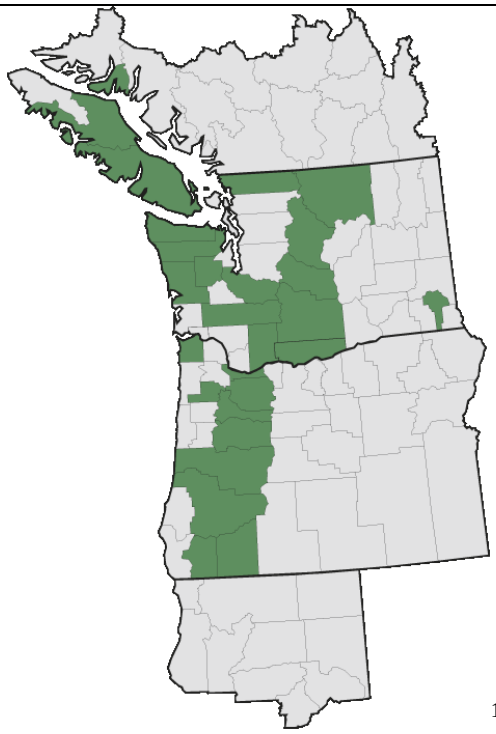
Plant Propagation Protocol for *Erysimum arenicola*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/2023/ERAR15.pdf

 [13]

TAXONOMY	
Plant Family	
Scientific Name	Brassicaceae[8]
Common Name	Mustard family[8]
Species Scientific Name	
Scientific Name	*Erysimum arenicola* S. Watson[8]
Varieties	• *Erysimum arenicola* S. Watson var. *arenicola*[8] • *Erysimum arenicola* S. Watson var. *torulosum* (Piper) C.L. Hitchcock[8]
Sub-species	None listed
Cultivar	None listed
Common Synonym(s)	• *Erysimum arenicola* S. Watson var. *arenicola*[8] • *Erysimum arenicola* S. Watson var. *torulosum* (Piper) C.L. Hitchcock[8] • *Erysimum torulosum* Piper[8] • *Cheiranthus arenicola* (S. Watson) Greene[4]
Common Name(s)	Cascade Wallflower[8]
Species Code	ERAR15[8]
GENERAL INFORMATION	
Geographical range	This plant is found from Northern Oregon through the Cascade and Olympic mountains in Washington to Southern British Columbia.[9]

	 [12]
Ecological distribution	*Erysimum arenicola* is found mostly in mountainous areas ranging from moderate to high elevation[4,9]
Climate and elevation range	This plant is found in elevations from 900-2200 m, the specific climate type is unknown or variable.[5,9]
Local habitat and abundance	This plant is usually found on open ridges, talus slopes, and rock crevasses. It generally prefers gravelly ground and moist to mesic conditions.[3,5,9]
Plant strategy type / successional stage	No information available
Plant characteristics	*Erysimum arenicola* is a perennial forb/herb with grey, hairy foliage.[3,4,5] It has bright yellow, bisexual flowers that form in clumps.[3,4,7] It flowers in the summer from June-August.[3,4] *Erysimum arenicola* is easy to propagate from seed.[6]
PROPAGATION DETAILS	
Ecotype	1. Colorado, MPCG (98-025s), Long's Peak Parking Lot (98-130s) for *Erysimum*[2] 2. Seeds were harvested in Lucky Peak Nursery in Boisie, Idaho for the USFS in Deschutes National Forest, Bend-Fort Rock Ranger District in Bend, Oregon for *Erysimum capitatum* (Douglas ex Hook.) Greene perenne (S. Watson ex Coville) R.J.[1] 3. Marin County, California for *Erysimum franciscanum* G. Rossb.[10] These protocols were made for different species of wallflowers, but they may be helpful in in the propagation of *Erysimum arenicola*.

Propagation Goal	 Seeds[1,2] [11] Plants[10]
Propagation Method	Seed[1,2,10]
Product Type	Propagules (seeds, cuttings, poles)[1,2] Container (plug)[10]
Stock Type	Seed flat[1] Deepot 16[10]
Time to Grow	Zero weeks[1,10]
Target Specifications	There is no specification of height or caliper of seedlings, but there needs to be a firm plug in a container.[10]
Propagule Collection Instructions	Seeds were collected between June 20th and November 15th when the inflorescences were brown, and the seeds are a light grey.[10]
Propagule Processing/Propagule Characteristics	6.5 pounds of seeds were collected with 1,893,913 seeds per pound.[1] Seed longevity was not specified.[1,2,10]
Pre-Planting Propagule Treatments	**Seed cleaning:** This plant produces seed pods that need to split open to retrieve the seeds.[2] The seeds were processed first by using a Westrup Model LA-H laboratory brush machine with a #40 mantel set at a speed of 3. This was to remove the seeds from the capsules. The seed lot was then air-screened to remove chaff. This was done using an office Clipper, with a top screen size of either 1/14 or 1/16 round and a bottom screen of 30 x 30 wire. The speed and air were set at medium. After cleaning, the purity of the lot was 93%. Seeds were then kept in a dry and stored in a refrigerator before pre-planting treatments were imposed.[10] **Dormancy treatments:** No pre-planting treatments were used at the Colorado or Oregon sites.[1,2] In California, the seeds were soaked for 3 hours in water and stratified in peat moss for 2 weeks or until the seeds began to germinate.[10]
Growing Area Preparation / Annual Practices for Perennial Crops	In Colorado the seeds were propagated in a greenhouse on a heating pad (70°F) under a tent with misters. The misters were set to go off in 10 second/15 minute watering intervals from 8am-8pm. One week after germination, the seedlings were moved to a misting area without a tent. Germination media used was a superfine mix, and growing media used was Fafard growing mix 2.[2] In California, the seeds were propagated in a controlled greenhouse using Sunshine Mix #4 Aggregate Plus media[10]
Establishment Phase Details	Seeds were sown in flats with 2-3 seeds per slot and covered with germination mix. After one month, the seedlings were potted in separate containers.[2] At the California site, 4 grams of seeds were sown in a flat and were also lightly covered in media. 10 days after the seeds germinated the seedlings were transplanted to 2'x7' tubes (Deepot 16) with a potting mix of peat moss, fir bark, perlite, and sand. Transplanting survival rate was on average 95% and germination rate was 50%.[10]

Length of Establishment Phase	Germination occurred in 6-12 days for the Colorado seeds. [2] The length of establishment for the California site was 20 days.[10]
Active Growth Phase	*Erysimum franciscanum* once established grows rapidly, so the plants were pruned back 2 months after transplanting. 3 months after transplanting, the seedlings were fertilized with Nutricote NPK (13-13-13).[10]
Length of Active Growth Phase	No information available
Hardening Phase	No information available
Length of Hardening Phase	No information available
Harvesting, Storage and Shipping	Seeds can be stored in cold storage 33-38 °F. [1]
Length of Storage	No information available
Guidelines for Outplanting / Performance on Typical Sites	No information available
Other Comments	Propagating seeds on a heating pad may enhance germination rate.[2]

INFORMATION SOURCES

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