

COLUMBIA NEEDLEGRASS

Achnatherum nelsonii (Scribn.)

Barkworth

Plant Symbol = ACNE9

Contributed by: USDA NRCS Idaho Plant Materials Program



Columbia needlegrass. Sheri Hagwood, Bureau of Land Management.

Alternate Names

Common Alternate Names: Subalpine needlegrass, western needlegrass

Scientific Alternate Names: *Stipa columbiana*, *S. nelsonii*, *S. occidentalis*

Uses

Columbia needlegrass is a valuable forage source for livestock and wildlife in spring and early summer. Animals avoid grazing needlegrass species as the seeds mature and develop a sharp, pointed callus. Once the

seed drops from the plant, animals will return to grazing it. The vegetation typically retains some green into fall and winter and will be grazed by deer and elk late in the season (Monsen et al. 2004). It is a significant component of the diet of pocket gophers and provides some cover for birds and small mammals (Zouhar, 2000).

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description

Columbia needlegrass is a native perennial bunchgrass with culms typically ranging from 30 to 60 cm (12 to 24 in) tall but larger specimens approaching 3 m (6 ft) tall have been documented (Welsh et al. 2003). The leaves are mostly basal with blades flat to rolled, 0.5-5 mm (0.02 to 0.2 in) wide. The purple tinged inflorescence is a narrow panicle with erect or strongly ascending branches. Lemmas average 5 to 7 mm (0.2 to 0.3 in) long and are covered with appressed hairs. The joint between the awn and the lemma is typically obscured by the apical hairs. The awn is twice geniculate (bent) and ranges 20 to 30 mm (0.8 to 1.2 in) in length. The callus is 0.7 to 3 mm (0.03 to 0.1 in) long and can be curved or acute (Welsh et al. 2003).

Distribution:

Columbia needlegrass occurs in western North America going as far east as Saskatchewan and Texas. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: This species can be found at higher elevations, from 1,640 m (5,000 ft) to 2,400 m (8,000 ft) in openings in upper sagebrush zones, mountain brush, pinyon-juniper and aspen-fir communities. It has been known to form dense stands on open hillsides.

Adaptation

Columbia needlegrass occurs in areas receiving 380 mm (15 in) or more mean annual precipitation. The species is adapted to well-drained fine textured soils but can grow on a number of soil types from sandy loams to clay loams and even rocky, infertile soils (Monsen et al. 2004). It is moderately saline tolerant. This species is a good native alternative in areas typically seeded to intermediate wheatgrass (*Thinopyrum intermedium*) and smooth brome (*Bromus inermis*) (Monsen et al. 2004).

Establishment

The full stand seeding rate for Columbia needlegrass is 5 PLS lbs/ac. Planting a full (pure) stand is not recommended, Columbia needlegrass should be planted as a component of a broader native seed mix. Adjust seeding rate to percent of mix desired. Seed should be drilled to a depth of 1/4 to 1/2 inch. Broadcasting of the seed with no soil coverage or mulch is discouraged (Monsen et al. 2004).

The seed has high levels of dormancy and should be planted in the fall to allow for natural stratification. High dormancy can be valuable to help the seed “wait” for optimum conditions for germination. Seedlings are slow to establish but can persist under the shade of other more quickly establishing species (Monsen et al. 2004).

Management

Grazing should be deferred for two or more seasons to allow plants to establish (Ogle et al. 2011). Columbia needlegrass has been shown to increase on rangelands where bluebunch wheatgrass (*Pseudoroegneria spicata*) and bluegrasses (*Poa spp.*) have been removed by overgrazing (Monsen et al. 2004), (USDA, 1937).

Pests and Potential Problems

There are no pests or potential problems documented for this species.

Environmental Concerns

Columbia needlegrass is native to western North America and poses no threats to native plant communities.

Seeds and Plant Production

Row spacing of 71 to 91 cm (28 to 36 in) is recommended. Row culture via cultivation should be maintained for optimum seed production. The seeding rate for 36 inch row spacing is 1.8 pounds PLS/ac.

The twisted awn and sharp pointed callus of Columbia needlegrass can make harvesting, processing seed and planting difficult. Awns of Columbia needlegrass can be removed with a hammermill, debarker or brush machine without damage to the seed. Inert matter can be removed with screens and air. Seed purities and viabilities of above 90% are attainable (Monsen et al. 2004; Barner 2009).

There is a wide range in seed weights with wildland collections. Monsen et al. (2004) report seed lots ranging from 150,000 to 200,000 seeds/lb.

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

The Upper Colorado Environmental Plant Center has two accessions of Columbia needlegrass under advanced evaluation (Alderson and Sharp 1994; Teresa Blanke, personal communication 2013).

Common seed of Columbia needlegrass is available commercially.

References

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