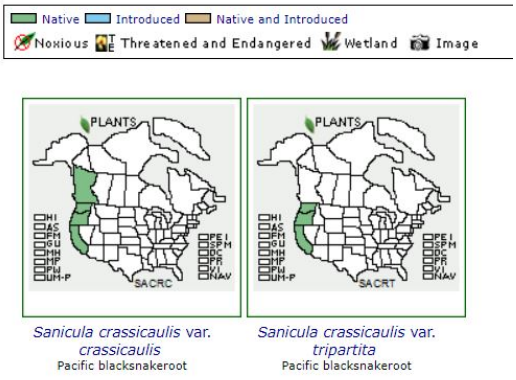
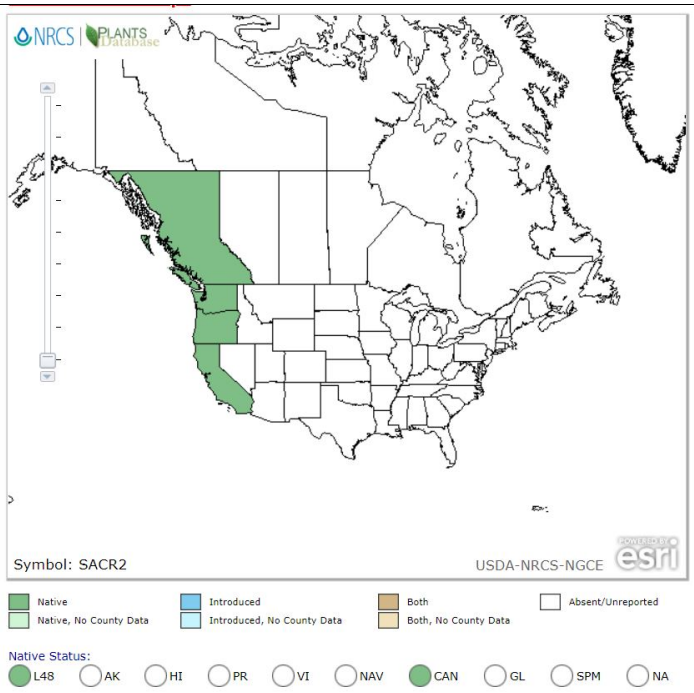
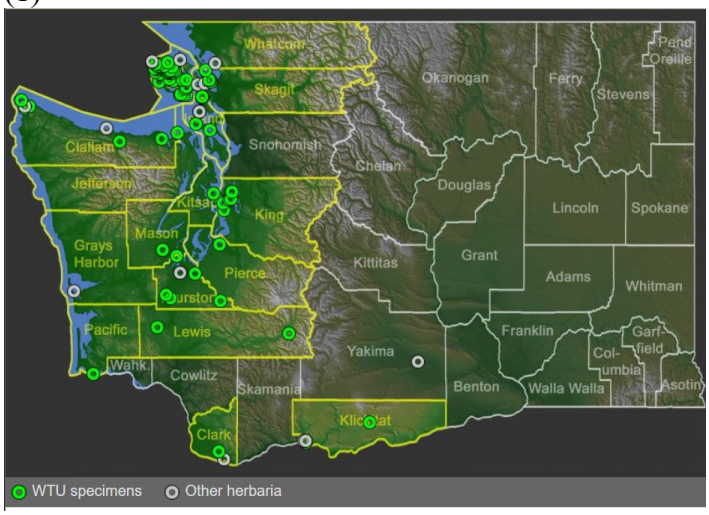
Plant Propagation Protocol for *[SACR2]*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/*[SACR2.pdf]*

TAXONOMY	
Plant Family	
Scientific Name	Apiaceae (1) (Formerly known/sometimes also called Umbelliferae) (9)
Common Name	Carrot Family (1)
Species Scientific Name	
Scientific Name	*Sanicula crassicaulis* Poepp. ex DC. (1)
Varieties	N/A
Sub-species	*Sanicula crassicaulis* var. *crassicaulis* (1) *Sanicula crassicaulis* var. *tripartita* (1)  *Sanicula crassicaulis* var. *crassicaulis* Pacific blacksnakeroot *Sanicula crassicaulis* var. *tripartita* Pacific blacksnakeroot (1)
Cultivar	N/A
Common Synonym(s)	Sanicula crassicaulis var. crassicaulis (4) Sanicula crassicaulis var. tripartite (4) Sanicula menziesii var. foliacea (4) Sanicula menziesii var. pedata (4)
Common Name(s)	Pacific blacksnakeroot (1) Gamble weed (6) Pacific sanicle (8)
Species Code	SACR2 (1)
GENERAL INFORMATION	

Geographical range	 (1)  (3) Distributed west of the Cascade crest and east of the Columbia River Gorge in Washington. Also found in British Columbia and California. (3)
Ecological distribution	Open slopes, ravines, woodlands (2) Meadows, balds, prairies, and open woods from the coast to low elevation in the mountains. (3)
Climate and elevation range	< 1500 m (2)
Local habitat and abundance	Unknown

Plant strategy type / successional stage	This species is common in areas rich in nitrogen but lacking significant moisture. (9)
Plant characteristics	 (Image 3) **Habit:** Upright, squatting plant between 24-120 cm tall. Taprooted. (2) (10)  (Image 3) **Leaf:** Usually divided into 3 lobes but can sometimes be found with 5 lobed leaves. They are green, with toothed edges. The upper leaves are sessile, while the lower leaves have long stalks connecting the leaf to the stem. (2) (10)

(Image 3) **Seed:** Brown, bumpy, teardrop shaped. They have a deep groove on one side. (2) (10)

