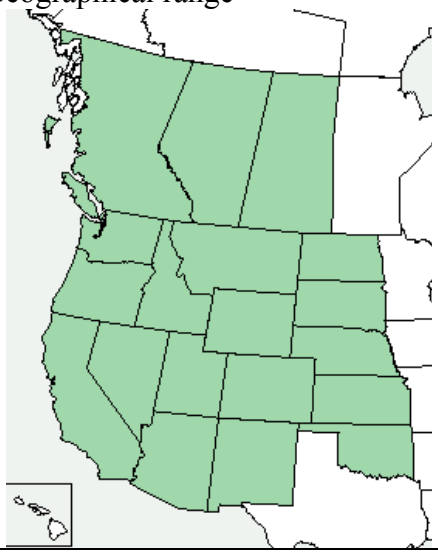
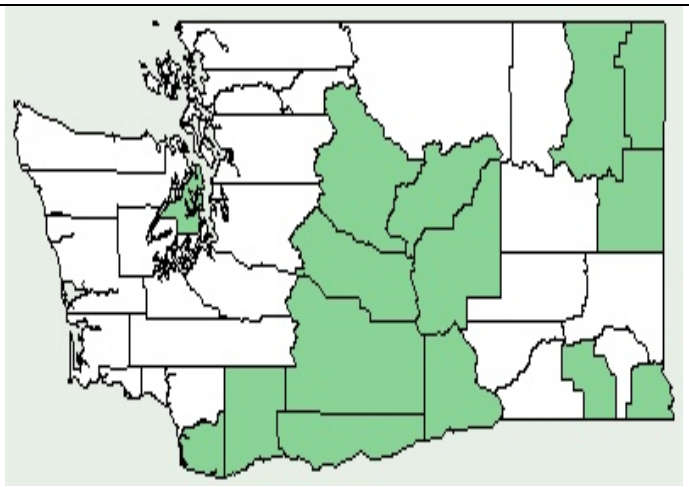
Plant Propagation Protocol for *[Lupinus argenteus]*
ESRM 412 – Native Plant Production

TAXONOMY	
Family Names	
Family Scientific Name:	*Fabaceae*
Family Common Name:	Legume (Pea)
Scientific Names	
Genus:	*Lupinus*
Species:	*argenteus*
Species Authority:	Pursh
Common Synonym(s)	*Lupinus argenteus* Pursh ssp. *argenteus* var. *laxiflorus* (Douglas ex Lindl.) Dorn
Common Name(s):	Silvery lupine (1)
Species Code	LUAR3
GENERAL INFORMATION	
Geographical range 	
Ecological distribution	Found anywhere from prairie to mountainsides, tolerating rocky or arid habitats
Climate and elevation range	Prefers well-draining, sandy soils; requires 10-15 inches precipitation. Frost hardy to -15°F
Local habitat and abundance	Meadows and along streams or corridors. Common companions include *Aster curtus*, *Carex pensylvania,* and *Camassia quamash*.
Plant strategy type	Aggressive colonizer of poor or disturbed soils (2). High-density initial colonization of disturbances like volcanic eruption can amend soil for later species.
Plant characteristics	Annual or short-lived perennial forb, fixes nitrogen in the soil. Tall spikes of blue pea-shaped flowers bloom in

	summer, seeding vigorously. Immature foliage and mature seeds are high in toxic alkaloids that have been implicated in milk poisoning and birth defects (3), but the plant can be used as forage in low quantities.
PROPAGATION DETAILS	
Ecotype	Colorado, Cow Creek
Propagation Goal	Seeds
Propagation Method	Seed
Product Type	Propagules (seed) If planning on transplanting whole plants, plan for a hardy plug as lupines do not tolerate disturbance to root systems well. (8)
Stock Type:	
Propagule Collection	Seeds should be collected in late summer as pods mature, when seeds are below 20kg kg-1 moisture content, but will still be viable if collected between 55 and 80kg kg-1 water content. (4) Entire racemes may be harvested and dried at once in paper bags.
Propagule Processing/Propagule	Dried seeds are easily cleaned from pods and stored in refrigeration until use. 16,000 seeds per pound. (7)
Pre-Planting Propagule Treatments	For best results, soak seed 24 hours in cold water and sow immediately. (6) Scarification with sandpaper also successfully causes water uptake. Seeds can also be sowed as-is, although this may require two to three weeks for germination (5)
Growing Area Preparation / Annual Practices for Perennial Crops	Media: Fafard Germinating Mix (superfine). Seeds hand-sowed in a 4x8 flat, lightly covered, and placed under humidity tent with 70°F bottom heat. Surface misted 8am-8pm, 10 sec every 15 minutes. (2)
Establishment Phase	One week after germination, humidity tent was removed while continuing to mist.
Length of Establishment Phase:	
Active Growth Phase	No special care; do not overwater or fertilize
Length of Active Growth Phase:	Through onset of flowering in summer
Hardening Phase	
Length of Hardening Phase:	
Harvesting, Storage and Shipping	Seeds may be collected from mature plants and sown directly during fall, or dried and refrigerated for spring planting. Mature plants can overwinter to -18°C (9)
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Plants do not transplant well, so best performance is obtained when sown directly at the site of outplanting.
Other Comments	Can aggressively colonize as a weedy species, outcompeting desirable plants in poor soils. Self-seeds prolifically.

INFORMATION SOURCES	
References (full citations):	(1) USDA Plants Profile http://plants.usda.gov/java/profile?symbol=LUAR3 (2) Butler, Jennifer; Frieswyk, Christin. 2001. Propagation protocol for production of Lupinus argenteus seeds; USDI NPS - Rocky Mountain National Park, Estes Park, Colorado. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 12 May 2009). (3) Richard F. Keeler, Anthony T. Tu Toxicology of plant and fungal compounds CRC Press, 1991 (4) William M. Clapham and Sarah L. Barnes Development and Maturation of White Lupine Seed Agron J 82: 707-710 (1990) (5) Hartmann, Kester, Davies Geneve Plant Propagation: Principles and Practices 6th ed. Prentice-Hall, 1997 (6) The American Horticultural Society Toogood, Alan (ed): Plant Propagation DK Publishing, New York, 1999 (7) Gilkey, H.M. and L.R.J Dennis. Handbook of Northwestern plants. Corvallis, OR 1969 (8) Kruckeberg, A.R. Gardening with native plants of the Pacific Northwest. Seattle, WA: UW 1982 (9) Rose, R., C.E.C. Chachulski, and D.L. Haase. Propagation of Pacific Northwest native plants. Corvallis, OR: OSU Press 1998
Other Sources Consulted	Quick, Arthur Craig. Wild Flowers of the Northern States and Canada. M.A.Donahue, Chicago 1939
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