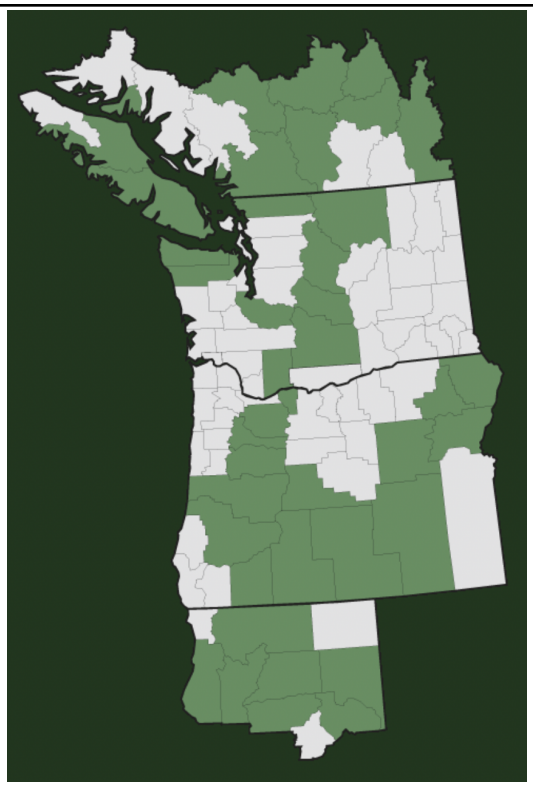
Plant Propagation Protocol for *Antennaria media* Greene
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/*2023*/*AMNE2*

(Matson)

TAXONOMY	
Plant Family	
Scientific Name	Asteraceae
Common Name	Sunflower Family
Species Scientific Name	
Scientific Name	*Antennaria media* Greene
Varieties	*Antennaria alpina* (L.) Gaertn. *Antennaria pulchella* Greene *Antennaria rosea* Greene ssp. pulvinata (Greene) Bayer (USDA)
Sub-species	*Antennaria media* Greene ssp. compacta (Malte) Chmielewski *Antennaria media* Greene ssp. ciliata E.E. Nelson *Antennaria media* Greene ssp. pulchella (Greene) Chmielewski

	Antennaria media Greene ssp. fusca (E.E. Nelson) Chmielewski (USDA)
Cultivar	
Common Synonym(s)	*Antennaria alpina* var. media (Greene) Jeps. *Antennaria austromontana* E. Nels. *Antennaria candida* Greene *Antennaria densa* Greene *Antennaria gormanii* H. St. John *Antennaria modesta* Greene *Antennaria mucronata* E. Nels. (UBC Herbarium and Spacial Data Lab)
Common Name(s)	Rocky Mountain Pussytoes, Media Pussytoes, Stony Mountain pussytoes (Painter)
Species Code (as per USDA Plants database)	AMNE2
GENERAL INFORMATION	
Geographical range	Primarily found in California and Oregon (Oregon State University) Continental range:  Alaska, Alberta, Arizona, British Columbia, California, Colorado, Idaho, Montana, Nevada, New Mexico, Northwest Territorie, Oregon, Utah, Washington, Wyoming, Yukon (Royal Botanic Gardens) Specific PNW Range:

	 Steens, Wallowas, N Cascades Np, Olympic Np, Mt. Rainier Np, Crater Lake Np (Turner)
Ecological distribution	Meadows, snow basins, ridges (“Jepson eFlora: Taxon Page”)
Climate and elevation range	1500-3800m (MediaWiki)
Local habitat and abundance	Rocky slopes and ridges, Talus and pumice, subalpine to alpine meadows (Burke Museum)
Plant strategy type / successional stage	Ground cover plant, non competitive
Plant characteristics	Matforming/runner. Perennial plant that is short, under 1 dm tall. A distinct identification method is to look for the small leaves and narrow, pointed involucre bracts (Burke Museum). Stems are erect and rosettes sprout from stoloniferous roots. The basal leaves are less than ½ in long, and are linear/spoon shaped in a white to grey color. The flowers are groups of 2-7 heads at the tops of stems. (Turner)
PROPAGATION DETAILS	
Ecotype	Collected in subalpine meadows of Logan Pass at an elevation of 2032.
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)

