

**Plant Propagation Protocol for *Shepherdia canadensis* L. Nutt.**  
 ESRM 412 – Native Plant Production

<b>TAXONOMY</b>	
<b>Family Names</b>	
Family Scientific Name:	<i>Elaeagnaceae</i>
Family Common Name:	oleasters
<b>Scientific Names</b>	
Genus:	<i>Shepherdia</i>
Species:	<i>canadensis</i>
Species Authority:	L. Nutt.
Variety:	(not found)
Sub-species:	(not found)
Cultivar:	(not found)
Authority for Variety/Sub-species:	(not found)
Common Synonyms:	<i>Elaeagnus canadensis</i> (L.) A. Nels., <i>Lepargyrea canadensis</i> (L.) Greene
Common Names:	Russet buffaloberry, Soapberry, Canadian buffalo-berry
Species Code:	SHCA
<b>GENERAL INFORMATION</b>	
Geographical range:	<small>QuickTime™ and a            TIFF (Uncompressed) decompressor            are needed to see this picture.</small>

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(USDA)

Ecological distribution:	Does best in partial shade, nutrient poor soils, and dry to moist water conditions. (Klein)
Climate and elevation range:	Most common in dry to moist open woods and thickets and found in lowlands to middle elevation forests. Approximately 4950 feet – 8200 feet. (Klein)
Local habitat and abundance:	Shores, riverbanks, dry slopes, moist north slopes, open rocky woods, and occasionally in calcareous marshes. It forms dense thickets along riparian zones and valley bottoms. Associated species are <i>Abies lasiocarpa</i> , <i>Pinus ponderosa</i> , <i>Picea</i> spp., <i>Abies</i> spp., <i>Pinus glauca</i> , <i>Pseudotsuga menziesii</i> , <i>Populus tremuloides</i> , <i>Pinus contorta</i> , and <i>Picea engelmannii</i> . (Klein)
Plant strategy type/successional stage:	Due to its nitrogen-fixing ability, it is dominant in many areas. It is dominant along with willow in the second stage of succession in glacial moraines. As forests transverse into old-growth forests, the cover of <i>Shepherdia canadensis</i> decreases. It is one of the first species to arrive after a fire. (Klein)
Plant characteristics:	Shrub. Height: 3-13 feet.
<b>PROPAGATION DETAILS</b>	
Ecotype:	Aspen forest, Saint Mary, Glacier National Park, Glacier Co., MT. (Native)
Propagation Goal:	Plants
Propagation Method:	Vegetative
Product Type:	Container (plug)
Stock Type:	800 ml containers
Time to Grow:	2 years
Target Specifications:	Stock Type: Container cutting, Height: 15-20cm, Caliper: 8 mm, Root System: firm plug in 800 ml containers. (Native)
Propagule Collection:	Semi-softwood and stem tip cuttings. Cuttings are collected in spring when leaf buds have just begun to break dormancy. Cuttings are 15-20 cm in length and 7 mm in caliper.

