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Riparian Enhancement Plant Guide

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Bigleaf Maple (*Acer macrophyllum*)



Description

Bigleaf maple are a native tree to the Pacific Northwest. The tree is deciduous with a large broad leaf and capable of growing with a wide canopy expanse to a height up to eighty feet tall. The large leaves as classified as being simple, and opposite with a diameter of 15-30cm. It is commonly propagated by seed, but it can be propagated by cutting.

Habitat

Bigleaf maples are considered an extremely flood tolerant species. These trees can grow in low mountain streams and alluvial river bottoms but are often found mixed in with stands of alder, Douglas-fir, and western hemlock. These trees prefer coarse and gravelly soil, that can have a higher moisture content.

Riparian Restoration Potential

The Bigleaf maple tree can be a popular tree for riparian restoration due to its ability to provide a broad canopy for shading. It can establish well on disturbed riparian areas if planted properly. It also can accelerate site productivity and nutrient recycling due to the highly compostable leaf litter.

Wildlife

The seeds (fruit) from the maple trees provide food for many different organisms such as squirrels, chipmunks, mice, and a variety of different bird species. Elk and deer both browse the young twigs, leaves, and saplings.

(Favorite & Moore, Plant Guide for Bigleaf maple (*Acer macrophyllum*), 2002)



Bitter Cherry (*Prunus emarginata*)



Description

The bitter cherry is a native shrub/tree that normally grows 4-12 feet high, however, can grow through time in some locations to a height and stature of a moderately sized tree up to thirty feet in height. The leaves are deciduous with an oblong-oval, fine toothed, and has a rounded tip. The flowers of this shrub/tree grow in clusters of 5-12, with a fragrant scent that blooms between April and May. It is propagated by seed but can be propagated by softwood cuttings.

Habitat

Prunus emarginata is frequently found in dense stands on steep, rocky slopes. It can also be found along valley bottoms next to streams. This shrub will establish easily in disturbed areas with moist soil, with sandy or gravelly soil types. It will grow well in full sun or partial shade, but it will not tolerate shade competition from other trees.

Riparian Restoration Potential

Bitter cherry can be a popular tree for riparian restoration due to its ability to reduce streambank erosion in disturbed sites. It can establish well in disturbed riparian sites if it is planted properly. This tree helps provide shelter and food for wildlife while also increasing biodiversity in the riparian area. It can grow to a height that can provide shade for protection of small and medium streams.

Wildlife

This plant is a vital species for many wildlife such as elk, deer, and bears. The small fruits that the tree creates are eaten by smaller organisms. Sheep and cattle will also occasionally feed on this tree.

(Favorite & Anderson, Plant Guide for Bitter cherry (*Prunus emarginata*), 2002)

Black Cottonwood (*Populus trichocarpa*)



Description

Black Cottonwood trees are a native tree to the PNW and are most often found growing within or near riparian areas due to their love of water. These native trees grow up to 98 feet to 196 feet tall and display beautiful ranges of colors in the fall. The leaves of a cottonwood tree are alternate and simple with an ovate-lanceolate to deltate shape that may vary in size and in shape. It is propagated by seed but is commonly propagated by live stake cuttings.

Habitat

Black cottonwood trees tend to grow in riparian areas, and moist woodland areas on mountain slopes. This species grows best in full sunlight and will grow well in disturbed sites. Black cottonwood has very low drought-tolerance. It is a flood-tolerant species, but it cannot handle brackish water or stagnant pools of water.

Riparian Restoration Potential

This tree has a strong growth curve and can reach 50ft in 10 years in some sites. It is often incorporated in stream riparian plantings as it provides excellent shading due to its wide canopy at older age and tall stature. It needs to be protected from beaver predation if it is in limited density due to the strong ability of beaver to eliminate it from a planting. In some locations it can be hard to establish due to wildlife effects. Overall, it is an excellent riparian function recovery species within its native range.

Wildlife

The cottonwood tree is an important species for wildlife species such as deer, beaver, and elk. Birds use the crowns of the trees for nesting sites. The trunks of the tree are prone to interior rotting at older age, which makes them excellent cavity nesting habitats for woodpeckers and wood ducks. Leaves are readily decayed by bacteria and both leaves and bacteria are consumed by stream macroinvertebrates.

(Nesom & Henson, 2002)



Black hawthorn (*Crataegus douglasii*)



Description

The Black hawthorn is a small tree or large shrub that can grow occasionally up to thirty feet tall. It has strong and straight thorns that grow on the branches of this plant that are 0.5-1 inch long. The leaves are long, smooth, shiny, serrated at the tip, and a dark green color. The fruits are a black to dark reddish-purple color. It is commonly propagated by seed or by grafting.

Habitat

Black hawthorn will grow at lower elevations in deep, moist, and fine-textured soils. It can grow successfully in partial shade and other soil types, but it does best in full sunlight with adequate moisture levels. It is classified as being a predominately understory species and is not often found in pure stands.

Riparian Restoration Potential

Black hawthorn trees have a growth rate of two feet per year for the first few years. Black hawthorn can be a popular tree for riparian restoration due to its ability to reduce streambank erosion in disturbed sites. It can grow to a height that can provide shade for protection of small and medium streams.

Wildlife

This plant grows numerous fruits that are beneficial for wildlife, as is an ideal habitat for many birds (e.g., grouse). Deer, small mammals, and many other wildlife species will feed on the twigs and leaves. Bees and other pollinators are fond of the flowers in the springtime. Livestock will eat the leaves if they are accessible to them. This tree generally resists wildlife browsing due to the thorns.

(Moore, Plant Guide for Black Hawthorn (*Crataegus douglasii*), 2002)



Black Twinberry (*Lonicera involucrata*)

© Gordon Leppig, 2023



Description

Black twinberry is a deciduous shrub that is native to the PNW. It grows up to ten feet tall and is an erect shrub. The leaves are simple, oppositely arranged with a broad lance shape (1 ½"-5" long). Leaves are dark green and smooth above with paler coloration below. The flowers are paired, with ½" tubular shaped yellow flowers. The fruits are paired with dark purple or black berries that are ¼" in diameter. The berries may be mildly toxic or poisonous to humans. It is propagated by seed or by live stake cuttings.

Habitat

Black Twinberry is usually found in moist sites, usually near streams or other bodies of water. It can also be found in open forests, stream banks and in wetlands. Twinberry is another ideal plant for restoration projects because it grows well next to willows and other water-loving shrubs.

Riparian Restoration Potential

Black twinberry is an important shrub to consider for a riparian restoration project, because of its ability to reduce streambank erosion and help restore riparian areas, moist woodlands, wetlands, and sandy coastal areas. The branches (winter dormant) are useful as live stakes for erosion improvement projects.

