Plant Propagation Protocol for *Crepis nana*

ESRM 412 – Native Plant Production

Protocol URL: https://courses.washington.edu/esrm412/protocols/CRNA.pdf

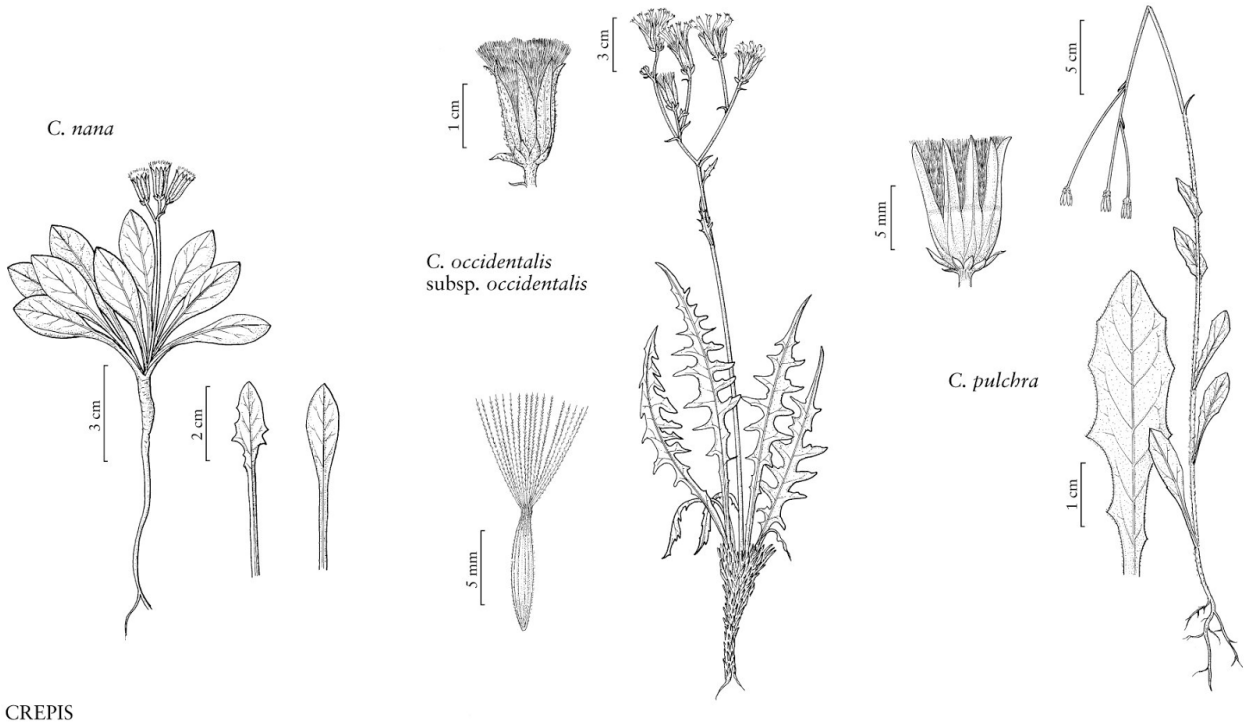
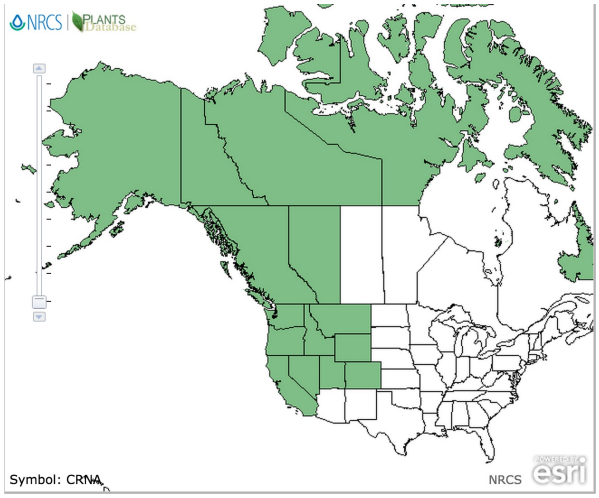
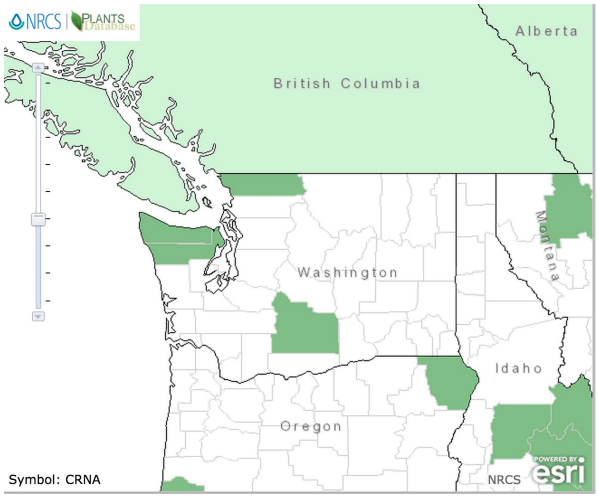


Image Credit: eFloras.org

TAXONOMY	
Plant Family	
Scientific Name	Asteraceae
Common Name	Sunflower Family
Species Scientific Name	
Scientific Name	*Crepis nana* Richardson
Varieties	*Crepis nana* Richardson var. *lyratifolia* (Turcz.) Hultén *Crepis nana* Richardson var. *ramosa* (Babc.) Cronquist
Sub-species	*Crepis nana* Richardson ssp. *clivicola* Leggett *Crepis nana* Richardson ssp. *nana* *Crepis nana* Richardson ssp. *typica* Babc. *Crepis nana* Richardson ssp. *ramosa* Babc.

