Festuca idahoensis subsp. Roemeri, contrasting blue-green and green glaucous leaves[1]

Roemer's Fescue (*Festuca idahoensis subsp. Roemeri)* (Pavlick) S. Aiken[1]

Roemer's fescue, also called Idaho fescue (but not to be confused by the more common *Festuca idahoensis*), is bluish gray green (moderately shiny or glaucous), 35–100 cm high, densely tufted, tiller bases stiffly erect, bases purplish or not purplish, horizontal rooting stems absent.[1]

First described as a variety, but treated as a subspecies based on analyses of unpublished evidence from the seed protein banding profile.[1] Roemer's fescue appears to be a geographically distinct taxon.[2] It is a vigorous, native, long-lived, perennial, cool-season, bunchgrass.[3], [4]

Range

British Columbia (southeastern Vancouver Island and Gulf Islands), west of the Cascade Mountains in Oregon and Washington, and Northern California[1]

Climate, elevation

Roemer's fescue grows in a variety of temperature regimes[5], typically in a temperate climate (18-32 inches annual precipitation at sea level) with maritime and Mediterranean influences.[6] Elevation is from sea level to approximately 2500ft.[7]

Pavlick stated "the habitat of var. *roemeri* on Vancouver Island is influenced by being in the rain shadow of the Olympic and Vancouver Island mountains and in having mild winters in which most precipitation is rain. ...On Vancouver Island var. *roemeri* occurs on south-facing, grass balds up to about 500 m elevation and at lower elevations in open, often rocky outcrop areas in the *Pseudotsuga menziesii* or *Quercus garryana*

forests."[1]

Local occurrences
Moderately abundant in grasslands west of the Cascade Mountains, predominantly found in prairies in areas of glacial outwash material (e.g. Puget Sound lowland prairies) and/or prairies historically perpetuated by anthropogenic burning.[6] Also found in thin-soiled windswept headlands along the shores or on the islands of Puget Sound, the Straits of Juan de Fuca, and the Straits of Georgia[8],[9]

Habitat preferences
Occurring in grasslands as balds, prairies, or on coastal bluffs. Generally located on dry to very dry sites. Most often found on soils that are very shallow to bedrock outcrops, but also occurs on relatively deep gravelly sandy glacial outwash or till.[7]

Plant strategy

Roemer's fescue has been described as a keystone species of prairies in the Pacific Northwest[10],[11],[12] It is a climax indicator or dominant species and a major component of late-seral ecosystems.[13] It is tolerant of summer moisture stress and therefore grows for much of the winter.[9] Roemer's fescue communities may rely on periodic disturbance such as soil and slope movement[14] or fire[15] to rejuvenate and maintain vigor of the plant community.[16],[17],[18] It is a secondary colonizer (on-site or off-site seed sources) postfire.[19]

Associated species
In south Puget Sound prairies where Roemer's fescue occupies 30-70% cover, associated species include: common camas (*Camassia quamash*), long-stolon sedge (*Carex pensylvania*), field woodruch (*Luzula campestris*), California oatgrass (*Danthonia californica*), houndstongue hawkweed (*Hieracium cynoglossoides*), cutleaf microseris (*Microseris laciniata*), spike goldenrod (*Solidago spathulata*), white-top aster (*Aster curtus*), early blue violet (*Viola adunca*), western buttercup (*Ranunculus occidentalis*), yarrow (*Achillea millefollium*) and prairie lupine (*Lupinus lepidus*).[7]

Collect as
Seed

Collection requirements or restrictions
Idaho fescue exhibits ecotypic development expressed in differential growth characteristics in seeds collected from different habitat types[20] Seeds of Idaho fescue collected from a pristine population produced plants with more aboveground biomass than plants collected from degraded sites, and exhibited a different response to competition than those from the degraded site.[5]

Seed life

Age of seed is an important consideration when seeding with Idaho fescue[21] Eddleman found germination was highest with new seed (3 months old) and declined with seed age, although cold temperatures (4 C) promoted germination for older (15 months) seed.[22] Chambers observed a 13, 32, and 53% decrease in seed viability over 1, 2, and 3 years, respectively.[21] However, Ewing reported relatively high germination rates in Roemer's fescue stored longer than 5 years.[23]

Seed germination
Schmidt found that germination rates for seeds collected in the same year were typically high (80-100%).[24] Seeds germinate in 8-10 days[25] in greenhouse conditions throughout most of the year (January-March)[23] Daubenmire suggests that the ability of Idaho fescue to survive drought is related to its ability to germinate in autumn and grow intermittently in winter during periods of favorable weather and so be sufficiently advanced in development by the time drought intensifies in early summer that it can aestivate.[26] Schmidt advocates sowing seeds in the spring (early March), giving plants the advantage of growing during their natural seasonal cycle.[27] There is no pretreatment of seed necessary for germination[28] although, Goodwin and others found Idaho fescue seed requires after-ripening. The after-ripening period assures that at least 35% of the seed crop remains dormant for 6 months following dispersal - a strategy that promotes germination after winter precipitation has usually recharged soil moisture.[29]

Seed storage
Store seeds in a breathable container at moderately low temperatures and moisture levels. Schimdt describes storing seeds in brown paper bags at approximately 65F in the dark.[24]

Propagation
Schmidt describes propagating Roemer's fescue as follows: Sow seeds in plug flats (cells are 2.25" x 1.5" x 2.25") at 2-7 seeds per plug cell. Cover seeds with thin layer of soil mix. Plugs should be watered and fertilized using 20-20-20 fertilizer (concentrate liquid mixed at a rate of 2 ounces per gallon, yielding a rate of 200ppm of nitrogen, phosphorus and potassium).[24]

Soil or medium requirements
Use a mixture of sphagnum peat moss, vermiculite, fine perlite, gypsum and dolomite lime.[24]

Installation form
If time between sowing seeds into plug flats and out-planting is limited, plugs should be planted with five seedlings in each cell. Schmidt observed that this was the minimum amount of seedlings sufficient to fill the root zone of each cell.[24] Otherwise, seedlings can be transplanted into larger pots and held over in greenhouse conditions for several months. Ewing, transplanted seedlings (sown into flats in November) into 10-cm diameter pots in January before planting in May.[6]

Planting density
Plant densely, 8-10 inch centers.[24, 6]

Care requirements after installation
Water seedlings with at least 2 liters of water on the day of planting [6] and/or water as needed during the first six months after out planting.[27]

Rate of growth
Roemer's fescue has been highly successful at establishing on a restoration sites in western Washington[23, 27] (< 10% mortality of planted seedlings[30]). It is generally slow to establish but once established, has abundant growth of fine leaves that provide effective ground cover, and high yields of tough, fine, fibrous roots that control erosion and improve soil structure [31]

Information compiled by Amy Lambert, April 22, 2003

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