

Plant Propagation Protocol for *Vahlodea atropurpurea*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/vaat2.pdf>

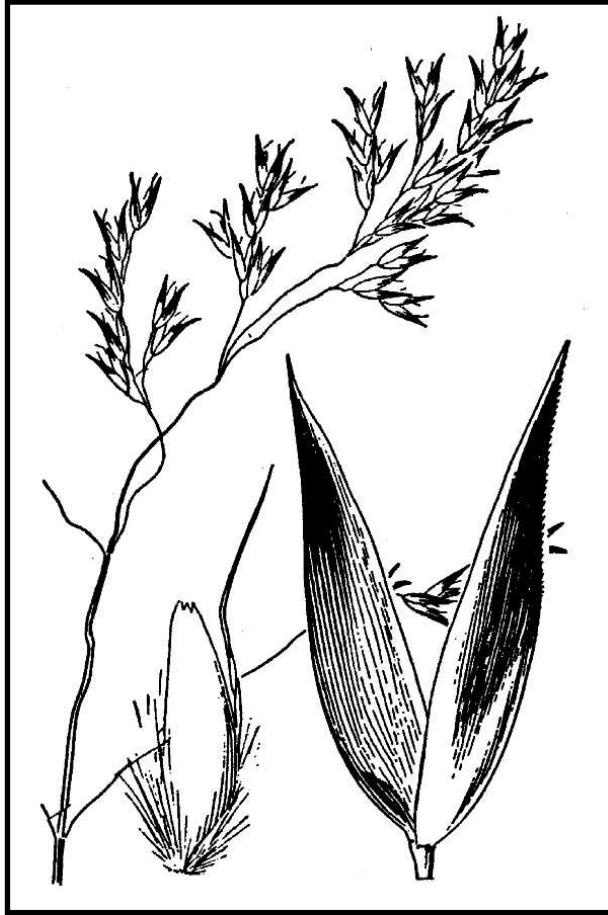


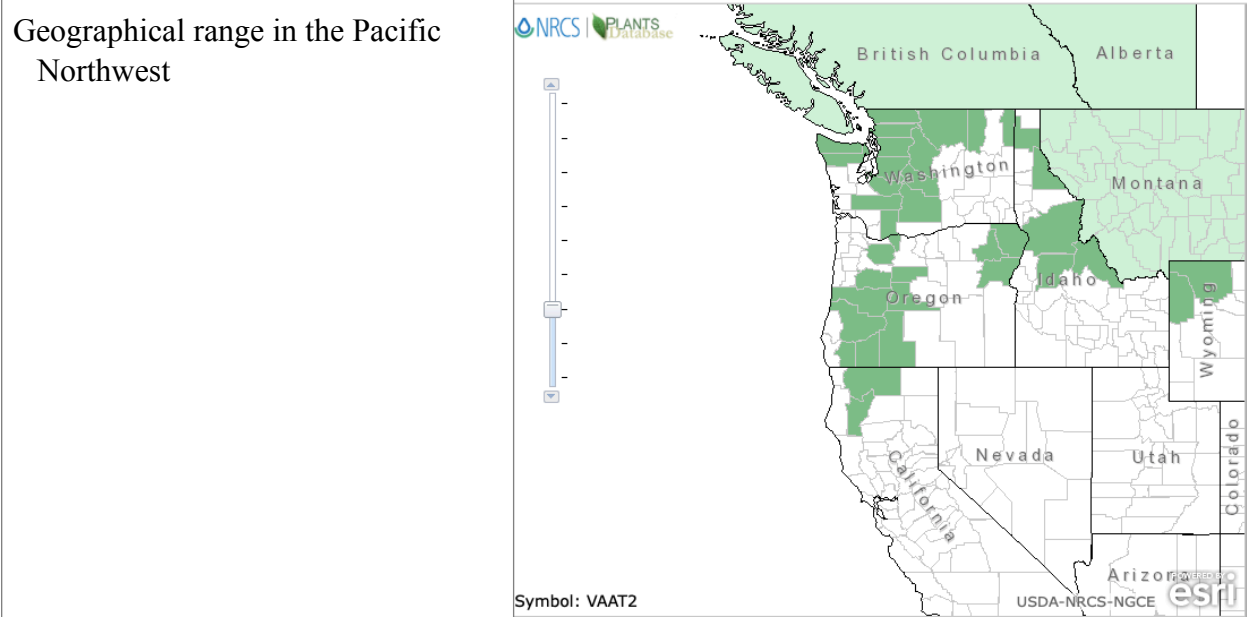
Image credit: USDA-NRCS PLANTS Database / Hitchcock, A.S. (rev. A. Chase). 1950. *Manual of the grasses of the United States*. USDA Miscellaneous Publication No. 200. Washington, DC

