Plant Propagation Protocol for *Acer circinatum*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/ACCI.pdf


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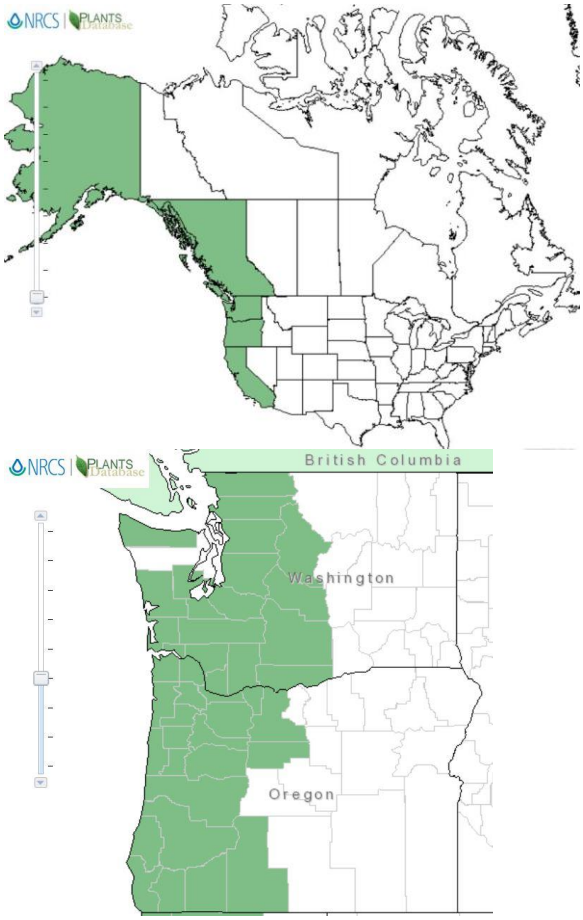
TAXONOMY	
Plant Family	
Scientific Name	Aceraceae[1]
Common Name	Maple Family[1]
Species Scientific Name	
Scientific Name	*Acer circinatum* Pursh.[1]
Varieties	There are no recognized varieties.[2]
Sub-species	There are no recognized subspecies.[2]
Cultivar	*Acer circinatum* cv.: Little Gem, Monroe, Pacific Fire, Pacific Sprite, Sunglow[3]
Common Synonym(s)	No common synonyms recognized.[2]
Common Name(s)	Vine maple; Oregon vine maple; Mountain maple[4,5]
Species Code (as per USDA Plants database)	ACCI[4]

GENERAL INFORMATION	
Geographical range	 (© USDA PLANTS Database) Found along Pacific Coast of Northern California, Oregon, Washington, and Southwestern British Columbia, Canada[1]
Ecological distribution	Understory of coniferous forests; moist soils of stream banks; areas that have been clear-cut or burned[6,7]
Climate and elevation range	Cool mesothermal climate; sea level to 4,200 feet[8]
Local habitat and abundance	Coastal Western hemlock and Douglas fir stands; Nearby Pacific dogwood and Bigleaf maple; Foliage eaten by deer, elk, and birds; used as cover by small mammals[4,7,8]
Plant strategy type / successional stage	Primary successor, manages well in disrupted environments such as clear-cuts and burn sites; competes with shade intolerant conifers for first growth and is often considered a pest by foresters; percentage of foliage cover inversely related to canopy cover[2,8]
Plant characteristics	Deciduous shrub to small tree; 5-26 feet tall with 7-9 lobed leaves; sharp, doubly toothed lobes; white inflorescence flowers; widely spreading winged samaras[8]

