

Plant Propagation Protocol for *Orthocarpus bracteosus*
ESRM 412 – Native Plant Production



Image Source:
Jensen https://calphotos.berkeley.edu/cgi/img_query?enlarge=0000+0000+0605+1638

TAXONOMY	
Plant Family	
Scientific Name	Scrophulariaceae
Common Name	Figwort Family
Species Scientific Name	
Scientific Name	<i>Orthocarpus bracteosus</i> Benth.
Varieties	<i>Orthocarpus bracteosus</i> Benth. var. <i>albus</i> D.D. Keck [2]
Sub-Species	None
Common Synonyms	None
Common Name	Rosy Owl-Clover
Species Code (As per USDA Plants Database)	ORBR
GENERAL INFORMATION	

Geographical Range

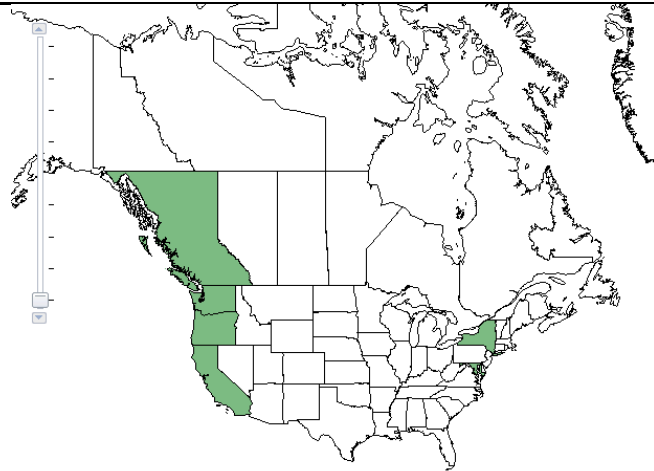


Figure 1: North American Distribution From USDA Map[2]

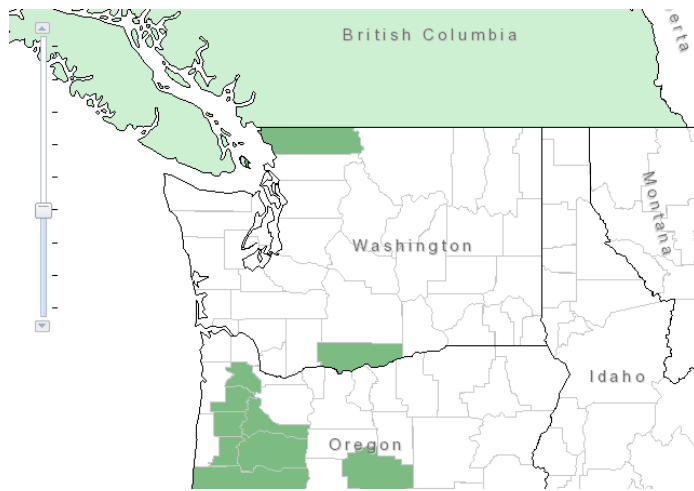


Figure 2: Washington State Distribution from USDA Map[2]

Occurs in Western North America. In Canada, it occasionally occurs on the shore and offshore inlets of Victoria Harbor. In Washington, it has historically occurred West of the Cascades in Whatcom County, and currently occurs in Conboy Lake National Wildlife Reserve and Kreps Lane in Klickitat County. It is distributed throughout a large portion of Oregon west of the Cascades, and into California as far south as Plumas County. It has also been reported in Maryland and New York. [3]

Ecological Range

O. bracteosus occurs in seasonally moist meadows (winter wet/summer dry) in the regions listed above. It is often found in areas dense with reed canary-grass. [12]

	<p>Occurs in vernal pools and coastal prairie habitats in the transition zone between wetland and upland. [3]</p> <p>Occurs in full sunlight with little or no tree cover. [6]</p> <p>Older records suggest that <i>O. bracteosus</i> once occurred in a variety of open winter wet/summer dry habitats including open fields and prairies. [1]</p>
<p>Climate and Elevation Range</p>	<p>Found in moist meadows at low elevations [5]</p> <p>Occurs at an average elevation of 845 meters, and 0 percent slope gradient. [4]</p> <p>The climate evaluation is “not evaluated unknown or variable” according to the British Columbia plant species codes and selected attributes. [8]</p>
<p>Local Habitat and Abundance</p>	<p><i>O. bracteosus</i> is listed as imperiled in Washington State.[9] It is most abundant in the seasonally moist meadows of Conboy National Wildlife Center. [12] Populations in the San Juan Islands of Washington have disappeared. [3]</p> <p>In Canada, it is critically imperiled. [9] It is most commonly found in a shallow vernal pool in Victoria Harbor. [3]</p> <p>In Oregon and California, it is not yet ranked or reviewed. [9] There is little information regarding the abundance of <i>O. bracteosus</i> in these states.</p> <p>In Maryland and New York, it is listed as exotic, meaning that it is not native to these states. It is impersistant in both of these states, and it is unclear how they were originally introduced to this region. [10]</p> <p><i>O. bracteosus</i> is commonly associated with <i>Quercus garryana</i> due to similar habitats in low elevation meadows. Both species also face similar threats of cultivation, urbanization, and invasion by aggressive weeds. [3]</p>
<p>Plant Strategy Type/ Successional Stage</p>	<p><i>O. bracteosus</i> reproduction and expansion is limited due to a lack of suitable habits and low dispersal ability. [3]</p> <p>The plant flowers and produces seeds in the early</p>

