

STREAMBANK WHEATGRASS

Elymus lanceolatus (Scribn. & J.G. Sm.) Gould
plant symbol = ELLA3

Contributed By: USDA, NRCS, Idaho State Office & the National Plant Data Center

Alternate Names

Two subspecies are recognized for this species: *Elymus lanceolatus* ssp. *psammophilus* Gillett & Senn (formerly *Agropyron riparium*) and *Elymus lanceolatus* ssp. *lanceolatus* (Scribn & J.G. Sm.) Gould (formerly *Agropyron dasystachyum*). This is a perennial, sod-forming grass. It is a long-lived, cool season native with an extensive rhizomatous root system combined with a few deep roots.

Uses

Grazing/rangeland/hayland: Streambank wheatgrass is palatable to all classes of livestock and wildlife. It is a preferred feed for cattle, sheep, horses, and elk in spring and is considered a desirable feed for deer and antelope in spring. It is considered a desirable feed for cattle, sheep, horses, and elk in summer, fall, and winter. In the spring, the protein levels can be as high as 20 percent and decreases to about 4 percent, as it matures and cures. Digestible carbohydrates remain about 45 percent throughout the active growth period. This species is generally a relatively low forage producer (exceptions - 'Bannock' and 'Secar'), but can be utilized as native hay when planted in association with other species. It has been noted as one of the highest forage producers in the Red Desert and Big Horn Basin of Wyoming. Streambank wheatgrass can be used for hay production and will make nutritious feed, but is more suited to pasture use.

Erosion control/reclamation: Both *E. lanceolatus* ssp. *lanceolatus* and *E. lanceolatus* ssp. *psammophilus* are well adapted to the stabilization of disturbed soils. They do not compete well with aggressive introduced grasses during the establishment period, but are very compatible with slower developing natives, such as

Snake River wheatgrass (*Elymus wawawaiensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), western wheatgrass (*Pascopyrum smithii*), and needlegrass (*Stipa* spp.) species. Their drought tolerance combined with rhizomes, fibrous root systems, and good seedling vigor make these species ideal for reclamation in areas receiving 8 to 20 inches annual precipitation. They are commonly used for reclamation in the Red Desert of Wyoming, where annual rainfall is 5 to 9 inches (50 - 70 percent growing season precipitation). Streambank wheatgrass' low growth form, vigorous sod, and low maintenance requirements make it ideal for stabilization and ground cover purposes. These grasses can be used in urban areas where irrigation water is limited to provide ground cover and to stabilize ditchbanks, dikes, and roadsides.

Status

This is a native species. Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Grass Family (Poaceae). *Elymus lanceolatus* ssp. *psammophilus* has moderately short stems and seedheads. *Elymus lanceolatus* ssp. *lanceolatus* grows from 1 to 3 feet tall and under ideal conditions seed spikes may be 10 inches long. The auricles are pointed and semi-clasping. Leaves are 4-8 mm wide and green to blue-green in color. The lemmas, paleas, and glumes are generally pubescent. *Elymus lanceolatus* ssp. *psammophilus* has no pubescence in the inflorescence.

Distribution

This species is common to the northern Great Plains and Intermountain regions of the western United States. For current distribution of this species and its relatives, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Adaptation: Streambank wheatgrass is similar to western wheatgrass in appearance, except it is not as coarse, its rhizomatous trait is not as aggressive, and its coloration is somewhat greener. It is more drought tolerant than western wheatgrass. In comparison to western wheatgrass, it "greens up" and "heads out" earlier and total biomass production is generally lower. Both wheatgrasses do better on medium to coarse textured soils. Streambank wheatgrass can be found on slightly heavy to medium

to coarse textured soils. Western wheatgrass may be a better choice on heavy textured soils if rainfall is high enough. They will tolerate slightly acidic to moderately saline conditions. They are cold tolerant, can withstand moderate periodic flooding in the spring, are moderately shade tolerant, and very tolerant of fire. They will not tolerate long periods of inundation, poorly drained soils, or excessive irrigation. Snake River wheatgrass prefers deep to shallow medium to coarse textured soils.

