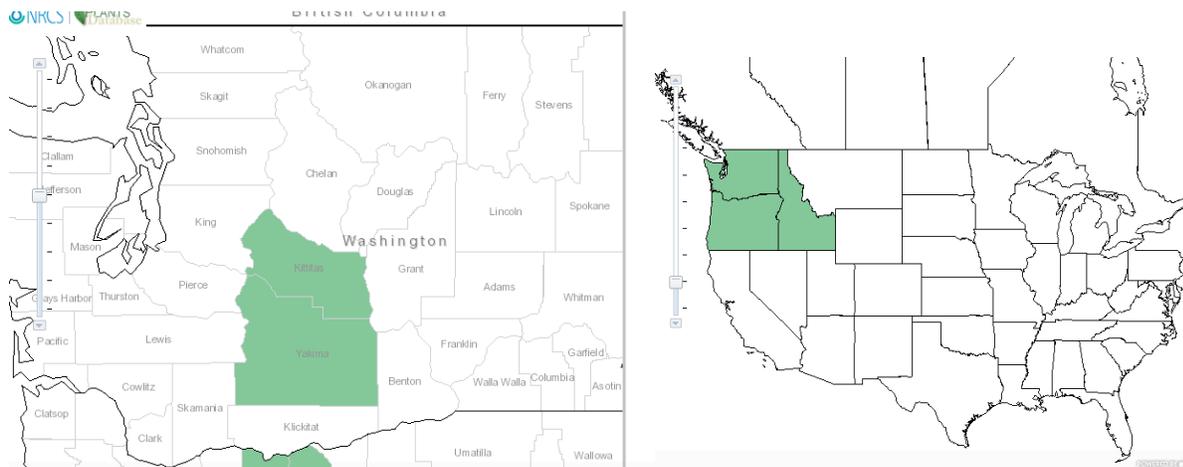


Plant Propagation Protocol for *Achnatherum hendersonii* Howell
 ESRM 412 – Native Plant Production



(PLANTS)

TAXONOMY	
Plant Family	
Scientific Name	Poaceae
Common Name	Grass Family
Species Scientific Name	
Scientific Name	<i>Achnatherum hendersonii</i>
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	<i>Oryzopsis hendersonii</i> Vasey <i>Stipa hendersonii</i> (Vasey) Muhl. <i>Oryzopsis exigua</i> var. <i>hendersonii</i> (PLANTS, ITIS)
Common Name(s)	Henderson's Needlegrass
Species Code (as per USDA Plants database)	ACHE10
GENERAL INFORMATION	
Geographical range	Regional endemic to central Washington and Oregon (see maps above).
Ecological distribution	Rocky, shallow soiled, non forested sites (Dewey)
Climate and elevation range	3000-5000 ft.
Local habitat and abundance	Basaltic rock, shallow soils subject to cryogenic disturbance, ridges, areas that commonly receive frost heave or other cryogenic processes, shallow soil in sagebrush or ponderosa pine associations (Barkworth). Local habitat: Yakima and Kittitas Counties in Washington and Crook County in Oregon (Barkworth). Commonly associated grass is <i>Poa secunda</i> . For specific locations of <i>Achnatherum hendersonii</i> click

	here.
Plant strategy type / successional stage	Rare; Conservation watch list (Knoke). Poor competitor due to slow growth rate (Robson).
Plant characteristics	Perennial bunchgrass grass, non-rhizomatous, tightly composite, 10-35 cm tall, 1-2 nodes, smooth, leaves are open, utricle fruits. The outer cortex and epidermis of the roots of <i>A. hendersonii</i> form a sheath around the stele and inner cortex with roots extending to 30 cm below ground. Blooms May-June (Knoke, Barkworth).
PROPAGATION DETAILS: since limited information can be found for the propagation of <i>Achanatherum hendersonii</i>, the following information is for <i>Achnatherum occidentale</i>, a very closely related species (Trindle)	
Ecotype	Crater Lake National Park 6,500-7,000
Propagation Goal	Seed
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	10
Time to Grow	10 months
Target Specifications	Roots should fill container soil profile; healthy crown foliage
Propagule Collection Instructions	Hand strip ripe seed heads (slow collection process)
Propagule Processing/Propagule Characteristics	<p>Threshed with Kamas/Westrup machine, #8 mantle so that seeds fall through screen, followed by deawning with an office of M2B clipper or otherwise known as a air screen machine, with medium air flow. Ripe seeds are small, dense (heavy for their size). 311,000 seed/lb.</p> <p>When consulting other plant propagation methods for grasses in the genus <i>Achnatherum</i>, the general trend is to clean seeds via an air filter and sieve combination. In general there is a high purity rate with <i>Achanatherum</i> seeds but they have been found difficult to clean. (Barner).</p>
Pre-Planting Propagule Treatments	<p>Lab germination tests suggest 28% germination on a fresh seed lot post 2 day moist prechill. Seeds need extensive prechilling; 20 weeks of cold moist prechill resulted in 91% of the seed “successful”.</p> <p>When consulting other plant propagation methods for grasses in the <i>Achnatherum</i> genus, all successful propagation resulted after cold and moist stratification. For example, 70 days in a 38 F cooler (Anonymous).</p>
Growing Area Preparation / Annual Practices for Perennial Crops	Seeds sown into 10” Ray-Leach “cone-tainers” and filled with Sunshine #1 potting medium. Cones well watered and placed into cooler at 35-40 F, polyethylene sheeting placed over the top for cold stratification.

	Cones rewatered if found dry.
Establishment Phase Details	20 weeks in the cooler, a few seedlings begin to emerge. When this occurs cones are moved outdoors to the shadehouse
Length of Establishment Phase	4 weeks
Active Growth Phase	Established plants fertilized every 2 weeks with Peters' Triple 20 NPK at ½ label rates to produce healthy crown foliage. Top growth trimmed in June to encourage crown development and to prevent top growth from falling over and interfering with watering.
Length of Active Growth Phase	April-July
Hardening Phase	Fertilizer discontinued after June, watering reduced in August, shade cloth removed at end of August.
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	Cones well watered and shipped to Crater Lake in August in a refrigerated van for outplanting a few weeks later
Length of Storage	Overwintered cones at walk in cooler fared well and seeds stored well for several years. In general, grasses in the genus <i>Achnatherum</i> can be stored in cold storage 33-38 F and remain viable (Barner).
Guidelines for Outplanting / Performance on Typical Sites	Roots can be cut back at planting time.
Other Comments	Cones and direct seeding have also been used to establish seed increase beds but seed yields have been low because of winter die-off, spring foliar disease, uneven seed ripening, and heavy competition from grassy weeds. This plant tends to grow very slowly (Robson).
INFORMATION SOURCES	
References	See below.
Other Sources Consulted	
Protocol Author	Deni Murray
Date Protocol Created or Updated	May 20 th , 2015

References

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