Wildlife

Many bird species will eat the berries of this shrub. Elk will often forage on the new growth of this shrub. Black twinberry provides cover for smaller animals. Bears will forage on the berries as well.

(Bressette D. K., Black Twinberry, *Lonicera involucrata*, 2017)
(Jensen, Randall, Keniston, & Bever, *Lonicera involucrata*, 2015)



Blue Elderberry (*Sambucus nigra* ssp. *Caerulea*)



Description

Blue elderberry is a deciduous native shrub of the PNW that grows up to 6-15 feet tall. It has leaves that are 15-35 cm long. The fruit of this shrub is berry-like and is 5-6mm in diameter with a blueish purple to black coloration. At maturity, the fruit will develop a white bloom, which makes the fruit of the shrub a powdery blue color. The fruits are edible, and are used for many different purposes such as wine, jam, pies, etc. It is propagated by seed and cuttings but is most successful with seed propagation.

Habitat

*Blue elderberry commonly grows in moist soil with well-drained sunny sites. Blue elderberry is more common to grow in warmer sites than red elderberry (*Sambucus racemose*), but they can grow in similar habitats. It is often found to be growing in moist forest habitats, stream sides, or streambanks.*

Riparian Restoration Potential

Elderberry is an ideal plant for riparian projects. The canopies of these plants (leaf cover) provide shade for the streams, which can help lower temperatures for native fish/salmonids. The roots will help stabilize eroding banks and provide cover for fish and other aquatic organisms.

Wildlife

It provides abundant food and cover for game birds such as the blue and sharp-tailed grouse. The mule deer, small mammals and other wildlife species feed on the leaves and twigs of young seedlings or trees. It is an ideal range plant for domestic livestock but is not palatable during all seasons. It is often grazed during the late summer and fall but will occasionally be browsed during spring.

(Anderson, Stevens, & Nesom, Plant Guide for Blue Elderberry (*Sambucus nigra*), 2001)



Cascara Buckthorn (*Rhamnus purshiana*)



Description

The cascara buckthorn tree, also known as the chittam tree, is a deciduous native tree of the PNW. It can grow up to fifty feet tall, with a 10–20-inch diameter. It will often not grow to a large size because of the stripping of the bark. The (cured) bark of this tree is used as a strong laxative. The leaves have a dark, glossy green color, with an elliptical to oblong shape, with furrowed parallel veins. The leaves are also classified as simple and alternately arranged. The flowers are small, with a greenish-white coloration that are displayed in loose clusters. It is propagated by seed but can be propagated by cuttings on occasion.

Habitat

Cascara buckthorn, or Chittam trees grow best in moist and well-drained soils but can grow in riparian areas. It will tolerate a variety of soil types such as clay, loam, or sand. It will often sprout and grow from old stumps. It is found in mixed forested stands consisting of Douglas-fir, western redcedar, bigleaf maple, and other species.

Riparian Restoration Potential

The Cascara buckthorn tree is an important tree to consider for erosion control purposes. It also has the potential to provide abundant cover and protection for wildlife, if grown in small brushy stands. This tree grows slowly, but has dark green, dense foliage that will increase shade in a riparian area while also stabilizing the streambanks with its unique root system.

Wildlife

Small mammals and birds will consume the fruit of the cascara buckthorn tree. This tree has a wide distribution but is mostly found in heavily forested areas. Deer and elk will feed on this shrub/tree during the wintertime.



(Jensen, Randall, Keniston, & Bever, *Rhamnus purshiana*, 2015)

Coastal redwood (*Sequoia sempervirens*)



Description

The coastal redwood, also known as the California redwood tree, is a native coniferous evergreen tree. This species of tree grows exceptionally large with a maximum diameter of 8-23 ft with a height ranging from 180-370 feet. The leaves are spirally arranged, scale-like, and are connected tightly to the twigs of the tree. The needles (leaves) are 1/2 - 1 inch long with two distinct bands/lines of bloom below the needles. The bark is a reddish-brown color with deep furrows. It is propagated by seed but can be propagated by cuttings.

Habitat

Redwood trees prefer areas with high humidity, as well as moist, but well-drained soils. These trees will grow best in soils with high sand contents, but can be found in areas containing limestone, slate, and chert. It is often found growing near stands of Douglas-fir, as well as Sitka spruce, and Grand fir. It is a shade-tolerant tree species that can survive at very low light levels.

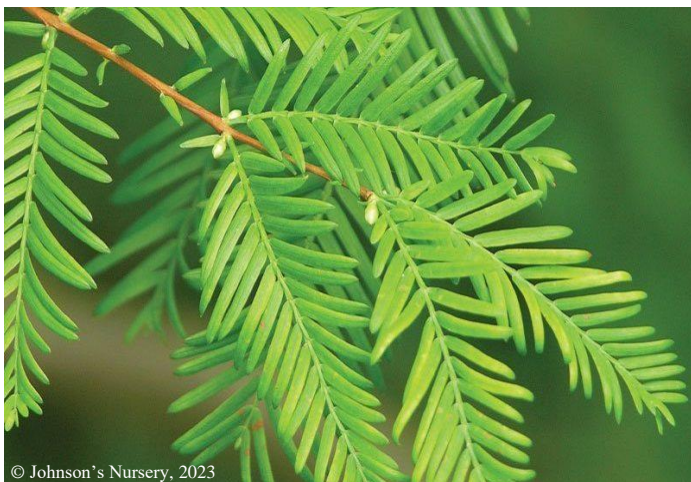
Riparian Restoration Potential

Redwoods grow rapidly and can tolerate moderately wet soils. This makes them an excellent choice in well drained or short period flood regime riparian locations. The tall rapid growth rate in the appropriate location allows them to be a strong contributor to shading of small and medium stream sites within a relatively short period of a decade or two.

Wildlife

Coastal redwoods are an important tree species for many different organisms. Pacific giant salamanders, elk, black-tailed deer, birds, and other animals use these trees. Redwoods are better adapted to flooding compared to most other coniferous trees and have been widely used in riparian restoration projects.

(Jensen, Randall, Keniston, & Bever, *Sequoia sempervirens*, 2015) (The Editors of Encyclopaedia Britannica, 2023)



Douglas-fir (*Pseudotsuga menziesii*)



Description

The Douglas-fir tree is a native conifer of the PNW, that grows up to 250 feet and ranges from 3-6 feet in diameter. Douglas-fir trees are commonly used as Christmas trees. The needles (leaves) are roughly one inch long and can range in color (yellow-green, Gray-green, or blue-green), with two lines of stomatal bloom on the underside of the needle. The needles are spirally arranged. It is propagated by seed and for most applications it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

Douglas-fir trees will grow in moist to extremely dry soil sites with excellent drainage. It does the best in full or partial shade but can tolerate morning and winter sun. Douglas-fir trees are classified as being both early successional and late-successional.

