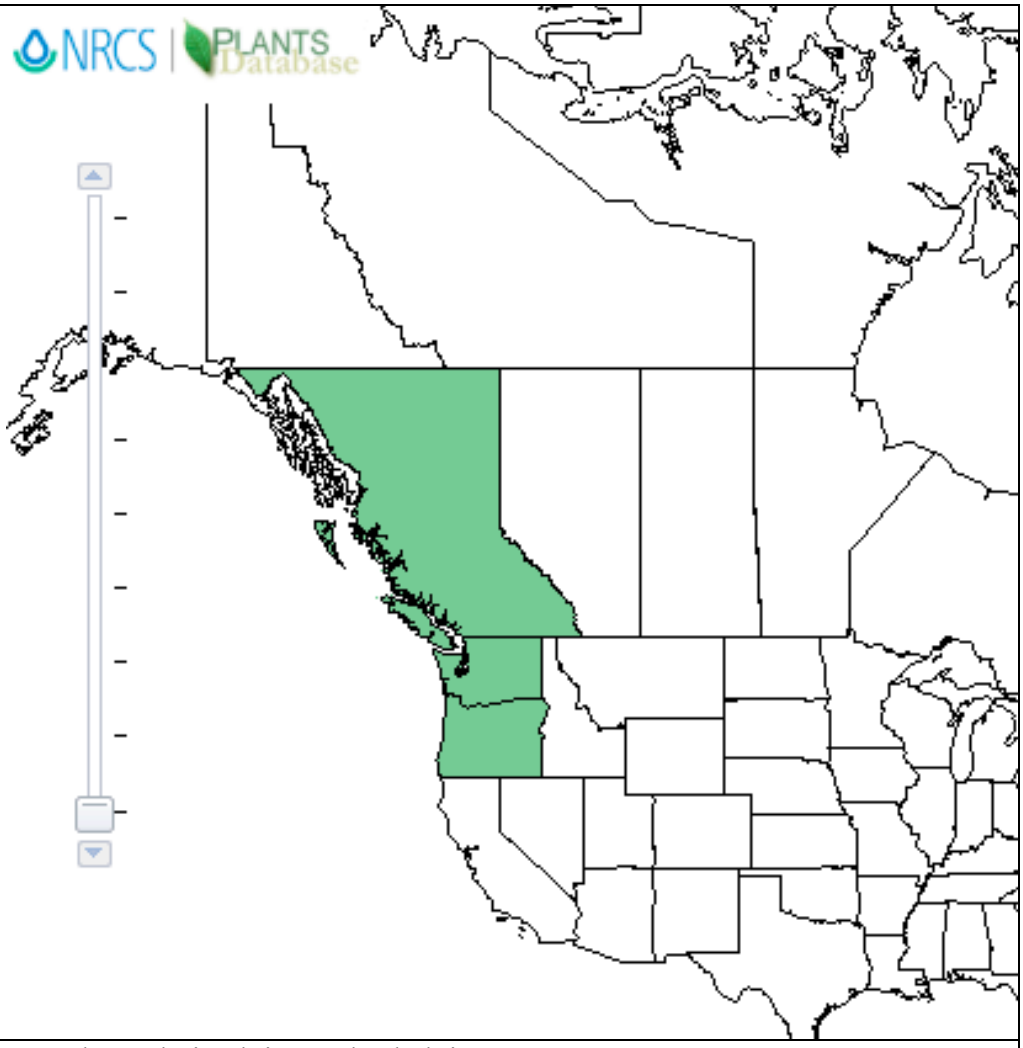
Plant Propagation Protocol for *[Insert Species]*

ESRM 412 – Native Plant Production

Protocol URL: https://courses.washington.edu/esrm412/protocols/*DEGL.pdf*

TAXONOMY	
Plant Family	Ranunculaceae-Buttercup Family[1]
Scientific Name	Delphinium glareosum
Common Name	Olympic larkspur
Species Scientific Name	
Scientific Name	Delphinium glareosum Greene[1]
Varieties	Delphinium glareosum Greene var. caprorum (Ewan W.H. Baker[1]
Sub-species	Delphinium glareosum Greene subsp. Caprorum (Ewan) Ewan[1]
Cultivar	
Common Synonym(s)	Delphinium glareosum Greene var. caprorum (Ewan W.H. Baker[1] Delphinium glareosum Greene subsp. Caprorum (Ewan) Ewan[1]
Common Name(s)	
Species Code (as per USDA Plants database)	DEGL[1]
GENERAL INFORMATION	
Geographical range	It can be found in the Cascade and Olympic Ranges also in the central Cascades of Oregon. In Canada around Silver Star Mountain a few select locations in southern British Columbia. [2]

