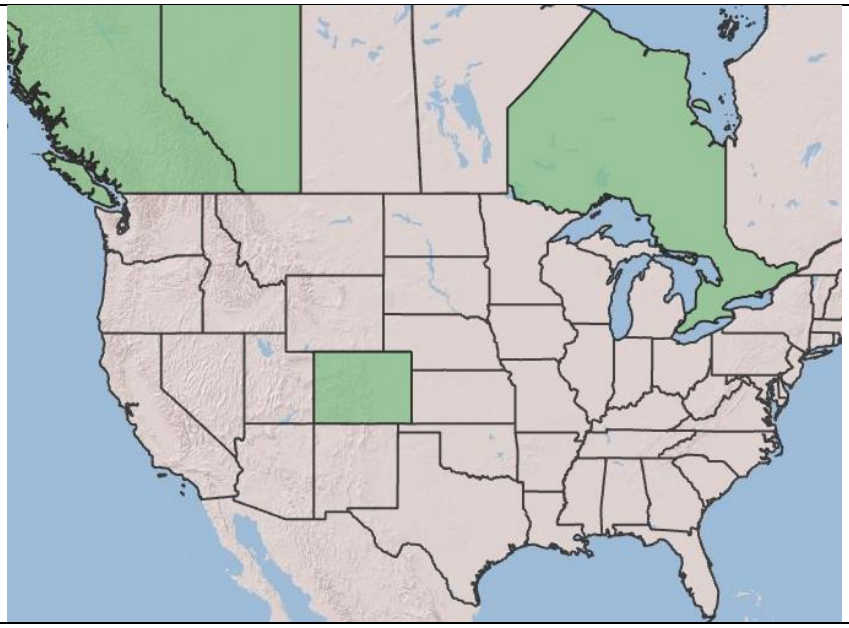
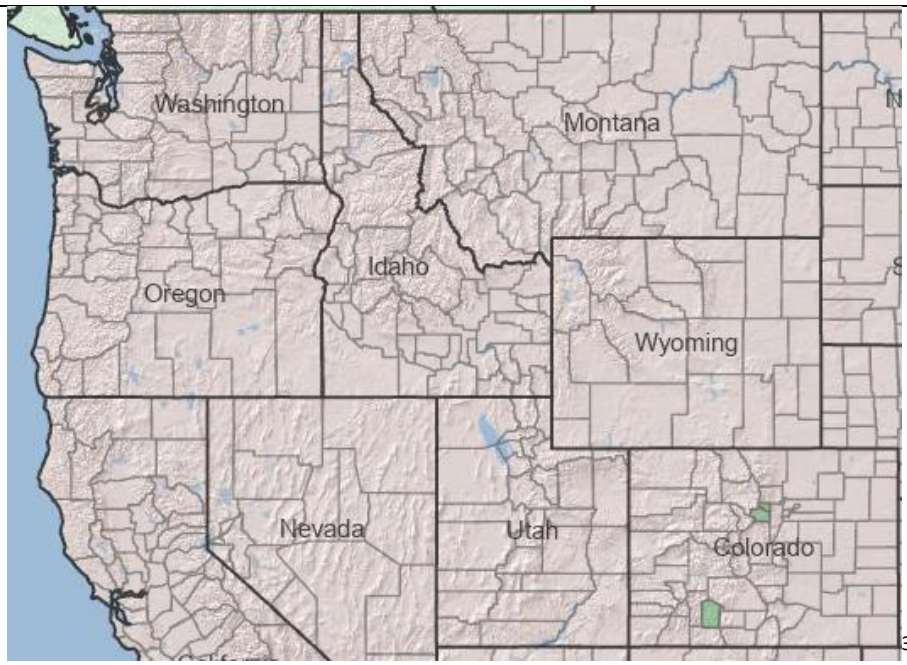
Plant Propagation Protocol for *Alpine Aster*

