

Plant Propagation Protocol for *Rhododendron macrophyllum*
 ESRM 412 – Native Plant Production

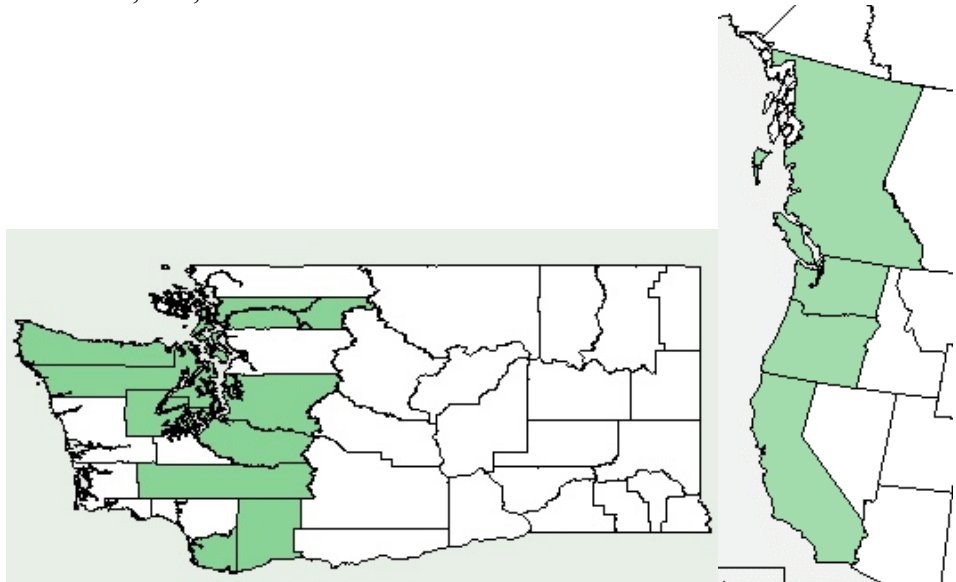


Image from www.goldengatephoto.com/jpeg/02-12-8.jpg

TAXONOMY (5,8)

Family Names	
Family Scientific Name:	<i>Ericaceae</i>
Family Common Name:	Heath Family
Scientific Names	
Genus:	<i>Rhododendron</i>
Species:	<i>macrophyllum</i>
Species Authority:	D. Don ex G. Don
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s):	<i>Rhododendron californicum</i> Hook <i>Hymenanthyes macrophyllum</i> (D. Don ex G. Don) H.F. Copel
Common Name(s):	Pacific rhododendron California rhododendron
Species Code:	RHMA3

GENERAL INFORMATION

<p>Geographical range:</p>	<p>USA: CA, OR, WA</p>  <p>CA: BC</p>
<p>Ecological distribution:</p>	<p><i>R. macrophyllum</i> occurs at the edges of mixed-conifer forests in both sun and semi-shade, or among shorter ericaceous scrub. (1)</p>
<p>Climate and elevation range:</p>	<p><i>R. macrophyllum</i> is found from sea level to over 1200 m. <i>R. macrophyllum</i> prefers moist, well-drained, acidic soils (pH 5.5-neutral). (1,5)</p>
<p>Local habitat and abundance; may include commonly associated species</p>	<p><i>R. macrophyllum</i> is locally find in Washington State on the Olympic and Kitsap peninsulas, Whidbey Island, and the western slopes of the Cascades. Commonly associated species include coastal redwood, Douglas-fir, yellow pine, Sitka spruce, silver fir, and western hemlock. (2,3,4)</p>
<p>Plant strategy type:</p>	<p><i>R. macrophyllum</i> is classified as a residual shrub. (5)</p>
<p>Plant characteristics:</p>	<p><i>R. macrophyllum</i> is a broadleaf evergreen shrub. (2)</p>
<p>PROPAGATION DETAILS (4,6)</p>	
<p>Ecotype:</p>	
<p>Propagation Goal:</p>	<p>Plants</p>
<p>Propagation Method:</p>	<p>Seed</p>
<p>Product Type:</p>	<p>Container (flat)</p>
<p>Stock Type:</p>	
<p>Time to Grow:</p>	<p>2 to 3 years</p>
<p>Target Specifications:</p>	
<p>Propagule Collection:</p>	<p><i>R. macrophyllum</i> seeds are ready to be collected from late summer through fall when the seed capsules lose their color and begin to turn a rusty brown shade. Seed capsules can contain as many as 440 seeds, so the collection of only a few capsules can yield a large number of seeds.</p>
<p>Propagule Processing/Propagule Characteristics:</p>	<p><i>R. macrophyllum</i> seed capsules should be spread in thin layers to air dry or oven dried at 35 C for 12 to 24 hours. The dried capsules easily relinquish their seeds and the seeds can be recovered using an air screen. <i>R. macrophyllum</i> seeds are extremely small, estimates range from 4400 to 12500 seeds per gram. Cleaned seeds will remain viable for up to 2 years</p>

	when stored in plastic vials or bags at -4 C.
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Collected capsules easily yield seeds when rubbed or otherwise threshed. <i>R. macrophyllum</i> has no dormancy requirements.
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Seeds should be sown into flats of sandy peat and half-decayed oak leaves covered with shredded sphagnum for germination.
Establishment Phase (from seeding to germination):	<i>R. macrophyllum</i> requires light in order to germinate. Covering seeds with glass or plastic may speed-up the germination process.
Length of Establishment Phase:	21 days
Active Growth Phase:	Seedlings of <i>R. macrophyllum</i> should be left in flats located in the shade for the first year.
Length of Active Growth Phase:	1 year
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	Plants should be transplanted to containers or beds and then moved outdoors. <i>R. macrophyllum</i> should needs to grow for 1 to 2 years before being planted in the field.
Length of Hardening Phase:	1 to 2 years
Harvesting, Storage and Shipping:	
Length of Storage:	
Guidelines for Outplanting:	
Other Comments (including collection restrictions or guidelines, if available):	It is advised that plants or cuttings should not be collected from natural settings, unless it is a salvage site, because of past over collection. (2)

