

Plant Propagation Protocol for *Eucephalus ledophyllus* (A.Gray) Greene

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2025/EULEL2.pdf>

TAXONOMY	
Plant Family	
Scientific Name	<i>Eucephalus ledophyllus</i> (A.Gray) Greene
Common Name	Cascade aster
Species Scientific Name	
Scientific Name	
Genus	Eucephalus
Specific epithet	ledophyllus
Authority	(A.Gray) Greene
Varieties	Eucephalus ledophyllus var. covillei (Greene) G.L.Nesom Eucephalus ledophyllus var. ledophyllus ¹
Sub-species	
Cultivar	
Common Synonym(s)	Aster ledophyllus A.Gray – This is the original name before being reclassified into the Eucephalus genus by Greene. Aster ledophyllus var. covillei Greene – Synonym for Eucephalus ledophyllus var. covillei (Greene) G.L.Nesom Eucephalus ledophyllus var. covillei (Greene) Greene – An older synonym; current accepted authority is G.L. Nesom ¹
Common Name(s)	Cascade aste Aster ledophyllus Tea-leaved aster ¹
Species Code (as per USDA Plants database)	EULEL2
GENERAL INFORMATION	

Geographical range

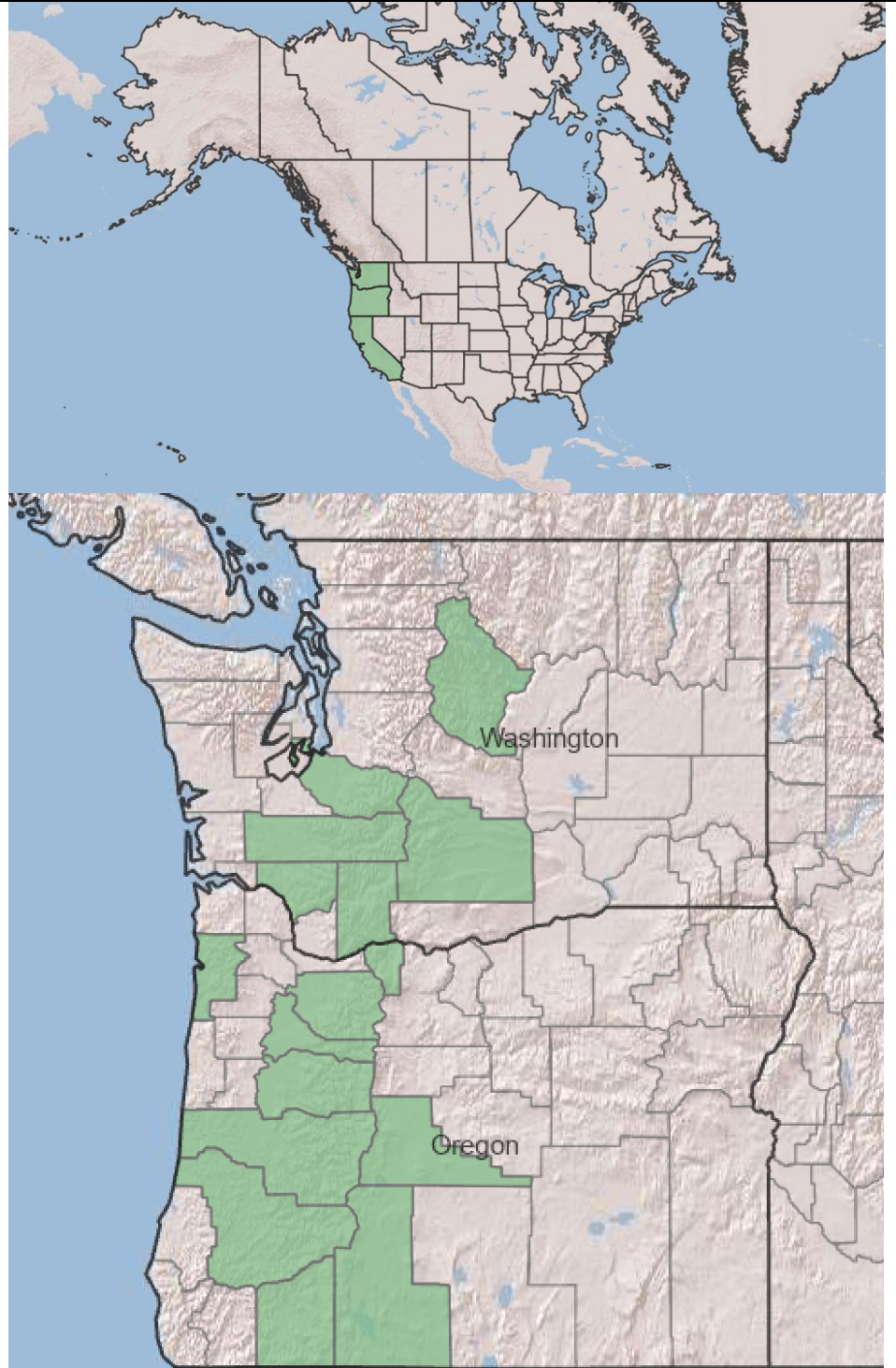


Figure 1 *Eucephalus ledophyllus* (A.Gray) Greene distribution. From a map by Esri, USDA-NRCS-NGCE & NPDT, 2014. © Esri, 2014. ¹

Ecological distribution

native to the Pacific Northwest, primarily occurring in Washington, Oregon, and northern California. It inhabits montane to subalpine ecosystems, often found in open coniferous forests, forest edges, and mountain meadows. This species prefers well-drained, sometimes rocky

	soils and is commonly seen on slopes or ridges. Cascade aster grows at elevations ranging from approximately 1,200 to 2,800 meters and thrives in partial shade but can tolerate full sun in open, high-elevation habitats ²
Climate and elevation range	thrives in subalpine parkland zones of the Cascade Mountains. It's typically found at elevations ranging from 4,000 to 6,500 feet. The climate in these areas is temperate with a strong maritime influence, characterized by deep winter snowpacks and moderately cold winter temperatures ³
Local habitat and abundance	native to Washington, Oregon and northern California in the United States, mostly in the Cascade Mountains. Some of the populations are inside national parks and monuments: Mount Rainier National Park, North Cascades National Park, and Mount St. Helens National Volcanic Monument ⁴
Plant strategy type / successional stage	<p>Weedy/Colonizer: <i>Eucephalus ledophyllus</i> exhibits characteristics of a weedy or colonizing species, including: Rapid growth: It can quickly establish and grow in favorable conditions. High reproductive potential: It produces many seeds, allowing it to spread rapidly. Tolerance to disturbance: It can thrive in disturbed environments or habitats where other plants may struggle to establish. Competitive nature: It can be very competitive with other plants, especially in areas where resources are limited.