

## Propagation Protocol

### Pedicularis groenlandica



(4)

### **Taxonomy**

Family Scientific Name	<i>Scrophulariaceae</i>
Family Common Name	Figwort Family
Genus	<i>Pedicularis</i>
Species	<i>P. groenlandica</i>
Species Authority	Retz. (4)
Common Synonyms	<i>Elephantella groenlandica</i> (Retz.) Rydb.(4) <i>Pedicularis groenlandica</i> Retz. ssp. <i>Surrect</i> (Renth) Piper (4) <i>Pedicularis groenlandica</i> Retz. var. <i>surrect</i> (Benth) A.Gray (4)
Common Names	Elephant head lousewort Elephant's head Bull Elephant's head
Species Code	PEGR2

### **General Information**

General Distribution	Ranges from Canada, south to California and west to New Mexico. (4)
Ecological Distribution	Inhabits wetlands, stream banks, and wet meadows from mid-mountain to alpine elevations.(1)
Local Habitat	In Washington, 2500' – 7000'. East and west of the Cascade Mountains.(2)
Plant Characteristics	<b>General-</b> fibrous-rooted perennial, the stems often clustered. High fire tolerance, low drought tolerance (4) <b>Leaves-</b> basal, 5-25 cm long, pinnate, sharply serrate, alternate (4) <b>Flowers-</b> Inflorescence fairly dense, spike-like raceme, bracts shorter than the purplish flower (4)

Associated Species	<i>Carex nigricans</i> , <i>Dodocatheon jeffreyi</i> , <i>Achillea millefolium</i> , <i>Polygonum bistortoides</i> , <i>Aconitum columbianum</i> , <i>Castilleja spp.</i> , <i>Deschampsia cespitosa</i> , <i>Fragaria virginiana</i> , <i>Ligusticum grayi</i> , and <i>Pedicularis bracteosa</i> (3)
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### Propagation Details

Propagation Goal	Plants
Method	Seeds
Product Type	Container (plug)
Stock Type	172 mL conetainers (2)
Time to Grow	2 years
Target Specifications	Seedling with 6 to 10 leaves
Propagule Collection	Late fall. Seeds are brown at maturity. (4) Store in paper bags that are well ventilated, until cleaning. (2)
Propagule Characteristics	175,000 seeds per pound (4) Seed longevity unknown (2)
Pre-Planting Propagule Treatments	Expresses physiological seed dormancy (2) <ul style="list-style-type: none"> <li>- Treat with 200 ppm gibberillic acid for 24 hours. Rinse with water. Place seeds in a cold-moist stratification for approximately 100 days at 1-3°C. Seeds will germinate during stratification and are planted as germinates. (2)</li> </ul>
Growing Area Preparation	Requires a temperature controlled greenhouse (2) Media <ul style="list-style-type: none"> <li>- pH 5.8 – 7.2 (4)</li> <li>- Use a media that is 6 parts sphagnum peat, one part perlite, and one part vermiculite. (2)</li> <li>- Fertilizer may be used. 1.0 gram Osmocote controlled release fertilizer and 0.20 grams micromax per 172 mL conetainer. (2)</li> </ul>
Length of Establishment Phase	4 weeks
Establishment Phase	Parasitic (5) <ul style="list-style-type: none"> <li>- Requires a host plant</li> <li>- After 4 weeks, plant a host plant in container (5)</li> <li>- may use <i>Carex nigricans</i> (2)</li> </ul>
Growth Rate	Moderate (4) Will start growth slow until roots penetrate host plant. (2)
Length of Active Growth Phase	16 weeks
Active Growth Phase	During this time, fertilize with liquid 20:20:20 NPK at 100 ppm once every month. (2)

Length of Hardening Phase	4 weeks
Hardening Phase	Gradually reduce irrigation in September and October. Cover for winter. (2)
Harvest	August of 2 <sup>nd</sup> year
Storage	In winter, store under an insulated foam and snow cover. May store for up to 5 months. (2)
Comments	When you are adding the companion plant during the establishment phase, make sure the plant does not shade out <i>Pedicularis groenlandica</i> . (2) - It has intermediate shade tolerance. (4)

