Plant Propagation Protocol for *Valeriana sitchensis*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/ VASI.pdf
<table>
<thead>
<tr>
<th>TAXONOMY</th>
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<tbody>
<tr>
<td>Plant Family</td>
<td></td>
<td>Valerianaceae</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Valeriana sitchensis</td>
<td>Valerian</td>
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<tr>
<td>Common Name</td>
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<tr>
<td>Scientific Name</td>
<td></td>
<td>Valeriana sitchensis</td>
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<tr>
<td>Varieties</td>
<td></td>
<td>Valeriana sitchensis subsp. sitchensis</td>
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<tr>
<td>Sub-species</td>
<td></td>
<td>Valeriana sitchensis subsp. scouleri</td>
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<tr>
<td>Cultivar</td>
<td></td>
<td>Valeriana sitchensis subsp. uliginosa</td>
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<tr>
<td>Common Synonym(s)</td>
<td></td>
<td>Valeriana sitchensis Bong. var. hookeri</td>
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<td>Valeriana sitchensis Bong. var. sitchensis</td>
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**Common Name(s)**<sup>1,3</sup>  
Sitka Valerian, Mountain Heliotrope  

**Species Code (as per USDA Plants database)**<sup>7</sup>  
VASI

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### GENERAL INFORMATION

**Geographical range**<sup>1,2,7</sup>  
Western U.S. including Alaska, Washington, Idaho, Oregon, Montana and California  

**Ecological distribution**<sup>1,2,4</sup>  
- Moist mid to high elevations in the Cascade Range and other mountain areas  
- Subalpine meadows  
- Stream banks  

**Climate and elevation range**<sup>4</sup>  
Mid-high elevations ~ 2,032 m  

**Local habitat and abundance**<sup>1,4</sup>  
Mt. Rainier National Park, Tipsoo Lake area, Cascades  
- Abundant  

**Plant strategy type / successional stage**<sup>2,5,7</sup>  
- Fibrous-rooted forb with a rhizome stem base  
- Wind dispersed seed  
- Competitor  
- Can reproduce vegetatively

**Plant characteristics**<sup>2,5,7</sup>  
- Perennial forb, 30-120 cm tall  
- Leaves opposite and divided into 3-7 coarsely toothed leaflets  
- Fruit is 3-6 mm, oblong and topped with a feathery plume  
- Flowers are white to pale pink, 4-7 mm long; petals are fused into 5-lobed tube with stamens protruding

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### PROPAGATION DETAILS

**Propagation Goal**<sup>1,3</sup>  
Plants  

**Propagation Method**<sup>1,3</sup>  
Seed  

**Product Type**<sup>1,6</sup>  
Container (plug)  

**Stock Type**<sup>1</sup>  
1-year containers  

**Time to Grow**<sup>1,4</sup>  
8 months-1 year  

**Target Specifications**<sup>1,4</sup>  
A well-developed rhizome with a healthy fibrous root system that supports a healthy crown of basal foliage  

**Propagule Collection Instructions**<sup>1</sup>  
- Seeds are ripe and ready to be collected when “plumules” are beginning to unfurl  
- Seeds shatter and are easily harvested once “pumules” have opened  

**Propagule Processing/Propagule Characteristics**<sup>1,3,4</sup>  
- Air-dry seed on an open bench top in a warm room or greenhouse  
- Once seed “plumules” are dry they can be easily rubbed off  
- Dried seed weight= 448,000 seeds/lb.

