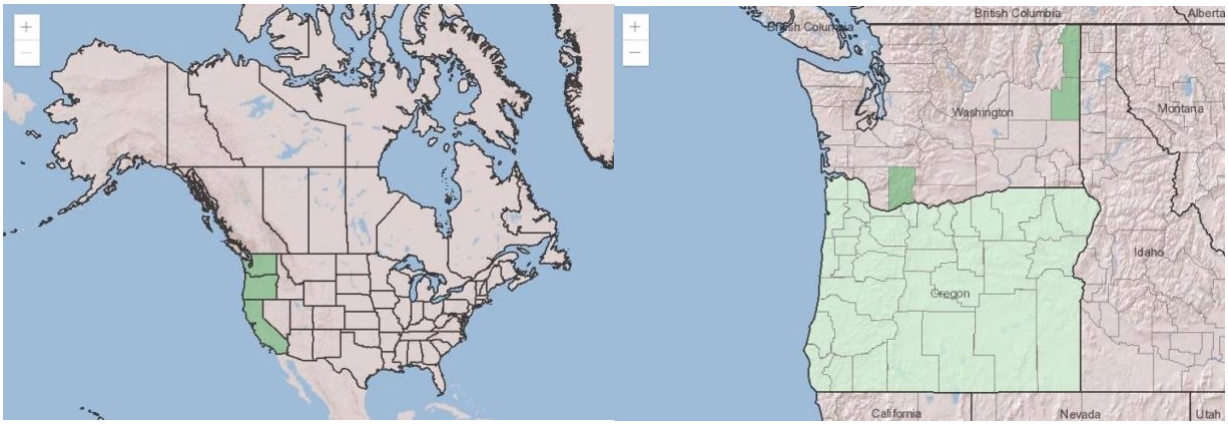
Plant Propagation Protocol for *Cuscuta suksdorfii*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/2021/CUSU3.pdf

Cuscuta suksdorfii, shown wound around *Calyptridium monospermum*. Source: ©2012 Barry Rice, Calphotos



Distribution maps for *Cuscuta suksdorfii* for North America and for the Pacific Northwest. Source: USDA Plants Database

TAXONOMY	
Plant Family	
Scientific Name	Cuscutaceae, formerly Convolvulaceae[3]
Common Name	Dodder family, formerly morning glory family
Species Scientific Name	
Scientific Name	*Cuscuta suksdorfii* Yunck.

Varieties	*Cuscuta suksdorfii* Yunck. var. *subpedicellata* *Cuscuta suksdorfii* Yunck. var. *suksdorfii*
Sub-species	No sub-species
Cultivar	N/A
Common Synonym(s)	*Cuscuta salina* Engelm. var. *acuminata* Yunck
Common Name(s)	Mountain dodder, Suksdorf's dodder
Species Code (as per USDA Plants database)	CUSU3
GENERAL INFORMATION	
Geographical range	See above for distribution maps for North America and for the Pacific Northwest. The genus *Cuscata* is spread widely across North America, but *Cuscata suksdorfii* is limited to Washington, Oregon, and California.
Ecological distribution	Mountain meadows, generally grows on native herbs
Climate and elevation range	Elevation: 1500 to 2600 meters[4]
Local habitat and abundance	Generally, grows on herbs in Asteraceae, *Calyptidium,* and *Trifolium.*[4]
Plant strategy type / successional stage	Weedy/colonizer, parasitic[3]
Plant characteristics	Dodders are parasitic forbs that twist themselves around a host plant. They are leafless and have reddish-orange thread-like stems that often form stringy, tangled masses.[2] Mountain dodders flower from July to September. They flower in clusters with several small white flowers in an umbel shape.[4] The flowers are followed by a small, globular seed pod with about 8 seeds in each.[2] Mountain dodders, because they are leafless, produce no chlorophyll. To obtain the energy they need to grow and thrive, they wind themselves around host plants and form haustoria (sucker-like roots) that penetrate the tissues of the host plant and extract the dodder's necessary nutrients and resources. The dodder can then detach itself from the ground and continue growing while attached only to the host plant.[2] Dodders are especially difficult to control because even once removed from the host plant, they can regenerate from the haustoria that penetrated the plants tissue.[5]
PROPAGATION DETAILS	
C. suksdorfii is considered a parasitic weed. There is no propagation information about this species, nor is there any about the genus *Cuscuata* and the family Cuscutaceae. The following	