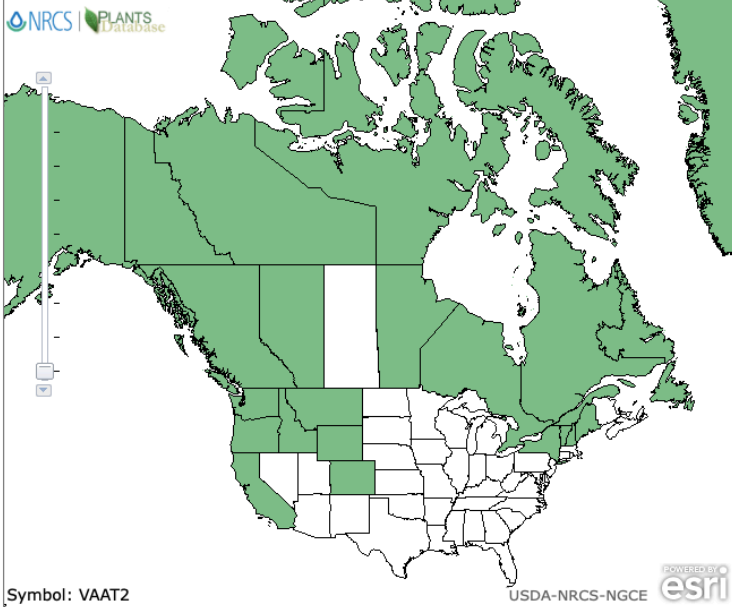
TAXONOMY

Plant Family	
Scientific Name	Poaceae ⁴
Common Name	Grasses ⁴
Species Scientific Name	
Scientific Name	<i>Vahlodea atropurpurea</i> (Wahlenb.) Fr. Ex Hartm. ⁴
Varieties	N/A

Sub-species	<ul style="list-style-type: none"> • <i>Vahlodea atropurpurea</i> (Wahlenb.) Fr. Ex Hartm. ssp. <i>latifolia</i> (Hook.) A.E. Porsild • <i>Vahlodea atropurpurea</i> (Wahlenb.) Fr. Ex Hartm. ssp. <i>paramushirensis</i> (Kudo) Hultén⁴
Cultivar	None
Common Synonyms	<ul style="list-style-type: none"> • <i>Aira atropurpurea</i> Wahlenb. • <i>Deschampsia atropurpurea</i> (Wahlenb.) Scheele • <i>Deschampsia atropurpurea</i> (Wahlenb.) Scheele var. <i>latifolia</i> (Hook.) Scribn. Ex Macoun • <i>Deschampsia atropurpurea</i> (Wahlenb.) Scheele var. <i>paramushirensis</i> Kudo • <i>Deschampsia atropurpurea</i> (Wahlenb.) Scheele var. <i>payettii</i> Lepage • <i>Deschampsia pacifica</i> Tatew. & Ohwi • <i>Vahlodea flexuosa</i> (Honda) Ohwi • <i>Vahlodea latifolia</i> (Hook.) Hultén⁴
Common Names	<ul style="list-style-type: none"> • Mountain hairgrass⁴
Species Code (as per USDA Plants database)	VAAT2 ⁴

GENERAL INFORMATION



<p>Geographical range in North America</p>	 <p>Symbol: VAAT2</p>
<p>Ecological distribution</p>	<p>Occurs most commonly in high subalpine heath. Also occurs in high elevation meadows, alpine heath, stream banks, open sub-alpine forests, and snowbeds³.</p>
<p>Climate and elevation range</p>	<p>Occurs abundantly at high elevations³. 30-2640 meters, average 1800 meters¹.</p> <p>Occurs in alpine tundra and boreal climates¹.</p>
<p>Local habitat and abundance</p>	<p>Associated with <i>Cassiope mertensiana</i>, <i>Leptarrhena pyrotifolia</i>, <i>Phyllodoce empetriformis</i>, and <i>Vaccinium deliciosum</i>¹.</p>
<p>Plant strategy type / successional stage</p>	
<p>Plant characteristics</p>	<p>Loosely tufted perennial grass, growing 20-80 cm tall³.</p> <p>Leaves flat, green, with prow-like tips. Auricle absent, ligule hairy and 1.5-3.5 mm in length³.</p> <p>Inflorescence a loose panicle, 5-10 cm long, typically with drooping branches. Spikelts large and purple when mature. Lemmas hairy at base, awned from the middle, and 2.5 mm long³.</p>
<p style="text-align: center;">PROPAGATION DETAILS Tara Luna, Glacier National Park²</p>	

