Plant Propagation Protocol for *Luetkea pectinata*
ESRM 412 – Native Plant Production

Image courtesy of USDA database[1]

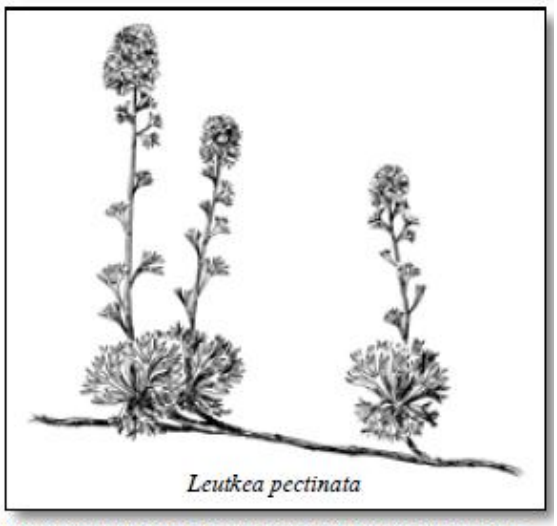
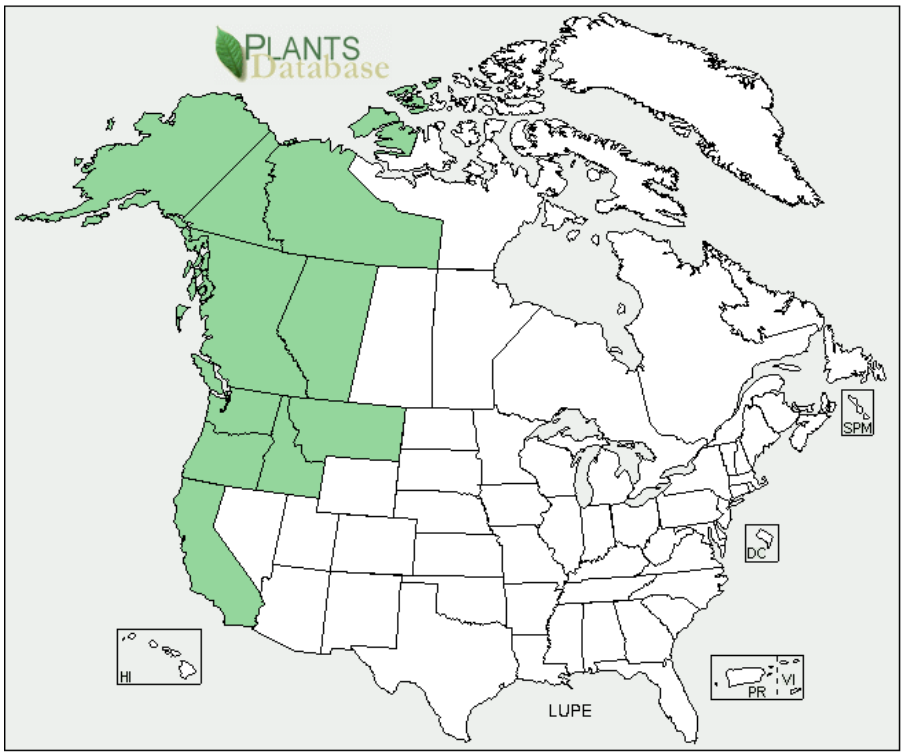
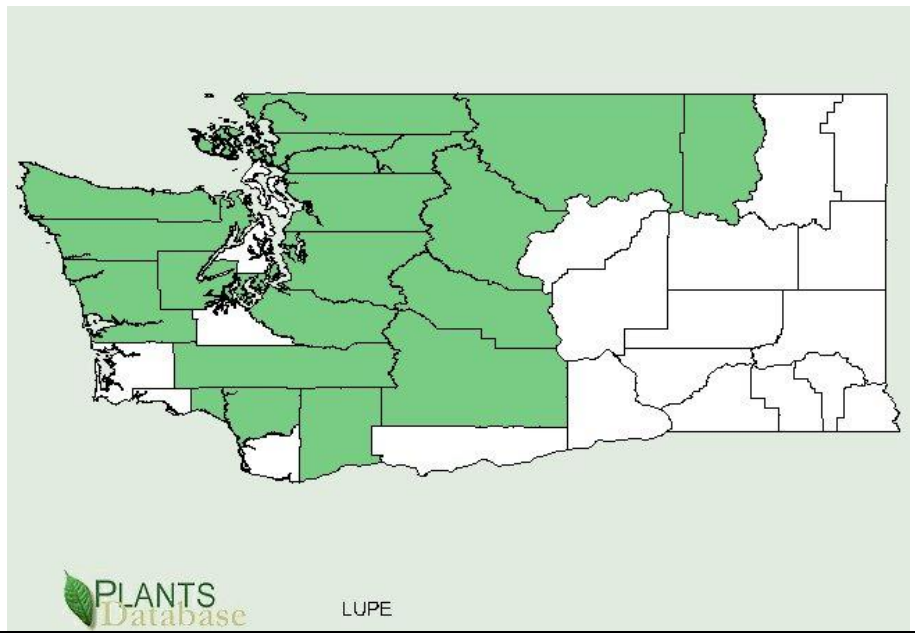


