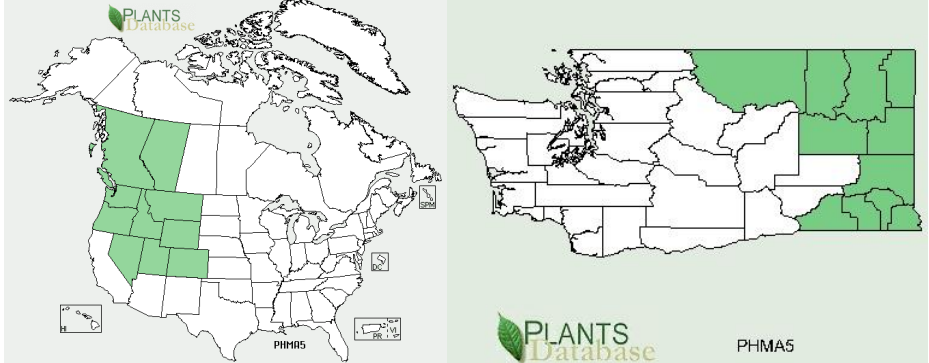


Plant Propagation Protocol for [Insert Species]
 ESRM 412 – Native Plant Production



TAXONOMY	
Family Names	
Family Scientific Name:	Rosaceae
Family Common Name:	Rose
Scientific Names	
Genus:	<i>Physocarpus</i>
Species:	<i>malvaceus</i>
Species Authority:	(Greene) Kuntz
Variety:	
Sub-species:	There are no recognized subspecies, varieties, or forms.
Cultivar:	
Authority for Variety/Sub-species:	N/A
Common Synonym(s) (include full scientific names (e.g., <i>Elymus glaucus</i> Buckley), including variety or subspecies information)	Neillia malvacea Greene Neillia monogyna var. malvacea M. E. Jones Neillia torreyi Hook. f. Opulaster cordatus Rydb. Opulaster pauciflorus Heller Opulaster pubescens Rydb. Physocarpus pauciflorus piper Spiraea opulifolia var. pauciflora T. & G. Spiraea pauciflora Nutt.

Common Name(s):	
Species Code (as per USDA Plants database):	PHMA5
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	 <p>East of the Cascades, British Columbia to Oregon, east to Alberta and Montana, and south to Utah and Wyoming</p>
Ecological distribution (ecosystems it occurs in, etc):	Soil textures found on ninebark sites range from sandy loams to silty clay loams. Ash layers have been found on some soils in central Idaho. Surface soil acidity range from pH 5.5 to 7.1. The average duff layer is 2.6 inches (6.5 cm) with an effective rooting depth generally at 15 inches (38 cm). (7)
Climate and elevation range	It has been found on moist slopes and streamsides 5,250 to 10,000 feet (1,600-3,000 m)
Local habitat and abundance; may include commonly associated species	Ninebark is most commonly found on hillsides, canyons, and grasslands on ponderosa pine and Douglas fir site, in mountain-brush, aspen, and mixed-conifer woodlands.
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	Ninebark is an obligate pioneer species that increases rapidly in average height following disturbance.
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Shrub
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally)	

derived protocols, and is a description of where the seed that was tested came from):	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Ninebark has a horizontal root system, although it is often called a "rootcrown shrub". Sectioning revealed that its customary growth organ is a rhizome.
Propagation Method (Options: Seed or Vegetative):	Both seed and Rhizome may be used for propagation.
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Seeds do best in outdoor raised beds.
Stock Type:	Seeds
Time to Grow (from seeding until plants are ready to be outplanted):	
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	Ripe fruits can be picked from the shrubs or shaken onto drop clothes dried, and then threshed and cleaned by hand screening.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Ninebark averaged 756,000 cleaned seeds per pound (344,000/kg). Seeds may be stored for 5 years in cool and dry conditions. You can expect about 50% viability. (7)
Pre-Planting Propagule Treatments	Seeds may be planted in the fall or spring after 30 days pre-chilling, in raised beds, after pre-chilling. Easy to start from semi-hardwood cuttings with or without hormone treatment. Slow to start from fall-sown seed.

(cleaning, dormancy treatments, etc):	
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Seeds should mixed 1 part seed with 3 parts sawdust for even distribution, sown to a depth of 3mm and mulched with 6 mm (1/4 in) sawdust..
Establishment Phase (from seeding to germination):	
Length of Establishment Phase:	
Active Growth Phase (from germination until plants are no longer actively growing):	
Length of Active Growth Phase:	
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):	Flowering dates vary from May to July, and fruit ripening occurs between late August and early October.(9)
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	
Guidelines for Outplanting / Performance on Typical Sites (eg,	

percent survival, height or diameter growth, elapsed time before flowering):	
Other Comments (including collection restrictions or guidelines, if available):	

INFORMATION SOURCES

References (full citations):	<ol style="list-style-type: none"> 1. Maps: http://plants.usda.gov/java/nameSearch?keywordquery=Physocarpus 2. Photo: http://biology.burke.washington.edu/herbarium/imagecollection/wtu15999/lg/wtu015945_lg.jpg 3. Parish, Robert. Ray Coupe, and Dennis Lloyd. <u>Plants of Southern Interior British Columbia and the Map Inland Northwest</u>. Vancouver, B.C. Lone Pine Publishing, 1996 4. Pojar, j. and A MacKinnon. 1994. <u>Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska</u>. B.C. Ministry of Forest and Lone Pine Publishing. Vancouver, British Columbia. 5. Pettinger, A. and B. Costanzo 1996. <u>Native Plants in the Coastal Garden</u>. Timber Press, Portland, OR 6. http://www.fs.fed.us/database/feis/plants/shrub/phymal/all.html#BOTANICAL%20AND%20ECOLOGICAL%20CHARACTERISTICS 7. www.nsl.fs.fed.us/wpsm/Physocarpus.pdf 8. http://www.cnr.vt.edu/dendro/dendrology/Syllabus2/factsheet.cfm?ID=688 9. http://www.wildflower.org/plants/result.php?id_plant=PHMA5
Other Sources Consulted (but that contained no pertinent information) (full citations):	<ol style="list-style-type: none"> 10. http://montana.plant-life.org/species/physocar_malv.htm
Protocol Author (First and last name):	Ron M Gehret

Date Protocol Created or Updated (MM/DD/YY):	05 /17/09
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<http://www.nativeplantnetwork.org/network/SampleBlankForm.asp>