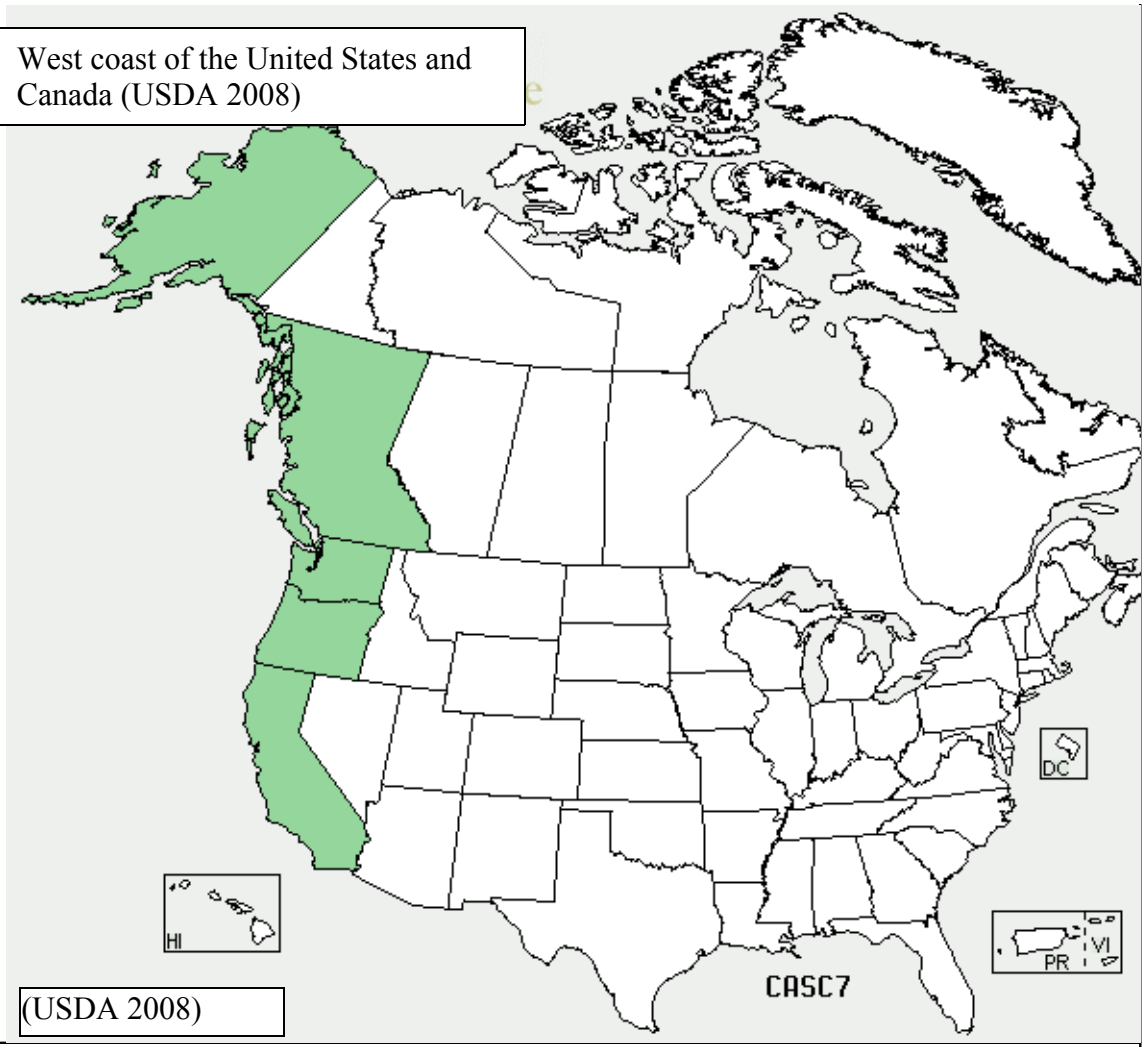
Plant Propagation Protocol for *Campanul scouleri*
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	Campanulaceae
Family Scientific Name:	
Family Common Name:	Bellflower
Scientific Names	
Genus:	*Campanula*
Species:	*scouleri*
Species Authority:	Hook ex A. DC.
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information)	
Common Name(s):	Pale Bellflower (WTU 2008) and Scouler's Harebell (Pojar 1994)
Species Code (as per USDA Plants database):	CASC7 (USDA 2008)
GENERAL INFORMATION	

