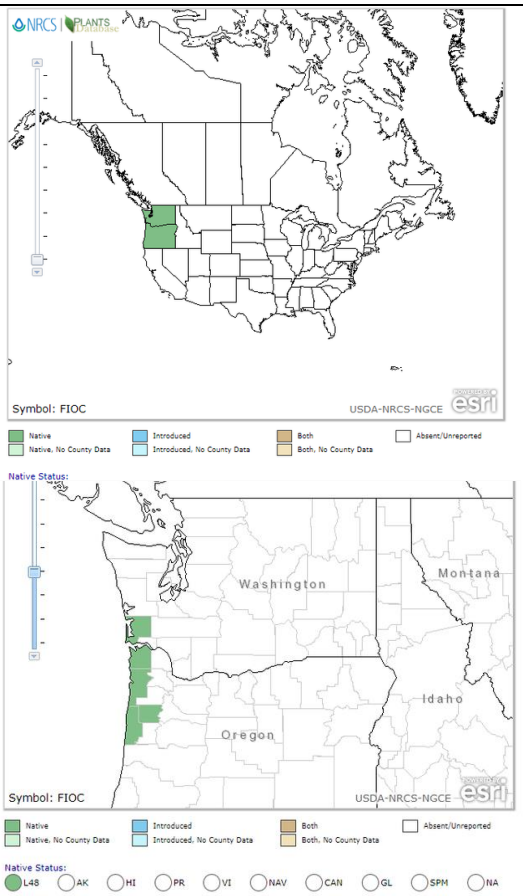
Plant Propagation Protocol for *Filipendula occidentalis*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/*FIOC.pdf*

 [5]

TAXONOMY	
Plant Family	
Scientific Name	Rosaceae
Common Name	Rose Family
Species Scientific Name	
Scientific Name	*Filipendula occidentalis* (S. Watson) Howell
Varieties	None
Sub-species	None
Cultivar	None
Common Synonym(s)	None
Common Name(s)	Queen of the Forest
Species Code (as per USDA Plants database)	FIOC
GENERAL INFORMATION	

Geographical range	 Found in coastal forests in Washington and Oregon. Green areas show where the species is native. [2]
Ecological distribution	Wet, mossy rock along forest streams, at or slightly above water level, wet rock on mountain slopes, riverbanks, rocky summits. [3,4]
Climate and elevation range	Elevation Range: 0-1800 ft [3, 4]
Local habitat and abundance	*F. occidentalis* occupies a small niche in the ecosystem on rocky areas with little to no soil and constant water flow through much of the year. Generally found on stream banks facing north and rivers just above high-water level. Grows with *Ribes bracteosum* and *Rubus parviflorus.* Commonly associated with *Alnus rubra, Oplopanax horridus, Boykinia occidentalis, Mimulus dentatus,* mosses, and ferns. [4] This species is extremely rare and classified as threatened [2].
Plant strategy type / successional stage	Mid- to late successional. Found in areas with well-developed canopy and shrub layers. Growth strategy is a perennial herb [5].
Plant characteristics	Strongly rhizomatous perennial herb. Erect, simple branches 1-2 m tall. Leaves are pinnately divided into 1-4 leaflets with a large terminal leaflet. The terminal leaflet is palmately lobed into 5-7 sections. Flower petals are white and about 6 mm long, appearing in a flat-topped panicle of cymes [4]. Blooms June-July.

	[5] Fruit is a dry, brownish, hairy achene with a flattened body 4 mm long and a persistent style 2-3 mm long. [4]
PROPAGATION DETAILS	
Ecotype	Not applicable.
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container
Stock Type	4-in container
Time to Grow	Unknown
Target Specifications	Height of 50 cm, root development to the point that the root ball won't fall apart during outplanting.
Propagule Collection Instructions	Dig up a plant or small portion of a plant and make rhizome cutting (similar to crown division). Since this plant is threatened, collection should be done with care so as not to kill the plant. This is likely best done in the fall or winter when the plant is dormant.
Propagule Processing/Propagule Characteristics	Rhizomes should be divided with a sterile knife into sections with at least one shoot bud or active shoot. Each cutting should be transplanted into an individual container [1].
Pre-Planting Propagule Treatments	If cuttings cannot be planted immediately, store in a cold chamber and keep moist [1].
Growing Area Preparation / Annual Practices for Perennial Crops	Media should be well-drained. It is important that F. occidentalis plants do not dry out in between watering, because they are adapted to living in areas with water dripping down/flowing around almost constantly. 4 in containers should be used when rhizome cuttings are first transplanted. Plugs will not work well because rhizomes grow horizontally.
Establishment Phase Details	Not applicable for vegetative propagation.
Length of Establishment Phase	Not applicable for vegetative propagation.
Active Growth Phase	Maintain media moisture. Regular fertilization may occur in this phase. [1] Fertilization should start at a very low dosage, as there is little information on how this species is affected by it.
Length of Active Growth Phase	Information not available.
Hardening	Discontinue fertilization. Move transplants into larger pots if they are

Phase	becoming root bound. Prepare for winter conditions.
Length of Hardening Phase	Information not available.
Harvesting, Storage and Shipping	Harvesting should occur during dormancy. Plants should be shipped in their containers, because they are delicate and dry out easily. Bareroot shipping is not ideal. Plants should be kept above -11 C during winter [1].
Length of Storage	Information not available.
Guidelines for Outplanting	Information not available.
Other Comments	Since it is a rare/threatened species, little information is available. Collection of propagules from the field should be limited to mature, healthy mother plants.
INFORMATION SOURCES	
References	1. Drumroese, R. Kasten et al. *Nursery Manual for Native Plants Vol. 1: Nursery Management*. US Department of Agriculture Forest Service, 2009. Print. 2. USDA NCRS National Plant Data Team. "Plant Profile for *Filipendula occidentalis* (S. Watson) Howell." *plants.usda.gov* US Department of Agriculture. Web. 20 April 2018. 3. Camp, Pamela & Gamon, John G. *Field Guide to the Rare Plants of Washington.* Washington Natural Heritage Program and Washington Department of Resources, 2011. Print. 4. Vrilakas, S. & Maybury, K. "Filipendula occidentalis" *http://explorer.natureserve.org/servlet/NatureServe?searchName=Filipendula+occidentalis* NatureServe Explorer, 29 Jul. 2016. Web. 20 April 2018. 5. Maxwell, Ed. "Filipendula occidentalis" *http://biology.burke.washington.edu/herbarium/imagecollection.php?SciName=Filipendula%20occidentalis* Burke Museum WTU Herbarium Image Collection, 1993. Web. 10 May 2018.
Other Sources Consulted	6. *eFloras.org* Flora of North America. Web. 20 April 2018. 7. *pfaf.org* Plants For A Future Database, 2012. Web. 20 April 2018 8. *NativePlantNetwork.org* US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources. Web. 20 April 2018 9. *http://biology.burke.washington.edu/herbarium/waflora/checklist* Washington Flora Checklist, University of Washington Herbarium. Web.10 May 2018. *10. http://ibis.geog.ubc.ca/biodiversity/eflora/* E-Flora BC. Web. 10 May 2018.
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