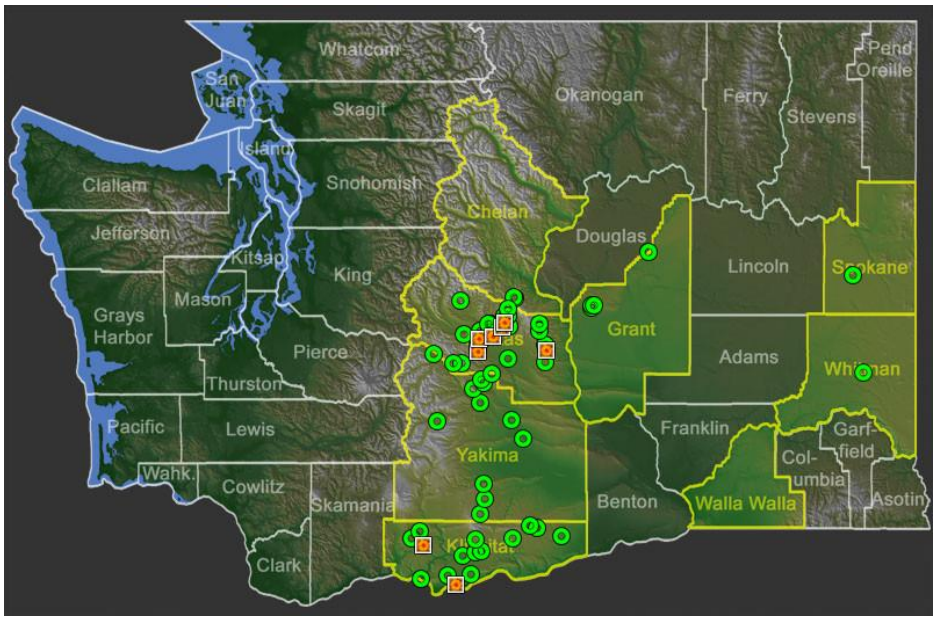
Plant Propagation Protocol for *ALNE*
ESRM 412 – Native Plant Production



Source: Burke Herbarium

TAXONOMY	
Plant Family	
Scientific Name	**Species:** Allium nevii **Family:** Liliaceae Juss
Common Name	**Species:** Nevius's garlic; Nevius's onion **Family:** Lily Family
Species Scientific Name	
Scientific Name	**Accepted Name:** *Allium nevii* S. Watson Publication: Proc. Amer. Acad. Arts. 14: 231. 1879.

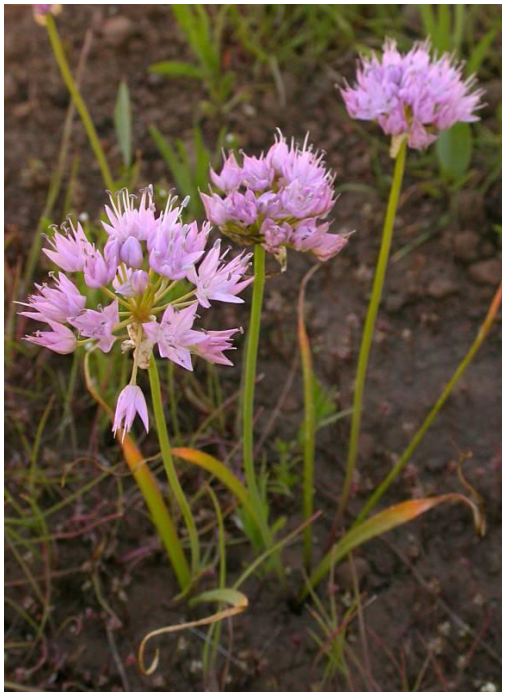
Nevius' garlic Classification

Kingdom	*Plantae* - Plants
Subkingdom	*Tracheobionta* - Vascular plants
Superdivision	*Spermatophyta* - Seed plants
Division	*Magnoliophyta* - Flowering plants
Class	*Liliopsida* - Monocotyledons
Subclass	*Liliidae*
Order	*Liliales*
Family	*Liliaceae* Juss. - Lily family P
Genus	*Allium* L. - onion P
Species	*Allium nevii* S. Watson - Nevius' garlic P

