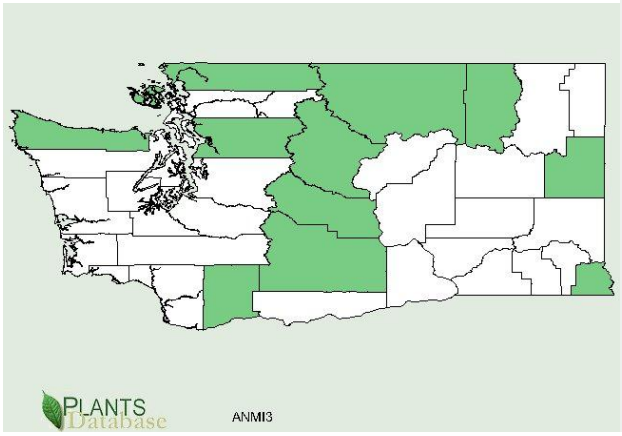
Plant Propagation Protocol for *Antennaria microphyllum* Rydb.
ESRM 412 – Native Plant Production

TAXONOMY	
Family Names	
Family Scientific Name:	Asteraceae
Family Common Name:	Sunflower Family
Scientific Names	
Genus:	*Antennaria*
Species:	*microphylla*
Species Authority:	Per Axel Rydberg
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)	*Antennaria bracterosa* Rydb., *Antennaria nitida* Greene, *Antennaria parvifolia* sensu greene, non Nutt., *Antennaria parfifolia*Nutt. Var. *bracterosa* (Rydb.) A. Nelson, *Antennaria rosea* Greene var. *nitida* (Greene) Breitung, *Antennaria solstitialis* Lunell (USDA, 2012)
Common Name(s):	Littleleaf Pussytoes, Rosy Pussytoes, Smallleaf pussytoes, Small leaf everlasting
Species Code:	ANMI3
GENERAL INFORMATION	
Geographical range	Present in the Western United States and Canada. In Washington is present in cool, dry climates. See maps attached.(Knoke, 2012)(USDA, 2012)
Ecological distribution (ecosystems it occurs in, etc):	Occurs in forests, mountain grasslands and meadows, plains, and alpine environments.(Knoke, 2012)
Climate and elevation range	Relatively dry areas at low to subalpine elevations.
Local habitat and abundance; may include commonly associated species	Grassland or sagebrush habitats, commonly with Idaho fescue, Rough fescue, needle-and-tread grass, bluebunch wheatgrass, and other PNW grasses.
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	Facultative Seral Species, found in disturbed communities as well as stable climax communities. Invades heavily grazed areas.(USDA, 2012)
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Perenial herb, mat forming, with reddish-pink to white flowers.
PROPAGATION DETAILS	
Ecotype:	Fescue grassland
Propagation Goal:	Plants
Propagation Method:	Seed

Product Type :	Container (Plug)
Stock Type:	172 ml containers
Time to Grow:	4 months
Target Specifications):	>1.5 cm, developed root system
Propagule Collection (how, when, etc):	By hand when receptacle is easily detached in mid-May to July
Propagule Processing/Propagule:	Seeds cleaned with a hammermill. Seeds are nondormant, seed density >10,000,000/ kg, seeds can be stored up to 5 years at 3 to 5 C
Pre-Planting Propagule Treatments :	Fall-sown, stratified by moisture and temperature, seeds are not dormant
Growing Area Preparation / Annual Practices for Perennial Crops:	Use an outdoor nursery facility, direct seeding, using a soil that is well drained(Cullina, 2000)
Establishment Phase (from seeding to germination):	*Antennaria* seems to germinate slowly, 2-3 weeks
Length of Establishment Phase:	4 weeks
Active Growth Phase (from germination until plants are no longer actively growing):	Once established, growth is rapid. Fertilize with triple 13 fertilizer. Plants will quickly fill containers(Cullina, 2012)
Length of Active Growth Phase:	4 weeks
Hardening Phase :	10-20-20 liquied NPK fertilizer at 200 ppm in early fall, pots are leached of water and irrigation is reduced through Sept. and Oct.
Length of Hardening Phase:	4 weeks
Harvesting, Storage and:	Harvest in July, overwinter in outdoor nursery protected from cold and snow
Length of Storage:	5 months
Guidelines for Outplanting / Performance on Typical Sites:	Outplant in Spring or Fall
Other Comments (including collection restrictions or guidelines, if available):	Can be vegetatively propogated with crown splitting, if seeding directly to restoration sites, press into beds. Burying seeds will result in poor establishment. (Evans & Luna, 2008)
INFORMATION SOURCES	
References (full citations):	Evans, Jeff; Luna, Tara.; Hosokawa, Joy.; Wick, Dale. 2008. Propagation protocol for production of container *Antennaria rosea* Greene plants (172 ml containers); USDI NPS - Glacier National Park, West Glacier, Montana. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 16 May 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. . "Antennaria microphylla Rydb.." *Plants.USDA.gov*. NRCS, 5-15-2012. Web. 15 May 2012. <http://plants.usda.gov/java/profile?symbol=anmi3>.

	Knoke, Don. "Antennaria microphylla." *Burke Museum of Natural History and Culture*. Burke Museum, 5-15-2012. Web. 15 May 2012. Matthews, Robin F. 1993. Antennaria microphylla. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2012, May 16]. Wilson, Bert. "Antennaria microphylla." *Las Pilitas Nursery*. Las Pilitas Nursery, 1-8-2012. Web. 15 May 2012. <http://www.laspilitas.com/nature-of-california/plants/antennaria-microphylla>. Cullina, William. *The New England Wild Flower Society Guide to Growing and Propagating Wildflowers*. 1st. 1. United States: The New England Wildflower Society, 2000. 43. eBook. <http://books.google.com/books?id=81-9XHU9qi4C&pg=PA43&lpg=PA43&dq=Antennaria microphylla propagation&source=
Other Sources Consulted (but that contained no pertinent information):	. "Antennaria microphylla." *Rob's Plants*. Rob's Plants, 2-21-2010. Web. 16 May 2012. <http://www.robsplants.com/plants/AntenMicro>.
Protocol Author (First and last name):	Alan Weber
Date Protocol Created or Updated (MM/DD/YY):	5-14-2012

Note: This template was modified by J.D. Bakker from that available at: http://www.nativeplantnetwork.org/network/SampleBlankForm.asp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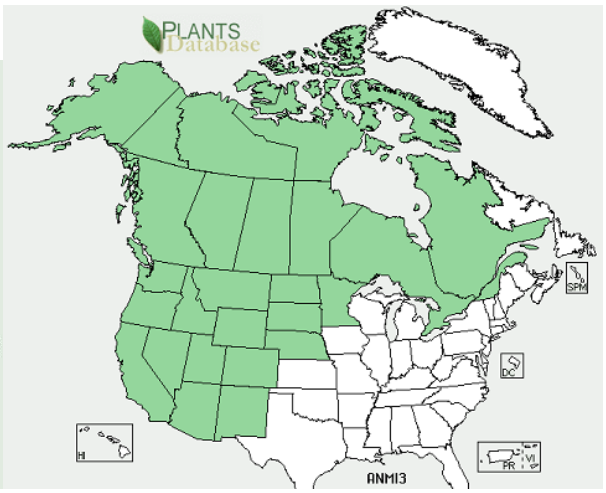
Database
ANMI3


PLANTS
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