Riparian Restoration Potential

This tree can be used at upland forested sites with well drained soils as a strong riparian shading component. In floodplain or lower gradient watersheds usually the soils are wetter than acceptable for planting this species in the riparian area. This tree may require moderate summer watering 1-4 times per month depending on the soil type and absorption rate.

Wildlife

Many different birds will eat the seeds from the cones of the Douglas-fir tree. Deer, mice, shrews, and other organisms also use these trees. Deer and elk will occasionally eat the needles from the twigs they can reach.

Erosion & Wind break Control

These trees are the best choice for a windbreak on specific soil types. They are also ideal for restoring eroding lands/soils and can help restore watersheds.



(Anderson, Plant Guide for Douglas-fir (*Pseudotsuga menziesii*), 2000) (Jensen, Randall, Keniston, & Bever, *Pseudotsuga menziesii*, 2015)

Evergreen Huckleberry (*Vaccinium ovatum*)



Description

Evergreen huckleberry is a native shrub to the PNW. It has small, glossy, and dark green leaves that are leathery with serrated edges. The flowers have a pinkish white color that grow in clusters. The fruit is round, blueish black in color, and is ¼” in diameter. The fruit are a famous berry along the Oregon coast. These shrubs grow in moist, and well-drained soil. They are often found in forested areas, growing next to salal, Douglas-fir trees, and Sitka spruce trees. It is propagated by live plant cuttings and by seed, but it is best to obtain it from local nurseries.

Habitat

Evergreen huckleberry is often found growing in moist to slightly dry soils. It usually grows in the understory of coniferous forests but can be found near beaches in salty spray zones. It typically grows in full sun to full shade but will often prefer shade over sun.

Riparian Restoration Potential

Evergreen huckleberry can be planted as an understory species in forested zones to provide an additional understory layer of canopy. The stature of the plant is predominantly less than 8 ft in height.

Wildlife

The fruit of these shrubs is gathered by humans in the fall, and is feasted on by bears, small birds, and other mammals. Elk and deer will eat the leaves and twigs of the shrubs as well.

Ethnobotanic

The leaves/berries are high in vitamin C and have widely been used to lower blood sugar levels.

(Jensen, Randall, Keniston, & Bever, *Vaccinium ovatum*, 2015)



Grand Fir (*Abies grandis*)



© Cruster, 2010

Description

Grand fir trees are large conifers that are native to the PNW. These trees grow up to 125-250 feet tall with a 2-6” diameter. The foliage of this tree is single, linear, spirally arranged with a shiny dark green color on top with two lines of white stomatal bloom below. These trees grow in moist soils and are found in higher elevations. Grand fir trees are commonly used as Christmas trees because of their unique green color, and fragrant smell. It is propagated by seed and for most applications, it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

The range for Grand fir trees is coastal British Columbia to the southern coast of Sonoma County in California. They often grow in moist forests with stream bottoms, valleys, and low mountain slopes and can grow in a variety of soil types. These trees will commonly grow in mixed stands consisting of other conifers and hardwood trees. It is a very shade tolerant plant species but will grow slower in dense shade when young. It is commonly a dominant species in most plant communities and will live longer than most species.



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Riparian Restoration Potential

In forested zones this tree can be included into the riparian habitats due to a moderate floodplain moisture tolerance. It is tolerant of flooding as well as drought tolerant. It is a fast-growing tree species that can be used as a source of woody debris in the future.

Wildlife

The Grand fir tree provides habitat for many different bird species. It also provides valuable shelter for deer and elk.

(Jensen, Randall, Keniston, & Bever, *Abies grandis*, 2015)

Hooker's Willow (*Salix hookeriana*)



Description

Hooker's willow is a deciduous medium to large shrub that is native to the PNW. It can grow up to a height of 26 feet, with alternatively arranged leathery and thick oblong shaped leaves with a wooly texture beneath. The young twigs (shoots) are green, while the bark of older branches is dark gray in color. The shrub will produce catkins in late winter/early spring (two weeks before foliage blooms). Hooker's willow is commonly propagated by dormant hardwood cuttings, but bare root stock can be purchased from a local nursery.

Habitat

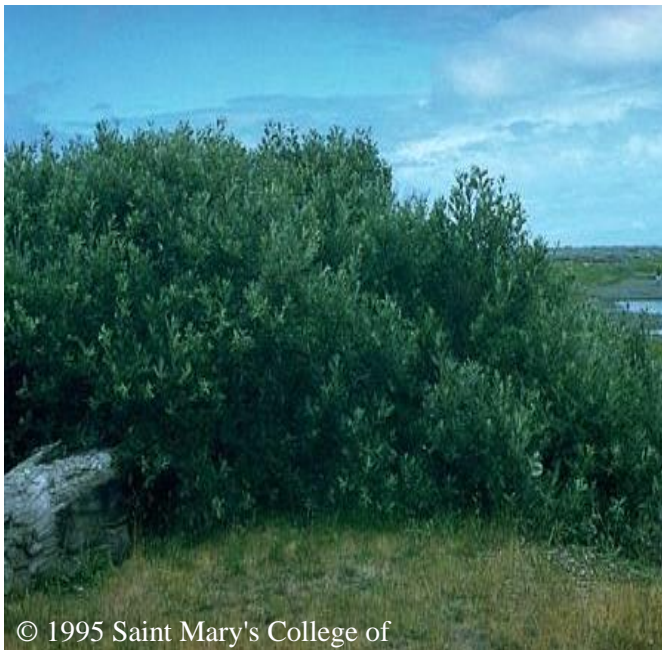
The Hooker's willow shrub is found in many different soil texture types such as sandy, or gravelly, where they have access to high concentrations of moisture. It is often found growing in riparian areas, coastal meadows, and marshes. They are tolerant of partial shade but prefer access to full sun. They are an extremely flood tolerant species.

Riparian Restoration Potential

Hooker's willow is an important shrub to consider when implementing a riparian restoration project. It is a valuable plant to have in bank stabilization projects in low velocity streams. It will help restore native plant communities and will improve water quality by increasing shade and improving conditions for fish. These shrubs can be used as a natural windbreak and as an alternative to hard treatments such as rock riprap.

Wildlife

Large organisms such as deer and elk will forage on the young shoots, while smaller game animals and birds will forage on the catkins. The branches provide cover and habitat for wildlife.



