***Vaccinium scoparium* Leib. ex Coville - Plant Propagation Protocol**
ESRM 412 – Native Plant Production

TAXONOMY

Family Names

Family Scientific Name:	Ericaceae
Family Common Name:	Heath Family

Scientific Names

Genus:	Vaccinium
Species:	scoparium
Species Authority:	Leib. ex Coville
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	

Common Synonym

Genus:	
Species:	
Species Authority:	
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Names:	Grouse Whortleberry, grouse huckleberry, littleleaf huckleberry, whortleberry, red huckleberry
Species Code (as per USDA Plants database):	VASC

GENERAL INFORMATION

General Distribution:	British Columbia to Northern California, Idaho to Alberta, South Dakota through the Rockies to Colorado, generally at higher elevations.[i]
Climate and elevation range:	Found in the Pacific Northwest from 700-2300 meters and in Colorado from 2600-3800 meters.[ii]
Local habitat and abundance; may include commonly associated species	Growing on rocky subalpine to alpine woods and slopes, *V. scoparium* is found in acidic soils on moist and dry sites, though more commonly on well drained sites and especially in association with lodgepole pine (*P. contorta*).[iii]
Plant strategy type:	*Vaccinium* are poor competitors, often struggling with perennial weeds. While common in fire adapted eastside ecosystems, burned plants can take 10-15 years to recover.[iv]

PROPAGATION DETAILS

Ecotype:	
Propagation Goal:	Plants

Propagation Method:	Seed (note vegetative method available at http://www.nativeplantnetwork.org)[v]
Product Type:	Container
Stock Type:	Four inch pots
Time to Grow:	Nine months or over wintered.
Target Specifications:	Well rooted 4 inch pots with good root shoot ratio.
Propagule Collection:	Berries should be collected when ripe between late July and September.[vi] Collect by hand picking, or shaking bushes over tarps or containers.[vii]
Propagule Processing/Propagule Characteristics:	Fruit should be chilled to 10°C (5°C in some sources[viii]) to improve seed recovery my macerating fruit and removing floating pulp and non-viable seeds.[ix] Small seed batches can be processed by forcing fruit through a fine mesh strainer to separate fine seeds from skins and pulp before washing.[x] Seed size for *Vaccinium* varies greatly by species, between 2,000 and 11,000 seeds/gram with no figure available for *V. scoparium.*[xi] Most berries contain viable seeds.[xii]
Pre-Planting Propagule Treatments:	No treatment required to induce germination,[xiii] although some sources recommend cold stratification.[xiv]
Growing Area Preparation:	Start in flats in an acidic growing mix (ie. Fafard lightweight mix #2[xv] or an equivalent potting mix for rhododendrons or azaleas[xvi]). Sow directly on surface of soil, and dress with clean sand.
Establishment Phase:	Water with misters to avoid disturbing the very fine seeds. If space is available, seeds can be directly sown, 3-4 per pot, in final containers for later thinning.[xvii] Temperatures should be between 18-21°C days and 13°C nights.[xviii] Sow seeds in winter to allow growth in spring and summer.
Length of Establishment Phase:	14[xix] to 20[xx] days to germination, prick out to individual pots in 4-8 weeks (1/2inch seedlings)
Active Growth Phase:	Continue growth in greenhouses. Fertilize every 1-2 weeks, beginning with a potassium heavy fertilizer (9-45-15) shifting to a 20-10-20 mix in June and July. Monitor pots for salinity problems or schedule semi-regular intensive watering to leach salts associated with fertilizing.[xxi]
Length of Active Growth Phase:	From individual potting to mid August.
Hardening Phase :	Move plants to shaded (50%) outdoor location and cease fertilizing in mid August but continue watering.[xxii]
Length of Hardening Phase:	Until freezing occurs.
Harvesting, Storage and Shipping:	Plants should either be over wintered in an unheated

