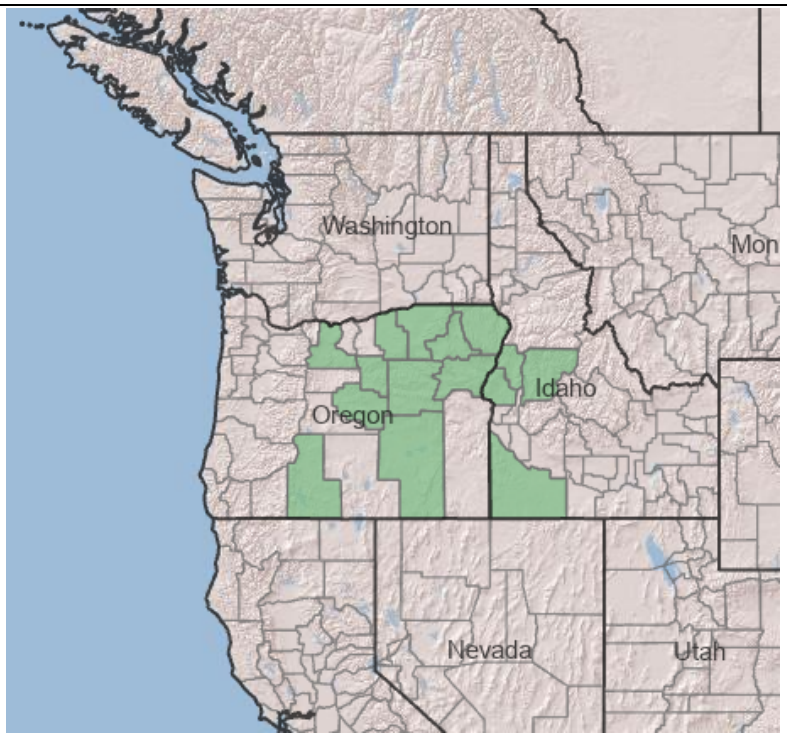
Plant Propagation Protocol for *Allium madidum*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/*2024*/*ALMA6.pdf*

Source: Mark Turner (pnwflowers.com)

TAXONOMY	
Plant Family	
Scientific Name	Previously Liliaceae, now Amaryllidaceae[9]
Common Name	amaryllis
Species Scientific Name	
Scientific Name	*Allium madidum* S. Watson
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	
Common Name(s)	Mountain swamp onion
Species Code (as per USDA Plants database)	ALMA6

GENERAL INFORMATION	
Geographical range	 Source: USDA Plants
Ecological distribution	Located in the Blue Mountains in eastern Oregon and western Idaho. Occurs in seasonally wet meadows and scablands.[1]
Climate and elevation range	*Allium madidum* is adapted to sub-alpine climate. [5] Elevation range: 3,800 – 6,500 ft[1]
Local habitat and abundance	Limited distribution in Idaho, most known populations occur in Malheur, Ochocho and Umatilla National forests in Oregon. Often found in ponderosa pine forests.[2] Commonly associated with *Pinus ponderosa, Pinus contorta, Abies grandis, Pseudotsusa menziesii, Camassia cuamash, Clavtonia lanceolata, Allium brandesei, and Carex SDD.*[2] Found in moist, clay soil. [2]
Plant strategy type / successional stage	Early successional species.[3]
Plant characteristics	Perennial forb/herb.[4] Up to 1 ft tall. [5] 2 flat or channeled leaves per stem.[8] 1-3 bulbs, each with a cluster of 10-30 detached bulbils.[8] Outside of bulbs are gray/brown, while inside layers are white/pink. [1] Umbel clusters contain 25-35 white flowers which flower in late spring.[5] Sensitive to disturbance during the growing season and will most likely result in death. Whereas disturbance has little effect during dormancy. [2]
PROPAGATION DETAILS: FROM SEED	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed