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/2024/ASAL3.pdf

TAXONOMY	
Plant Family	
Scientific Name	Asteraceae
Common Name	Asters
Species Scientific Name	
Scientific Name	*Aster alpinus L.* [3]
Varieties	None.
Sub-species	*Aster alpinus L. var. alpinus* *Aster alpinus L. var serpentinmontanus Ling* *Aster alpinus L. var. Vierhapperi Conquist* [3]
Cultivar	
Common Synonym(s)	*Diplactis alpina L. semple* [2]
Common Name(s)	Alpine Aster
Species Code (as per USDA Plants database)	ASAL3
GENERAL INFORMATION	
Geographical range	

	 3  4 *note: USDA plant database states that this species is only found in Western Canada and Colorado, while other sources state this species is present in Idaho and Wyoming.
Ecological distribution	Found in rocky mountain ranges, and subalpine biomes.
Climate and elevation range	Prefers cooler, drier climates (50-70 degrees). No elevation information found.
Local habitat and abundance	Can be found in drier meadows, mountain hillsides, and rocky cliff edges with full access to sunlight.[9]

Plant strategy type / successional stage	Tolerant of drought, shade (moderately), and rocky soil.[5] Intolerant of CaCO3 and high heat levels. [12] Perennial herb.
Plant characteristics	This species is a hardy, herbaceous perennial plant that forms in clumps. Forms purple flowers with golden yellow centers that appear at the end of their stems. Stems are long and slender, growing up to 16 inches in height. Their leaves are basal, untoothed, and form in rosettes around the base of the plant.[1,5] 
PROPAGATION DETAILS: FROM SEED	
Propagation Goal	Plants.
Propagation Method	Seed.
Product Type	It is recommended for this species to grow in a raised rock bed, rock garden pocket. 3 in pots and trays are also acceptable. [9] Pots should be well draining, and root hormone may be used. [11]
Time to Grow	Seeds should be sown in early to midwinter. Seedlings will appear in spring, and will form flowers in late summer. [9]
Target Specifications	Target height is between 8 and 12 inches. Flowerheads are large (~2in) and form violet rays with a yellow center. [7,8] No other specifications at the end of nursery time were found.
Propagule Collection Instructions	Seeds can be collected from the bulbous seedhead in center of flower; seedheads should be directly placed into a paper bag. Achenes can later be separated from the pappus. Plump achenes are recommended as they are most likely to contain more viable seeds. [9]
Pre-Planting Propagule Treatments	None needed.

Growing Area Preparation / Annual Practices for Perennial Crops	Growing media should be rich in organic matter, and moisture should be maintained. The plants should be cultivated in full sun to partial shade, spaced 24in apart. [6,8]
Establishment Phase Details	Temperatures should be maintained between 50-70 degrees F and constant moisture should be maintained.[9]
Length of Establishment Phase	2-4 weeks [11]
Active Growth Phase	When seedlings appear, they may be placed under greenhouse conditions (50 degrees at night). [9]
Hardening Phase	Seedlings can be hardened in cold frames before being planted in gardens/in pots in mid to late spring.[9] Once established, their watering needs diminish.
Guidelines for Outplanting / Performance on Typical Sites	Once flowered, they can be separated and out planted onto sites such as subalpine meadows. Sources state that alpine aster has the highest success and is the easiest to cultivate out of similar species in the same family, but no specific survival statistics were found.[6]
Other Comments	- Propagating this species from seed is easier than propagating vegetatively, as they take less time and are not very prone to pests. [1,10] - When researching, I was unable to find information regarding seedling storage, transport, or the length of the hardening phase. There was also no description of propagule processing/characteristics amongst my sources.
PROPAGATION DETAILS: VEGETATIVE	
Propagation Goal	This species can be propagated from stem-tip cuttings, or by division. [7]
Propagation Method	Vegetative.
Product Type	It is recommended for this species to grow in a raised rock bed, rock garden pocket. 3 in pots and trays are also acceptable. If using divisions, 6 in pots may also be used. [1,9]
Time to Grow	If using cuttings, it will take 6 weeks for them to take root. [7] If using divisions, they should be made in the early spring and can be out planted directly. [10]
Target Specifications	Target height is between 8 and 12 inches. Flowerheads are large (~2in) and form violet rays with a yellow center. [1] No other specifications at the end of nursery time were found.
Propagule Collection Instructions	If using cuttings, they can take be done in spring to fall. Cuttings should be 3-5 inches long, taken from just above the leaf node. Step tips should be trimmed to 2-3 inches before planting directly into soil. Leaves should be removed from the lower third of the cutting before placing the cutting. If using divisions, they can be done from late fall to early spring. Clumps should be divided either by hand or with a small garden spade. Excess soil can be shaken off roots without causing damage to the root system. Each root section should be replanted under similar soil and water conditions it grew in. [7,11]