Figure C–5—Partridgefoot (*Leutkea pectinata*). Drawing courtesy of the University of Washington Press (Hitchcock and Cronquist 1976).

TAXONOMY	
Family Names	
Family Scientific Name:	Rosaceae[1]
Family Common Name:	Rose Family[1]
Scientific Names	
Genus:	Luetkea[1]
Species:	*L. pectinata*[1]
Species Authority:	Kuntze[1]
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)	*Saxifraga pectinata* Parsh[1]
Common Name(s):	patridgefoot[1]
Species Code (as per USDA Plants database):	LUPE[1]
GENERAL INFORMATION	
Geographical range (distribution maps for North	South Alaska and in the Cascade, Olympic, and Rocky mountain ranges, supalpine to alpine[2] North America and Washington Distribution Maps:

America and Washington state)	(Courtesy of USDA Plants Database[1])  
Ecological distribution (ecosystems it occurs in, etc):	Usually in sandy soil in moist or shady places[2] Mesic to wet forest openings, meadows, heathlands, scree slopes, mossy seepage areas and snowbed tundra in the subalpine to alpine zones[3]
Climate and elevation	Climate: Mesic[3] Elevation [3]:

range	Alpine and subalpine zones Average elevation (ft.): 5663 Maximum elevation (ft.): 8200 Minimum elevation (ft.): 50
Local habitat and abundance; may include commonly associated species	
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics	Shrub "General: Rhizomatous and stoloniferous semi-shrubs forming extensive mats, the erect, leafy flowering stems 10-15 cm. tall. Leaves: Leaves petiolate, crowded in thick basal tufts, the blade 5-10 mm. long, bi-ternately dissected into linear lobes; cauline leaves several, reduced. Flowers: Inflorescence a somewhat elongate, terminal cluster; calyx obconic, glabrous, the 5 lobes triangular, 2 mm. long; petals 5, white, spatulate to obovate, 3-3.5 mm. long; stamens 20, pistils 5. Fruits: Fruit a several-seeded follicle, about 5 mm. long."[2]
PROPAGATION DETAILS	
Ecotype	
Propagation Goal	Plants
Propagation Method (Options: Seed or Vegetative):	Seed *Note: Vegetative is reported possible, but not enough information on process for a protocol.*[7]
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):	
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	Collect seed heads of these species when the follicles of dry fruit are beginning to open and the floral structure turns red-brown (see figure above). Detach floral stems (racemes) down to the basal tuft with florist shears[4]
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Store collected floral stems in paper bags for one to several weeks at about 20-percent humidity or lower. Sift seeds through a No. 12 screen and store them in a zip-seal bag inside another zip-seal bag in the freezer. Because there appears to be no temperature-related dormancy in this species, cold stratification is unnecessary. We have seen prolific germination in both of these species without stratification. The seeds may need light to germinate and should be sown on the surface of the medium.[4]
Growing Area Preparation / Annual	Luetkea pectinata seed is sown during February and March on the surface of the seed germination mix. Potting Soil for Ericaceous Shrubs[4]:

