

Plant Propagation Protocol for *Cardamine occidentalis*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/CAOC.pdf>



Illustration 1: Distribution along the USA (USDA PLANTS database)

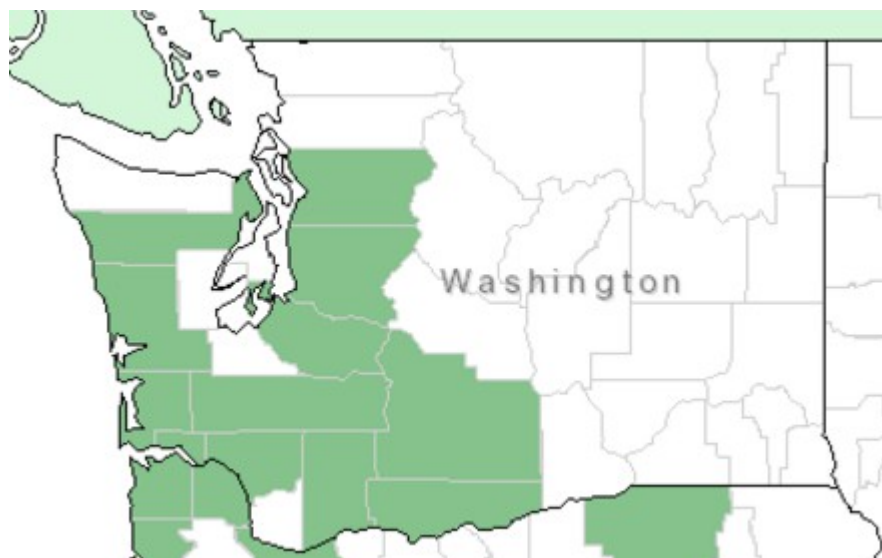


Illustration 2: Distribution along Washington State (USDA PLANTS database)

TAXONOMY	
Plant Family	
Scientific Name	Brassicaceae or Cruciferae
Common Name	Mustard family
Species Scientific Name	
Scientific Name	<i>Cardamine occidentalis</i> (S. Watson ex B.L. Rob.) Howell
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	<i>Cardamine pratensis</i> L. var. <i>occidentalis</i> S. Watson ex B.L. Rob.
Common Name(s)	Big Western bittercress
Species Code (as per USDA Plants database)	CAOC
GENERAL INFORMATION	
Geographical range	Alaska, Washington, Oregon, California, and British Columbia (USDA PLANTS database). See above illustrations for North American and Washington state distributions.
Ecological distribution	Wet soils, lake margins, creeks (Ihsan 2017).
Climate and elevation range	150-1500m, PNW (Ihsan 2017).
Local habitat and abundance	Abundant native to the Western coast of the USA (Ihsan 2017).
Plant strategy type / successional stage	Weedy/colonizer species (Burke Museum 2017).
Plant characteristics	Perennial herb. Can be either stiff and hairy or glabrous (smooth and hairless). Fleshy round rhizomes that are 3-10mm wide. Stiff stems with waxy, cauline leaves. White flowers with 4-6mm long petals, and 1.5-2mm wide (Ihsan 2017).

PROPAGATION DETAILS	
Packard, Stephen, and Cornelia Fleischer. Mutel. <i>The Tallgrass Restoration Handbook: For Prairies, Savannas and Woodlands</i> .	
Ecotype	Not specified.
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container seedling
Pre-Planting Propagule Treatments	Cold-dry stratification. Dried seeds in plastic or paper bags, refrigerated at 34-40 degrees F until planting. "Can also be placed outside in an unheated, insect- and rodent-free building or container over winter."
Other Comments	This source only specifies the usage of cold stratification for seed germination, but does not specify time to grow or target specifications for germinants. Growth for restoration usage in temperate grasslands or wet meadows.

PROPAGATION DETAILS	
Salisbury, Edward. "The Reproduction of <i>Cardamine Pratensis</i> L. and <i>Cardamine Palustris</i> Peterman Particularly in Relation to Their Specialized Foliar Vivipary, and Its Deflexion of the Constraints of Natural Selection."	
Ecotype	Damp woodland in South England. Leaves detached on May 12, 1956.
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Propagules
Stock Type	
Time to Grow	8 days for plantlets to form from full leaves.
Target Specifications	N/a. Studied if vegetative production was successful at first sight of root or stem regrowth.
Propagule Collection Instructions	Not listed
Propagule Processing/Propagule Characteristics	Not listed
Pre-Planting Propagule Treatments	Whole leaf should be used for maximized success. Partial cuts will succeed, but also have reduced likelihood of growing into a new plant. Takes cuts from plants presoaked in water.
Growing Area Preparation / Annual Practices for Perennial Crops	Humid atmosphere on floating water. Keep air in the environment moist.
Other Comments	<i>C. pratensis</i> is related to <i>C. occidentalis</i> , suggesting vegetative growth of <i>C. occidentalis</i> may be possible. <i>C. pratensis</i> was more likely to spread vegetatively in water conditions, related to <i>C. occidentalis</i> ' preference of moist soils. No information on hardening or active growth phase.

INFORMATION SOURCES	
References	See below
Other Sources Consulted	See below
Protocol Author	Jamie Lei
Date Protocol Created or Updated	05/24/17

References

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"Cardamine Occidentalis (S. Watson Ex B.L. Rob.) Howell." Plants Profile for Cardamine Occidentalis (big Western Bittercress).
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<http://biology.burke.washington.edu/herbarium/imagecollection.php?&Genus=Cardamine&Species=occidentalis>

Hickman, James Craig. The Jepson Manual: Higher Plants of California.
 Berkeley: U of California, 1996. Print.

Packard, Stephen, and Cornelia Fleischer. Mutel. The Tallgrass Restoration Handbook: For Prairies, Savannas and Woodlands. Covelo: Island, 1997. Print.

Salisbury, Edward. "The Reproduction of Cardamine Pratensis L. and Cardamine Palustris Peterman Particularly in Relation to Their Specialized Foliar Vivipary, and Its Deflexion of the Constraints of Natural Selection." Proceedings of the Royal Society of London B: Biological Sciences. The Royal Society, 23 Nov. 1965. Web. 24 May 2017.
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