

**PLANT GUIDE
MANAGEMENT AND USE OF**

Streambank and Thickspike Wheatgrass

October 1996

DESCRIPTION

Streambank Wheatgrass *Elymus lanceolatus* spp. *psammophilus* Gillett & Senn (formerly *Agropyron riparium*) and Thickspike wheatgrass *Elymus lanceolatus* spp. *lanceolatus* (Scribn & J.G. Sm.) Gould (formerly *Agropyron dasystachyum*) are perennial sod-forming grasses common to the northern Great Plains and Intermountain regions of the western United States. They are long-lived cool season natives with extensive rhizomatous root systems combined with a few deep roots.

Streambank wheatgrass has moderately short stems and seedheads. Thickspike wheatgrass grows from 1 to 3 feet tall and under ideal conditions seed spikes may be 10 inches long. The auricles of both 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. Streambank wheatgrass has no pubescence in the inflorescence.

IMPROVED CULTIVARS

'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. lanceolatus* spp. *wawawai*) 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. It is a variety of streambank wheatgrass and is a

subspecies of thickspike wheatgrass. 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.

USES

Grazing/rangeland/hayland - Streambank wheatgrass is not recommended for forage production. Thickspike 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 spring the protein levels can be as high as 20 percent and decreases to about 4 percent protein as it matures and cures out. 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.

Erosion control/reclamation - Thickspike wheatgrass and streambank wheatgrass are well adapted to 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, bluebunch wheatgrass, western wheatgrass and needlegrass species. Their drought tolerance combined with rhizomatous - 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 wheatgrasses 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.

ADAPTATION

Streambank and Thickspike wheatgrasses are similar to western wheatgrass in appearance except they are not as coarse, their rhizomatous trait is not as aggressive and their coloration is somewhat greener. They are more drought tolerant than western wheatgrass. In comparison to western wheatgrass, they green up and head 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, Snake River and thickspike wheatgrass 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 thickspike wheatgrass is from near sea level in the Great Lakes region to 10,000 feet in the Rocky Mountains. The natural range of streambank wheatgrass is primarily the intermountain west. Thickspike 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. They are components of many native plant communities and generally occupy less than 10 percent of the overall composition. An exception to this may be short periods following fire in Juniper stands, when they may nearly dominate the site.

Species often associated with these wheatgrasses include: the big sagebrush complex, juniper, needlegrasses, sand dropseed, prairie sandreed, bluebunch wheatgrass, Snake River wheatgrass and Idaho fescue.

ESTABLISHMENT

These 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 grasses 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 irrigations 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. Prechilling seed aids germination. Seedling vigor is good to excellent, exceeding that of western wheatgrass but less than crested wheatgrass.

Both wheatgrasses establish fairly quickly, more quickly than western wheatgrass. They are the most rapidly establishing native species next to slender wheatgrass. 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 may also damage new stands and other insects and use of pesticides may be required.

MANAGEMENT

They green up in the spring about 2 weeks after bluegrass species and about 3 weeks earlier than western wheatgrass. They make good spring growth, fair summer growth and good fall growth if moisture is available.

Streambank wheatgrass is not recommended for forage production. Thickspike and Snake River wheatgrass have good palatability for livestock and wildlife (see USES). Livestock and wildlife will graze thickspike and Snake River wheatgrass throughout the growing season until they becomes 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 deferrment. Stands may also benefit from ripping if sodbound conditions occur to increase forage production. Care should be taken to avoid excessive tillage because stands may be damaged.

Both wheatgrass are competitive with weedy species, but can be crowded out by some aggressive introduced species.

Thickspike wheatgrass can be used for hay production and will make nutritious feed, but is more suited to pasture use.

Environmental Concerns

Streambank and thickspike wheatgrass are long-lived, spread primarily via vegetative means (rhizomes), but also spread via seed distribution. They are not considered "weedy" or invasive species, but can spread into adjoining vegetative communities under ideal climatic and environmental conditions. Most seedings do not spread from original plantings, or if they do spread, the rate of spread is not alarming. They will probably cross with each other, but are not noted for crossing with other natives.

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 seedings do not spread from original plantings. It is a cross-pollinating species and is known to cross with bluebunch wheatgrass, thickspike wheatgrass, quackgrass and bottlebrush squirreltail. These crosses broaden the gene pool and do not generally dominate a site or crowds out the native ecotype and in many cases are steril.

SEED PRODUCTION

Seed production of streambank and thickspike 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.

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