Practices for Perennial Crops (growing media, type and size of containers, etc):	• 1 cubic foot (0.03 cubic meter) of high-grade sphagnum peat moss • 7 cubic feet (0.2 cubic meter) of fine, aged Douglas-fir bark • 1 to 2 cubic feet (0.03 to 0.06 cubic meter) of high-grade, 3⁄8-inch- (9.5-millimeter-) minus white pumice • 1 cup (0.24 liter) steamed bonemeal Press the seeds by hand or with a flat piece of plastic on the surface of the germination mix in 10- by 20-inch (254- by 508-millimeter) propagation flats at a rate of 3⁄8 teaspoon (1.9 milliliters) of seed per flat. As with the seed of high-elevation ericaceous shrubs, sow Luetkea seed on the soil surface. [4]
Establishment Phase (from seeding to germination):	Mist the flats generously and place them on heating mats outfitted with hemidomes or place them under intermittent mist with heating mats. Keep the soil moist until germination. Maintain the soil temperature at 70 degrees Fahrenheit (21 degrees Celsius).[4]
Length of Establishment Phase:	Germination will occur in 7 to 10 days[4]
Active Growth Phase (from germination until plants are no longer actively growing):	When all the seeds have germinated, take the flats off the heating mats and remove the hemidomes during the day. Transition the flats of seedlings to ambient greenhouse temperature and relative humidity. Apply a foliar fertilizer once every 2 weeks after the seedlings have developed true leaves, using a solution of 9–45–15 plant starter that has been diluted to one-fourth strength. Apply the fertilizer with a hand-pump applicator or pressure-tank sprayer as a fine mist until the seedlings are hardy and can support themselves. If the fertilizer is applied at high concentration or too early, the seedlings may burn (turn crispy brown), or excessive moss scum may proliferate in the flats. High nitrogen levels foster fungal pathogens, so never add nutrients to the soil media. Never fertilize seedlings while cotyle¬dons are present. Wait until mature foliage has developed. Fertilize sparingly during the first 3 months of development.[4]
Length of Active Growth Phase:	
Hardening Phase	
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	
Length of Storage	
Guidelines for Outplanting / Performance on Typical	

Sites	
Other Comments (including collection restrictions or guidelines, if available):	Most losses of *Leutkea pectinata* occur after the onset of warm weather, when aphid infestations increase rapidly on seedlings stressed from transplanting. Aphid infestations also can occur rapidly. Green aphid species, common on *Luetkea* and *Spiraea*, sometimes can be detected only by using a hand lens. Aphids are commonly found on the underside of new foliage. Patches of wilting foliage and leaf curl are common symptoms of aphid infestation.[4]
INFORMATION SOURCES	
References (full citations):	(1) USDA Plants Database. *Luetkea pectinat*a *(Pursh) Kuntze:* http://plants.usda.gov/java/profile?symbol=LUPE (2) "Luetkea pectinata". WTU Image Collection: Plants of Washington. May 16, 2012. Burke Museum of Natural History and Cuture. May 16, 2012<http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Luetkea&Species=pectinata>. (3) Klinkenberg, Brian. (Editor) 2012. *E-Flora BC: Electronic Atlas of the Plants of British Columbia* (eflora.bc.ca). Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. (4) Therrell, Lisa ; Cole, David ; Claassen, Victor ; Ryan, Chris ; Davies, Mary Ann. *Wilderness and Backcountry Site Restoration Guide*. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 2006. (5) Hitchcock, C L, and Arthur Cronquist. *Flora of the Pacific Northwest: An Illustrated Manual*. Seattle: University of Washington Press, 1973. Print. (6) Gabrielson, Ira N. *Western American Alpines*. New York: The Macmillan company, 1932. Print. (7) Beckett, Kenneth A. *Encyclopaedia of Alpines*. Pershore: AGS Publications, 1993. Print.
Other Sources Consulted (but that contained no pertinent information) (full citations):	Hills, Lawrence D. *The Propagation of Alpines*. London: Faber and Faber, 1959. Print. Correvon, Henry, and Leonard Barron. *Rock Garden and Alpine Plants*. New York: Macmillan Co, 1930. Print. *Rocky Mountain Alpines: Choice Rock Garden Plants of the Rocky Mountains in the Wild and in the Garden*. Portland, OR: Timber Press, 1986. Print.
Protocol Author (First and last name):	Jamie C. Bass
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