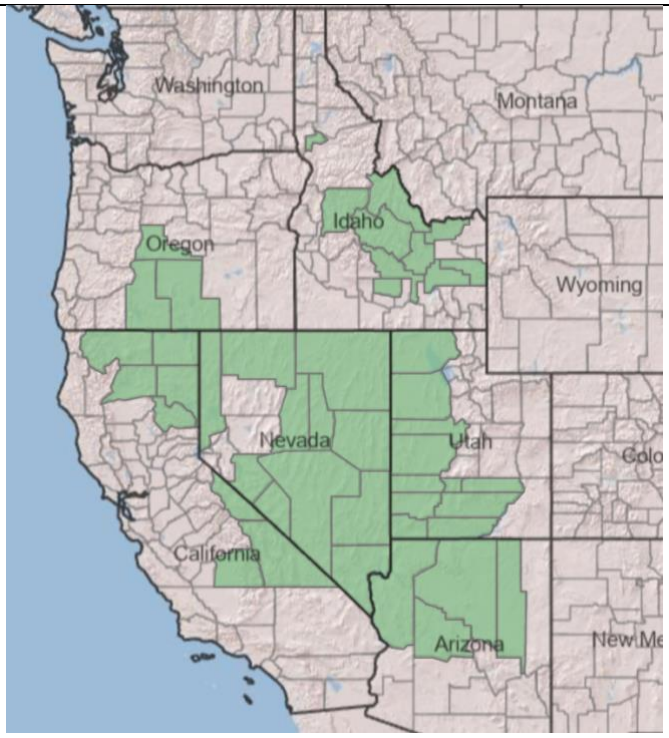
Plant Propagation Protocol for *Chamaebatiaria millefolium*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/2024/CHMI2

TAXONOMY	
Plant Family	
Scientific Name	Rosaceae
Common Name	rose family
Species Scientific Name	
Scientific Name	*Chamaebatiaria millefolium* (Torr.) Maxim
Varieties)	NA
Sub-species	NA
Cultivar	NA
Common Synonym(s)	NA
Common Name(s)	desert sweet, fernbush
Species Code (as per USDA Plants database)	CHMI2
GENERAL INFORMATION	
Geographical range	 Image source: USDA Plants Database. This species is endemic to the Western United States and found in S. Oregon, E. California, N. Arizona, W. Utah, SE Idaho, and throughout Nevada.[1]

Ecological distribution	This species can be found on rocky mountainous slopes in gravel, loam, and clay loam soils.[2] It can also inhabit Subalpine open woodland to higher elevation coniferous forests, permitting that the canopy is open enough to allow direct sun exposure.[3]
Climate and elevation range	Needs a minimum precipitation of 12 inches annually, but no more than 60.[4] Depending on the state, this species can be found from 3000 to 11000 ft in elevation.[5]
Local habitat and abundance	Artemisia tridentata Nutt. Pinus spp. Juniperus spp.
Plant strategy type / successional stage	Fernbush can tolerate drought and direct sunlight.[2] Has the possibility to be seen as early successional species on basalt lavas.[1]
Plant characteristics	Shrub that is 4-6 ft tall producing fragrant white flowers with 5 pedals, as characteristic of the Rosaceae family. 3" long Pubescent leaves are arranged at the ends of branches. During the winter, older leaves drop revealing the woody plant.[2] Bark is a dark shiny mahogany color with prominent lenticels.[6] Flowers Bloom from July to September.[2]
PROPAGATION DETAILS	
All information in this section is from Dreesen DF. Chamaebatiaria millefolium propagation protocol[7]	
Ecotype	Grand Canyon National Park, Arizona
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container(plug)
Stock Type	Super cell
Time to Grow	NA
Target Specifications	Ensure that root system is a consolidated mass to prevent root disintegration when outplanting.
Propagule Collection Instructions	Collect from later summer to early fall[4]
Propagule Processing/Propagule Characteristics	144000 seeds per pound
Pre-Planting Propagule Treatments	Cold stratify seeds for 2 to 4 weeks by sowing seeds in plug trays and placing in a 40-degree Fahrenheit walk-in cooler. Make sure to check periodically and add moisture as needed. Once germination has begun, remove from cooler and place in greenhouse.

Growing Area Preparation / Annual Practices for Perennial Crops	Sew in plug flats with square deep cells (Super Cells – 1.5 inch diameter and 8.25 inch depth) and loosely fill with commercial soilless mix (2:1 Sunshine #1 to perlite) and add Osmocote Plus fertilizer. Sow seeds at a rate of 2-5 per cell and lightly cover with perlite. Keep greenhouse at 70 degrees farhenehit during the day and 55 degrees at night.
Establishment Phase Details	Water daily and fertilize with soluble fertilizer every other day using Peters Peat Lite Special 20-10-20. Thinning of seedlings can occur when 2 to 4 cm tall. During especially hot months, watering may be needed twice a day.
Length of Establishment Phase	NA
Active Growth Phase	Continue irrigation and fertilization as mentioned in establishment phase.
Length of Active Growth Phase	3 to 4 months for fast growing plants, 1 year for slow growing
Hardening Phase	Move outside after last freeze, but before extreme heat (around early May). Bring down frequency of fertilizer to once a week.
Length of Hardening Phase	NA
Harvesting, Storage and Shipping	Transplant into one gallon tree pots.
Length of Storage	NA
Guidelines for Outplanting / Performance on Typical Sites	NA
Other Comments	NA
INFORMATION SOURCES	
References	1. Silvia S. 2004. Chamaebatiaria millefolium (Torr.) Maxim. Native Plants of Arizona. Cortez Cultural Center. https://cortezculturalcenter.org/wp-content/uploads/2019/05/Chamaebatiaria-millefolium.pdf 2. TWC Staff. Chamaebatiaria millefolium. 2022. Lady Bird Johnson Wildflower Center. The University of Texas at Austin. https://www.wildflower.org/plants/result.php?id_plant=chmi2 3. Henrickson J. 2020. Chamaebatiaria millefolium. Flora of North America 9: 395. http://beta.floranorthamerica.org/Chamaebatiaria_millefolium 4. USDA Plants Database. Chamaebatiaria millefolium (Torr.) Maxim. United States Department of Agriculture. https://plants.usda.gov/home/plantProfile?symbol=CHMI2 5. Matthews RF. 1994. Chamaebatiaria millefolium. Fire Effects Information System. United States Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

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Other Sources Consulted	Ray C, Beever EA, Rodhouse TJ. Distribution of a climate-sensitive species at an interior range margin. 2016. Ecosphere 7(6). https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.1379
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