Pre-Planting Propagule Treatments	None needed.
Growing Area Preparation / Annual Practices for Perennial Crops	Growing media should be rich in organic matter, and moisture should be maintained. The plants should be cultivated in full sun to partial shade, spaced 24in apart. [6,8]
Establishment Phase Details	A clear plastic bag can be placed over the top of cuttings, although it should be aired regularly. [7] Additionally, temperatures should be maintained between 50-70 degrees F. Moisture should be maintained.
Active Growth Phase	Moisture and temperature should continue to be maintained. The clear plastic bag should be removed once new growth is established.
Hardening Phase	Seedlings may be placed into a cold frame for 1-2 seasons, or from mid to late spring. [7] Once established, their watering needs diminish. [11]
Guidelines for Outplanting / Performance on Typical Sites	Once flowered, they can be separated and out planted directly onto sites such as wetlands. Sources state that alpine aster has the highest success and is the easiest to cultivate, but no specific survival statistics were found. [6]
Other Comments	- Information regarding the length of each seedling phase, harvest, storage, and shipping information was once again extremely limited. Sources generally agree that cuttings and divisions are still able to produce healthy seedlings, however, the process may take longer.
INFORMATION SOURCES	
References	1. "Aster Alpinus (Alpine Aster)." Gardenia, www.gardenia.net/plant/aster-alpinus. Accessed 20 May 2024. 2. "Aster Alpinus L.: Plants of the World Online: Kew Science." Plants of the World Online, powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30147822-2. Accessed 20 May 2024. 3. "Aster Alpinus L." USDA Plants Database, plants.usda.gov/home/plantProfile?symbol=ASAL3. Accessed 20 May 2024. 4. "Aster Alpinus Linneaus." Aster Alpinus in Flora of North America @ Efloras.Org, www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200023409. Accessed 20 May 2024. 5. "Aster Alpinus." Aster Alpinus - Plant Finder, www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=277145. Accessed 20 May 2024. 6. Kruckeberg, Arthur R., and Linda Chalker-Scott. Gardening with Native Plants of the Pacific Northwest. University of Washington Press, 2019. 7. Pettinger, April, and Brenda Costanzo. Native Plants in the Coastal Garden: A Guide for Gardeners in the Pacific Northwest. Timber Press, 2003. 8. Picton, Paul, and Helen Picton. The Plant Lover's Guide to Asters. Timber Press, 2015. 9. Picton, Paul. The Gardener's Guide to Growing Asters. David & Charles, 2004. 10. Robson, Kathleen A., et al. Encyclopedia of Northwest Native Plants for Gardens and Landscapes. Timber Press, 2008. 11. Schiller, Nan. "How to Grow and Care for Alpine Aster." Gardener's Path, 11 July 2023, gardenerspath.com/plants/flowers/alpine-aster/.

	12. TWC Staff. “Plant Database- Aster Alpinus.” Lady Bird Johnson Wildflower Center - The University of Texas at Austin, 1 Jan. 2007, www.wildflower.org/plants/result.php?id_plant=ASAL3.
Other Sources Consulted	“Integrated Taxonomic Information System - Report: Aster Alpinus.” ITIS, www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=193051#null. Accessed 20 May 2024.
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Date Protocol Created or Updated	5/22/24