information is based on propagation techniques for the family Convolvulaceae and is somewhat altered to better fit the specifications of *Cuscuta suksdorfii.*	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Bareroot
Stock Type	N/A
Time to Grow	Estimated to be 3 to 4 months
Target Specifications	Firm root plug
Propagule Collection Instructions	Collect seeds from the dodder's seed pods once they are fully matured in late September to early November. The seed pods will be brown in color to indicate matureness.
Propagule Processing/Propagule Characteristics	The seeds might be easily separated from the seed pods.[7] If this is the case, no seed cleaning is needed. However, if separation is more difficult, use a seed blower to separate seeds from chaff and non-viable seeds. Store the seeds under refrigeration at about 40 degrees Fahrenheit.[6]
Pre-Planting Propagule Treatments	Soak the seeds for 2 hours in warm water and place them in a 5% bleach solution for 3 minutes. Any seeds that float are most likely non-viable.[6] Dodder seeds have long dormancy periods because of their tough seed coat. To break dormancy, some scarification is necessary.[5] Do this by sanding down the seeds just enough to break through the seed coat.
Growing Area Preparation / Annual Practices for Perennial Crops	Use a growing medium that consists of a seed germination mix. For example, a 1:1 mix of Sunshine Professional Growing Mix and sand on top of a mix of peat, perlite, and organic compost would be ideal. The growing medium should have an irrigation setup that can be altered as needed.[6] Additionally, because of *C. suksdorfii's* parasitic growing habit, the growing area should have some mature native herbs that are susceptible to being used as hosts by *C. suksdorfii.* See above for some common herbs that are associated with Mountain dodders.
Establishment Phase Details	The sowing method is direct seeding into a seeding bed. The seeds should be sown in late fall and the soil should be kept somewhat moist. Shading decreases the growth rate of dodder, so keep the area in direct sunlight.[5]
Length of Establishment Phase	Estimated to be 1 to 3 months. Once the dodders make contact with the host plants and penetrate the tissue with haustoria, it is more necessary to care for the host plants than for the dodder.

Active Growth Phase	After *C. suksdorfii* is well established on the host plants, the stem connecting the dodders to the soil can be disconnected and the host plants can be moved and replanted. If there is a supply of nutrients and other resources present in the host plants, the dodders will continue to grow.
Length of Active Growth Phase	N/A – dodder growth depends on the nutrients available in the host plants.
Hardening Phase	N/A
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	Once *C. suksdorfii* is well established on the host plants, the hosts can be moved.
Length of Storage	N/A – this depends on the longevity of the host plants
Guidelines for Outplanting / Performance on Typical Sites	*C. suksdorfii* flowers from July to September. Ideally, host plants would be outplanted before the dodder flowers. Performance depends on availability of additional host plants onsite.
Other Comments	Species in the genus *Cuscuta* are considered to be pests. In some places, there are regulations that prohibit the presence of dodder seed in planting seed.[5]
INFORMATION SOURCES	
References	See below
Other Sources Consulted	See below
Protocol Author	Jane FitzGerald
Date Protocol Created or Updated	05/25/21

References:

[1]"Cuscuta Suksdorfii Yunck." *USDA Plants Database*, plants.sc.egov.usda.gov/home/plantProfile?symbol=CUSU3.

[2]"Ministry of Agriculture, Food and Rural Affairs." *Ontario Weeds: Dodder*, www.omafra.gov.on.ca/english/crops/facts/ontweeds/dodder.htm.

[3]*SEINet Portal Network - Cuscuta Suksdorfii*, swbiodiversity.org/seinet/taxa/index.php?tid=80092&taxauthid=1&clid=0.

[4]Mihai Costea & Saša Stefanović 2012, *Cuscuta suksdorfii*, in Jepson Flora Project (eds.) *Jepson eFlora*, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=21473, accessed on May 24, 2021.

[5]"How to Manage Pests." *UC IPM Online*, ipm.ucanr.edu/PMG/PESTNOTES/pn7496.html.

[6]Herrera, Mike; Takara, Janet. 2006. Propagation protocol for production of Container (plug) *Calystegia macrostegia* (Greene) Brummitt plants 1 gallon treepot; Catalina Island Conservancy Avalon, California. In: Native Plant Network. URL: http://NativePlantNetwork.org (accessed 2021/05/24). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

[7]Young, Betty. 2001. Propagation protocol for production of Container (plug) *Calystegia purpurata* (Greene) Brummitt plants Deepot 16; San Francisco, California. In: Native Plant

Network. URL: http://NativePlantNetwork.org (accessed 2021/05/25). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

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ITIS Standard Report Page: Cuscuta Suksdorfii, www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=30753#null.