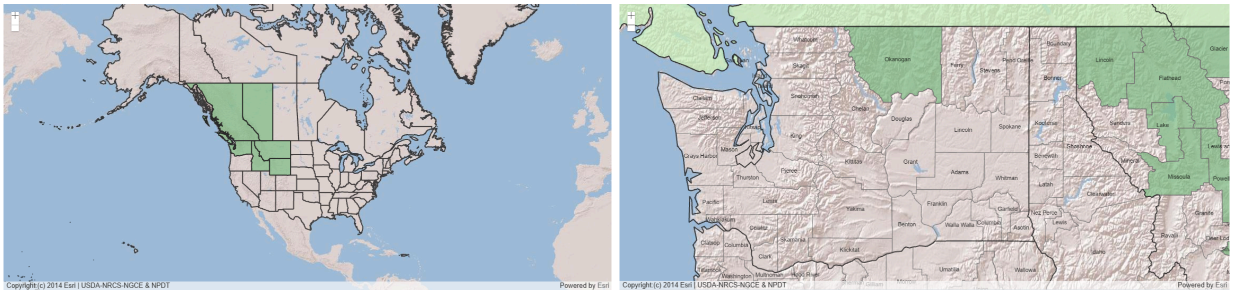

Cirsium hookerianum distribution from USDA-NRCS PLANTS Database.[1]

Plant Propagation Protocol for *Cirsium hookerianum*

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/2026/CIHO.pdf

TAXONOMY	
Plant Family	
Scientific Name	Asteraceae Bercht. & J. Presl[1]
Common Name	Aster[1]
Species Scientific Name	
Scientific Name	*Cirsium hookerianum* Nutt.  Images © 2008 Ben Legler (Burke Herbarium Image Collection)[2]
Varieties	*Cirsium hookerianum* Nutt. var. *eriocephalum* (A. Gray) A. Nelson[1]
Sub-species	None listed.[1]
Cultivar	None listed.[1]
Common Synonym(s)	None listed.[1]
Common Name(s)	White thistle.[1, 3, 8] Hooker's thistle.[3, 8]
Species Code (as per USDA Plants database)	CIHO[1]
GENERAL INFORMATION	
Geographical range	See maps above for distribution range in North

	America and Washington state.[1] Occurs east of the Cascades crest in Washington; British Columbia to Washington, east to Alberta, Montana, and Wyoming.[2]
Ecological distribution	Moist lowlands, open slopes, fields, aspen parkland, forest edges, subalpine, and alpine meadows.[2, 8]
Climate and elevation range	600–2900 meters.[5] Climate is unknown or variable.[4]
Local habitat and abundance	Local specimens in Washington state have been found in mixed conifer forest margins, roadsides, and rocky mountain cliffs.[6]
Plant strategy type / successional stage	Native thistles tend to occur in open or sparsely wooded environments. Many native thistles are an early successional disturbance-adapted species as this disturbance creates open spaces for thistles to germinate more readily. Similarly disturbance caused by grazing creates microsites with low competition and litter. Often thistles are avoided by grazers.[8]
Plant characteristics	General: Taprooted, potentially polycarpic short-lived perennial (4–15 dm tall). The stem is simple and densely but loosely covered with long, soft hairs.[2, 3, 8] Leaves: Lanceolate, toothed and moderately spiny. Has soft hairs above, thinly white-woolly below.[2] Flowers: 1–6 heads in a terminal cluster toward the top of the stem (2–3 cm tall). The involucral bracts are densely woolly, linear-lanceolate to lanceolate, and greenish in color. Both middle and outer bracts have a short (3–5 mm), straight, yellow spine. The inner bracts are often twisted. Flowers are tubular, creamy-white in color (20–26 mm long). Receptacle is densely bristly.[2, 3] Fruits: Produces cypselae (5–6.5 mm long) that are dark brown with lighter parallel lines. Pappas is a light yellow (15–22 mm long).[3, 5]
PROPAGATION DETAILS: FROM SEED	
Ecotype	Subalpine slope, Haystack Butte, Glacier National Park, Flathead Co., MT..[7]
Propagation Goal	Plants.[7]
Propagation Method	Seed.[7]
Product Type	Container (plug).[7]
Stock Type	Initially 172mL Cone-tainer and uppotted into 3L (1 gallon) container during active growth phase.[7]
Time to Grow	9 months.[7]
Target Specifications	Height: 6 to 10 true leaves, 7 cm.[7]