On native sites, streambank and Snake River wheatgrasses are most abundant in the 8 to 20 inch annual precipitation zones. Seeded varieties do best with 10 to 20 inches of precipitation. They have been seeded as low as 5 to 9 inches of precipitation with some success. The natural geographic range of streambank wheatgrass is from near sea level in the Great Lakes region to 10,000 feet in the Rocky Mountains. Streambank wheatgrass is a very polymorphic species and is a component of the vegetation on such diverse sites as stabilized sand dunes in eastern Washington, glacial outwash fans in Montana and loess (wind blown silt loam) soils in southern Idaho. It is a component of many native plant communities and generally occupies less than 10 percent of the overall composition. An exception to this may be short periods following fire in juniper stands, when it may nearly dominate the site.

Species often associated with wheatgrass include the following: the big sagebrush (*Artemisia tridentata*) complex, juniper (*Juniperus* spp.), needlegrasses, sand dropseed (*Sporobolus airoides*), prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass, Snake River wheatgrass, and Idaho fescue (*Festuca idahoensis*).

Planting: This species should be seeded with a drill at a depth of 1/2 inch or less on medium to fine textured soils and 1 inch or less on coarse textured soils. Single species seeding rates recommended for both subspecies are 6 to 8 pounds Pure Live Seed (PLS) or 20 to 25 PLS per square foot. If used as a component of a mix, adjust to percent of mix desired. For mined lands and other harsh critical areas, the seeding rate should be increased to 40 to 50 PLS per square foot. Mulching and light irrigation are beneficial for stand establishment.

The best seeding results are obtained from seeding in very early spring on heavy to medium textured soils and in late fall on medium to light textured soils. Late summer (August - mid September) seedings are not recommended unless irrigation is available. Pre-chilling seed aids germination. Seedling vigor is

good to excellent, exceeding that of western wheatgrass, but less than crested wheatgrass (*Agropyron cristatum*).

Both streambank wheatgrass subspecies establish fairly quickly, more quickly than western wheatgrass. They are the most rapidly establishing native species next to slender wheatgrass (*Elymus trachycaulus*). They are compatible with other species and can be used in seeding mixtures. They should not be seeded with strongly competitive introduced species. Under favorable conditions, they can become a good weed barrier.

Stands may require weed control measures during establishment, but application of 2,4-D should not be made until plants have reached the four to six leaf stage. Mow when weeds are beginning to bloom to reduce seed development. Grasshoppers and other insects may also damage new stands and the use of pesticides may be required.

Management

This grass begins growth in the spring about 2 weeks after bluegrass (*Poa* spp.) species and about 3 weeks earlier than western wheatgrass. It makes good spring growth, fair summer growth, and good fall growth if moisture is available.

Streambank and Snake River wheatgrass have good palatability for livestock and wildlife. Livestock and wildlife will graze streambank and Snake River wheatgrass throughout the growing season, until they become too coarse toward fall. Established stands can withstand heavy grazing.

Stands of these wheatgrasses should not be grazed until they have firmly established and have headed out. Six inches of new growth should be attained in spring before grazing is allowed in established stands.

These wheatgrasses are low maintenance plants, requiring little additional treatment or care. However, on better sites, stands can become sodbound (exception Snake River wheatgrass) and may need attention in the form of fertilization and moderate spring/fall deferment. Stands may also benefit from ripping if sod-bound conditions occur to increase forage production. Care should be taken to avoid excessive tillage because stands may be damaged. Both wheatgrasses are competitive with weedy species, but can be crowded out by some aggressive introduced species.

Environmental Concerns

Streambank wheatgrass is long-lived, spreads primarily via vegetative means (rhizomes), but also spreads via seed distribution. It is not considered a "weedy" or invasive species, but can spread into adjoining vegetative communities under ideal climatic and environmental conditions. Most seedlings do not spread from original plantings, or if they do spread, the rate of spread is not alarming.

Snake River wheatgrass is long lived and spreads primarily via seed distribution. It is not considered a "weedy" or invasive species, but can spread into adjoining vegetative communities under ideal climatic and environmental conditions. Most seedlings do not spread from original plantings. It is a cross-pollinating species and is known to cross with bluebunch wheatgrass, streambank wheatgrass, quackgrass (*Elymus repens*), and bottlebrush squirreltail (*Elymus elymoides*). These crosses broaden the gene pool and do not generally dominate a site or crowd out the native ecotype and in many cases are sterile.

Seed Production

Seed production of streambank wheatgrass has been very successful under cultivated conditions. Row spacing of 28 to 36 inches are recommended (although rhizomatous, they should be maintained in rows). Cultivation may be needed to maintain rows.