Cultivar	
Common Synonym(s)	*Askellia nana* (Richardson) W.A. Weber *Askellia pygmaea* (Ledeb.) K.L. Chambers & S.C. Meyers, nom. illeg. *Askellia pygmaea* (Ledeb.) Sennikov
Common Name(s)	dwarf alpine hawksbeard
Species Code (as per USDA Plants database)	CRNA
GENERAL INFORMATION	
Geographical range	Asia, E Alaska, Yukon; scattered across North America east to Labrador and Newfoundland, south to California, Nevada, Utah and central Colorado[1].   (Maps from USDA Plant Database)

Ecological distribution	Talus slopes, rocky alpine places, sandy stream banks, gravel bars, exposed sites in shrub communities[5]. Alpine Fell-fields, Subalpine forest, lodgepole forest, bristlecone pine forest[3]. Uncommon above timberline in the mountains[2].
Climate and elevation range	300–4000 m[5]
Local habitat and abundance	There are 2 subspecies; subspecies nana, the widespread typical phase and subspecies ramosa, which occurs in the southern part of the range of this species[7].
Plant strategy type / successional stage	
Plant characteristics	Forb/Herb[6] Perennial herb[3] **Blooms**: May, June, July, August, and September[3]. **Flowers**: Inflorescence has 2 to 4 yellow flower heads nestled by the leaves and close to the ground where it is warmer[4].
PROPAGATION DETAILS	
Ecotype	Alpine slope, southeastern B.C.[7]
Propagation Goal	Plants[7]
Propagation Method	Seed[7]
Product Type	Container (plug)[7]
Stock Type	160 ml containers[7]
Time to Grow	9 months[7]
Target Specifications	Height: 2 cm, 10 to 12 true leaves Caliper: n/a Root System: firm plug in container[7]
Propagule Collection Instructions	Seeds are hand collected in late August when achenes turn grey and are easily removed from the disc. Seeds are collected in paper envelopes and kept in a well ventilate drying shed prior to cleaning[7].

Propagule Processing/Propagule Characteristics	Seeds are hand cleaned. Seed longevity is unknown. Seed dormancy is classified as non dormant. Seeds/Kg: 1,200,000 /kg approx. % Purity: 100% % Germination:55%[7].
Pre-Planting Propagule Treatments	Fresh seeds were sown in the outdoor nursery and subjected to a 5 month winter stratification. Germination occurs in late May when daytime temperatures reach 22C or higher[7].
Growing Area Preparation / Annual Practices for Perennial Crops	Outdoor nursery growing facility. Sowing Method: Direct Sowing. Seeds are lightly covered with medium. This species requires a well aerated medium and careful irrigation practices during germination and growth. Growing medium used is 70% milled sphagnum peat, perlite, and vermiculite and 30%perlite 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 conetainer. Containers are filled and sown in late fall and irrigated thoroughly prior to winter stratification[7].
Establishment Phase Details	Medium is kept slightly moist during germination. Initial germination appeared uniform and occurred following 2 weeks of temperatures at 22C or above[7].
Length of Establishment Phase	4 weeks[7].
Active Growth Phase	Root and shoot development occurs rapidly following germination. Plants were fertilized with 13-13-13 liquid NPK fertilizer at 100 ppm during the growing season. Careful attention should be made to irrigation as this species is susceptible to overwatering[7].
Length of Active Growth Phase	12 weeks[7].
Hardening Phase	Irrigation is gradually reduced in September and October. Plants are leached with clear water and fertilized with 10-20-20 liquid NPK fertilizer at 200 ppm once before winter[7].
Length of Hardening Phase	4 Weeks[7].

Harvesting, Storage and Shipping	Total Time to Harvest: 9 months Harvest Date: August Storage Conditions: Overwinter in outdoor nursery under insulating foam cover and snow[7].
Length of Storage	5 months[7].
Guidelines for Outplanting / Performance on Typical Sites	
Other Comments	

INFORMATION SOURCES

References	1. "*Askellia nana*: Dwarf Hawksbeard." *Colorado Rare Plant Guide*. Colorado State University, n.d. Web. <http://www.cnhp.colostate.edu/download/projects/rareplants/pdfs/16688.pdf>. 2. The Burke Museum of Natural History and Culture, Herbarium. http://biology.burke.washington.edu/herbarium. Retrieved May 14, 2015 3. Calflora: Information on California plants for education, research and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. 2015. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/ (Accessed: May 14, 2015). 4. "Crepis Nana." The Plant Encyclopedia, n.d. Web. 19 May 2015. <http://www.theplantencyclopedia.org/wiki/Crepis_nana>. 5. 'eFloras (2008). Published on the Internet http://www.efloras.org [accessed 15 May 2015]' Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA. 6. USDA, NRCS. 2006. *The Plants Database*, 6 March 2006 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. Retrieved May 14, 2015. 7. Wick, Dale; Evans, Jeff.; Luna, Tara. 2008. Propagation protocol for production of container *Crepis nana* Rich. plants (160 ml conetainers); USDI NPS - Glacier National Park, West Glacier, Montana. In: Native Plant Network. URL:

	http://www.nativeplantnetwork.org (accessed 14 May 2015). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.
Other Sources Consulted	1. The Burke Museum of Natural History and Culture, Herbarium. http://biology.burke.washington.edu/herbarium. Retrieved May 15, 2015 2. Dwarf Alpine Hawksbeard — Crepis nana. Montana Field Guide. Montana Natural Heritage Program. Retrieved on May 19, 2015, from <http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=PDAST2R0C0>
Protocol Author	Delaney Quick
Date Protocol Created or Updated	05/19/15