	Caliper: n/a.[7] Root System: Firm plug in 172 ml Cone-tainer.[7]
Propagule Collection Instructions	Collect mature cypselae in mid-September when they turn gray and easily separate from the receptacle. Hand-harvest entire flowerheads to allow cypselae to mature until cleaning.[7, 8]
Propagule Processing/Propagule Characteristics	Seeds per kilogram: 550,000.[7] Seed longevity is unknown.[7]
Pre-Planting Propagule Treatments	After collecting flowerheads, store in paper bags and move them to a cool, dry location with forced air to allow them to dry.[8] If flowerheads are provided ample room when drying, they may open so pappus is more easily removed and immature insects emerge. These flowerheads can be screen sorted with a hardware cloth, screen, or kitchen sieve with a mesh size just large enough for seeds (5–6.5 mm long) to pass through. Mount the material atop of a large bin and rub flowerheads over it to release seeds from fluff.[5, 8] If the flowerheads have not opened after drying, pull florets from flower heads, and gently squeeze seeds so they fall off.[8] If large amounts of flowerheads have been collected, pappus can be threshed by tumbling material in a large rock tumbler or small cement mixer with a tennis ball.[8] When most of the pappus has been removed, separate the seeds from any remaining detritus by winnowing.[8] Pappus and detritus easily become airborne, so consider cleaning *C. hookerianum* cypselae outside in a space protected from wind and/or using a dust mask.[8] Seed viability is affected by maturity and insect damage. When cleaning, look for filled out (not flattened) seeds which have no holes or chewing from insects. Seed color may be variable among *C. hookerianum*.[8] Store native thistle seeds in dry, airtight containers at a similar temperature and relative humidity to other native seeds. Many mature orthodox seeds are optimally stored when dried to 15-25% relative humidity at low

	temperatures, like in a refrigerator or freezer. When properly stored, high seed viability should be maintained for at least 2 years.[8, 9] Seeds are physiologically dormant. In Montana, Cone-tainers were filled and sown in late fall. These Cone-tainers were then irrigated thoroughly before stratifying seeds in an outdoor facility (such as a hoophouse) for 5 months in cold, moist stratification.[7]
Growing Area Preparation / Annual Practices for Perennial Crops	Growing medium used is milled sphagnum peat, perlite, and vermiculite with Osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8 to 9 month release rate at 21C) and Micromax fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 1 gram of Osmocote and 0.20 gram of Micromax per 172 mL Cone-tainer.[7]
Establishment Phase Details	Keep medium slightly moist during germination.[7] *C. hookerianum* germinated when outdoor temperatures in Montana reached 22°C or above during the day. Germination is typically complete in 2 weeks.[7] After seedlings sprout, thin Cone-tainers.[7]
Length of Establishment Phase	4 weeks.[7]
Active Growth Phase	Fertilize with 20-20-20 liquid NPK fertilizer at 100 ppm during the growing season. Fertilization rate not specified for the species. In general, fertilization should begin as soon as seedlings are established and be monitored throughout the growing season. EC meters are an inexpensive option to monitor fertilization levels in the growing medium. For most native plant species, acceptable EC values range from 1.5-2.5 mS/cm.[7, 10] Root development occurs rapidly following germination. Seedlings were uppotted into a well aerated medium and became root tight in 3L (1 gallon) containers within 8 weeks. [7]
Length of Active Growth Phase	8 weeks.[7]
Hardening Phase	Flush plants with clear water and fertilize with 10-20-20 liquid NPK fertilizer at 200 ppm once before winterization.[7] Water stress can be introduced by gradually reducing irrigation.[7]
Length of Hardening Phase	4 weeks.[7]
Harvesting, Storage and Shipping	*C. hookerianum* can be overwintered in an outdoor nursery under insulation foam cover and snow.[7]
Length of Storage	5 months.[7]

Guidelines for Outplanting / Performance on Typical Sites	Outplanting success is improved by collecting seeds from the same region and soil conditions as outplanting site. This will help ensure propagules are adapted to phenological conditions and will be hardy to both soil and climatic extremes.[8] Prepare the site by reducing weed cover and amount of weed seeds in soil. Ongoing management throughout the vegetative stage to maintain low weed cover helps to reduce competition to *C. hookerianum*. Weed guard (for example Weed Guard Plus®) may be an adequate alternative to weed control, however will limit regeneration of plots from self seeding. Additionally, avoid using insecticides as many have a high potential of killing foliage and nectar feeding insects.[8] For all native thistles, it is recommended to establish 0.8–2 plants per square foot. Dense stands of native thistles are reportedly better at suppressing weeds.[8] Irrigate *C. hookerianum* immediately following transplanting and throughout plant establishment, which may be several weeks to months depending on rainfall.[8]
Other Comments	*C. hookerianum* requires multiple growing seasons before flowering.[6] Non-native herbivorous insects such as the thistle head weevil (*Rhinocyllus conicus*), Canada thistle bud weevil (*Larinus planus*), and thistle crown weevil (*Trichosirocalus horridus*), have been released as biological control agents in an attempt to control invasive thistle populations, but have been found to feed extensively on native thistles. *C. hookerianum* is not documented to be affected, but precaution may be considered if such insects are found in outplanting site. Weevil eggs are more often observed in the flowerheads of native species when they are closer in proximity to invasive species.[8]
INFORMATION SOURCES	
References	See below.
Other Sources Consulted	See below.
Protocol Author	Zaida Faulhaber
Date Protocol Created or Updated	June 8, 2026