	
Ecological distribution	Found mostly in alpine and subalpine ecosystems.
Climate and elevation range	It will be found in subalpine and alpine in most of it range(1500-2800m)[7], but south of the Oregon/Washington boarder it can be found at sea level. It likes talus slopes and rocky areas of the mountains.[4]
Local habitat and abundance	It is an uncommon wildflower that will be found flowering from may thru the second week of September.[3] It found most commonly in steep rocky areas, but can also be seen in meadows and forests on more rare occasions. [7]
Plant strategy type / successional stage	N/A
Plant characteristics	It is a perennial forb/herb. [1] The leaves grow numerously and are 3-8cm long divided into 3 primary lobes. The flowers are loose and broad with a deep-purplish blue color.[4] Poisonous to humans and livestock if eaten. Cause of many cattle death. [10]
PROPAGATION DETAILS	
Ecotype	n/a

Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	
Time to Grow	2 years[5]
Target Specifications	Tight root plug in container[5]
Propagule Collection Instructions	The seeds are black in color and are ready to be collected when the follicles will split, which begins in June. Seeds are simply shaken into a envelop or whatever is being used to store the seed at room temperature until they are cleaned and processed. [6]
Propagule Processing/Propagule Characteristics	Only seeds collected from crushed follicle need cleaning using a fan or more advanced technology if available. Seeds should be stores at 4.4 degrees Celsius with 40% humidity. [5] Seeds lose viability at room temperature very quickly. The seeds should be cleaned and allowed to dry for a few days. Then be stored in labeled, sealed jars in the vegetable-storage section of the refrigerator to keep it cold and dry but not frozen. Stored in this way, delphinium seed remains viable for several years.[8]
Pre-Planting Propagule Treatments	Seeds can be sown in fall for winter stratification; they need cold moist stratification to germinate. [6]
Growing Area Preparation / Annual Practices for Perennial Crops	Sewing seed in November gives enough stratification time. It is sewn into 10 cu. in. Super cell container filled with planting soil mix. Use vermiculite or pea gravel to reduce risk of seed floating away. [5] Use a clean/disease free sowing mix to avoid damping off, which delphiniums are very susceptible. Some have had success using Rootshield to reduce problems. [8] Water enough to keep the surface but beware that over watering is done very easily. It is best to chill seed for a week before sowing (stick them in the fridge).[8]
Establishment Phase Details	Leave outside or in growth chamber and only water during dry spells, germination will begin in early spring when temperatures are between 18-24 C. Avoid temperatures exceeding 26 C. [8]
Length of Establishment Phase	Less than 2 weeks [2]
Active Growth Phase	Water as necessary, but only so soil doesn't dry out completely and fertilize. move to lath house in June. [5]
Length of Active	2 months[5]

Growth Phase	
Hardening Phase	Not needed if plants are grown outside
Length of Hardening Phase	
Harvesting, Storage and Shipping	Plants will become dormant during the late summer months and resume growth the following spring. Store outside if temperatures are cold enough, only protect from snow. [5]
Length of Storage	The root plug should be ready for outplanting after 2 years[5]
Guidelines for Outplanting / Performance on Typical Sites	Transplate the plugs in early may. Since they go dormant in the summer, no growth will occur in the summer and plants should grow and flower vigorously the following spring. [5]
Other Comments	Growth in containers tends to be slow, should increase once outplanted.
INFORMATION SOURCES	
References	1. "Delphinium Glareosum- Olympic Larkspur." *USDA Plant Database*. Natural Resource Conservation Service, n.d. Web. 2015. 2. Slitcher, Paul. "Olympic Larkspur, Olympic Mountain Larkspur, Rockslide Larkspur." *: Delphinium Glareosum* N.p., n.d. Web. 13 May 2015. 3. Sullivan, Steve K. "Wildflower Search." *Wildflower Search*. N.p., n.d. Web. 13 May 2015. 4. Burke Mueseum "Delphinium glareosum- Olympic larkspur, WA Native Plant Scoiety 5. Skinner, David M. 2007. Propagation protocol for production of container Delphinium; Pullman Plant Materials Center, Pullman, Washington. In: Native Plant Network. Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. 6. Staff, TWC. "NPIN: Native Plant Database." *Lady Bird Johnson Wildflower Center*. Wildflower Center, 1 Jan. 2007. Web. 17 May 2015. 7. Pittonia. "Delphinium Glareosum." *Flora of North America* 1898th ser. 3.257 (n.d.): n. pag. *FNA*. Web. 2015. 8. Bassett, David. " Growing From Seed - Winter 1990-91 Vol. 5 Number © The Seed Raising Journal from Thompson & Morgan. N.p., n.d. Web. 17 May. 9. Clothier, Tom. "Seed Germination Database - Perennials." *Seed Germination Database - Perennials - D to N*. N.p., n.d. Web. 17 May 2015. 10. Gary M. Booth, Robert D. Malmstrom, Erica Kipp, and Alexandra Paul Cytotoxicity of Selected Medicinal and Nonmedicinal Plant Extracts to Microbial and Cervical Cancer Cells Hindawi Publishing Corporation Journal of Biomedicine and Biotechnology Volume 2012, Article ID 106746, 4 pages

Other Sources Consulted	
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Date Protocol Created or Updated	05/17/15