

The Seedling



Washington Association of Conservation Districts
Plant Materials Center

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Growing Red Alder in the Pacific Northwest

Red Alder is a unique and dynamic tree species in the Pacific Northwest. It has gone from being predominant when the climate was warmer 7,000 years ago, to primarily a riparian and post-fire species 200 years ago. Then after logging began, it started regenerating up mountain sides.

Red Alder has also gone from being a commercially undesirable species to one that is more valuable at the mill than most softwood species. Throughout the latter half of the 20th century, Douglas Fir was the more valuable species, then around the turn of the century, Alder surpassed it in value, where it remains today, even in this economy.

Many consider Alder to be fairly ubiquitous in the woods, but the fact is that native stands have been steadily logged with relatively few being replanted. Add to that those areas that are off limits to logging, such as riparian areas and many public lands, and it begins to appear that availability could be a problem in the future for Alder as a commercially viable hardwood species.

Selecting a suitable site for Red



Alder plantations is critically important. It prefers moist, well-drained soils, but does not like wet, boggy areas. It also does poorly in dry, exposed sites where drought stress and sun scald reduces yield. Northern and Northeastern exposures are best. Frost pockets are particularly problematic for Alder. Areas that are in depressions where cold air pools should be avoided. Red Alder is intolerant of competition from other vegetation during the first couple of years. If the planting site has dense vegetation, control measures should begin before planting and continue for 2 or 3 years until they are established and growing tall.

When Red Alder is planted properly in a suitable site, then its growth rate is amazing. It grows the most during its first 10 years, where it can grow from an 18" seedling to a 30' tall tree that is over 4" in diameter. After 10 years the growth rate begins to taper off. In a well managed plantation, it can reach a harvestable size in 35 years.

Management is the key to achieving that growth rate. Proper density must be maintained. That might mean planting 500 to 600 trees per acre initially and thinning down to 235 trees within the first 10 years. Other management considerations include pruning, fertilizing, and weed control.

Alder has values other than commercial. It is a soil builder. It is unique in its ability to convert atmospheric nitrogen to ammonia, which is a form of nitrogen that can be used by plants. This process is the result of a symbiotic bacteria that lives in nodules on Alder roots. This *fixed nitrogen* is returned to the soil through leaf litter and stem decomposition. Red Alder is a host of many insect species, that become part of the food chain for fish and other vertebrates. Many of these vertebrates such as birds and mammals depend upon Alder for nesting and forage.

Red Alder is an important and complex tree species in our region. There is a lot of useful information available about growing it and its life cycle. Contact the PMC or look on our website to find out more.



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Shipping, Receiving and Handling

Orders will be available as early as mid-December and a minimum weeks' notice is requested. Orders may either be picked-up or shipped. Shipping costs varies depending on weight, volume and destination. Large orders that need to be palletized may take 1 to 3 days in transits while UPS typically will deliver within 1 to 2 days. The PMC prefers to ship early in the week so that the plants are not sitting on a loading dock over the weekend. Plants shouldn't be out of cold storage for more than a couple days.

Receiving: Upon receiving your plant order, it should be inspected and any problems need to be reported immediately (within 10 days) to the PMC. If prolonged storage is required, then refrigerated storage is advised. The warmer the plants become the faster they metabolize, resulting in reduced post-plant performance.

Handling: Bare root plants need to be kept cool and the roots need to be kept from drying out. Once the package is opened, the plants will dry out if the bag is not properly resealed. If the cedar shavings are looking dry, it is ok to replenish the moisture. If cold storage is not available, plants should be planted within 5 days.

Our website (www.wacd.org) has a printable Bareroot Planting Guide along with other helpful information. If you have additional questions or would like to schedule your order for either pick-up or shipping, please call the

How Do They Do That? Lifting and Processing Seedlings



Lifting



The Processing Line



Bundling & Banding

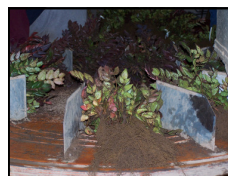
The PMC begins harvest once the plants have gone dormant, which is usually around the 1st of December. Before any plants are lifted, a crew needs to be hired. The harvest crew typically consists of 24 people. Six of them are the lifting crew and 18 are in the packing shed, processing plants.

The lifting crew follows the tractor and lifter. The lifter has a blade that runs beneath the root zone loosening the plants. It also has a shaker that brings the bare root seedlings to the surface. The lifting crew place the seedlings in a tote. When a tote is full, they cover it with wet burlap and take it into the packing shed.

The packing shed crew will start processing the totes. They sort and grade the seedlings, count them into bundles and run them down a conveyor belt. A mister at the end of the belt table moistens the plants. The bundles are then root pruned, banded, labeled and put into bags. The filled bags are banded, labeled and placed on a pallet frame, where they are stored in the cooler.

Throughout the process there are a few important considerations that are followed consistently. Most importantly is that the roots are never allowed to dry out. That is why wet burlap is placed over the filled totes and they are hosed down as soon as they reach the packing shed. During a typical day, seedlings go from the ground to the inside of a bag in the cooler within 3 to 4 hours. Proper cold storage is also critical, and great care is taken to ensure that the cooler temperature is maintained at 36°F.

On a typical day, over 30,000 plants can be processed. That means within 3 months, almost 2 million plants will run down the line. Customers are always welcome to visit the PMC and see this production first hand.



Root Pruning Table



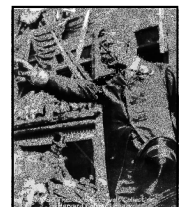
Bagging & Banding



The Cooler

Teddy Says.....