References:

1. Natural Resources Conservation Service. "*Cirsium hookerianum* Nutt." PLANTS Database, United States Department of Agriculture, accessed May 16, 2026.

https://plants.sc.egov.usda.gov/plant-profile/CIHO.

2. Knoke, Don and David Giblin. "*Cirsium hookerianum*." Burke Herbarium Image Collection, accessed May 16, 2026.
https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Cirsium%20hookerianum.

3. Douglas, G.W., G.b. Straley, D.V. Meidinger, and J. Pojar, eds. *Illustrated Flora of British Columbia. Volume 1: Gymnosperms and Dicotyledons (Aceraceae Through Asteraceae)*. B.C. Ministry of Environment, Lands & Parks and B.C. Ministry of Forests. Victoria, 1998. Cited in E-Flora BC: Electronic Atlas of the Plants of British Columbia, "*Cirsium hookerianum* Nutt.," Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver, accessed May 16, 2026, https://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Cirsium+hookerianum.

4. Meidinger, Del, Tina Lee, George W. Douglas, Greg Britton, Will MacKenzie, and Hong Qian. "British Columbia Plant Species Codes and Selected Attributes. Version 6 Database." B.C. Ministry of Forests, Research Branch, 2009. Cited in E-Flora BC: Electronic Atlas of the Plants of British Columbia, "*Cirsium hookerianum* Nutt.," Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver, accessed May 16, 2026,
https://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Cirsium+hookerianum.

5. Flora of North America Editorial Committee, ed. "48. *Cirsium hookerianum* Nutall," in *Flora of North America* Volume 19. Oxford, UK: Oxford University Press, May 11, 2006. Accessed May 17, 2026 from http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250066375.

6. University of Washington Herbarium, Burke Museum of Natural History and Culture. "Consortium of Pacific Northwest Herbaria." CPNWH Search Results for *Cirsium hookerianum*, accessed May 16, 2026.
https://www.pnwherbaria.org/data/results.php?DisplayAs=WebPage&ExcludeCultivated=Y&GroupBy=ungrouped&SortBy=Year&SortOrder=DESC&SearchAllHerbaria=Y&QueryCount=1&IncludeSynonyms1=Y&SciName1=Cirsium%20hookerianum.

7. Luna, Tara. "Propagation Protocol for Production of Container (plug) *Cirsium hookerianum* Nutt. Plants 3L (1 Gallon) Containers." Glacier National Park West Glacier, Montana. In: Native Plant Network, US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources, 2008.
https://rngr.net/npn/propagation/protocols/asteraceae-cirsium-24/?searchterm=Cirsium%20hookerianum.

8. Eckberg, James, Eric Lee-Mäder, Jennifer Hopwood, Sarah Foltz Jordan, and Brianna Borders. Native Thistles: *A Conservation Practitioner's Guide. Plant Ecology, Seed Production Methods, and Habitat Restoration Opportunities*. Portland OR: The Xerces Society for Invertebrate Conservation, 2017.
https://xerces.org/sites/default/files/2018-05/16-029_01_XercesSoc_Native-Thistles-Conservation-Guide_web.pdf.

9. "How Seeds Are Saved." University of Washington Botanic Gardens, accessed June 8, 2026.
https://botanicgardens.uw.edu/science-conservation/rarecare/seedbank/saving/.

10. Dumroese, R. Kasten, Tara Luna, and Thomas D. Landis, eds. *Nursery Manual for Native Plants: A Guide for Tribal Nurseries*. United States Department of Agriculture, Forest Service, 2022.

Other Sources Consulted (but that contained no pertinent information):

Cullina, William. *The New England Wild Flower Society Guide to Growing and Propagating Wildflowers of the United States and Canada*. New York NY: Houghton Mifflin Company, 2000.

Knuckerberg, Arthur R.. *Gardening with Native Plants of the Pacific Northwest*. Seattle WA: University of Washington Press, 1982.

Young, James A., Cheryl G. Young. *Collecting, Processing and Germinating Seeds of Wildland Plants*. Portland OR: Timber Press, Inc., 1986.