Stock Type	160 ml containers
Time to Grow	6 months
Target Specifications	Height of 2cm, has multiple leaves, and a firm plug in containers from the root system
Propagule Collection Instructions	In order for the achenes to be easily separated from the receptacle, the seeds are collected in late august, at high elevations. Mature seeds present black in color. During collection, they are put in paper bags, and then stored in a drying shed with ventilation to dry.
Propagule Processing/Propagule Characteristics	Seeds are cleaned with a hammermill and an office clipper then reviews them. 5 years of longevity for these seeds are expected. Seed density is 14,520,000 seeds/ kg
Pre-Planting Propagule Treatments	80-150 days of cold and moist stratification
Growing Area Preparation / Annual Practices for Perennial Crops	Sow seeds directly into containers that have been priorly irrigated. Sowing occurs in late fall in an outdoor nursery.
Establishment Phase Details	appear to germinate more slowly than forb species.
Length of Establishment Phase	4 weeks
Active Growth Phase	plants develop rapid shoot and root growth and are then fertilized with 20-20-20 NPK liquid fertilizer at 100 ppm bi-weekly. They quickly fill containers in a matt.
Length of Active Growth Phase	8 weeks
Hardening Phase	irrigation is gradually reduced. Plants are fertilized with 10-20-20 NPK liquid fertilizer at 200 ppm.
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	Harvest in July, 6 months into process. Store in an outdoor nursery under insulating foam cover and snow.
Length of Storage	5 months
Guidelines for Outplanting / Performance on Typical Sites	If seeds are scarce, divisions of established nursery stock can be executed.
Other Comments	Seeds require light for germination. If you are direct seeding onto restoration sites, seeds must be rolled or pressed into prepared seed beds. no raking or burying of seeds. (RNGR)
INFORMATION SOURCES	
References	Burke Museum, University of Washington. "Antennaria Media." Burke Herbarium Image Collection, burkeherbarium.org/imagecollection/taxon.php?Taxon=Antennaria%20media. Accessed 17 May 2023.

"Jepson eFlora: Taxon Page." *Jepson Herbarium*, 2023, ucjeps.berkeley.edu/eflora/eflora_display.php?tid=935. Accessed 19 May 2023.
Matson, Steve. *Antennaria Media; Rocky Mountain Pussytoes*. 2003, calphotos.berkeley.edu/cgi/img_query?enlarge=0000+0000+1103+0666.
MediaWiki. "Antennaria Media." *Flora of North America*, 5 Nov. 2020, floranorthamerica.org/Antennaria_media. Accessed 8 May 2023.
Oregon State University. "Antennaria Media Greene." *OregonFlora*, oregonflora.org/taxa/index.php?taxon=2787. Accessed 23 May 2023.
Painter, Elizabeth. "Common (Vernacular) Names Applied to California Vascular Plants." *Jepson Online Interchange*, 1 May 2016, ucjeps.berkeley.edu/cgi-bin/get_painter_common?935. Accessed 12 May 2023.
RNGR, and Tara Luna. "Propagation Protocol Database." *Native Plant Network — Reforestation, Nurseries and Genetics Resources*, 2008, npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=asteraceae-antennaria-15. Accessed 11 May 2023.
Royal Botanic Gardens. "Antennaria Media Greene." *Plants of the World Online | Kew Science*, powo.science.kew.org/taxon/urn:lsid:ipni.org:names:14742-2. Accessed 16 May 2023.
Turner, Mark. "Antennaria Media | Alpine Pussytoes | Wildflowers of the Pacific Northwest." *PNW Flowers*, www.pnwflowers.com/flower/antennaria-media. Accessed 23 May 2023.
UBC Herbarium and Spacial Data Lab. "Antennaria Media." *E-Flora BC Atlas Page*, 2020, linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Antennaria+media. Accessed 20 May 2023.
University of Washington. "Antennaria Media: Alpine Pussytoes, Rocky Mountain Pussytoes." *WTU Herbarium, Burke Museum*, www.pnwherbaria.org/data/results.php?DisplayAs=WebPage&ExcludeCultivated=Y&GroupB

	y=ungrouped&SortBy=Year&SortOrder=DESC&SearchAllHerbaria=Y&QueryCount=1&IncludeSynonyms1=Y&SciName1=Antennaria%20media. Accessed 20 May 2023. USDA [USDA NRCS National Plant Data Team]. "Antennaria Media Greene Plant Profile." *USDA Plants Database*, plants.usda.gov/home/plantProfile?symbol=ANME2. Accessed 14 May 2023. .
Other Sources Consulted	WTU Herbarium, Burke Museum, University of Washington, and David Giblin. "Washington Flora Checklist." *Washington Flora Checklist*, 29 May 2020, burkeherbarium.org/waflora/checklist.php?Taxon=Antennaria%20media. Accessed 21 May 2023
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