INFORMATION SOURCES

References:	<p>1- Halliday, Pat. <i>The Illustrated Rhododendron</i>. Portland, OR: Timber Press, Inc., 2001. Print.</p> <p>2-Leigh, Michael. <i>Grow Your Own Native Landscape: A guide to identifying, propagating, and landscaping with Western Washington native plants</i>. Washington State Cooperative Extension, 1996. Print.</p> <p>3-Lundstrom, Christer. "Plant Data Sheet." <i>depts.washington.edu</i>. 2003. 29 Apr 2009 http://depts.washington.edu/propplnt/Plants/rhododendron.htm.</p> <p>4-Rose, Robin, Caryn E.C. Chachulski, and Diane L. Haase. <i>Propagation of Pacific Northwest Plants</i>. Corvallis, OR: Oregon State University Press, 1998. Print.</p> <p>5-Ross, Christopher. "Rhododendron macrophyllum." (2002) Web.28 Apr 2009. http://www.fs.fed.us/global/iitf/pdf/shrubs/Rhododendron%20macrophyllum</p>
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	<p>.pdf.</p> <p>6-Young, James A., and Cheryl G. Young. <i>Seeds of Woody Plants in North America</i>. Portland, OR: Dioscorides Press, 1992. Print.</p> <p>7-"ITIS Standard Report Page: Rhododendron macrophyllum." <i>ITIS Report</i>. ITIS.gov. 28 Apr 2009 http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=23720.</p> <p>8-"PLANTS Profile for Rhododendron macrophyllum (Pacific rhododendron) USDA PLANTS." <i>USDA PLANTS</i>. USDA NRCS. 28 Apr 2009 http://plants.usda.gov/java/profile?symbol=RHMA3.</p>
Other Sources Consulted:	<p>Cox, Kenneth. <i>Rhododendron: A Care Manual</i>. San Diego, CA: Laurel Glen Publishing, 1998. Print.</p> <p>"NPIN: Rhododendron macrophyllum (California rhododendron)." <i>wildflower.org</i>. 2007. Wildflower Center. 28 Apr 2009 http://www.wildflower.org/plants/result.php?id_plant=rhma3.</p>
Protocol Author:	Conor O'Malley
Date Protocol Created or Updated:	4/28/2009

Note: This template was modified by J.D. Bakker from that available at:
<http://www.nativeplantnetwork.org/network/SampleBlankForm.asp>

Plant Data Sheet

Pacific Rhododendron *Rhododendron macrophyllum*



picture taken from <http://www.cnr.vt.edu/dendro/dendrology/syllabus/rmacrophyllum.htm>

Range

Southern British Columbia to Northern California.

Climate, elevation

Moist to dry climate found from the coast to middle elevations.

Local occurrence (where, how common)

Fairly common understory in mixed conifer forests. Less abundant in Washington, very common south of the Siuslaw River.

Habitat preferences

National Wetland Indicator species, however no anaerobic tolerance.

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

No information on succession other than "This species sprouts well after fire or cutting and brings an encouraging touch of colour to cleared areas." (Pojar/Makinnon) This suggests a colonizer habit.

Associated species

Western Hemlock, Sitka Spruce, Redwood, Douglas Fir, Silver Fir

May be collected as: (seed, layered, divisions, etc.)

Propagated by seed, cuttings.

Collection restrictions or guidelines

Collect seed late summer to early fall.

Seed germination (needs dormancy breaking?)

The seeds require light for germination.

Seed life (can be stored, short shelf-life, long shelf-life)

Pacific rhododendron seeds germinate without stratification and are viable for up to 2 years.

Recommended seed storage conditions

A cool, dry, dark place is recommended.

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.)
Seedling vigor is medium

Soil or medium requirements (inoculum necessary?)

Moist well drained soil, low nitrogen availability. Sandy loam would be best. Inoculation is not necessary, however many studies have shown a mycorrhizal interaction.

Installation form (form, potential for successful outcomes, cost)

Container plants grown from seed or cutting.

Recommended planting density

3-4m spacing

Care requirements after installed (water weekly, water once etc.)

Aeration is a key requirement due to its shallow root system, as is a moist acidic soil.

Normal rate of growth or spread; lifespan

Perennial. The flowers are pollinated by bees and plants begin to bear seed when they are 5 years old. Pacific rhododendron seeds germinate without stratification and are viable for up to 2 years. The seeds require light for germination. They will typically reach 3 m at 10 yrs. They reach up to 5m at maturity. If aboveground portions are killed, Pacific rhododendron can regenerate vegetatively by sprouting from stem bases and from the rootcrown.

Sources cited

<http://www.cnr.vt.edu/dendro/dendrology/syllabus/rmacrophyllum.htm>

<http://www.fs.fed.us/database/feis/plants/shrub/rhomac/>

<http://plants.usda.gov/>

Hitchcock, C. Leo; Cronquist, Arthur. Flora of the Pacific Northwest: An Illustrated Manual. University of Washington Press. 1987.

MacKinnon, Andy; Pojar, Jim. Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska. Lone Pine Publishing. 1994.

Data compiled by

Christer Lundstrom 4/15/03