(Image 3) **Flower:** Bisexual, yellow flowers growing in 3-12 in umbels at the top of the stem. (2) (10)

	 (Image 3)  (Image 3) **Fruit:** small (2--5 mm) and teardrop shaped, turning from green to brown when mature. Covered in bulbous prickles. (2) (10)
PROPAGATION DETAILS	
Ecotype	For the US Department of Agriculture's propagation protocol for this species, seed was collected from Tennessee Valley, California. (5)
Propagation Goal	Plants (5)
Propagation Method	Seed (5)
Product Type	Container (plug) (5)
Stock Type	Unknown
Time to Grow	Unknown

Target Specifications	The plug should be firm in the container, showing that the root system is robust enough to survive outplanting. (5)
Propagule Collection Instructions	Collect seeds from mature, brown inflorescences between the first of May and the first of June. (5)
Propagule Processing/Propagule Characteristics	Unknown
Pre-Planting Propagule Treatments	To break open fruits and clean the seeds, rub fruits over a screen then store in fridge. (5)
Growing Area Preparation / Annual Practices for Perennial Crops	Use flats with a media containing peat moss, perlite, macro and micro nutrients, gypsum, and dolomitic lime such as Sunshine Mix #4. (5)
Establishment Phase Details	Mix seeds with media then surface sow. Water with an automatic mist and irrigation system. 15 days after they are sown, seeds will germinate and can be transplanted to individual containers with a media containing peat moss, fir bark, perlite, and sand. (5)
Length of Establishment Phase	1 month (1)
Active Growth Phase	3 months after transplanting seedlings, move them to a shadehouse and fertilize with a fertilizer containing NPK 13-13-13, such as Nutriocote. (5) Since *Sanicula crassicaulis* is a summer dormant plant, the Sustainability in Prisons Project along with the Department of Corrections in Washington State and Evergreen College have found that incorporating a slow release fertilizer into the soil, decreasing irrigation going into summer and then increasing it again in late summer helps ensure success of the seedlings. (7)
Length of Active Growth Phase	3-4 months (5)
Hardening Phase	Unknown
Length of Hardening Phase	Unknown
Harvesting, Storage and Shipping	Unknown
Length of Storage	Unknown

Guidelines for Outplanting / Performance on Typical Sites	Unknown
Other Comments	N/A
INFORMATION SOURCES	
References	(1) United States Department of Agriculture, Natural Resource Conservation Status, Sanicula crassicaulis Poepp. ex DC, https://plants.usda.gov/core/profile?symbol=SACR2, (accessed 23 May 2020). (2) Licoln Constance & Margriet Wetherwax 2012, Sanicula crassicaulis, in Jepson Flora Project (eds.) Jepson eFlora, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=43169 (accessed 23 May 2020). (3) WTU Herbarium, et al. "Sanicular Crassicaulis." Burke Herbarium Image Collection, http://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?Taxon=Sanicula%20crassicaulis (accessed 23 May 2020). (4) "Sanicula Crassicaulis - Nursery and Seed Sources." California Native Plant Link Exchange, www.cnplx.info/nplx/species?taxon=Sanicula+crassicaulis. (5) Young, Betty. 2001. Propagation protocol for production of Container (plug) Sanicula crassicaulis Poepp. ex DC. plants San Francisco, California. In: Native Plant Network. URL: http://NativePlantNetwork.org (accessed 2020/05/24). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources. (accessed 23 May 2020). (6) "Pacific Sanicle, Sanicula Crassicaulis." California Native Plant Society, calscape.org/Sanicula-crassicaulis-(). *Source note from website* Sources include: Wikipedia. All text shown in the "About" section of these pages is available under the Creative Commons Attribution-ShareAlike License. Plant observation data provided by the participants of the California Consortia of Herbaria, Sunset information provided by Jepson Flora Project. Propogation from seed information provided by the Santa Barbara Botanical Garden from "Seed Propagation of Native California Plants" by Dara E. Emery. Sources of plant photos include CalPhotos, Wikimedia Commons, and independent plant photographers who have agreed to share their images with Calscape. Other general sources of information include Calflora, CNPS Manual of Vegetation Online, Jepson Flora Project, Las Pilitas, Theodore Payne, Tree of Life, The Xerces Society, and information provided by CNPS volunteer editors, with special thanks to Don Rideout. Climate data used in creation of plant range maps is from PRISM Climate Group, Oregon State University, using 30 year (1981-2010) annual "normals" at an 800 meter spatial resolution. (accessed 23 May 2020).

	(7) Elliot, Carol, et al. Cascadia Prairie Oak. Cascadia Prairie Oak, cascadiaprairieoak.org/wp-content/uploads/2015/12/Elliot_Research-on-seed-germination-ecology-in-corrections-centers_CPOP2015Conf.pdf. (accessed 23 May 2020). (8) Fern Ravine Restoration. Friends of Sausal Creek , 2010, Fern Ravine Restoration, www.documents.sausalcreek.org/Fern_Ravine_Restoration_Plan.pdf. (accessed 23 May 2020). (9) "SANICULA - Sanicle." EFlora, eflora.neocities.org/Sanicula Sp.html. (accessed 23 May 2020). (10) Turner, Mark. "Sanicula Crassicaulis: Pacific Sanicle: Wildflowers of the Pacific Northwest." Turner Photographics, www.pnwflowers.com/flower/sanicula-crassicaulis. (accessed 23 May 2020).
Other Sources Consulted	DiTomaso, Joseph M. *Weeds of California and Other Western States*. University of California Division of Agriculture and Natural Resources, 2007. (accessed 23 May 2020).
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