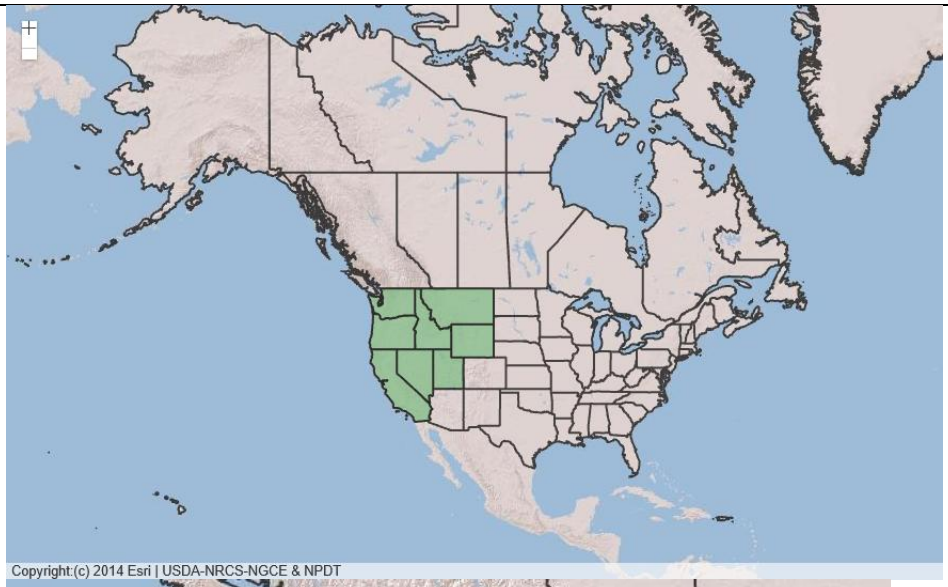
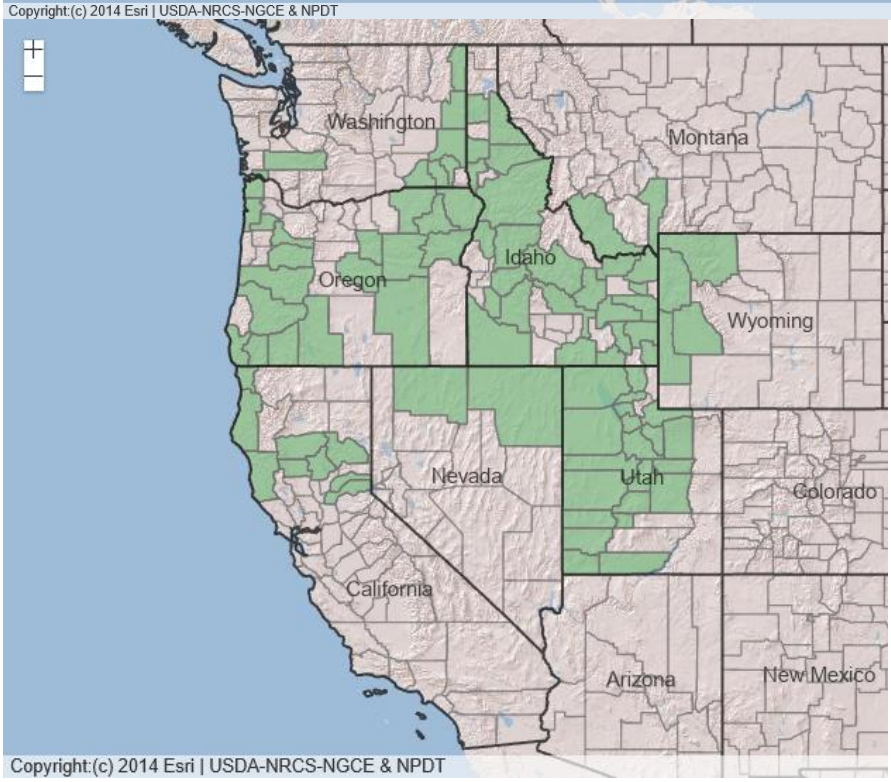
Plant Propagation Protocol for *Rudbeckia occidentalis*

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/*2025*/*RUOC2.pdf*

https://burkeherbarium.org/imagecollection/wtu3000/md/wtu003285.jpg

TAXONOMY	
Plant Family	
Scientific Name	Asteraceae Bercht. & J. Presl
Common Name	Aster family P
Species Scientific Name	
Scientific Name	*Rudbeckia occidentalis* Nutt.
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	Rudbeckia occidentalis Nutt. var. occidentalis [HC]
Common Name(s)	western cone-flower

Species Code (as per USDA Plants database)	RUOC2
GENERAL INFORMATION	
Geographical range	  https://plants.usda.gov/plant-profile/RUOC2
Ecological distribution	Forest openings, shrublands, meadows, marshes, bogs, streambanks, clearcuts, roadsides. (oregonflora.org)

