs (22). Oregon ash is often a small, crooked tree on dry sites or at high elevations *(22).*

**Damaging Agents-Oregon** ash is attacked by a variety of insects (5). ***Thysanocnemis*** spp. are small weevils that can destroy 60 percent of a seed crop. They are found throughout the range of the species. Various insects that cause foliage or twig damage harmful to ornamentals but are not considered forest

pests are: Arizona ash lace bug ***(Leptoypha minor),*** plant bug ***(Tropidosteptes pacificus),*** snowy tree cricket ***(Oecanthus fultoni),*** and the fall webworm ***(Hyphantria cunea).*** The Oregon ash bark beetle ***(Leperisinus oregonus)*** causes no economic damage but is often abundant in cordwood.

Fungi occurring on Oregon ash that cause leaf spot are ***Mycosphaerella effigurata, Cylindrosporium fraxini*** or ***Marssonina fraxini, Piggotia fraxini, Mycosphaerella fraxinicola, Phyllosticta innumera,*** and ***Cylindrosporium californicum*** *(9,24).* Common powdery mildew ***(Phyllactinia guttata)*** is found on Oregon ash *(9,19).* Twig fungi that occur are ***Hysterographium fraxini, Cytospora ambiens,*** and ***Nectria cinnabarina*** *(9,19,24).* The true mistletoe ***Phoradendron longispicum*** is found on Oregon ash. The heart rot ***Perenniporia fraxinophilus*** attacks older trees and may cause extensive cull *(9,19).*

Oregon ash is browsed by deer and elk *(17).*

## Special Uses

The most notable use of Oregon ash is for fuel; it splits easily and has high heat value. The symmetrical shape, rapid growth rate, and hardiness of Oregon ash have resulted in its being planted as an ornamental tree and a street tree in cities within its native range, in the Eastern United States, in southwestern British Columbia, and in Europe. It is found in botanical gardens of western and central Europe (18). The wood of Oregon ash is used in its native range for tool handles, sports equipment, boxes, cooperage, and furniture *(2,17).*

## Genetics

No varieties are currently recognized *(11,13).*

South of the Kern River in California, Oregon ash becomes similar to velvet ash ***(Fraxinus velutina);*** anatomical characteristics indicate the possibility of hybridization between the two species *(13).* Most ash trees in Kern County are intermediate in at least one characteristic (23).

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