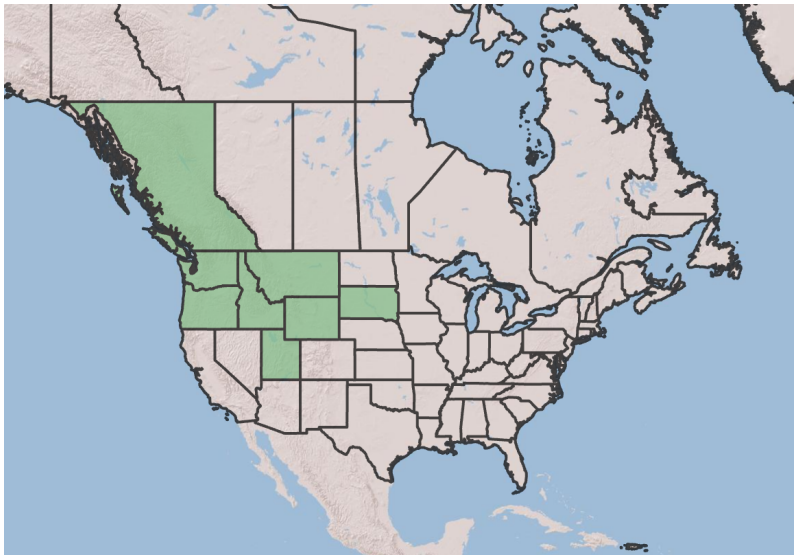



**Plant Propagation Protocol for *Eurybia merita*
Subalpine Aster**

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2022/EUME17.pdf>

TAXONOMY	
Plant Family	
Scientific Name	<i>Asteraceae / Compositae</i>
Common Name	Aster family
Species Scientific Name -	
Scientific Name	<i>Eurybia merita</i> (A. Nelson) G. L. Nesom
Varieties	<i>Aster montanus</i> var. <i>arcticus</i> , <i>Aster richardsonii</i> var. <i>meritus</i> , <i>Aster sibiricus</i> var. <i>meritus</i>
Sub-species	
Cultivar	
Common Synonym(s)	Aster behringensis Gandog. Aster meritus A. Nelson Aster richardsonii Spreng. Aster sibiricus subsp. meritus Aster sibiricus subsp. richardsonii (Spreng.) Aster sibiricus var. giganteus (Hook.) A. Gray Aster sibiricus var. meritus (A. Nelson) Raup Eurybia sibirica var. gigantea (Hook.) G.L. Nesom (5)
Common Name(s)	Subalpine aster, Arctic aster
Species Code (as per USDA Plants database)	EUME17
GENERAL INFORMATION	
Geographical range	

	 <p>Map provided by the USDA plant database (10)</p>
<p>Ecological distribution</p>	<p>Occurring west of the Cascades crest in Washington, British Columbia to California, east to Montana, Wyoming, Utah, Idaho and the northern Great Plains. There are few isolated populations far east in the Black Hills of South Dakota. Open, mesic or dry, rocky areas in the subalpine. Absent along coastal regions. (7). In Washington state it is found in Whatcom, Okanogan, and Stevens counties (10).</p>
<p>Climate and elevation range</p>	<p>The typical elevation is from 100 up to 3200 meters (11), soils that range from mesic to dry gravelly or mountainous slopes. “Open woods, rocky areas, clearings and recently burnt areas constitute its primary habitat. It may also be found along sandy, rocky or gravelly creek banks” (11). It is found at lower elevations in the northern part of its range and higher elevations at the southern part of its range, such as California.</p>
<p>Local habitat and abundance</p>	<p>Found on the slopes of the west cascades, particularly it has been noted in Whatcom and Snohomish counties at high elevations in open areas of the Northern Cascades. Typically found in Douglas fir, lodgepole pine or spruce dominated forests (11). Can be commonly found on rocky cliffs, alpine meadows, and high elevation roadsides alongside other hardy native herbs and forbs. Is commonly associated with birds, butterflies, and bees as it is a notorious pollinator plant. As well as it being a substantial food source for deers and other herbivores.</p>
<p>Plant strategy type / successional stage</p>	<p>Early successional seral plant. Drought tolerant, deer tolerant, and shade intolerant. Prefers dry climates with rocky substrate. Is able to colonize openly spaced high elevation areas following a fire or disturbance.</p>

Plant characteristics

Image to the right above is provided by the Burke Museum (5).
Image to the right below is provided by (6).



This plant is a herbaceous perennial native to northwestern North America. It grows from a slender rhizome that stems bundles of short-hairy branches that are typically 3-50 cm tall (5). It has white to purple colored flowers that grow in clusters of 10 to 25 and bloom in the late summer months of July and August. These flowers have a disk shape with 10-25 petals that are 8 to 15mm long. It is a clonal and clumped bushy plant with deciduous leaves that are dark green, serrated, veined, and 1.5-10cm long (5). The fruit of this plant are characterized as “sparsely stiff-hairy, pappus deep brownish, rarely yellowish, or white” (5).