Climate and elevation range	
Local habitat and abundance	Communities include yellow pine forest, red fir forest, and wetland-riparian. (calflora.org) Moist meadows and forest openings at moderate elevations in the mountains. (burkeherbarium.org)
Plant strategy type / successional stage	
Plant characteristics	Coarse, nearly glabrous perennial, 5-20 dm. tall. Flowers: Heads long-pedunculate, the black disk columnar and elongating to as much as 6 cm. in fruit; involucral bracts in 2-3 series, becoming reflexed; corollas all tubular, nearly black; the chaffy bracts on the receptacle with grey tips; pappus a short crown. (burkeherbarium.org)
PROPAGATION DETAILS: FROM SEED	
Ecotype	Umpqua National Forest, Oregon (Riley et al. 2018) Four aspen sites in Utah:Tony Grove and Franklin Basin (Cache National Forest), Mud Creek (Uinta National Forest) and Ephraim Canyon (Manti-LaSal National Forest) (Florez et al. 1974)
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	262 ml (16 in3) container
Time to Grow	15 weeks (Riley et al. 2018) 20 weeks to flower[1] (Toogood 1999)
Target Specifications	Container seedling, firm plug in container
Propagule Collection Instructions	Seeds from early to midspring[1] (Toogood 1999)
Propagule Processing/Propagule Characteristics	Seeds are easily removed from papery seedheads. Divide in spring. Sow seeds in spring at 50°F (10°C). Basal stem cuttings in spring.[1] (Toogood 1999)
Pre-Planting Propagule Treatments	Seeds are placed in fine mesh bags into a 1% hydrogen peroxide (3:1 water/3% hydrogen peroxide) soak for 24 hours, rinsed, and placed in water for an additional 24 hours. The bags are placed in sealed containers in refrigeration at 1 to 3 °C for 90 days. It is very important to check seeds weekly. If mold is evident, seeds should be treated with 1% hydrogen peroxide. (Riley et al. 2018)

Growing Area Preparation / Annual Practices for Perennial Crops	Seeds are directly sown into containers. Seeds are lightly covered with nursery grit. 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. (Riley et al. 2018)
Establishment Phase Details	Uneven germination. Following germination, plants are fertilized with soluble 12-2-14-6Ca-3Mg at 75 ppm for 1 week. (Riley et al. 2018)
Length of Establishment Phase	1-3 weeks
Active Growth Phase	Seedlings grow rapidly throughout the active growth phase. During the growing season, fertilization depends on weather. Soluble 20-9-20 NPK, 20-18-18 NPK, or 17-5-24 NPK at a rate of 100 to 150 ppm is applied weekly throughout the growing season. (Riley et al. 2018)
Length of Active Growth Phase	12 weeks
Hardening Phase	Seedlings are moved to an outdoor growing area in early to mid September. (Riley et al. 2018)
Length of Hardening Phase	2 weeks
Harvesting, Storage and Shipping	Harvest mid to late October. Plants are well-irrigated prior to shipping. (Riley et al. 2018)
Length of Storage	None
Guidelines for Outplanting / Performance on Typical Sites	Outplant in fall.
Other Comments	[1]General propagation for similar Rudbeckia species
INFORMATION SOURCES	
References	*Rudbeckia occidentalis - Burke Herbarium Image Collection*. (2024) Burkeherbarium.org. https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Rudbeckia%20occidentalis *OregonFlora*. (2025). Oregonflora.org. https://oregonflora.org/taxa/index.php?taxon=7972 *Rudbeckia occidentalis Calflora*. (2022). Calflora.org. https://www.calflora.org/app/taxon?crn=10328 Toogood, Alan R, et al. *Plant Propagation*. New York, Dk Pub, 1999.

	Hartmann, Hudson T, et al. Hartmann & Kester's Plant Propagation: Principles and Practices. Ny, Ny, Pearson, 2018. Riley, Lee E.; Klocke, Allison. 2018. Propagation protocol for production of Container (plug) *Rudbeckia occidentalis* Plants 262 ml (16 in3) container; USDA FS - Dorena Genetic Resource Center Cottage Grove, Oregon. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2025/05/21). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources. Florez, A., & McDonough, W. T. (1974). Seed Germination, and Growth and Development of Rudbeckia occidentalis Nutt. (Western Coneflower) on Aspen Range in Utah. *The American Midland Naturalist*, *91*(1), 160–160. https://doi.org/10.2307/2424519 Baskin, Jerry M.; Baskin, Carol C.. 2002. Propagation protocol for production of Container (plug) *Rudbeckia occidentalis* Nutt. plants University of Kentucky Lexington, Kentucky. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2025/05/21). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.
Other Sources Consulted	
Protocol Author	Alexander Montelione
Date Protocol Created or Updated (MM/DD/YY)	05/23/2025