### Information Sources

References	<ol style="list-style-type: none"> <li>1. Baskin, Carol C.; Baskin, Jerry M. 2002. Propagation protocol for production of container <i>Pedicularis groenlandica</i> Retz. Plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network.</li> <li>2. Evans, Jeff; Wick, Dale. 2008. Propagation protocol for production of <i>container Pedicularis groenlandica</i> Retz. Plants (172 mL conetainers); USDI NPS – Glacier National Park, West Glacier, Montana. In: Native Plant Network.</li> <li>3. Hovanick, Catherine. SOME ASPECTS OF THE NATURAL HISTORY AND ECOLOGY OF THREE <i>PEDICULARIS</i> SPECIES COMMON IN THE NORTHWEST. Master of Science Thesis, University of Washington. 1983.</li> <li>4. "<i>Pedicularis groenlandica</i> Retz." <u>Plants Database</u>. United States Department of Agriculture. 26 Apr. 2008 &lt;<a href="http://plants.usda.gov">http://plants.usda.gov</a>&gt;.</li> <li>5. Thompson, Peter. CREATIVE PROPAGATION: A GROWER'S GUIDE; Portland, OR: Timber Press, 1992.</li> </ol>
Other Sources Consulted	<ol style="list-style-type: none"> <li>I. Hartmann, Hudson T., Dale E. Kester, Fred T. Davies, and Robert L. Geneve. PLANT PROPAGATION: PRICIPALS AND PRACTICES. 7<sup>th</sup> ed. Englewood Cliffs, NJ: Prentice Hall, 2001.</li> <li>II. Thompson, Peter. THE PROPAGATOR'S HANDBOOK. North Pomfret, VT: Trafalgar Square Publishing, 1993.</li> <li>III. Toogood, Alan, editor. PLANT PROPAGATION. New York: DK Publishing, 1999.</li> </ol>
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**Elephant's Head** *Pedicularis groenlandica*



**Range**

Mid-montane to alpine areas throughout western North America (1).

**Climate, elevation**

Middle to high elevations (1).

**Local occurrence**

In Washington, it ranges from 2500' to 7000' both west and east of the Cascades (2).

**Habitat preferences**

Fens, wet meadows, seepage area, and streambanks (3).

**Plant strategy type/successional stage**

*Pedicularis groenlandica* requires a late successional sedge-rush community, with associate species for companion species.

**Associated species**

*Carex nigricans*, *Dodocatheon jeffreyi*, *Achillea millefolium*, *Polygonum bistortoides*, *Aconitum columbianum*, *Castilleja* spp., *Deschampsia cespitosa*, *Fragaria virginiana*, *Ligusticum grayi*, and *Pedicularis bracteosa* (2).

**May be collected as**

Seed (1).

**Collection restrictions or guidelines**

Collect seeds in late fall, when capsules turn brown and begin to dehisce. Seeds are brown at maturity (1).

**Seed germination**

120 days cold stratification. Gibberlic acid treatment is recommended for the *Pedicularis* genus (1).

**Seed life** (can be stored, short shelf-life, long shelf-life)

Seed longevity is unknown (1).

**Recommended seed storage conditions**

Clean seeds should be stored in a cool and well-ventilated area.

**Propagation recommendations**

Seeds.

**Soil or medium requirements**

Glacier National Park outlines, "Seeds are lightly covered with media.

Growing media used is 6:1:1 milled sphagnum peat, perlite, and vermiculite with Osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8 to 9 month release rate at 21C) and Micromax fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 1 gram of Osmocote and 0.20 gram of Micromax per 172 ml container (1)."

**Installation form**

*Pedicularis groenlandica* is a hemiparasite. In order for seedlings to develop a healthy root system and grow vigorously, a host plant should be introduced into containers. Glacier National Park has been successful using *Carex nigricans* (1).

**Care requirements after installed**

Container plants should be watered regularly throughout the summer, gradually decreasing irrigation throughout September and October, giving plants one thorough soaking prior to winter dormancy (1).

**Normal rate of growth or spread; lifespan**

2 years (1).

**Sources cited**

1. Evans, Jeff; Luna, Tara; Wick, Dale. 2001. Propagation protocol for production of container *Pedicularis groenlandica* Retz. plants (172 ml containers); Glacier National Park, West Glacier, Montana. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 11 May 2004). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.
2. Hovanick, Catherine. Some Aspects of the Natural History and Ecology of three *Pedicularis* Species common in the Northwest. Master of Science Thesis, University of Washington. 1983.

3. Pojar, J. and A. MacKinnon. Plants of the Pacific Northwest Coast-Washington, Oregon, British Columbia and Alaska. B.C. Ministry of Forest and Lone Pine Publishing. 1994.  
**Data compiled by Sacha Johnson 5/11/2004**