(USDA-Natural Resources Conservation Service, 2013)

Lewis's Mock Orange (*Philadelphus lewisii*)

Description

Mock orange is a deciduous shrub that grows to 3-10' tall. The shrub has clusters of small white flowers. The leaves are opposite, simple, ovate to elliptic-ovate. The fruit is a small darkish brown capsule. It is propagated by seed or summer softwood cuttings and for most applications, it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

Lewis' mock orange can be found in well-drained and moist sites with coarse to medium textured soil. It is often found on rocky sites, growing along streams, moist draws, and along cliffs. This shrub is shade tolerant

Riparian Restoration Potential

The Lewis' mock orange shrub can be a valuable plant that would be added value to a restoration project area or property improvement. It is capable of revegetating disturbed soil on steep and rocky slopes that are unstable. It may also be planted in drier areas of riparian areas that are heavily degraded.

Wildlife

The mock orange shrub provides great cover and habitat for wildlife. Deer and elk like to feed on the leaves and flowers. It is not extensively grazed by livestock, but it is not toxic to livestock. The flowers of this shrub emit a strong fragrance, making it an ideal pollinator plant for bees.

Erosion Control

This shrub is commonly used in riparian planting projects due to its soil stabilization ability. It can also be used as an ornamental because of its minimal maintenance.

(Crowder, 2003)



Nootka rose (*Rosa nutkana*)



Description

Nootka rose is a flowering shrub that is native to the western U.S. It can grow up to 1-9" tall. The stems are slender with deciduous, alternate, and odd-pinnate leaves. The individual leaves are serrated with an elliptic to elliptic-ovate shape. The flowers bloom May-July and range in color from light to dark pink. The flowers produce small amounts of nectar and are an important pollinator species for bees and other insects. It is propagated by sowing seeds, cuttings, root suckers, or layering.

Habitat

Nootka rose grows in moist and dry forest communities, roadsides, and sagebrush communities. It is often found growing alongside red-osier dogwood, black cottonwood, and snowberry. This small shrub grows best in medium to fine textured soils. In most cases, it can tolerate lower levels of fertility, but it cannot tolerate drought and will need watered during high heat summers.

Riparian Restoration Potential

Nootka rose produces extensive rhizomes and grows rapidly, making it an ideal plant for revegetation projects. It is used to control soil erosion on hillsides, road cuts and streambanks.

Wildlife

The nootka rose is a valuable plant for insects and other wildlife. The rose fruits (hips) will stay during dormant seasons, providing food for small mammals, birds, and insects. Deer and elk will browse on the leaves and young shoots in the spring and early summer. The flowers of this shrub can produce small amounts of nectar, making it a popular pollinator plant for bees gathering pollen.

Livestock

Livestock will graze on the leaves and young shoots of the Nootka Rose shrub.

(P.L.S & Skinner, 2013)



Oregon Crabapple (*Malus fusca*)

Description

The Oregon crabapple, also known as the Pacific crabapple. This tree is a deciduous native plant to the PNW. This plant can form as a shrub, or as a small tree (trees can grow up to 40 feet tall with an 18-foot diameter). The foliage of this shrub/tree is simple, alternate with ovate to elliptical serrated leaves that are dark green to yellow green in color. The flowers are usually ½” in size and are white and grow in clusters. The fruit is a roundish pome, being ½”- ¾” in diameter with a yellow-green to red coloration. The fruit is tart and can be used to make jam and jellies. It is propagated by seed and for most applications, it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

The Oregon crabapple tree is often found in moist shrublands and forests. They can also be found growing on the edges of wetlands and estuaries. They are tolerant of brackish water with low salt concentrations. They are best adapted to poor drainage soil types such as clay soils.

Riparian Restoration Potential

The Oregon crabapple tree grows in moist sites near riparian areas and can be used for erosion control. This tree is useful when planted in wet areas, and the leaves turn a beautiful shade of red or yellow orange in the fall. The flowers will attract pollinator insects such as bees and the fruit will feed wildlife.

Wildlife

The fruits are often eaten by small mammals and birds. The leaves are often eaten by deer and elk and are called “deer candy” by orchard growers. The flowers attract pollinator species and provide shelter for many different organisms.

(Jensen, Randall, Keniston, & Bever, Malus Fusca, 2015) (Kelley D. , 2014)



© Donya Nedomam, 2013



© Gordon Brent Brochu-Ingram, 2018

Indian-Plum (*Oemleria cerasiformis*)



Photo © Plantas Navitas, 2023



Slichter 2011

Description

The Indian-plum, or Osoberry is a tall shrub that can grow up to fifteen feet tall and is a deciduous native to the PNW. This shrub has simple, alternate, oblong-lanceolate shaped leaves that are 1½” – 5” long with a width of 1¼”. The leaves are a lighter green color, with pale coloration on the underside of the leaf. The flowers are small, with a whitish-green color. The fruit is plum-shaped with a blueish-black coloration that is ½ ” long. The fruit is edible but is usually too bitter for humans. It is commonly propagated by seed, but can be propagated by layering, cuttings, or root suckers. For restoration projects, it is simplest to obtain potted or bare root stock from a nursery.

Habitat

Indian plum is usually found in open forests, riparian areas, fence lines, hillsides, and roadsides. It will grow on most soil types and textures but does not like growing in areas that are saturated in winter months or that are extremely shaded.

Riparian Restoration Potential

This shrub is popular in restoration projects due to its tolerance to shade and moisture. It will also grow fast and is easy to propagate. The root systems of this shrub help prevent erosion.

Wildlife

The fruit is often eaten by small birds and other small mammals such as foxes and coyotes. They are also foraged by deer, bears, and other species. This shrub is an important source of nectar for hummingbirds and pollinator species due to its early flower season.

(Darris & Gonzalves, Plant Guide for Indian Plum (*Oemleria cerasiformis*), 2009) (Jensen, Randall, Keniston, & Bever, *Oemleria cerasiformis*, 2015)

Ocean Spray (*Holodiscus discolor*)



Description

Ocean spray is a deciduous native plant that grows in the PNW. It can grow up to fifteen feet tall and is considered a loosely branched shrub. The leaves are ¾"-2½" long with an ovate shape. The leaves are shallowly lobed with serration. The flowers are very small, and grow in tight clusters, and are a white or creamy-white color. They are often pollinated by insects. The fruit are tiny light brown follicles that grow in clusters. The long straight wood of the stems was important for Native Americans to construct arrow shafts. It can be propagated by cuttings, suckers, and seeds.

Habitat

Ocean spray is a tolerant shrub that is found in well-drained to dry soil sites (it can also grow in moist sites). Its habitat ranges from open forests to coastal bluffs, but can be found in open disturbed soil areas, roadsides, logged areas, etc. This shrub prefers well-drained, coarse-textured soils.