	<p>spring. Because seeds lack adaptations or abilities for long distance dispersal, most seeds are dispersed in the near vicinity of the parent plant. [3]</p> <p>“All flowers are chasmogamous and there is no asexual means of reproduction.” [3]</p>
Plant Characteristics	<p><i>O. bracteosus</i> has an erect, slender stem that reaches 10-40 cm long. The stem is simple or branched above. [3]</p> <p>The herbage of the plant is hairy. The stem has short hairs, which are directed downward, while the leaves have short hairs which spread or are pressed towards the blade of the leaf. Hairs within the inflorescence are longer. [4]</p> <p>The leaves are 1.5 to 3.5 cm long. Towards the base of the plant, leaves are long with entire margins. Towards the middle of the plant, leaves are 3 forked. Towards the top of the plant, leaves become broader bracts with inflorescence in between. Upper bracts possess a purplish color. [4]</p> <p>The inflorescence is a purple-pink corolla, which is about 12-20mm long. The base of each corolla is a thin tube, which expands to a round sack. [4]</p>
Ecotype	Trial Island, British Columbia
Propagation Goal	Live Plants
Propagation Method	Propagation by seed. Seed production is this species only means of reproduction. [12]
Product Type	<p>No definitive information. Since <i>O. bracteosus</i> propagation would most likely be for conservation, the product type should be practical for out-planting and for long-term survival. [3]</p> <p>A product type that allows roots to spread once out-planted would be ideal, because it forms root-connections with other plants in order to gain water and nutrients. [3]</p>
Time to Grow	<p>No definitive information.</p> <p>The lifespan of each plant is limited to one year, because it is an annual.</p> <p>Another owl-clover, <i>Castilleja exerta</i>, is ready for germination in early fall after seeds are scratched into soil. [3] It is predicted that <i>O. bracteosus</i> may have a</p>

	similar growth time.
Target Specifications	No definitive information. However, plants with 6 or more leaves, called “late juveniles”, are the most likely survive to produce flowers and fruit. [3]
Propagule Collection Instructions	No definitive information. It is known that <i>O. bracteosus</i> produces an average of 12 mature capsules, and that each capsule contains an average of 7 viable seeds. [3]
Propagule Processing /Propagule Characteristics	<p>“No specific information is available on germination requirements for <i>Orthocarpus bracteosus</i>.” [3]</p> <p>It is predicted that untreated seeds should be planted into the soil in early fall. Seeds should be scratched into the soil.</p> <p>Seeds grown in Trial Island were collected and sown in September. Seeds were able to survive without a controlled environment over a six-month period in natural light at 25 degrees C in moist soil. They began growing in early March. This proves that the seeds have some kind of dormancy mechanism that allows them to survive several months before germinating in early spring. [3]</p>
Growing Area Preparation / Annual Practices for Perennial Crops	Prefers moist medium [11]
Establishment Phase Details	No available information
Length of Establishment Phase	No available information
Active Growth Phase	No available information
Hardening Phase	No available information
Length of Hardening Phase	No available information
Harvesting, storage, and shipping	No available information
Length of storage	No definitive information. Seedlings can be stored for several months, due to a dormancy mechanism that allows them to survive for several months before growing. [3]
Guidelines for Outplanting / Performance on Typical Sites	<p><i>O. bracteosus</i> should be grown in proximity to other plants in order to aid growth on site. As a hemiparasite, <i>O. bracteosus</i> receives nutrients and water through parasitic root connections with nearby plants, such as legumes, grasses, and composites. [1]</p> <p><i>O. bracteosus</i> should be outplanted in very moist, shallow pools in meadows or praries. [3]</p>

INFORMATION SOURCES

References

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