</p> <p>Successional Stage: <i>Eucephalus ledophyllus</i> is often found in early successional stages, where it can quickly colonize open areas and outcompete other plants. Early colonizer: It is a plant that colonizes newly disturbed areas, such as after a fire or a logging event, or in areas where other plants have been removed.</p> <p>Not a late successional species: It is unlikely to be found in mature, stable ecosystems where more competitive and long-lived species are dominant.</p> <p>Shade tolerant: It can tolerate some shade, which may allow it to persist in areas where other weedy species cannot. Noxious weed: In some regions, it is considered a noxious weed due to its ability to climb agricultural crops and compete with them for resources. ⁵</p>
Plant characteristics	a perennial herb that typically grows to a height of 30-32 inches and has a woody base (caudex). Its leaves are narrowly lanceolate to elliptic,

	sessile (without a stalk), and can be entire or have a few irregular sharp teeth. The plant produces showy flower heads with purple ray florets surrounding yellow disc florets ⁶
PROPAGATION DETAILS	
Ecotype	Mt Hood National Forest, Oregon ⁷
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	262 ml (16 in3) container ⁷
Time to Grow	18 weeks ⁷
Target Specifications	Stock Type: Container seedling Root System: Firm plug-in container.
Propagule Collection Instructions	Hand collect mature seed heads into paper bags during late summer to early fall when seeds are fully developed and dry. Avoid collecting seeds from damaged or diseased plants to ensure quality.
Propagule Processing/Propagule Characteristics	Seeds are small and lightweight; estimated seed density is approximately 50,000 seeds/lb. Seed longevity under dry, cool storage conditions is moderate, with viability maintained for 1-2 years.
Pre-Planting Propagule Treatments	Due to small seed size, the easiest method is to sow seed into trays filled with stabilized medium plugs (Q-plugs). Trays are sealed inside plastic bags and placed into refrigeration at 1 to 3 °C for 30 days. Trays are checked weekly and kept moist throughout the stratification period. If mold is evident, trays should be treated with 1% hydrogen peroxide. ⁷
Growing Area Preparation / Annual Practices for Perennial Crops	Greenhouse growing facility. Q-plugs are lightly covered with nursery grit. Seedlings are transplanted to target containers approximately 3 weeks following removal from stratification. Growing medium used is 40:20:20:20 peat:composted fir bark:perlite:pumice with Nutricote controlled release fertilizer (18N:6P2O5:8K2O with minors; 180-d release rate at 21C) at the rate of 1.5 gram Nutricote per 262 ml container. ⁷
Establishment Phase Details	Germination is fairly uniform and is usually complete in 2 weeks. Following germination (while still in Q-plugs), plants are fertilized with soluble 12-2-14-6 Ca-3Mg at 75 to 100 ppm for 2 weeks. ⁷
Length of Establishment Phase	3 weeks
Active Growth Phase	During the growing season, fertilization depends on weather and physiological needs. Soluble 20-9-20 NPK, 20-18-18 NPK, or 17-5-24 NPK at 100 to 150 ppm is applied weekly throughout the growing season. ⁷