Riparian Restoration Potential

Ocean spray may be used for erosion control and site stabilization in disturbed sites, and will provide adequate protection for smaller mammals, birds, and amphibians. The flowers are often pollinated by bees and are popular with hummingbirds.

Wildlife

This shrub doesn't have a significant value to foraging organisms such as deer or elk, however, the flowers are used by bees and hummingbirds. Native slugs have been known to consume the leaves. Ocean spray provides cover habitat for small birds, amphibians, and small mammals.



(Bressette D. K., Ocean Spray, *Holodiscus concolor*, 2016) (Jensen, Randall, Keniston, & Bever, *Holodiscus discolor*, 2015)

Pacific Dogwood (*Cornus nuttallii*)



Description

The Pacific dogwood is a deciduous tree native to the PNW that can grow up to sixty feet tall. The leaves are bright green in color, simple, oppositely arranged, and elliptical to ovately shaped. The leaves are three inches to five inches long with a width of one and a half inches to three inches. The leaves turn red in the fall. The flowers are a greenish-white color, with four to six creamy white bracts (petals). The fruit is a small cluster of reddish colored drupes. It is propagated by seed but can be propagated by layering. For most projects, it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

The Pacific dogwood tree prefers moist and well-drained sites with soil textures ranging from clay to sandy loam types. These trees are highly tolerant to flooding with moderate shade tolerance. They can often be found along stream banks and in lower elevation mixed coniferous-hardwood forests.

Riparian Restoration Potential

This tree is very tolerant and is often found in the shaded areas of a forest understory. It prefers to grow in moist, well-drained soils. It will usually grow next to willow, Douglas-fir, redwood, and red alder. Its stature can make it an option for shading a stream.

Wildlife

Deer and elk will forage on the leaves, while small mammals and birds will eat the fruit.



(Bresesette, 2015) (Jensen, Randall, Keniston, & Bever, *Cornus nuttallii*, 2015)

Pacific Ninebark (*Physocarpus capitatus*)



Description

Pacific ninebark or western ninebark is a native shrub to the PNW that grows up to twelve feet tall. Ninebark is often recognized by the brown shedding bark on its branches and stems. The leaves are three to five lobed with toothed edges. It is often confused with salmonberry. The leaves are shiny dark green above, pale below with fine hairs on the bottom. The flowers are small and clustered with yellow centers and pink stamens. The fruits are small and reddish colored follicles. It is typically propagated by seed, but is able to be propagated by softwood cuttings (spring), and hardwood cuttings (winter)

Habitat

The Pacific ninebark shrub prefers medium to fine textured soils, growing in coastal marshlands, meadows, or drier sites. Its habitat includes streambanks, swampy areas, or openings in moist woodlands. It will tolerate full sun, but it prefers partial shade. This shrub requires an annual precipitation of 20-200 cm and has low drought tolerance.

Riparian Restoration Potential

Physocarpus capitatus is an important riparian restoration plant because of its unique fibrous root system that can be used in streambank stabilization projects. This shrub is able to root from live stake cuttings, fascines, and brush mats. It is a valuable species for wildlife and will provide habitat for smaller organisms.

Wildlife

Many different species utilize this shrub such as birds and small mammals. Deer and elk will occasionally forage on the leaves and twigs, but it isn't highly palatable. The flowers are often pollinated by native bees.



(Bressette D. K., Pacific Ninebark. *Physocarpus capitatus*, 2016) (Gonzalves & Darris, Plant Guide for Pacific Ninebark (*Physocarpus capitatus*), 2007)

Pacific Rhododendron (*Rhododendron macrophyllum*)



Description

The pacific rhododendron is a native shrub to the PNW that is widely recognized because of its vibrantly colored flowers. This shrub can grow up to twenty-four feet tall, with thick leathery leaves that are dark green on top with a lighter green on the bottom. The leaves are oblong shaped and are usually 3-8 inches long. The flowers are usually pink but can occasionally be white. The flowers have five lobes with wavy edges. The clusters of rhododendron flowers are called trusses. It is propagated by seed or softwood cuttings, but for restoration projects, it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

The pacific rhododendron grows in moist, well drained sites that are sunny or shaded. This shrub Prefers loamy or clay soils and will grow poorly in sandy soils. It will grow in fairly dry open forests and along roadsides.

Riparian Restoration Potential

Pacific rhododendron can be used as erosion control in watersheds. While its modest height does not make it a strong candidate for shading, its tough growth nature and pollinator benefits warrant its consideration for a planting.

Wildlife

This shrub provides shelter and habitat for organisms year-round. Bees will pollinate the flowers and deer will occasionally feed on the leaves and twigs. This shrub is considered to be poisonous to sheep.

(Bressette D. K., Pacific Rhododendron, *Rhododendron macrophyllum*, 2015)
(Jensen, Randall, Keniston, & Bever, *Rhododendron macrophyllum*, 2015)



Pacific Willow (*Salix lucida*)



Description

The Pacific willow is a deciduous shrub or small tree that is native to the PNW. It can grow up to 45 feet tall with 5-10 cm long thin shiny leaves with finely toothed edges. The catkins of this willow are hairless and 6-8mm in size with a light reddish-brown color. Pacific willow is propagated by dormant live stake cuttings in most applications, but bare root stock may be purchased from a local nursery.

Habitat

Pacific willow is a fast-growing shrub that is found growing in damp heavy soils in riparian zones, floodplains, and wet meadows. It can withstand high amounts of flooding and will grow the best in full sun.

Riparian Restoration Potential

Pacific willow is an important species to consider when implementing a riparian restoration project because of its fast-rooting abilities in heavily disturbed areas. Pacific willow trees are often used in tree strips as windbreaks and are planted to protect livestock by enhancing production and help control soil erosion from heavy hoof traffic. Pacific willow is frequently used in disturbed sites for streambank stabilization projects.

Wildlife

The Pacific willow is an important species for many species of wildlife such as deer and elk, who forage on the young twigs (shoots) in the springtime. It is also a preferred food of mice and cattle. Small birds will take cover in the intertwining branches to hide from predators.

(Moore, Plant Guide for Pacific Willow (*Salix lasiandra*), 2002)



Red alder (*Alnus rubra*)

Description

Red alder, or Oregon alder, is a deciduous tree that is native to the PNW. Its name is derived from the color of the wood when it's cut and the dye that is made from its bark. Red alder is a fast-growing tree that can range from 30-125 ft tall, although more commonly around 50 ft at maturity. The leaves are three to six inches long with an ovate to ovate-elliptical shape. It has wavy, toothed leaves with revolute margins (the leaf margins slightly roll under the leaf). It does not reproduce readily by cuttings and generally is best obtained as potted or bare root stock that was started by seed in a nursery setting.