	(Native)
Propagule Processing/Propagule Characteristics:	Cuttings are kept moist and under refrigeration prior to treatment. (Native)
Pre-Planting Propagule Treatments:	Cuttings are cut into 20 to 30 cm lengths, with the base recut and 1/3 of leaves or buds removed. Cuttings were placed in a 2-minute fungicide bath to remove surface pathogens. Cuttings were treated with 8000ppm IBA rooting hormone, and stuck in a mist bed with at least 2 nodes below the surface of the rooting medium. (Native)
Growing Area Preparation / Annual Practices for Perennial Crop:	Outdoor mist-bed has automatic intermittent applied at 6 second intervals every 6 minutes. Too frequent misting will result in leaf and stem rot. Misting is adjusted to outdoor temperature and wind. Bottom heat is maintained at 21C with heating cables buried beneath the rooting medium (which is 50% perlite and 50% sand). Mist-bed is covered with shade-cloth during rooting. After cuttings are potted, they are moved to an outdoor shade-house for 2 weeks and later moved to full sun in outdoor nursery and irrigated. (Native)
Establishment Phase:	Cuttings that are pre-rooted are lifted out of mist-bed once adequate root systems are formed. (Native)
Length of Establishment Phase:	8 weeks
Active Growth Phase:	Cuttings are potted into 800ml containers in medium that is 70% 6:1:1 milled sphagnum peat, perlite, and vermiculite and 30% coarse sand and perlite with Osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8-9 month release rate at 21C) and Micromax fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 2 grams of Osmocote and 1 gram of Micromax per container. Cuttings are irrigated after potting and placed in shade-house for 2 weeks. After establishment, plants are moved to full sun in outdoor nursery. (Native)
Length of Active Growth Phase:	12 weeks
Hardening Phase:	Plants are fertilized with 10-20-20 liquid NPK at 200 ppm. Irrigation is gradually reduced and plants are given one final irrigation prior to winterization. (Native)
Length of Hardening Phase:	8 weeks
Harvesting, Storage and Shipping:	Time to harvest is 2 years from original cuttings. Seedlings should be stored over winter in outdoor nursery under insulating foam and snow. (Native)
Length of Storage:	5 months
Guidelines for Outplanting/ Performance on Typical Sites:	Seedlings grown in the nursery, then in a cold frame until their first winter, then planted in spring or summer. Seedlings are resistant to drought, so water sparingly. The plant will not fruit until after the first 4-6 years of its life. Height can range

	from 3-13 feet tall. (Klein)
Other Comments:	(not found)
<b>INFORMATION SOURCES</b>	
References:	<ul style="list-style-type: none"> <li>-<a href="http://www.tarleton.edu/~range/New%20Photo%20Slides/Photo%20Slides%20138+/canadian%20buffalo%20berry.jpg">http://www.tarleton.edu/~range/New%20Photo%20Slides/Photo%20Slides%20138+/canadian%20buffalo%20berry.jpg</a></li> <li>-<a href="http://www.fs.fed.us/database/feis/plants/shrub/shecan/all.html">http://www.fs.fed.us/database/feis/plants/shrub/shecan/all.html</a></li> <li>-<a href="http://www.scs.leeds.ac.uk/cgi-bin/pfaf/arr_html?Shepherdia+canadensis&amp;CAN=LATIND">http://www.scs.leeds.ac.uk/cgi-bin/pfaf/arr_html?Shepherdia+canadensis&amp;CAN=LATIND</a></li> <li>-<a href="http://www.wsdot.wa.gov/environment/eao/clres/ethbot/q-s/Shepherdia.htm">http://www.wsdot.wa.gov/environment/eao/clres/ethbot/q-s/Shepherdia.htm</a></li> <li>-<a href="http://www.rook.org/earl/bwca/nature/shrubs/shepherdiacan.html">http://www.rook.org/earl/bwca/nature/shrubs/shepherdiacan.html</a></li> <li>-<a href="http://www.crfg.org/tidbits/seedprop.html">http://www.crfg.org/tidbits/seedprop.html</a></li> <li>-Integrated Taxonomic Information System. <a href="http://www.itis.gov/index.html">http://www.itis.gov/index.html</a></li> <li>-Kruckeberg, Arthur R. Gardening with Native Plants of the Pacific Northwest. Seattle: University of Washington Press. 1982. Print.</li> <li>-Native Plant Network. <a href="http://www.nativeplantnetwork.org">www.nativeplantnetwork.org</a>.</li> <li>-Pojar, Jim &amp; MacKinnon, Andy. <i>Plants of the Pacific Northwest Coast</i>. Alberta: Lone Pine Publishing. 1994.</li> <li>-Rose, Robin et al. Propagation of Pacific Northwest Native Plants. Corvallis, OR: Oregon State University Press. 1998. Print.</li> <li>-USDA Plants Database. <a href="http://www.plants.usda.gov/">http://www.plants.usda.gov/</a></li> </ul>
Other Sources Consulted:	-Taylor, Norman. Guide to Garden Shrubs and Trees. Boston: Houghton Mifflin, 1965. Print.
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Date Protocol Created or Updated:	5/18/03 originally by Klein, 05/19/10 updated by Johnson

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