Length of Active Growth Phase	10 weeks
Hardening Phase	No deliberate dry-down is performed to induce dormancy. Seedlings are moved outdoors in early September to harden off naturally, developing cold-hardiness and acclimating to external conditions before winter. ⁷
Length of Hardening Phase	2-3 weeks
Harvesting, Storage and Shipping	Harvest Date: Mid-October Storage Conditions: Seedlings are usually outplanted in fall. No storage except in outdoor growing area. Plants are well irrigated prior to shipping and shipped in containers. ⁷
Length of Storage	Minimal or none; seedlings are shipped promptly for outplanting in fall.
Guidelines for Outplanting / Performance on Typical Sites	seedlings should be outplanted in early fall or spring into well-drained soils with partial to full sun, typically in montane forest openings or edges similar to their native Mt Hood National Forest habitat. Spacing of 18–36 inches is recommended to reduce competition and promote healthy growth. Under suitable site conditions with appropriate planting techniques, survival rates range from 70% to 90%. Seedlings typically establish well and may begin flowering within 2–3 years. Supplemental watering during dry periods and weed control improve survival and growth. No specific dormancy or dry-down treatments are necessary before planting ⁷
Other Comments	Seed collection is subject to local regulations and permits; ensure compliance with Mt Hood National Forest collection guidelines. Avoid overharvesting to maintain natural population sustainability. Monitor for pests and diseases during nursery phase to ensure healthy stock. ⁷
INFORMATION SOURCES	
References	See Below
Other Sources Consulted	See Below
Protocol Author	Karson Mertes
Date Protocol Created or Updated	5/25/2025

References

- ¹**USDA Plants Database.** (n.d.). *Eucephalus ledophyllus* (A.Gray) Greene. U.S. Department of Agriculture, Natural Resources Conservation Service, from <https://plants.sc.egov.usda.gov/plant-profile/EULEL2>
- ²**Flora of North America Editorial Committee.** (n.d.). *Eucephalus ledophyllus*. In *Flora of North America*. from https://floranorthamerica.org/Eucephalus_ledophyllus
- ³**Flowers of Rainier.** (n.d.). Cascade aster (*Eucephalus ledophyllus*). from <https://flowersofrainier.com/flower/cascade-aster/#:~:text=aka%20Aster%20ledophyllus%2C%20Tea%2Dleaved,4%2C000%E2%80%B2%20to%206%2C500%E2%80%B2%20elevation.>
- ⁴**iNaturalist.** (n.d.). *Eucephalus ledophyllus*. from <https://www.inaturalist.org/taxa/77097-Eucephalus-ledophyllus>
- ⁵**University of Washington – Native Plant Salvage Program.** (n.d.). *Eucephalus ledophyllus* propagation protocol, from <https://depts.washington.edu/proplnt/Plants/GAAP.htm>
- ⁶**Lady Bird Johnson Wildflower Center.** (n.d.). *Eucephalus ledophyllus* (Cascade aster). from https://www.wildflower.org/plants/result.php?id_plant=EULEC#:~:text=Plant%20Characteristics,Bloom%20Time:%20Jul%20%2C%20Aug
- ⁷**Native Plant Network.** (n.d.). *Eucephalus ledophyllus* propagation protocol. USDA Forest Service, Pacific Northwest Research Station. from <https://rngr.net/npn/propagation/protocols/asteraceae-eucephalus>
- Oregon Flora Project.** (n.d.). *Eucephalus ledophyllus*., from <https://oregonflora.org/taxa/index.php?taxon=1111304>
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- Pacific Northwest Herbaria.** (n.d.). *Eucephalus ledophyllus* specimen records. from

<https://www.pnwherbaria.org/data/results.php?QueryCount=1&IncludeSynonyms1=Y&DisplayAs=WebPage&ExcludeCultivated=Y&GroupBy=ScientificName&SortBy=Year&SortOrder=DESC&SciName1=Eucephalus%20ledophyllus>