Habitat

Red alder prefers moist and well-drained soil consisting of deep sandy loams. They prefer full sun and are a flood-tolerant species that can grow in areas where there is brackish water.

Riparian Restoration Potential

Red alder trees are often used for restoration projects because they will often grow in stands along rivers and streams. Red alder trees are a host for nitrogen-fixing bacteria that form nodules on tree roots which will greatly improve forest soils and make them more fertile. They tend to grow best in moist soils, however, are not able to tolerate conditions where there is water around the lower trunk and stem during the growing season and often die with beaver pond expansion.

Wildlife

Many different organisms utilize this tree such as finches, deer, and elk. Beaver will eat the bark and use the stems for building dams. Deer and elk will eat the twigs and leaves. Lichen and other mosses will use the alder tree as a host as well.

(Bressette D. K., Red Alder, *Alnus rubra*, 2014) (Jensen, Randall, Keniston, & Bever, *Alnus rubra*, 2015)



Red Elderberry (*Sambucus racemosa*)



Description

The red elderberry is a deciduous shrub (or small tree) that is native to the PNW. This plant ranges in height, from 8 ft to 20 ft tall. The leaves are pinnately compound, oppositely arranged, with five to seven leaflets in an oblong-ovate shape. The leaf margins are serrate with a darker green coloration on top with a light green below with a slight hairy texture. The flowers are white and grow in clusters. The fruit is bright red (may also be purplish black, and occasionally white) with a 1/16" – 1/8" diameter. The fruit is toxic to humans unless it is cooked (often gathered and cooked into jams, jellies, wines, etc.) It is propagated by seed, but for restoration projects, it is best to propagate from dormant hardwood cuttings or softwood cuttings.

Habitat

Red elderberry is commonly found in deciduous forests, ravines, swamps, and streambanks. It is a shade tolerant species, but it prefers partial to full sun. It can be found in a variety of soil types, but it prefers moist loamy sands and silt type soil with good drainage.

Riparian Restoration Potential

*Red elderberry is used for revegetation projects and may be used as an erosion control. The dense roots of the *Sambucus racemosa* shrub make it ideal for soil stabilization on moist sites such as streambanks. It will also provide adequate habitat and cover for small organisms such as birds.*

Wildlife

Small birds, especially band-tailed pigeons will eat the berries along with other small mammals and birds.. Bears will forage on the berries, leaves, and the roots. Bee pollination of flowers can benefit both the plant and the pollinator.



(Bressette D. K., 2017) (Jensen, Randall, Keniston, & Bever, *Sambucus racemosa*, 2015)

Red flowering Currant (*Ribes sanguineum*)



Description

The red flowering currant is a flowering deciduous shrub that is found in dry to moist, well drained soils. It will grow in shaded and sunny areas. It grows up to ten feet tall. The leaves are 1 ½” – 3” in diameter with a dark green color above, with a soft velvety texture below. The leaves are 3-5 lobed (similar to a maple leaf) with serrated margins (edges). The flowers range in color from red to light pink growing in drooping flower clusters of 10-20 flowers. The fruit is a dark blue berry with a white waxy coating. It is propagated by seed and generally is best obtained as potted or bare root stock that was started by seed in a nursery setting.

Habitat

The red-flowering currant shrub grows in well-drained and fertile soil that prefers full sun or partial shade. This shrub is often found in open areas, slopes, and edges of forests. It is a drought-resistant shrub and is often used in restoration planting projects where late summer drouthy conditions resist plant establishment.

Riparian Restoration Potential

Red flowering currant is classified as being a drought tolerant deciduous shrub that would be ideal and useful in restoration planting projects. It is an important pollinator plant for many species such as butterflies and bees, while providing cover for smaller organisms such as birds.

Wildlife

The flowers are often pollinated by insects and hummingbirds. The berries are eaten by birds and other small mammals. Bigger game animals such as deer and elk will occasionally browse on the foliage. This shrub has modest forage value for cattle and sheep.



(Bressette D. K., Red Flowering Currant, *Ribes sanguineum*, 2016) (Gonzalves & Darris, Plant Guide for Red Flowering Currant (*Ribes sanguineum*), 2008) (Jensen, Randall, Keniston, & Bever, *Ribes sanguineum*, 2015)

Red-osier Dogwood (*Cornus sericea* var. *occidentalis*)



Description

The red-osier dogwood is a native shrub to the PNW that grows up to fifteen feet tall. It has red to purplish-red bark in the sun. It is often used as an ornamental plant species because of the bright red bark in the winter seasons. The leaves are simple, oppositely arranged, with an ovate to ovate-elliptical shape (2" – 6" long). They are pale green colored with entire to wavy margins. The leaves will turn red in the fall. The flowers are small and white and grow in terminal clusters. The fruit is white colored and is a berry-like drupe that is ¼" in diameter. It is propagated easily by seed, but for riparian restoration projects, it is easiest to harvest dormant live stake cuttings.

Habitat

The red-osier dogwood shrub is a flood tolerant plant species that prefers moist, poorly drained soils that are medium to coarse in texture. It is capable of tolerating fluctuating water tables, and it is tolerant of some shade. The red-osier dogwood grows along streams and in areas with moist, well-drained soils. It is often found in wetland areas, open forests, lakesides, etc.

Riparian Restoration Potential

It can be used in restoration projects as a streambank stabilizer where there are high amounts of flooding. It is able to tolerate impacts by beaver to a moderate level. It is a relatively steady grower, however, can take a decade or more to reach ten feet in height.

Wildlife

Many different species use red osier dogwood. Deer and elk will feed on the twigs and foliage, while bears, birds, and other small mammals will eat the berries. Elk and deer especially like to use the stems for polishing their antlers.



(Bressette D. K., Red-Twig Dogwood, *Cornus sericea*, 2016) (Jensen, Randall, Keniston, & Bever, *Cornus sericea* var. *occidentalis*, 2015)

Rose Spiraea (*Spiraea douglasii*)

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Description

Rose spiraea is a small deciduous shrub that is native to the PNW. It can grow up to 7ft tall, with slender branches that sit upright. The light green leaves are 1-3 in. long, with an elliptical to oblong shape with the upper half of the leaf margins toothed. This shrub has very small reddish pink flowers that grow in dense, elongate clusters that give off a very fragrant scent. The flowers will begin to bloom from June-September. Rose spiraea is propagated from seed, softwood cuttings, layering, rhizome/root segments, and dormant hardwood cuttings.