Image Source: WTU Herbarium 2025
Chart Source: USDA database 2025

Varieties	*Allium columbianum* *Allium constrictum* *Allium douglasii* **Source:** Slichter 2022
Sub-species	None are listed
Cultivar	None are listed
Common Synonym(s)	**Synonyms & Misapplications:** *Allium douglasii* Hook. var. *nevii* (S. Watson) Ownbey & Mingrone [HC]
Common Name(s)	Nevius's garlic, Nevius's onion
Species Code (as per USDA Plants database)	ALNE4
GENERAL INFORMATION	
Geographical range	*Allium nevii* is native to counties in Washington and Oregon. Specifically for Washington, these include Chelan, Grant, Yakima, Walla Walla, Spokane, Whitman, etc. **Image and Text Source:** USDA database 2025 In a general sense, they span from areas east of the cascades all the way to Wasco County, Oregon. **Source:** Burke Herbarium 2025 
Ecological distribution	*Allium nevii* tends to be found in areas of high moisture content within rocky soils. These are typically wet meadows with medium to high exposure to sunlight depending on the water presence. **Source:** WTU Herbarium 2025
Climate and elevation range	*Allium nevii* typically is found in grasslands and meadows. Other areas include sagebrush deserts and ponderosa pine forests offering a substantial amount of wet soils. The temperature in which they thrive in tend to be moderate – 59 to 77 degrees Fahrenheit after temperature conversions. Alliums are found mostly at low to middle elevation regions. For a general range, this would be approximately 580 feet to 4,000 feet above sea level. **Source:** Washington Topographical Map 2025. Other sources state that the altitude range can also start as low as 100 feet all the way up to 623 feet. **Source:** Jacobsen 2025 They can also be found in drying steambeds, as the rock formations allow for the flower to anchor into the ground and reach water that has drained through the rocks and into the soil below. **Source:** Slichter 2022

Local habitat and abundance	Habitat amongst the *Allium nevii* and other related species are vernal ponds in shrublands and meadows. Commonly associated species that typically grow in the same habitat include *Artemisia rigida, Trifolium macrophalum, grasses,* and *Eriogonum douglasii.* **Source:** WTU Herbarium 2025 Even though they are relatively abundant in these specific meadows, they are now considered vulnerable and currently threatened by agriculture and grazing. Vehicle use and parking has also been noted as contributing factors to possible population declines as well. **Source:** NatureServe Explorer 2022
Plant strategy type / successional stage	*Allium nevii* tend to be stress-tolerators – especially since they can survive in various types of meadow environments (i.e. Direct sunlight, shaded forestland, rocky soils). Furthermore, since they range from low to middle elevated regions, they can survive in areas that may be harsh and resource limited. Based on the **Grime's CSR (Competitive, Stress-tolerant, and Ruderal) model**, it would most likely fall into the stress-tolerator category also because it is currently not noted as being competitive – especially since they can only survive in meadows and in fragile wetlands. Furthermore, they aren't dominant in high disturbance areas, thus they cannot be ruderal. **Source:** Grime 1988
Plant characteristics	Falls into the category of forb/herb and is considered a scapose perennial. It grows from ovoid bulbs that have inner coats and an inner membrane. Usually flowers from May-July and is pollinated typically by bumblebees, bees, flies, and hummingbirds. **Source:** WTU Herbarium 2025 Furthermore, its leaves and flowers are very distinct – for the leaves have 2 narrow concave-convex leaves that are shorter than the scape (>1-2 dm). The flowers have slender pedicels that are 2-3 times the length of the tepals – which typically are 6-7mm. They are usually a pastel pink with saturated portions of rich purple. **Text Source:** WTU Herbarium 2025

	Image Source: WTU Herbarium Images 2025 (Left) and WTU Consortium of Pacific Northwest Herbaria 2025 (Right)  
PROPAGATION DETAILS: FROM SEED	
Ecotype	Seeds – specifically bulbs – will be derived from the wild, whether it be in Eastern Washington or parts of Oregon. This is because they are only found in these regions and are not typically grown for commercial use. **Image Source:** WTU Herbarium 2025 
Propagation Goal	The goal is to propagate the Allium nevii from **bulbs**.
Propagation Method	The propagation method will from **seed/bulb**.
Product Type	**Containers** are recommended but can be grown bareroot if planted in early Spring before flowering season.
Stock Type	No stock type found because of its wild species type rather than actively cultivated. However, it would be considered a **bulbous stock plant**. **Text Source:** Dumroese and Owston 2003