Seed fields are productive for two to four years. Average production of 100 to 250 pounds per acre can be expected under dryland conditions in 14 inch plus rainfall areas. Average production of 200 to 400 pounds per acre can be expected under irrigated conditions. Harvesting is best completed by swathing, followed by combining of the cured windrows. The seed heads readily shatter and require close scrutiny of maturing stands. Seed is generally harvested in mid July to mid August.

Foundation and registered seed is available through the appropriate state Crop Improvement Association or commercial sources to grow certified seed.

Cultivars, Improved and Selected Materials (and area of origin)

'Bannock' (*E. lanceolatus* spp. *lanceolatus*) was developed by the Aberdeen Plant Materials Center and released in 1995. It is a composite of collections from The Dalles, Oregon; Pocatello, Idaho; and Quincy, Washington. It is adapted to the Northwest

and Intermountain regions where precipitation averages 8 inches or above. It prefers moderately deep loamy soils, but does grow in sandy to clayey soils. It is noted for rapid establishment, moderate formation of sod, high forage production and ability to survive and thrive under dry conditions. Certified seed is available and breeder seed is maintained by Aberdeen PMC.

'Critana' (*E. lanceolatus* spp. *lanceolatus*) was developed by the Bridger Plant Materials Center and released in 1971. The original collection site was in north central Montana near Havre. It is drought tolerant, has good seedling vigor and readily establishes on critically disturbed sites. It is especially good as a sand dune stabilization species. 'Critana' is noted for its variable genetic expression. Certified seed is available and Bridger PMC maintains breeder seed.

'Schwendimar' (*E. lanceolatus* spp. *lanceolatus*) was developed by the Pullman Plant Materials Center and released in 1994. It was collected on wind blown sands along the Columbia River near The Dalles, Oregon. It is adapted to northwest sites with 8 inches or greater precipitation and is recommended primarily for quick stabilization of coarse textured soils. Certified seed is limited and breeder seed is maintained by Pullman PMC.

'Secar' (*E. wawawaiensis*) is a cultivar of Snake River wheatgrass and was originally identified as a variety of bluebunch wheatgrass. The original collection site is along the Snake River gorge near Lewiston, Idaho. It was released by the Pullman Plant Materials Center in 1980. It is adapted to 8 inch plus rainfall zones. It is a bunchgrass with good seedling vigor and establishes well under drought conditions. See bluebunch wheatgrass Plant Guide for discussion on management and use. Certified seed is available and breeder seed is maintained by Pullman PMC.

'Sodar' (*E. lanceolatus* spp. *psammophilus*) was released by the Aberdeen Plant Materials Center in 1954. The original collection was made in Grant County, Oregon. Its drought tolerance, excellent seedling vigor, vigorous rhizomatous trait once established, and ability to compete with weeds characterizes it. It is most commonly used for stabilization of critical sites. Certified seed is available and breeder seed is maintained by Aberdeen PMC.

References

Alderson, J. & W.C. Sharp 1994. *Grass varieties in the United States*. Agriculture Handbook No. 170. USDA, SCS, Washington, D.C.

Carlson, J.R. & M.E. Barkworth 1997. *Elymus wawawaiensis: a species hitherto confused with Pseudoroegneria spicata (Triticeae, Poaceae)*. Phytologia 83:312-330.

Cronquist, A., A. H. Holmgren, N. H. Holmgren, J. L. Reveal, & P. K. Holmgren 1977. *Intermountain flora*. Vol. 6. The New York Botanical Garden. Columbia University Press, New York, New York.

Hitchcock, A. S. 1950. *Manual of the grasses of the United States*. USDA, Washington, DC.

Powell, A.M. 1994. *Grasses of the Trans-Pecos and adjacent areas*. University of Texas Press, Austin, Texas.

USDA, Forest Service 1996. *Fire effects information system*. Version: 000413.
<<http://www.fs.fed.us/database/feis/>>. Rocky Mountain Research Station, Fire Sciences Laboratory, Missoula, Montana.

USDA, NRCS 2000. *The PLANTS database*. Version: 000413. <<http://plants.usda.gov>>. National Plant Data Center, Baton Rouge, Louisiana.

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Edited 19Sep00 jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS <<http://plants.usda.gov>> and Plant Materials Program Web sites <<http://Plant-Materials.nrcs.usda.gov>>.

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