Habitat

The Rose spiraea shrub is often found growing in damp meadows, riparian zones, marshes, and around ponds/lakes. It prefers moist well-drained soil to wet poorly drained soil that can vary from gravelly sandy loams to heavy clays. It will grow best in full sun, but it can tolerate some shade. It is also a flood tolerant species, making it ideal for riparian restoration projects.

Riparian Restoration Potential

Rose spiraea is an important species to consider for riparian restoration projects because it is useful in stream bank stabilization projects. It can also be used to restore degraded wetlands. This shrub is capable of withstanding competition with other plant species such as invasive reed canary grass and other wetland grasses.

Wildlife

Many different species of bird use this shrub as protective cover from predators. Birds such as grouse will consume the dried spikes, but it is considered a poor forage for livestock and big game species such as deer and elk. The flowers are important for pollinator species such as bees, while hummingbirds will use it as a source of nectar during summertime.

(Darris & Gonzalves, Plant Guide for Rose Spiraea (*Spiraea douglasii*), 2009)

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Salmonberry (*Rubus spectabilis*)



Description

Salmonberry is a native deciduous shrub to the PNW that is well known due to its “golden raspberries” that appear during the summertime. This shrub can grow up to 12 ft. and tends to form dense thickets. The leaves are palmately compound (three leaflets) alternately arranged with an ovate shape (leaflets are 1”-3” long). The leaves are a shiny dark green color, and the leaf margins (edges) are doubly serrate or 1-2 lobed and serrate (resembles a butterfly). The flowers are pink to dark red in color. The berries are an aggregate of drupelets, with a salmon orange to red coloration. It is propagated by seed, and by dormant live stake cuttings. For most projects, it is best obtained as potted or bare root stock that was started by seed in a nursery setting.

Habitat

Salmonberry usually grows in the shaded areas along streambanks. These shrubs will stabilize and restore degraded sites and will minimize erosion once established.

Riparian Restoration Potential

It is a plant that is easily transplantable and has good soil binding qualities once it is established. It can withstand flooding during winter if summer conditions are well-drained.

Wildlife

The shrub provides food, habitat and protection for many different small mammals and bird species. Deer and rabbits will forage on the leaves while bears, birds, rodents, and foxes will eat the berries. The flowers are often pollinated by insects.



(Anderson, Darris, & Stevens, Plant Guide for Salmonberry (*Rubus spectabilis* Pursh), 2005) (Bressette D. K., 2016) (Jensen, Randall, Keniston, & Bever, *Rubus spectabilis*, 2015)

Scouler's Willow (*Salix scouleriana*)



© Margo Bors , 2003

Description

Scouler's willow is a deciduous shrub or small tree that is native to the PNW, and grows up to a height of 36 ft. The leaves are 1-3 inches long, alternately arranged with an oval shape that becomes wedge shaped towards the stem. The mature leaves have a shiny dark green top, with short rust colored hairs on the underside of the leaf. The twigs are dark brown to yellowish-brown with a velvety texture. Scouler's willow is propagated by dormant live stake cuttings in most applications, but bare root stock may be purchased from a local nursery.

Habitat

Scouler's willow is also referred to as Upland willow because of its ability to grow successfully in drier habitats compared to other species of willow. It can be found growing in a variety of different soil types and is often growing in floodplains and riparian zones. It is a flood tolerant species, but it may also tolerate drier conditions, making it ideal for project sites which do not have high water tables.

Riparian Restoration Potential

Scouler's willow is a valuable plant to include in a riparian restoration project due to its ability to tolerate different types of sites. It will grow in drier conditions, while also growing in very moist conditions. These shrubs grow well in riparian zones, which improves stabilization and improves water quality. Over time, the shrub will grow, shading the stream and providing cooler water temperatures for fish.

Wildlife

Salix scouleriana is an important plant species for wildlife as it provides habitat and cover for many smaller organisms such as birds. Deer and elk will forage on the leaves, while beavers use branches to build their dams. The flowers are important to pollinator species such as bees, who use the pollen and nectar as a food source.



Slichter 2005

(Bressette D. K., The Willow Family– Salicaceae, 2014) (Pojar & MacKinnon, 2016)

Sitka Spruce (*Picea sitchensis*)



Description

The Sitka spruce is an evergreen coniferous large tree that is native to the PNW. The height of these trees can vary between 125'-180'. The leaves (needles) are 0.5"-1.5" long with a linear shape. The needles are sharp to touch the ends. The leaves on the side of the twig are perpendicular to the twig, and the needles on top point forward. The cones are 1.5"-3.5" long, with an oblong to cylindrical shape. The scales are a yellowish tan color and are papery (cones scales look similar to the shape of fish scales). Sitka spruce is not able to vegetatively propagated. For larger plantings it is recommended to contact a nursery and obtain bare root or potted stock generated from seed.

Habitat

This large tree is often found in moist-well drained sites along the coast. These trees are a tidewater, fog belt species which allows them to be more tolerant to marine air (and tidewater). These trees can occur in wetlands and non-wetlands. If attempting to establish is a location where water is shallow, but remains at the soil surface during summer, either log nurse locations or soil mounds will be needed to facilitate oxygen for root systems and tree establishment.

Riparian Restoration Potential

Spruce-bog wetlands can exhibit a high degree of complexity for fish and wildlife. The large stature at a relatively young age (40+yrs) makes them a good candidate for stream shading. Compared to willow and cottonwood their soil holding capability on streambanks is moderate rather than strong. The needles are tannic, which can also affect other plant growth. As a portion of the composition in a planting they are a great option. Their spiky needles resist beaver, elk, and deer effects. Often, they become the remaining dominant species left in a browsed riparian restoration site due to their resistance to browsing.

Wildlife

The foliage and twigs of spruce trees are often eaten by deer and elk. The trees also provide habitat for many bird species.



(Bressette D. K., Sitka Spruce, *Picea sitchensis*, 2014) (Jensen, Randall, Keniston, & Bever, *Picea sitchensis*, 2015)

Snowberry (*Symphoricarpos albus*)

© Cold Stream Farm, 2023



Description

Symphoricarpos albus, or common snowberry, is a deciduous shrub that is found across North America. It is a finely branched shrub that grows up to six feet tall. Its leaves are simple, oppositely arranged with an ovate, elliptical, or ovate shape (3/4" – 2 1/2" long). The leaves are green with a lighter green coloration below. The flowers are a pinkish white bell-shaped flower that grows in clusters and has a distinct smell. The fruit is a round, white waxy berry that is 1/2" in diameter. It is propagated by seed, but for most applications, it is easiest to obtain as potted or bare root stock that was started by seed in a nursery setting.

Habitat

The common snowberry shrub grows in a variety of different soil types but will grow the best in heavy clay soils. It is usually found growing along streambanks, moist clearings, and in swampy thickets.