**Pre-Planting Propagule Treatments**<sup>1,4</sup>  
- Cold, moist stratification needed  
- Seeds should be cleaned using a hammer mill
| GROWING AREA PREPARATION / ANNUAL PRACTICES FOR PERENNIAL CROPS | -Start by sowing into standard “1020” flats in appropriate soil  
-Water and place into plastic bags in a 35 degree Fahrenheit cooler  
-Keep in cooler for at least 13 weeks, which results in 4% germination  
-5 month stratification resulted in 50% germination |
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<tr>
<td>ESTABLISHMENT PHASE DETAILS</td>
<td>-When ready for transplant, seedlings should be potted in 4” square pots in an organic soil mix to provide richer, denser soil to hold in higher amounts of moisture</td>
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<tr>
<td>LENGTH OF ESTABLISHMENT PHASE</td>
<td>3 months</td>
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| ACTIVE GROWTH PHASE | -Seedlings grow slowly for the first season, using low rates of fertilizer  
-Increased soil moisture and well-drained soils allow fibrous root development  
-Plants should be moved to shadehouse in July when top growth begins to take off |
| LENGTH OF ACTIVE GROWTH PHASE | May-August 3-4 months |
| HARDENING PHASE | -Fertilizer treatment is ended in July  
-Shade cloth is removed at the end of August to allow for full sun acclimation  
-Irrigation is gradually reduced in September and October  
-Plants not out-planted in the first year are hardened off |
| LENGTH OF HARDENING PHASE | August-September 1-2 months |
| HARVESTING, STORAGE AND SHIPPING | -Plants shipped in containers in early Fall for out-planting  
-Over wintered plants require re-potting into 6” or 1 gallon cans by Spring |
| LENGTH OF STORAGE | 5 months |
| GUIDELINES FOR OUTPLANTING / PERFORMANCE ON TYPICAL SITES | -Crowns should be carefully placed and settled at soil level  
-Out-planting date: August |
| OTHER COMMENTS | -Vegetative propagation by cutting large rhizomes with several growing crown points has been successful  
-Handlers may find pungent odor unpleasant |

**INFORMATION SOURCES**

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<thead>
<tr>
<th>Other Sources Consulted</th>
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<tbody>
<tr>
<td>Protocol Author</td>
<td>Allison Burdick</td>
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<tr>
<td>Date Protocol Created or Updated</td>
<td>05/20/15</td>
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</tbody>
</table>
Species: *Valeriana sitchensis*, Sitka Valerian, Mountain Heliotrope

Range: Coastal areas from Alaska to California; Olympic and Cascade Mountains

Climate, elevation: 1464-6080 meters, sub-alpine

Local occurrence: State of Washington

Habitat preferences: Moist ground on wooded slopes or meadows, sub-alpine, full Sun to partial shade. May become dwarf under extreme cold conditions, in young plants it has a pink or redness which is anthocyanin, a pigment that protects the plant from UV rays and also absorbs and concentrates infrared, heating the plant.
**Plant strategy type:** Early to late successional in meadow communities.

**Associated species:** Valeriana acutiloba

**May be collected as:** seed, allow pods to dry on plant; break open to collect seeds

**Collection restrictions or guidelines:**

- Seeds are hand collected in mid September when achenes are turn tan and are easily separated from the receptacle. Seeds can be cleaned using a hammermill.

- Ripe seeds collected generally when pappus-like "plumules" or plumose calyx appendages, are beginning to unfurl are best: seeds shatter and blow away easily once these have opened. However if collected too early you can find incomplete seed fill.

**Seed germination:** Seed - sow spring in a cold frame and only just cover the seed because it requires light for germination. Cold moist stratification is needed for this species. *5 month outdoor cold moist stratification

**Seed life:** Seed longevity is unknown

**Recommended seed storage conditions:** Dry, seed dormancy is classified as physiological dormancy

**Propagation recommendations:** Seeds preferred, but limited vegetative propagation, by cutting large rhizomes with several growing crown points, was also successful for this species although seed propagation was preferred to avoid the need for digging up rhizomes from their native sites

**Propagation Methods:**
From seed, direct sow outdoors in fall

If sowing indoors, stratify, winter sow in vented containers, coldframe or unheated greenhouse

**Soil or medium requirements:**

Soil pH requirements:
6.1 to 6.5 (mildly acidic)
6.6 to 7.5 (neutral)
7.6 to 7.8 (mildly alkaline)

**Installation form (form, potential for successful outcomes, cost):** Place seedlings into individual pots when they are large enough to handle and plant out into their permanent positions in the summer if sufficient growth has been made. If the plants are too small to plant out, grow them on in the greenhouse or frame for their first winter and plant them out early in the following summer. Division in spring. Larger divisions can be planted out direct into their permanent positions. Pot smaller divisions and grow them on in light shade in a greenhouse or cold frame until they are growing well. Plant them out in the summer or the following spring.

**Recommended planting density:**

Spacing:
18-24 in. (45-60 cm)

**Care requirements after installed**: medium moisture requirements

**Normal rate of growth or spread; lifespan**: establishment phase 3 months, active growth phase May - August

**Sources cited:**


Data compiled by: Maura Shelton, April 27, 2006