"To waste, to destroy, our natural resources, to skin and exhaust the land instead of using so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them." - Theodore Roosevelt



Native Plants That Merit Attention - Plants for Hedgerows

Hedgerows, or shelterbelts, are dense, linear plantings of a variety of shrub species. They are typically planted around the perimeter of a field, along roads, or as a buffer along the edge of a body of water. When they are planted densely enough they create a barrier that can keep livestock and other animals from passing through. Other functions include wildlife habitat enhancement, reduce soil erosion, help keep sediment and pollutants out of streams, reduce noise, provide privacy and decrease wind.

Several common shrub species that are used in hedgerows are listed below and there are other suitable plants as well, some of which are listed on the PMC web site. There are not any specific rules about how many species to use in a hedgerow, but usually using a diversity of species increases the variety of functions it performs. There also are not any rules for determining how far apart to plant the seedlings. They are sometimes planted less than 2 feet apart to over 8 feet, but denser plantings are usually better for livestock exclusion and noise abatement. Some other considerations for a successful hedgerow include:



- ◆ Weed Control - Weeds can be controlled through cultivation and/or spraying. It is always a good idea to start weed control before planting and maintain it for the first 2 or 3 years.
- ◆ Pest Control - Stem girdling by small rodents is a common problem for young seedlings. Tree protectors are often used to avoid this problem.
- ◆ Supplemental Irrigation - First year plantings will grow better if they are irrigated periodically until they are established.

Please contact the PMC with any questions about designing, planting and maintaining Hedgerows.



Black Hawthorn (*Crataegus douglasii*) - Black Hawthorn is a commonly used species in hedgerows. Its primary benefit are its thorns. It is armed with 2" long thorns that are useful in livestock exclusion. It is also a good choice for wildlife habitat enhancement. It produces large, dark berries that attract many different species of song birds. Black Hawthorn can grow to over 15' tall and is a dense multi-stemmed shrub.



Indian Plum (*Oemleria cerasiformis*) - Indian Plum grows into a dense, upright shrub that can reach over 15' tall and equally wide. It is an important wildlife species. Its large purple berries ripen in late June, making it an early and important food source for birds and mammals alike. It starts flowering in February, creating an early show of masses of white flowers.



Pacific Ninebark (*Physocarpus capitatus*) - Ninebark is another large and dense multi-stemmed shrub. It can reach over 15' tall, with an equal spread. It produces clusters of cream colored flowers in the spring that give rise to small shiny seeds in late summer that are favored by many species of birds. It is adapted to a variety of soils that range from dry to wet. Its stems are covered by layers of exfoliating red bark, which are showy in winter.



Red Flowering Currant (*Ribes sanguineum*) - Red Flowering Currant is a medium sized shrub, growing to 10' tall with an equal spread. It is best suited to better drained upland soils. It is a valuable wildlife species, producing berries in mid summer. Its use in hedgerows is often based on the aesthetics of its flowers however. It produces masses of rose-pink flowers in March, creating a show in advance of most flowering shrubs.



Red Osier Dogwood (*Cornus stolonifera*) - Red Osier Dogwood is another species that is often used in hedgerows for its aesthetic values as much as its ecological benefits. It is a large upright multi-stemmed shrub that can grow over 15' tall. It produces large clusters of showy white flowers that give rise to attractive white berries in August. Its striking red bark is particularly noticeable in winter after its leaves have fallen. Red Osier Dogwood is an especially good species for wet areas.



Vine Maple (*Acer circinatum*) - Describing the growth habit of Vine Maple is difficult. As its common name implies, it grows somewhat vine-like. Its stems are *phototropic*, meaning they grow toward light. It is this trait that makes them a good species for hedgerows. They can grow towards gaps and fill them in. It is a hardy species that is adapted to a wide variety of soils and exposures. Its seeds provide an important food source in late summer and fall. Vine Maple is an attractive species in the fall, when its leaves turn yellow, orange and red.

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Helping to put conservation on the ground.

Plant of the Year - Cascara

Cascara is native to Western North America, and can be found growing from southern British Columbia to central California, and inland to western Montana. It is most common on the west side of the Cascade Mountains at low to mid-elevations.

Cascara was historically important in the pharmaceutical industry, where its bark was used as a laxative. The over-harvesting has resulted in a considerable reduction in the native Cascara population. Once stripped from the tree the bark is aged for about 1 year to make its effect milder.



Cascara typically grows as an upright tree, occasionally reaching 30 feet tall. The bark is brownish to silver grey with light splotching. The leaves are deep green, deciduous and some

will persist through the winter. Flowers are tiny 4-5 mm diameter with five greenish yellow petals. The flowers develop into deep purple or black berries containing three seeds. The berries are a favorite food of several species of birds and its stems provide browse for deer and elk.



Cascara is adapted to grow in a wide range of conditions. It can be found growing in soils that range from wet to dry and sites that vary from shady to exposed. Most typically however, Cascara is found growing in moist acidic soils, with some shade present. It is often overlooked as a worthy

restoration species and should be considered an ideal addition to any project considering its adaptability and wildlife component. It is often used in hedgerows. Cascara is also prized for its ornamental value. With its upright growing habit and deep green glossy leaves, this versatile tree is a worthy addition to any landscape.

Cascara is known by two different botanical names. Originally it was placed in the Genus *Rhamnus*, and given the name *Rhamnus purshiana*. The flowers of Cascara did not fit perfectly into the genus *Rhamnus* however. It was therefore placed into the genus *Frangula* and now has the botanical name *Frangula purshiana*.



Regardless of the status of Cascara's botanical name, it is another outstanding Pacific Northwest native plant species.