Riparian Restoration Potential

Snowberry is able to tolerate poor soils which increases its value and importance for restoration projects. Because of its ability of establishing to control soil erosion, it is a valuable plant to include in streambank improvement projects. While it will not provide a significant amount of shade due to it being a smaller shrub, it will provide habitat and be an important food source for many organisms.

Wildlife

The fruit, or berries of this shrub is important for many bird species. Deer and elk will eat the twigs and foliage while bears and rodents will eat the berries. The flowers are usually pollinated by bees but will sometimes attract hummingbirds.

(Bressette D. K., Common Snowberry, *Symphoricarpos albus*, 2017)
(Jensen, Randall, Keniston, & Bever, *Symphoricarpos albus*, 2015)



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Swamp Rose (*Rosa palustris*)



Description

The swamp rose is a perennial shrub that will grow up to 7 ft tall. The stems are tall with straight curved prickles attached to them. The leaves are alternately arranged, pinnately divided into seven leaflets that are pointed at the tip. The flowers are pink in color and may grow in clusters or alone. They are usually three to five centimeters wide. The flowers are extremely fragrant and will bloom from June to July. The fruit (rose hip) is red and fleshy on the outside with the seeds enclosed inside. It is propagated by seed, but it is simplest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

The swamp rose shrub is found in marshes and swampy areas. It can grow in most soils, but it will do the best in soils that are damp or are rich loamy soils. It will also grow in ditches and next to streams. It is a shade tolerant plant species but does the best in full sun or partial shade.

Riparian Restoration Potential

Rosa palustris is an important species to consider for riparian restoration projects due to its ability to grow in moist soil types. It is a low maintenance plant that can be used in wetland restoration projects. It is an important species that adds ecological value to a landscape by providing habitat and food for wildlife.

Wildlife

The fruits are usually eaten by different species of birds and other small mammals. The flowers are important for bumble bees, who pollinate the flowers when they are in bloom.

(Moore & Favorite, Plant Guide for Swamp Rose (*Rosa palustris* Marsh.), 2002)



Vine Maple (*Acer circinatum*)



Description

The vine maple is an erect shrub that is native to the PNW. This shrub can grow up to be 20 feet tall (or a small tree 30 ft -40 ft in height). The leaves range in color, and are often bright shades of orange, red, Green, and yellow during the autumn season. The outline of the leaf is almost circular and is usually 2"-4" in diameter. The leaves are oppositely arranged, with a symmetric palmate shape with 7-9 spaced lobes. The flowers are a reddish color and grow in clusters. The fruit is a propeller-like samara that is one to two inches in diameter. Vine maple is propagated by seed, but for most applications it is easiest to obtain potted or bare root stock from a nursery with locally adapted genetics.

Habitat

It grows best in moist soils next to Douglas-fir, Pacific dogwood, and western hemlock. It can tolerate sunny areas, but it will grow more efficiently in the shade.

Riparian Restoration Potential

Vine maple is used in forested riparian buffers to help protect water quality, enhance the stream, and reduce stream bank erosion.

Wildlife

Vine maple provides shade and habitat for many different organisms. Birds, chipmunks, and squirrels will feed on the seeds. Cattle and sheep will often eat the maple leaves. The leaves and twigs are eaten by deer and elk in the summertime.



(Bressette D. K., Vine Maple, *Acer circinatum*, 2015) (Favorite & Moore, Plant Guide for Bigleaf maple (*Acer macrophyllum*), 2002) (Jensen, Randall, Keniston, & Bever, *Acer circinatum*, 2015)

Western Hemlock (*Tsuga heterophylla*)



Description

Western hemlock is a large native evergreen coniferous tree to the PNW. It ranged in height from 125'-200' with a 2'-4' diameter. It has 1/4"-3/4" long linear leaves (or needles) that are dark glossy green in color with two bands of stomatal bloom on the bottom. The needles can vary in size but are short compared to fir tree needles. The cones are small and woody and are less than an inch long. Western hemlock is not able to vegetatively propagated. For larger plantings, it is recommended to contact a nursery and obtain bare root or potted stock generated from seed.

Habitat

Seedlings tend to grow on decaying wood or stumps in the shade of Douglas-fir stands. It grows best in deep, moist, and well drained soils. It usually occurs in non-wetlands areas.

Riparian Restoration Potential

Western Hemlock can be a good addition to a riparian restoration site where there is a component of overstory or mixed partially shaded stand to assist with establishment. It is able in coastal and interior higher elevation zones with high moisture to grow from a seedling in full sunlight. It has a tall stature and relatively broad canopy when larger, which is able to contribute strongly to small, medium, and to a lesser degree, large streams. Hemlock are excellent Large Woody Debris, when weather events blow them down into streams.

Wildlife

Hemlock trees are a popular tree used by birds for nesting sites. Smaller birds and rodents will eat the seeds from the cones. Deer and elk will eat the needles and twigs off of the trees.



(Bressette D. K., Western Hemlock, *Tsuga heterophylla*, 2014) (Jensen, Randall, Keniston, & Bever, *Tsuga heterophylla*, 2015)

Western Redcedar (*Thuja plicata*)



Description

The western red cedar tree is a large coniferous evergreen tree that is native to the PNW. It has an average diameter of 3'- to ten feet and will grow up to be 150'-200' tall. The scale-like leaves are pressed tightly to the stems and will make a butterfly or bow tie pattern on the bottom with the white stomatal bloom. The cones are about ½" long with an elongated shape and stay attached to the branches for a long period of time. Western hemlock is propagated by seed but for larger plantings, it is recommended to contact a nursery and obtain bare root or potted stock generated from seed.

Habitat

Red cedar tends to grow in moist soils along streambanks, mountain slopes, etc. These trees are very tolerant, and will occur in small pure patches, but can also be found growing mixed in with Douglas-fir, Sitka spruce, Western Hemlock, etc. These trees prefer well drained soils and will often be found growing in moist sites.

Riparian Restoration Potential

Thuja plicata is an important coniferous tree species to consider when implementing a riparian restoration project. These trees often grow in mixed forests and provide important habitat for many species of animals. The fallen branches and needles will create a nutrient-rich environment creating ideal habitat for mosses, ferns, and fungi. This allows for healthier soil, improving the soil quality and preventing erosion in riparian zones.

Wildlife

Western red cedar provides habitat for many different wildlife species. Elk prefers to forage on the new growth (buds) of younger and smaller trees. Birds will build nests in these trees as well. The swooping branches of these trees also help shade riparian areas and streams.



(Kelley B. D., 2014) (Jensen, Randall, Keniston, & Bever, *Thuja plicata*)

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