	building to maintain dormancy but prevent freezing damage, or be buried with 2-4 inches of sawdust over the pots in sawdust beds (less effective with young plants). Protect the plants in either case from rodents and deer.[xxiii]
Length of Storage:	Store over the winter for spring planting after the danger of killing frost or frost heave has passed.[xxiv]
Guidelines for Outplanting / Performance on Typical Sites:	Because of the preference for well drained sites, all *Vaccinium* should be planted where winter snow cover can protect from wind-dessication, particularly in areas that are unlikely to form killing frost pockets in the early spring.[xxv] Only 45% survival was noted in a recent study assessing transplanting onto disturbed sites. Working a 2.5cm layer of well decomposed locally collected organic material 7.5cm into the soil did improve survivorship, however.[xxvi] Where berry production is to be emphasized for wildlife reasons, high planting densities can be encouraged, for while reductions in overstory increased berry crops there was no reduction in per plant output resulting from shrub level competition.[xxvii]
Other Comments:	

INFORMATION SOURCES

References:	See below.
Inaccessible References:	Leigh, M. Grow your own native landscape: A guide to identifying, propagating and landscaping with western Washington native plants. Washington State University Cooperative Extension
References without additional information:	Plants for a future. *Vaccinium scoparium* in Plants for a Future Database. http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Vaccinium+scoparium last accessed May 6, 2007.
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[i] Hitchcock, C. Leo et al. Vascular Plants of the Pacific Northwest, v.4 *Ericaceae* through *Campanulaceae*. Seattle: University of Washington Press, 1969.

[ii] Rose, Robin et al. Propagation of Pacific Northwest Native Plants. Corvallis: Oregon State University Press, 2003.

[iii] United States Department of Agriculture. *Grouse Huckleberry; Vaccinium scoparium Leib. Ex Colville.* in USDA NRCS Plant Guide. http://plants.usda.gov/plantguide.pdf/cs_vasc.pdf last accessed 7 May 2007.

[iv] Barney, Danny L. Growing Western Huckleberries. Moscow: University of Idaho 1999.

[v] Wick, Dale et al. Propagation protocol for vegetative production of container *Vaccinium scoparium* Lieberg. Plants (800ml continer). http://www.nativeplantnetwork.org/network/view.asp?protocol_id=107 last accessed May 5, 2007.

[vi] Rose, Robin et al.

[vii] Young, James A. and Cheryl G. Young. *Vaccinium*. in Seeds of Woody Plants in North America; Revised and Enlarged Edition. Portland: Dioscorides Press. 1992.

[viii] Rose, Robin et al.

[ix] Young, James A. and Cheryl G. Young. Collecting, Processing and Germinating Seeds of Wildland Plants. Portland: Timber Press. 1986.
[x] Barney, Danny L.
[xi] Young, James A. and Cheryl G. Young. Seeds of Woody Plants…
[xii] Romme, William H. et al. "Germination Ecology of Some Common Forest Herbs in Yellowton National Park, Wyoming, USA." in Arctic and Alpine Research. (27) no. 4 1995 p. 407-412.
[xiii] Dirr, Michael A. and Charles W. Heuser Jr. *Vaccinium*. in The Reference Manual of Woody Plant Propagation; From Seed to Tissue Culture. Varsity Press, 1987.
[xiv] Rose, Robin et al.
[xv] Butler, Jennifer, and Christing Frieswyk. Propagation protocol for production of *Vaccinium scoparium* seeds. http://www.nativeplantnetwork.org/network/view.asp?protocol_id=972 last accessed May 4, 2007.
[xvi] Barney, Danny L.
[xvii] Barney, Danny L.
[xviii] Butler, Jennifer and Christin Frieswyk.
[xix] Romme, William H. et al.
[xx] Butler, Jennifer and Christin Frieswyk.
[xxi] Barney, Danny L.
[xxii] Barney, Danny L.
[xxiii] Barney, Danny L.
[xxiv] Barney, Danny L.
[xxv] Barney, Danny L.
[xxvi] Cole, David N. and David R. Spildie. "Restoration of Plant Cover in Subalpine Forests Disturbed by Camping: Success of Transplanting." in Natural Areas Journal. (26) n. 2 2006 p. 168-178.
[xxvii] Weaver, T. et al. "Berry Production in Three Whitebark Pine Forest Types." in Proceedings – Symposium on Whitebark Pine Ecosystems: Ecology and Management of a High-Mountain Resource: General Technical Report INT-270. 1990.