

CHAPTER 11

TREES

Red cedar

Thuja plicata • Cupressaceae

This stately evergreen is widespread in moist habitats of the Pacific Northwest, extending south to Northern California. It is facultative and sometimes dominates lowland swamps. On Mount St. Helens, it is common in lower elevation forests. Stems have red bark that falls in long strips. Leaves are scale like, arrayed in 4 paired rows; yellow-green, drooping; old leaves become red-brown and drop after several years. Numerous male cones are red; female cones egg-shaped, 1 cm long, in clusters, brown when mature. Seeds are winged, aiding wind dispersal; also dispersed by rodents.



Pacific silver fir

Abies amabilis • Pinaceae

This stately conifer is common from Alaska to northern California, along both sides of the Cascades in Washington. It forms dense forests in moist to drier montane habitats. It is a distinctly upland species. On Mount St. Helens, it occurs in all habitats except in the pyroclastic zone and wetlands. It dominates in forests impacted by tephra and in the blown-down zone. Bark is white and usually smooth; twigs are hairy. Needles are bright green above; lower surface with white stripes on either side of the mid-vein, blunt with a notch, arrayed in two lateral ranks with a third one pointing forward thus covering the twig. Female cones erect near the top of the tree, purple, often exuding resin, 9 cm long, 4 cm thick. Seeds bear wings that aid dispersal by wind; cones are collected and dispersed by ground-dwelling rodents.



Subalpine fir

Abies lasiocarpa • Pinaceae

This narrow, erect tree is a common dominant near timberlines from southern Alaska to Oregon and east to the Rocky Mountains. It is a facultative upland species that can colonize more fertile primary sites, particularly on lahars, high elevation pumice sites and exposed lavas. It dominates dry forests on the south side of the mountain. Bark is gray, while the twigs have a fine reddish hair. Needles are blue-green, up to 3 cm long, curl upwards to expose the lower side; upper surface one whitish band of stomata, the lower surface with 2 bands. Female cones are solitary, purple and erect near the top of the tree, about 8 cm long and 3 cm thick; distinct from noble fir in that bracts are not obvious in mature cones. Cones disintegrate to allow seeds to glide some distance from parent; rodents take and often cache immature cones.



Natural History—Trees

Noble fir

Abies procera • Pinaceae

This stately conifer occurs throughout coastal mountains from northern California to Washington, persisting in mid-elevation forests. Around Mount St. Helens, several old-growth stands are dominated by noble firs that reach 50 m tall. It was commonly replanted in the blown-down zone east of the monument. It occurs in all habitats on Mount St. Helens, but mainly in the tephra and blown-down zones. Bark is flakey, gray to brown. Needles blue-green, 2 cm long, densely arrayed on the twig, 4-sided and upturned, with 2 distinctive white bands on the lower surface, one on the upper surface. Female cones are large (12 cm long), concentrated near the top of the tree; scales are dark reddish-brown; the bracts are prominent, straggly, pointed and straw-colored. Dispersal of winged seeds is by wind and by rodents.



Lodgepole pine

Pinus contorta var. *latifolia* • Pinaceae

This erect coniferous tree is distributed throughout the northern Rocky Mountains, along the Sierra-Cascades axis, through the western Canadian Provinces and in Alaska. It is common after fires, on volcanic surfaces and in open, dry forests. It is a facultative indicator species. On Mount St. Helens, it survived tephra fall as adults and in the blown-down zone as saplings. It dominates dry forests on the southern sides of the mountain. It colonized pumice, pyroclastic and lahar sites. Trunk is erect, up to 25 m tall with thin bark, loose scales and copious pitch; orange to gray in color. Leaves bundled in pairs, slightly curved and about 5 cm long. Male cones are reddish, clustered near the tips in upper branches; female cones are twisted, 3-5 cm long, compact, prickly and closed for long periods while hanging from the tree. Dispersal of individual winged seeds is by wind; cones are collected and dispersed by squirrels.



Western white pine

Pinus monticola • Pinaceae

This stately tree with feathery needles grows in moist to dry forests up nearly to timberline from British Columbia to northern California and in the drier Rocky Mountains. It is a facultative upland species. It occurs in tephra impacted forests surrounding Mount St. Helens, as well as blown-down forests and lahars. It is uncommon on pumice and pyroclastic surfaces. Bark is smooth, thin and gray. Needles are flexible, in groups of 5, 8 cm long; they persist on the ground. Female cones on short stalks, 20 cm long, 8 cm thick and relatively light weight. Cones open slowly to allow seeds to glide some distance from parent; rodents sometimes take and cache cones.



Douglas fir

Pseudotsuga menziesii • Pinaceae

The well-known species is widely distributed in the western U.S. and southwestern Canada. It dominates dry forests at mid-elevations throughout the region. This is a facultative upland species that is common in the tephra zone and blown-down forests. It colonized lower elevation lahars and debris avalanche sites. Seedlings and saplings are scattered on new pumice and pyroclastic surfaces within the blast zone. It can be a very tall tree, locally up to 50 m; the top is erect. Bark is rough and thick. Leaf buds are distinctly pointed. Needles are 2-3 cm long, flat with pointed tips. Pollen is produced from small oval reddish male cones found high in the tree; female cones are from 6-10 cm long, initially green, maturing to red or grey; characterized by exerted, 3-forked bracts that extend beyond the scales. Seeds are released as cones dry, allowing wind dispersal as they glide away from the parent. Squirrels transport the cones, often aiding in dispersal.



Natural History—Trees

Western hemlock

Tsuga heterophylla • Pinaceae

This important conifer is common from Alaska to northern California and scattered in the northern Rockies. It occurs in dense forests up to montane zones provided snow does not become too deep. This is a facultative upland species. It is common throughout the tephra and blown-down zones. Saplings are common on lahar deposits and occasionally in protected pumice areas. The tree is narrow, with a dropping top. The bark is brown, thick and furrowed in older plants. Needles are flat, yellow-green on top, white underneath and of two distinct lengths up to 2 cm long. Female cones are ovoid, 2 cm long, brown when mature. Th



Mountain hemlock (

T. mertensiana • Pinaceae

Found at higher elevation and is distinguished by its needles, which all about the same length, and its cones, which are 4-7 cm long. Small seeds can glide a bit, and rodents may transport the cones, but species has poor long-distance dispersal ability. On Mount St. Helens, it is common in tephra and blown-down sites, particularly in moist habitats and where snow accumulates. It invades high elevation lahars.



Black cottonwood

Populus balsamifera • Salicaceae

This native deciduous tree is widespread in western North America, growing in upland and disturbed habitats. It is a facultative upland species. It occurs sporadically on most primary surfaces of Mount St. Helens, if only as seedlings or browsed saplings; mature individuals occur on lahars and in some blown-down sites. It is common along streams in the tephra and blown-down zones. Mature stems are gray and furrowed. Leaves alternate, glossy above, pale and dull beneath; leaf stalks are round with glands; typically about 10 cm long and pointed. Flowers are either male or female, on catkins. Fruits are capsules that dehisce to release tiny seeds covered in fluffy hairs that ensure excellent dispersal by the parachute mechanism.

