

THICKSPIKE WHEATGRASS

Elymus lanceolatus spp.
lanceolatus (Scribn. & J.G.
Sm.) Gould

plant symbol = ELLAL

STREAMBANK WHEATGRASS

Elymus lanceolatus ssp.
lanceolatus (Scribn. & J.G.
Sm.) Gould

plant symbol = ELLAL

Contributed By: USDA, NRCS, Idaho State Office

Alternate Names

Thickspike wheatgrass: *Elytrigia dasystachya*,
Agropyron dasystachyum, Northern wheatgrass.

Streambank wheatgrass: *Agropyron riparium*.

Uses

Grazing/rangeland/hayland: Thickspike and streambank wheatgrasses are palatable to all classes of livestock and wildlife. They are a preferred feed for cattle, sheep, horses, and elk in spring and are considered a desirable feed for deer and antelope in spring. They are 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, decreasing to about 4 percent as the plant matures. Digestible carbohydrates remain about 45 percent throughout the active growth period. These species are generally relatively low forage producers, but can be utilized as native hay when planted in association with other species. They have been noted as one of the highest yielding forage producers in the Red Desert and Big Horn Basin of Wyoming.

They are best utilized as a component of a species mix for native pasture and rangeland.



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Erosion control/reclamation: Both are well adapted to the stabilization of disturbed soils. They should not be planted with introduced grasses. They are very compatible with slower developing natives, such as Snake River wheatgrass (*Elymus wawawaiensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and needlegrass (*Nassella* and *Hesperostipa* spp.). 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). Their low growth form, weak sod form, and low maintenance requirements make them ideal for stabilization and ground cover. These grasses can be used in urban xeriscape areas where irrigation water is limited. They provide ground cover for low maintenance lawns and stabilize ditchbanks, dikes, and roadsides.

Status

This is a native species. 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). These are perennial, weakly rhizomatous grasses. They are long-lived, cool season natives with an extensive rhizomatous root system combined with a few deep roots.

Thickspike wheatgrass 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.

Streambank wheatgrass has moderately short stems and seedheads and has no pubescence in the inflorescence.

Distribution

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

Adaptation

Thickspike and streambank wheatgrass are similar to western wheatgrass in appearance, except they are not as coarse, their rhizomes are not as aggressive, and thickspike is somewhat greener in color. They are also 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. Thickspike wheatgrass does better on medium to coarse-textured soils. Streambank wheatgrass is found on heavy to medium-textured soils. Western wheatgrass may be a better choice on heavy-textured soils if rainfall is high enough (> 14 inches annual precipitation). Thickspike and streambank wheatgrasses will tolerate slightly acidic and moderately saline conditions. They are cold tolerant, can withstand moderate periodic flooding in the spring, are moderately shade tolerant, and are very tolerant of fire. They will not tolerate long periods of inundation, poorly drained soils, or excessive irrigation.

On native sites, thickspike and streambank wheatgrasses are most abundant in the 8 to 20 inch annual precipitation zones. Seeded varieties do best

with 8 to 20 inches of precipitation and have been successfully established in areas with as little as 5 inches of annual precipitation.

The natural geographic range of thickspike and streambank wheatgrass is from near sea level in the Great Plains region to 10,000 feet in the Rocky Mountains. Thickspike and streambank wheatgrass are very polymorphic and are commonly 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 a component of many native-plant communities and generally occupy less than 10 percent of the overall composition by weight. An exception to this may be in Southern Idaho, and the Red Desert and Bighorn Basin of Wyoming, where for short periods following fire, particularly in juniper stands they may nearly dominate the site.

Species often associated with thickspike and streambank wheatgrass include the following: the big sagebrush (*Artemisia tridentata*) complex, juniper (*Juniperus* spp.), needlegrass, sand dropseed (*Sporobolus airoides*), prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass, Snake River wheatgrass, Sandberg bluegrass (*Poa secunda*), prairie junegrass (*Koeleria cristata*), Needle-and-Thread (*Nassella comata*), and Idaho fescue (*Festuca idahoensis*).

Establishment

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. Recommended single species seeding rate is 6 pounds Pure Live Seed (PLS) or 19 PLS seed per square foot. If used as a component of a mix, adjust to percent of mix desired. For mine lands and other harsh critical areas, the seeding rate should be increased to 38 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 of crested wheatgrass (*Agropyron cristatum* and *Agropyron desertorum*).

Thickspike establishes more quickly than streambank and both establish more quickly than western wheatgrass. They are the most rapidly establishing

native species except for slender wheatgrass (*Elymus trachycaulus*) and mountain brome (*Bromus marginatus*). 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 provide good weed competition.

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. Be sure to read and follow pesticide labels.

Management

These grasses begin growth in the spring about 2 weeks after native bluegrass (*Poa* spp.) and about 3 weeks earlier than western wheatgrass. They make good spring growth, fair summer growth, and good fall growth if moisture is available.

Thickspike and streambank wheatgrass have good palatability for livestock and wildlife. Livestock and wildlife will graze thickspike and streambank wheatgrass throughout the growing season, until the plants become too coarse in late summer. Established stands can withstand fairly heavy grazing.

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

These grasses are low-maintenance plants, requiring little additional treatment or care. However, on better sites stands may become sodbound and may need attention in the form of fertilization and moderate spring/fall deferment to renew productivity and vigor. 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 aggressive introduced species.

Environmental Concerns

Thickspike and streambank wheatgrasses are long-lived, spreading primarily via vegetative means (rhizomes), but also via seed. They are not considered to be "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 slow.

Seed Production

Seed production of thickspike and 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 will be needed to maintain rows and extend the life of the seed production field.

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**' thickspike wheatgrass was selected 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 sod formation, high forage production, and ability to survive and thrive under dry conditions. Certified seed is available and Breeder and Foundation seed is maintained by Aberdeen PMC.

'**Critana**' thickspike wheatgrass was selected 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 and Foundation seed.

'Schwendimar' thickspike wheatgrass was selected 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.

'Sodar' streambank wheatgrass was selected and released by the Aberdeen Plant Materials Center in 1954. The original collection was made in Grant County, Oregon. It features drought tolerance, excellent seedling vigor, vigorous rhizomes once established, and competitive ability against weeds. It is most commonly used for stabilization of critical sites. Certified seed is available and Breeder and Foundation seed is maintained by Aberdeen PMC.

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