

Plant Propagation Protocol for *Elymus wawawaiensis*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/ELWA2.pdf>



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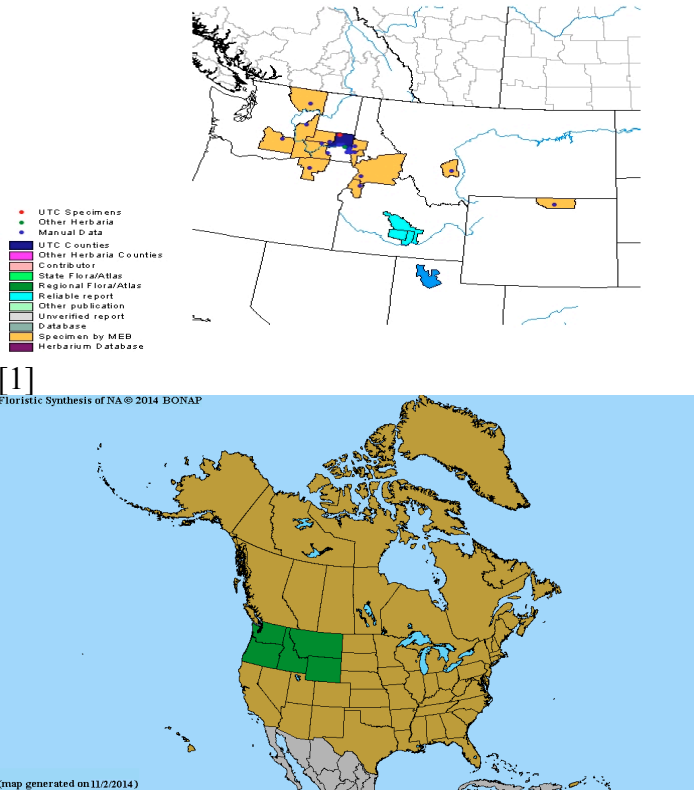
TAXONOMY

TAXONOMY	
Plant Family	
Scientific Name	Poaceae
Common Name	Grass
Species Scientific Name	
Scientific Name	<i>Elymus wawawaiensis</i> (J. Carlson & Barkworth)
Varieties	<i>Elymus wawawaiensis</i> var. <i>secar</i> (J. Carlson & Barkworth) <i>Elymus wawawaiensis</i> var. <i>pursh</i> (Scribn. & J.G. Sm.)
Sub-species	<i>Elymus wawawaiensis</i> . <i>secar</i> (J. Carlson & Barkworth)
Cultivar	
Common Synonym(s)	<i>Agropyron spicatum</i> (Pursh) (Scribn. & J.G. Sm.)
Common Name(s)	Bluebunch wheatgrass (Pursh) (A. Love) Snake river wheatgrass (Secar) (J. Carlson & Barkworth)
Species Code	ELWA2

GENERAL INFORMATION

Geographical range

Elymus wawawaiensis



Ecological distribution

Found within heavy to medium course textured sandy soils with at least 10” depth. ^[2] Can be seen in clayey soils and steep slopes near water ways with slight salinity levels tolerated. ^[2] Canyons of the Snake River and tributaries in eastern Washington and northern Idaho. ^[3]

Climate and elevation range

Elevation ranges between 500’ above sea level to 10,000’. ^[2] Seedlings require 12”-20”, sometimes 30” precipitation. ^[3]

Local habitat and abundance

Grows on the slopes of the Salmon, Snake, and Yakima rivers of Washington, northern Oregon, and Idaho. ^[7]

Plant strategy type / successional stage

Cold tolerant, acidic soil intolerant, slightly shade tolerant, and very fire tolerant. ^[7] Not invasive. ^[5]
Sensitive to over-grazing and clipping. ^[9]

Plant characteristics

Perennial graminoid. ^[8] Grows 1.5’ to 4’ tall in height and has seed spikes that range from 3 to 8 inches long. ^[2] The leaves are flat in the center and inrolled towards the edges. ^[3] Green-blue in color. ^[2] Leaves are smooth and hairless. ^[2] Stems are erect, slender, and have a wavy floral stalk. ^[2] Seeds have bristles. ^[3]

PROPAGATION DETAILS

Ecotype

Open rocky soiled canyon slopes.

Propagation Goal

Plants

Propagation Method	Seed
Product Type	Container (plug)
Stock Type	10 cu. in.
Time to Grow	4 months ^[3]
Target Specifications	Tight root plug in container. ^[3]
Propagule Collection Instructions	Collect between mid to late July when the seed ripens to the point where the inflorescence begins to dry. The seed can be stripped from the inflorescence and stored in paper bags at room temperature until cleaned. ^[5]
Propagule Processing/Propagule Characteristics	Remove the seed in small amounts then clean with an air column separator. Larger amounts can be threshed with a hammer mill then cleaned with air screen equipment. Using the hammer mill will remove the awns from the seed and facilitate the seed flow. Seed is stored at 40 degrees Fahrenheit and 40% humidity. ^[4] 139,000 seeds/lb. ^[3]
Pre-Planting Propagule Treatments	No pretreatment needed. Seed germinates well without. ^[2]
Growing Area Preparation / Annual Practices for Perennial Crops	Seed sown in January inside a green house. Use 10 cu. in Ray Leach Super cell conetainers filled with Sunshine #4. Leave ¼ to ½ inch on top for deep watering. Small layer of grit on the top to keep seeds from floating. ^[2]
Establishment Phase Details	Medium kept moist until germination. Emergence occurs after 5 days. ^[5] Seedling vigor is very high. ^[10]
Length of Establishment Phase	2 weeks ^[5]
Active Growth Phase	Plants are watered deeply, once a day. ^[5] Add 1 Tbsp. of water soluble fertilizer once per week. ^[5]
Length of Active Growth Phase	3 months ^[5]
Hardening Phase	Move plants to cold frame around March-April. Watered every other day unless under dry conditions, water every day. Keep soil moist. ^[4]
Length of Hardening Phase	2-4 weeks ^[3]
Harvesting, Storage and Shipping	No Storage records.
Length of Storage	No Storage records.
Guidelines for Outplanting / Performance on Typical Sites	Transplant in early May with an electric drill and portable generator to drill 1.5-inch diameter holes at the planting site. Survival is 100% without competing vegetation. Flowering and seed production occurs 1 year after transplanting. ^[5] Imazapic (herbicide) concentration at or above 0.28 kg ha ⁻¹ resulted in the greatest density of drill-seeded <i>E. wawawaiensis</i> . ^[11]
Other Comments	Secar was released as a cultivar of bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>) but was

later determined to be a new species of *Elymus* (Carlson & Buckworth 1997).^[2] *Elymus wawawaiensis* resembles a vigorous version of *Pseudoroegneria spicata*, and was long confused with that species. It differs in its more imbricate spikelets and narrower, stiff glumes. In its primary range, *E. wawawaiensis* is often sympatric with *P. spicata*, but the two tend to grow in different habitats, *E. wawawaiensis* growing in shallow, rocky soils and *P. spicata* in medium- to fine-textured loess soil. The two species also differ cytologically, *E. wawawaiensis* being an allotetraploid, and *P. spicata* consisting of diploids and autotetraploids.^[12]

INFORMATION SOURCES

References

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- [8] Mukherjee, Jayanti Ray. "Evaluating Native Wheatgrasses for Restoration of Sagebrush Steppes." *Utah State University Digital Commons*. Utah State University, n.d. Web. 17 May 2017. <<http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1655&context=etd>>.
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