Geographical range (distribution maps for North America and Washington state)	
Ecological distribution (ecosystems it occurs in, etc):	Tends to stay on the Pacific side of the Cascades (Ross et al. 1988). "Open or dense, relatively dry forest, thickets, open rocky slopes and outcrops" (Pojar 1994)
Climate and elevation range	C. scouleri can be found in openings in moist woods, low to moderate elevations (WTU Herbarium 2008) or moutain woodlands and north facing talus slopes (Nicholls 2002 & Atkinson et al. 1993). Klinka states that it prefers moderately dry to very dry areas in nitrogen deficient soil (1989).
Local habitat and abundance; may include commonly associated species	
Plant strategy type /	

successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Perennial Forb/herb (USDA 2008)
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):	Seeds or vegetative (Nicholls 2002)
Propagation Method (Options: Seed or Vegetative):	Seed: Seeds are very fine and may easy fall out of pores stored in capsules. Capsules are round in units of three located below the flower (Pojar 1994). To collect seeds, turn the seed capsule (positioned behind any remaining flower structures) and shake from pores into collection envelope (Nicholls 2002). Seeds need light to germinate and should not be covered by any media (Nicholls 2002)

	Vegetative: From spring to autumn pieces from the edges of a plant may be teased and cut away from main plant system and grown in fine sand where they will root in 5-6 weeks (Nicholls 2002).
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	
Stock Type:	
Time to Grow (from seeding until plants are ready to be outplanted):	A few weeks from seed and 5-6 weeks for vegetative (Nicholls 2002).
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	Collection of seeds can occur late July through late August and is completed by over turning capsules and sprinkling in collection envelope (Nicholls 2002).
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity,	Seeds may be dust like (Nicholls 2002)

etc):	
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	
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):	
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):	Some plants may not do well as a cutting (Nicholls 2002)
Other Comments (including collection restrictions or guidelines, if available):	
INFORMATION SOURCES	
References (full citations):	Atkinson, Scott, Fred Sharpe, David Macaree. 1993. Wild Plants of the San Juan Islands. Seattle (WA). The Mountaineers Books. P. 52 & 170.

	E Flora BC [Internet]. Department of Geography UBC, and the UBC Herbarium. [cited 2008 Apr 28]. Available from: http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Campanula%20scouleri Klinka, K., Vladmir J. Krajina, A. Ceska, & A.M. Scagel. 1989. Indicator Plants of Coastal British Columbia. Vancouver (BC): UBC Press. P. 94 Knoke, Don. WTU Herbarium. [Internet] Seattle, (WA) [cited 2008 Apr 28] Availabe from: http://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?ID=3762 Nicholls, Graham. 2002. Alpine Plants of North America: An Encyclopedia of Mountain Flowers from the Rockies to Alaska. Portland (OR): Timber Press, Incorporated. P. 61-63 Pojar, Jim & Andy MacKinnon ed. 1994. Plants of the Pacific Northwest Coast. Canada. . Lone Pine Publishing. P. 332 Ross, Robert A., Henrietta L. Chambers, Shirley A. Stevensol. 1988. Wildflowers of the Western Cascades. Timber Press. Portland (OR) USDA Plants [Internet]. United States Department of Agriculture Natural Resources Conservation Service. [cited 2008 Apr 28]. Available from: http://plants.usda.gov/java/nameSearch?keywordquery=campanula+scouleri&mode=sciname&submit.x=17&submit.y=15
Other Sources Consulted (but that contained no pertinent information) (full citations):	Dyrness, C.T.1973. Early Stages of Plant Succession Following Logging and Burning in the Western Cascades of Oregon. Ecology [Internet] [cited 2008 Apr 28] 1:54. Available from: http://www.jstor.org/stable/1934374 Lavender, Denise. 1958. Effect of Ground Cover on Seedling Germination and Survival. State of Oregon Forest Lands Research Center. Research Note No. 38. Shetler, Stanwyn G. & Nancy R Morin. 1986. Seed Morphology in North American Campanulaceae. Annals of Missouri Botanical Garden. [Internet] [Cited 2008 Apr 28] 73:4. Available from: http://www.jstor.org/stable/2399199
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Date Protocol Created or Updated (MM/DD/Y	4/29/08

Y):	

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