Ecotype	Subalpine meadows at Logan Pass in Glacier National Park at 2032 meters elevation ² .
Propagation Goal	Plants ²
Propagation Method	Seed ²
Product Type	Container (plug) ²
Stock Type	172 ml conetainers ²
Time to Grow	8 months ²
Target Specifications	10 cm conetainer seedlings with 6-10 true leaves ² .
Propagule Collection Instructions	<p>Seeds should be collected in mid to late August. Look for papery tan florets and seeds that are easily stripped away. Hand held sickles may be used to remove entire inflorescence².</p> <p>Spread seeds evenly on a tarp in a drying shed, turning twice daily until dry².</p>
Propagule Processing/Propagule Characteristics	<p>Seeds can be stored for 5-7 years in sealed containers at 3-5 degrees celsius².</p> <p>Seed density is 3,200,000 per kilogram².</p>
Pre-Planting Propagule Treatments	<p>5 months of outdoor stratification².</p> <p>Seeds require at least 12 days of cold, moist stratification to break dormancy for greenhouse propagation².</p>
Growing Area Preparation / Annual Practices for Perennial Crops	<p>Seeds were grown in an outdoor nursery facility. Seeds were sown directly and lightly covered with growing medium which consisted of 6:1:1 milled sphagnum peat, perlite, and vermiculate with 1 gram Osmocote controlled release fertilizer and 0.20 grams Micromax fertilizer per conetainer².</p> <p>Seeds were sown in late fall and watered thoroughly using a Rainbird automatic irrigation system each morning².</p>
Establishment Phase Details	Growing medium was kept moist during the establishment phase ² .

Length of Establishment Phase	2 weeks ²
Active Growth Phase	<p>Roots and shoots develop quickly following germination. 3 weeks after germination, seedlings had 4-6 true leaves².</p> <p>During the active growth phase, plants were fertilized with a liquid 20:20:20 NPK fertilizer².</p>
Length of Active Growth Phase	6 weeks ²
Hardening Phase	Plants are hardened off right before outplanting ² .
Length of Hardening Phase	2 weeks ²
Harvesting, Storage and Shipping	<p>Plants were harvested in July, after 7.5 months².</p> <p>Plants were stored over the winter in an outdoor nursery under insulation and snow².</p>
Length of Storage	5 months ²
Guidelines for Outplanting / Performance on Typical Sites	No information provided.
Other Comments	Nursery grown seedlings may be divided if seeds are not available ² .

INFORMATION SOURCES

References

1. Klinkenberg, B. (Ed.). (n.d.). E-Flora BC: Electronic Atlas of the Plants of British Columbia. Retrieved from <http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Vahlodea+atropurpurea>
2. Luna, T., Evans, J., & Wick, D. (2008). Propagation protocol for production of Container (plug) *Deschampsia atropurpurea* (Wahl) Scheele plants 172 ml conetainers. Retrieved from <https://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=poaceae-deschampsia-148>
3. MacKinnon, A., & Pojar, J. (2016). *Plants of the Pacific Northwest coast: Washington, Oregon, British Columbia & Alaska*. Vancouver, British Columbia: Partners Publishing.
4. Plants Profile for *Vahlodea atropurpurea* (mountain hairgrass). (n.d.). Retrieved from <https://plants.usda.gov/core/profile?symbol=VAAT2>

Other Sources Consulted	<p>Appendix B-Propagation and Establishment of Requirements for Selected Plant Species. (n.d.). Retrieved from https://www.fs.fed.us/t-d/pubs/pdfpubs/pdf06232815/pdf06232815dpi72pt17.pdf</p> <p>Baskin, C., & Baskin, J. (2002). Propagation protocol for production of Container (plug) <i>Deschampsia atropurpurea</i> (Wahl.). Retrieved from https://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=poaceae-deschampsia-1566</p> <p>Kaye, T. N. (1997). Seed Dormancy in High Elevation Plants: Implications for Ecology and Restoration. <i>Conservation and Management of Native Plants and Fungi</i>, 115–120.</p> <p>Klinkenberg, B. (2013). Mapping Species Distributions. Retrieved from https://ibis.geog.ubc.ca/biodiversity/eflora/KlinkenbergBECTable.html</p> <p>Majerus, M. E. (1991). Native, Indigenous Plants for Park Service Revegetation. <i>Journal American Society of Mining and Reclamation</i>, 1991(1), 497–508. doi: 10.21000/jasmr91010497</p> <p>United States Department of the Interior, National Park Service. (1991). <i>Development guidelines: Mather Memorial Parkway</i>.</p>
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