PROPAGATION DETAILS

Ecotype

Propagation Goal

Seeds – 0 nurseries in the United States carry this plant. It has not been trialed as a nursery plant because it is common, not endangered, and requires a particular high elevation and mountainous environment. Everything following is hypothetical

	and a generalized statement of the bare minimum need this species would have to have to have to be grown in a nursery.
Propagation Method	Seed
Product Type	Containers
Stock Type	
Time to Grow	Would need to be planted in September after seeds are distributed following July and August bloom. After September the seed would enter dormancy before coming out of dormancy in the early spring. Ideal growing time is August/September to the following August/September as it is a perennial and would not flower and produce fruits until its second year. So first year is seedling growth and then replanting at site in the following September would be a productive method.
Target Specifications	A mature plant that is ready for successful outplanting would have to be 10-50cm tall with clonal dispersal (11).
Propagule Collection Instructions	Collect when the flower is in bloom from June to July. Only collect 10% of the seeds in order to not overtake from the plant's ecosystem. Would need to be taken from the yellow plant heads in the middle of the disc florets.
Propagule Processing/Propagule Characteristics	Unknown.
Pre-Planting Propagule Treatments	Must be stored in a cool, sunny, and dry place. The plant goes into dormancy in September and November before exiting out of the dormant in the early spring months of April and May.
Growing Area Preparation / Annual Practices for Perennial Crops	The growing media type must have extremely good drainage as it is moisture intolerant. I would recommend a rocky gravel substrate that contains perlite for good aeration and vermiculite for stem stability. The container size must be large as the roots grow horizontally in order to form a clustered bush that is wide, but not extremely tall. I imagine rocky garden beds would be an ideal growing area.
Establishment Phase Details	Unknown
Length of Establishment Phase	Unknown
Active Growth Phase	Unknown
Length of Active Growth Phase	Unknown
Hardening Phase	In general the objectives of any hardening phase is to “slow shoot growth, condition the plant to endure stress, acclimate to the outplantin environment, provide wind exposure, and introduce moderate moisture stress. For something like the subalpine aster this would need a cold-hardiness and wind treatment to prepare it for harsh winter climates and snow pack.

Length of Hardening Phase	Unknown
Harvesting, Storage and Shipping	Would need to be stored in a dry and cold climate that is cool in order to mimic the natural temperatures of its habitat. Requires high amounts of sunlight. Seedlings would be sturdy and hardy if allocated with enough sunlight and drainage.
Length of Storage	Unknown
Guidelines for Outplanting / Performance on Typical Sites	Unknown
Other Comments	Would be an interesting project to see how various Pacific Northwest native alpine plants grow in a nursery because most have not been tried.

INFORMATION SOURCES

References	<ol style="list-style-type: none"> 1. "Eurybia merita." <i>Gardenia.net</i>, https://www.gardenia.net/plant/Eurybia-merita 2. "Eurybia Merita." <i>Eurybia Merita Calflora</i>, https://www.calflora.org/app/taxon?crn=9337. 3. WTU Herbarium, Burke Museum. "Eurybia Merita." <i>Consortium of Pacific Northwest Herbaria</i>, https://www.pnwherbaria.org/data/results.php?DisplayAs=WebPage&ExcludeCultivated=Y&GroupBy=ungrouped&SortBy=Year&SortOrder=DESC&SearchAllHerbaria=Y&QueryCount=1&IncludeSynonyms1=Y&SciName1=Eurybia+merita&Zoom=4&Lat=55&Lng=-135&PolygonCount=0. 4. WTU Herbarium, Burke Museum. "Eurybia Merita (A. Nelson)." <i>Washington Flora Checklist</i>, http://biology.burke.washington.edu/herbarium/waflora/checklist.php?Taxon=Eurybia+merita. 5. "Eurybia Merita (A. Nelson) G.L. Nesom." <i>E-FLORA BC: ELECTRONIC ATLAS OF THE FLORA OF BRITISH COLUMBIA</i>, http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Eurybia%2Bmerita. 6. "Eurybia Merita." <i>Calphotos</i>, https://calphotos.berkeley.edu/cgi/img_query?where-taxon=Eurybia%2Bmerita.
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	<p>7. "Subalpine Aster, Eurybia Merita." <i>California Native Plant Society</i>, https://calscape.org/Eurybia-merita-().</p> <p>8. "Eurybia Merita." <i>Eurybia Merita in Flora of North America @ Efloras.org</i>, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250066754.</p> <p>9. <i>Eurybia Merita</i>, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=85317.</p> <p>10. <i>USDA Plants Database</i>, https://plants.usda.gov/home/plantProfile?symbol=EUME17.</p> <p>11. "Eurybia Merita (A. Nels.) G. L. Nesom." <i>EOL</i>, https://eol.org/pages/476299/articles.</p>
Other Sources Consulted (<p>1. Young, James A., and Cheryl G. Young. <i>Collecting, Processing, and Germinating Seeds of Wildland Plants</i>. Timber Press, 1999.</p>
Protocol Author	Cassidy Pearson
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