Time to Grow	Since Alliums tend to naturally bloom around May to July as a perennial (Lives for multiple years), it is important to start to prepare the seeds for planting around **3.5-4 months before** then – for it typically takes 2-3 weeks for the bulbs to germinate and 2-3 months for the bulb between vegetative growth and flowering. Thus, sowing the bulb in the Winter (i.e. November, December) would be ideal. **Source:** WTU Burke 2025 and Rankel 2025
Target Specifications	Mature height is typically 12-18 inches and spreads approximately 6-12 inches. When they mature, they will produce large purple flowers as well. **Source:** Rankel 2025
Propagule Collection Instructions	For this propagation procedure, a bulb must be acquired. To do this, one must note meadows where *Allium navii* were present in the spring to summer (When they are alive and identifiable) and go back to these locations during their dormant period to collect bulbs (Can be more difficult to identify where the bulbs are if the first step is skipped). Extracting the bulb can be done by gently rummaging or moving around the soil in hopes of spotting a bulb. Once you locate the bulb, and – with care – move it side to side until it is successfully removed from the ground if roots are present. If no roots are visible, one can simply remove the bulb with ease. **Source:** Rankel 2025
Propagule Processing/Propagule Characteristics	Since *Allium navii* is in the garlic/onion family, it can be said that their bulbs may last 1-3 years if properly taken care of. **Source:** Harrison 2024 The perfect space to store them would be in cool, dry places. This would simulate winter temperatures and thus discourage growth of the bulb and keep it dormant until it is moved into a warmer and wetter environment. In studies determining mean weight of 1000 seeds, it is found that the average bulb will have a bulk density of 450.81 kg/m^3. Furthermore, the mean length tends to be 2.93 mm, width is 2.16 mm, thickness is 1.57 mm, and weight is 3.75g. **Source:** Namdeo 2024
Pre-Planting Propagule Treatments	These bulbs can typically be stored in paper bags to allow airflow to come in and out to prevent moisture build up. These bulbs don't tend to be cleaned, especially if they remain in their dormant phase. As long as they are kept in a cool environment – whether that be a fridge or clean storage room – they should be ready to be planted within the 1-3 year timeframe.
Growing Area Preparation / Annual Practices for Perennial Crops	Since this propagation protocol will utilize containers for growth, there is no need for outside preparation (i.e. garden weeding, old soil tilled with new soil added). For the growing media**, sunshine soil mix #4** will originally be used to help in germination. This is because this soil mix has high moisture content when watered and low drainage, which will help with the absorption of water of the

	bulb. Additionally, it would be beneficial to fluff the soil material before use. This can be done by putting the soil in a tarp and moving it or sieving the soil into a bucket. **Source:** Sunshine Mix Information 2025 After germination and before out planting, it may be beneficial to repot the Allium into a bigger container with soil that contains a higher amount of perlite, bark, and rocks. This would reflect their native environment a little better and allow the plants to adjust to their new location after their hardening phase. Container sizes will vary throughout the growing process, so the two pots that may allow for a change in size may be the 1-quart containers (rectangular or circular) and the 1-gallon containers – both with drainage hoels and a tray underneath to catch water run-off. The first pot is based on the size of the bulb and little space for soil, so the desired pot size may be variable based upon these factors. **Source:** What's the Difference between #1, #2, #3, #5, #7 container sizes? 2018 Furthermore, a ½ gallon watering can may be used if a hose is unavailable. Fertilizer may also help in the later stages of growth, as well as having pruners, a clear top to go over the pots to maintain moisture during germination, plant tags, and pencils to make labels (These can be made from old food containers).
Establishment Phase Details	Prepare a 1 quart pot by filling it half-way with sunshine soil mix #. Ensure that the soil has been fluffed thoroughly and wetted with the watering can. Furthermore, test to see whether or not the soil has reached a pH level of 6.0 to 7.0 (neutral). **Source:** Rankel 2025 Ensure that the bulb is placed at a depth of 2-3 timers their height and since they will be in individual containers, there is no need to stress spacing them out. If they are planted in a garden, this would be 6-12 inches. Additionally, if the pot doesn't allow the bulb to be planted that deep, step up the pot to a bigger size. **Source:** Rankel 2025 Finally, cover the bulb in soil, water a final time, write a plant label (i.e. Species name, date), and place a clear top over it. Place the container in a sunny location (i.e. Greenhouse, hoophouse, house window) and ensure it meets the required temperature of 59 to 77 degrees Fahrenheit.
Length of Establishment Phase	Germination will occur within 2-3 weeks. **Source:** Rankel 2025
Active Growth Phase	After the seed has germinated, the clear top can be removed, and it can be watered thoroughly every time the soil is dry. Additionally, Allium may have outgrown its container, thus it can be repotted in new soil (i.e. more perlite, rocks, and bark) and in a 1-gallon container.