PROPAGATION DETAILS	
Ecotype	Collect from site that mirrors that at which the outplanting is to be done.
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container; bareroot[4,5,6,9]
Stock Type	1 Gallon; 2+0/2+2[5,9,12,13]
Time to Grow	2 years[6,9]
Target Specifications	12-18 inches tall; For container plants, roots should be established throughout container[5,12]
Propagule Collection Instructions	Late August to early September, when seed starts to turn from green to tan[9]
Propagule Processing/Propagule Characteristics	4,620 cleaned seeds/lb (Removing samara wings accounts for 15-20% of weight)[5]
Pre-Planting Propagule Treatments	Remove seeds from samara; use gravity table or water float to filter empty and filled seeds; prolonged drying promotes dormancy, either sow immediately in the fall or stratify for 90 days at 41°F. Soaking in warm water for 1-2 days can improve condition if especially dry. Mechanically removing pericarp may promote imbibition. Both methods are meant to increase germination during first growing season[10,11]
Growing Area Preparation / Annual Practices for Perennial Crops	Bareroot: Nursery beds with mineral soil[9,11] Container: Peat moss preferred medium[12]
Establishment Phase Details	Bareroot: Sow seeds in 8 row beds; 60 trees/ft. spacing[9] Container: Water sparingly for first summer after potting; application of fertilizers, maintenance of aeration in soil and surrounding environment[7,12]
Length of Establishment Phase	Container: Approximately a spring season, anywhere from 6-12 weeks. [12,13]
Active Growth Phase	Bareroot: Transplant to less dense, 4 row beds[9] Container: Transplant into new 1-gallon containers filled with peat moss, vermiculite, and nutrient mix (late May/early June); store outside in shaded structure; cutting of stems to control height and promote branch growth[12,13]
Length of Active Growth Phase	Bareroot: 2 years[9] Container: 4 months, summer and early fall[12,13]
Hardening Phase	Containers: Continue to house containers outside, but under shade to imitate fall light availability; reduce watering intervals; stop fertilization[12,13]
Length of Hardening Phase	Containers: 3 months[12]

Harvesting, Storage and Shipping	Containers: Store in unheated poly greenhouse; shaded storage used during hardening phase may increase moisture content of soil to point of being harmful; transport in early spring or fall while maintaining a cool ambient temperature; tops of plant vulnerable to deer grazing and should be protected[6,12]
Length of Storage	Containers: 7 months[12]
Guidelines for Outplanting / Performance on Typical Sites	Containers: Roots should be scored to further protect the transplants from wildlife grazing and prevent unhealthy growth forms[12,13]
Other Comments	Some sources mention the use of vegetative propagation for *Acer circinatum*, though the success of such methods are not well reported. Softwood cuttings are known to be difficult to propagate as root formation is particularly slow. Layering is the way in which most *Acer circinatum* grows naturally, but its use in a nursery and research setting is uncommon[4,6,10]
INFORMATION SOURCES	
References	[1]PLANTS Database: *Acer circinatum* Pursh. USDA. https://plants.sc.egov.usda.gov/core/profile?symbol=ACCI [2]Fire Effects Information Systems (FEIS): *Acer circinatum*. USDA, Forest Service. https://www.fs.fed.us/database/feis/plants/shrub/acecir/all.html [3]Landscape Plants: *Acer circinatum*. College of Agricultural Sciences, Oregon State University. https://landscapeplants.oregonstate.edu/plants/acer-circinatum [4]Plant Guide: *Acer circinatum*. USDA, Natural Resources Conservation Service. https://plants.sc.egov.usda.gov/plantguide/pdf/pg_acci.pdf [5]USDA Forest Service. July 2008. The Woody Plant Seed Manual [6]McGrath JM. 1992. Vine Maple Propagation at Wind River Nursery. Proceedings, Western Forest Nursery Association [7]Leigh M. 2013. Grow Your Own Native Landscape. Washington State University Extension, Native Plant Salvage Project [8]E-Flora BC: *Acer circinatum* Pursh. University of British Columbia. http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Acer+circinatum [9]Buzzo RJ. 2008. Propagating Northwest Natives. Combined Proceedings International Plant Propagators' Society. Volume 58: pg. 270 [10]Darris DC. September 2002. Ability of Pacific Northwest Native Shrubs to Root from Hardwood Cuttings (with Summary of Propagation Methods for 22 Species). Technical Notes, USDA. Note 30. Table 4 [11]Harrington CA, McGrath JM, Kraft JM. 1999. Propagating Native Species: Experience at the Wind River Nursery. Technical Notes, USDA. Pg. 62-63 [12]Flessner, Theresa R; Trindle, Joan DC. 2002. Propagation protocol for production of container Acer circinatum Pursh plants (1-gallon 2-year seedlings); USDA NRCS -Corvallis Plant Materials Center, Corvallis, Oregon.

	[13]Impson B. 2007. *Acer* circinatum - Plant Propagation Protocol. ESRM 412: Native Plant Production
Other Sources Consulted	Whitney, S. 1985. Western Forests. National Audubon Society. pg.396 Gaspar J. April 2002. On the Ecology of *Acer circinatum* Pursh: A Study of Factors That Affect the Distribution of a Small Hardwood Tree Within Oldgrowth Forests in Southwestern British Columbia, Canada. [dissertation]. University of Oldenburg Russel DW. 1973. The Life History of Vine Maple on the H.J. Andrews Experimental Forest. [dissertation]. Oregon State University
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