Product Type	Container (plug)
Stock Type	160 mL conetainer.
Time to Grow	No available information for *Allium madidum*. For similar species: *Allium acuminatum*: 3 years[6] *Allium schoenoprasum*: 10 months[7]
Target Specifications	Firm conetainer plug with developed bulb[7]
Propagule Collection Instructions	Plant flowers early may through early July. Collect when the perianths are papery at the end of the season. Seeds are a dull black when mature.[1] Entire stalks or capsules can be collected and cleaned by hand to extract seeds. Seeds can be stored in paper bags at room temperature.[7]
Propagule Processing/Propagule Characteristics	Seed density and longevity unknown for *Allium madidum*. For similar species: *Allium acuminatum*: 253,691 seeds/lb[6] *Allium schoenoprasum*:2,600,000 seeds/kg[7]
Pre-Planting Propagule Treatments	No information on *Allium madidum*. Both *Allium acuminatum* and *Allium schoenoprasum* require cold, moist stratification for 1-5 months outdoors. Seeds are sown in late fall to allow for maximum germination after stratification of cool, fluctuating outside temperatures.[6,7]
Growing Area Preparation / Annual Practices for Perennial Crops	Outdoor nursery growing facility. 160 mL container.[7]
Establishment Phase Details	Containers are thoroughly watered and kept moist. Germination occurs as temperatures begin to rise in early spring over a couple weeks.[6,7]
Length of Establishment Phase	No available information for *Allium madidum*. For similar species: *Allium acuminatum*: 2 months[6] *Allium schoenoprasum*: 4 weeks[7]
Active Growth Phase	Plants are continuously watered and fertilized during the growing season to allow for rapid root and shoot development.[6,7]
Length of Active Growth Phase	No available information for *Allium madidum*. For similar species: *Allium acuminatum*: 3 years[6] *Allium schoenoprasum*: 12 weeks[7]
Hardening Phase	Irrigation is gradually decreased during late summer and early fall. Plants should be covered in insulating material to prepare for winter, especially if snow is lacking. [6,7]
Length of Hardening Phase	No available information for *Allium madidum*. For similar species: 4 weeks for *Allium schoenoprasum.* [7]

Harvesting, Storage and Shipping	Plants can overwinter covered in an outdoor nursery. Should be irrigated one last time beforehand. [7] Bulbs of *Allium acuminatum* can be harvested by sifting potting soil through sieve. [6]
Length of Storage	Bulbs of *Allium acuminatum* can be collected and stored for only a short period of time prior to planting. [6] Luna, Evans, and Wick (2008) report 5 months of storage for *Allium schoenoprasum.*
Guidelines for Outplanting / Performance on Typical Sites	Initial protection for bulbs against rodents may be needed when first out planted. [6] No other information available.
Other Comments	
INFORMATION SOURCES	
References	1. Sphar, R., Armstrong, L., Atwood, D., & Rath, M. (1991). *Threatened, Endangered, and Sensitive Species of the Intermountain Region*. United State Forest Service. 2. McNeal, D. (n.d.). *Report on Allium*. University of the Pacific. https://www.fs.usda.gov/r6/icbemp/science/mcneal.pdf 3. Armstrong, A., Christians, R., Erickson, V., Hopwood, J., Horning, M., Kramer, A., Landis, T., Moore, L., Remley, D., Riley, L., Riley, S., Roberts, S., Skinner, M., Steinfeld, D., Stella, K., Teuscher, T., White, A., & Wilkinson, K. (2017). *Roadside Revegetation: An Integrated Approach to Establishing Native Plants and Pollinator Habitat*. U.S. Department of Transportation. 4. USDA. (n.d.). *USDA Plants Database*. Plants.sc.egov.usda.gov. Retrieved May 20, 2024, from https://plants.sc.egov.usda.gov/home/plantProfile?symbol=ALMA6 5. Turner, M. (n.d.). *Allium madidum	Mountain Swamp Onion	Wildflowers of the Pacific Northwest*. Www.pnwflowers.com. Retrieved May 20, 2024, from https://www.pnwflowers.com/flower/allium-madidum 6. Skinner, David M,. 2004. Propagation protocol for production of Container (plug) *Allium acuminatum* Hook. bulbs USDA NRCS - Pullman Plant Materials Center Pullman, Washington. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2024/05/20). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources. 7. Luna, Tara; Evans, Jeff; Wick, Dale. 2008. Propagation protocol for production of Container (plug) *Allium schoenoprasum* L. plants 160 ml conetainer; USDI NPS - Glacier National Park West Glacier, Montana. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2024/05/20). US

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