	Furthermore, once it reaches a stage where it begins to flower, you may fertilize it every 4-6 weeks. Fertilizers that might help include NPK fertilizer (10-10-10) or organic compost added to the soil mix. **Source:** Rankel 2025 Additionally, if parts begin to die (i.e. yellow leaves), prune and remove these parts to allow more energy to be used in new root, stem, and leaf growth.
Length of Active Growth Phase	Vegetative growth and flowering lasts roughly 2-3 months. However, if kept in a greenhouse or an environment of optimal temperature and conditions, they can live up to 3-5 years. **Source:** Rankel 2025
Hardening Phase	Because Allium can live for 3-5 years, they reach full maturity at approximately 2 years. This is if it is kept in ideal conditions. After these few years, it will begin to die off the bulb may not be viable to grow again. If the Allium becomes dormant, but is still viable, then you can follow the previous steps regarding how to store them and when to plant them. Furthermore, to extend its life span, they can be out planted with flowers such as yellow wood sorrel (*Oxalis stricta*) or St. John's Wort (*Hypericum perforatum)* to attract pollinators, as well as planting native plants that discourage pests from disturbing the Allium. **Source:** Rankel 2025
Length of Hardening Phase	If Allium is kept indoors, it will last for 1-2 months after germination, and it slowly go dormant over time. This is expedited when Summer and Fall arrive (i.e. shorter days, less moisture in Summer, colder temperatures towards Fall). When winter arrives, they will be fully dormant. After this, they are expected to live 3-5 years from the bulb due to Allium's being perennials and from their phase of dormancy. **Source:** Rankel 2025
Harvesting, Storage and Shipping	To harvest the bulb, you would allow the top part of the plant (i.e. stem, leaves, flowers) to fully die off. Then, you would remove the bulb from the top part and store it in a cold and dry environment within a paper bag. If it was shipped, it could be stored in dry material and in a bag allowing easy air-flow to minimize moisture.
Length of Storage	The bulb can be stored from the time it was harvested to the time it will be planted (give or take a year in between) For example, if you harvest a bulb in the fall, you can plant it at anytime if it is in a greenhouse. If you are planting it in a hoophouse, then December or January might be the most ideal time. In regards to growing it in a nursery to out planting it, it can take roughly 2-3 months before it is out planted.

Guidelines for Outplanting / Performance on Typical Sites	When out planting, there may be a 75% survival rate depending on where and when you plant it. There is little research about this, however, since Alliums are somewhat adaptable to outside conditions, it can be assumed that most of them will be able to survive in spring to summer conditions. The height of the plant tends to be 12-18 inches with a diameter of 6-12 inches. The roots can extend to 6-12 inches deep as well. **Source:** Rankel 2025 Ensure the Allium is planted in semi-shaded to sunny locations with access to enough moisture. Furthermore, it may take 2-3 weeks before the plant starts to flower, especially after they are out planted within 2-3 months. Lastly, plant them with complementary plants – such as noncompetitive wildflowers – that may help to attract pollinators.
Other Comments	Somewhat limited information was found regarding the survival rate after out planting. Furthermore, some information was contradictory – such as whether the plant is threatened – thus be aware of these differences. Lastly, there were no sources documenting pest-control; thus it is worth noting that aphids and mealy bugs may pose as an issue – especially within greenhouse settings. Pesticides and beneficial insects may be used – however – it is important to research options and understand pros and cons of both.
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