

THE RANCHER'S GUIDE



TO
KEY RANGE GRASSES

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Introduction

This non-technical reference was created to assist land owners and more specifically range users in identifying key grass species in the 10-14 inch precipitation zone of the Bighorn Basin in Wyoming. This project was funded as a part of the 1997 USDA—Environmental Quality Incentive Program. This guide will be used in conjunction with range monitoring worksheets and other tools to help range users estimate annual utilization levels and long term trends.

Special thanks go to the team members who provided the technical expertise to produce and assemble this reference, the plant keys, the monitoring techniques and worksheets, the field instruction for participating EQIP range users, the plant slides for key species identification, and the funding for this educational effort. It is the hope of each team member that these materials will assist land owners and range users so that they are able to make good range resource management decisions.

Acknowledgments

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Needleandthread

Stipa comata STCO 4

Type: native, perennial bunchgrass

Height: short to medium

Ligule: prominent, two pointed

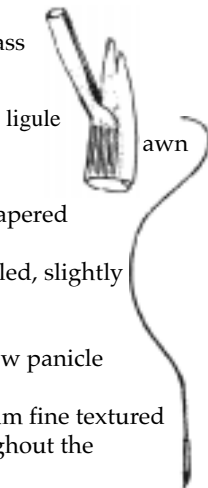
Awn: to 18 cm. long, twisted & tapered

Blade (leaf): narrow, flat or inrolled, slightly rough, mostly basal.

Inflorescence (seed head): narrow panicle

Distribution: on sandy to medium fine textured soils from the Great Plains throughout the western states and Canada

Discussion: The forage value of this plant varies throughout the growing season. **It is good before the awns develop, and again after the seeds have dropped.** If mature plants are grazed before the seeds drop, the awns may cause mechanical injury to sheep. **This plant is a decreaser on most range sites with less than 14 inches of precipitation.**







Green Needlegrass

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Stipa viridula STVI 4

Type: native, perennial bunchgrass

Height: medium to tall

sheath

Sheath: hairy at the throat

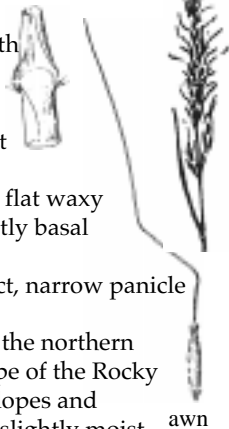
Awn: 2 to 3 cm. long, twice bent

Blade (leaf): up to 5 mm. wide, flat waxy appearing on back. Leaves mostly basal

Inflorescence (seed head): erect, narrow panicle

Distribution: most common in the northern Great Plains and on the east slope of the Rocky Mountains. It inhabits plains, slopes and mountain meadows; preferring slightly moist, medium to fine textured soils

Discussion: Green needlegrass is one of the most preferred forage grasses for all classes of livestock and big game animals. It remains green and palatable until late into the fall. Although awned, little mechanical injury to livestock has been reported



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Columbia Needlegrass

Stipa nelsonii STNE 3

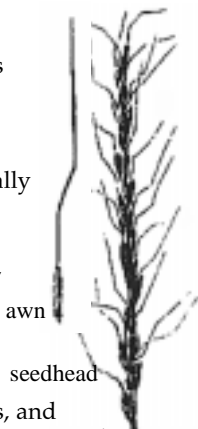
Type: perennial, native bunchgrass

Height: medium

Blade (leaf): 1 to 3 mm. wide, usually rolled

Inflorescence (seed head): narrow, spikelike panicle

Awn: 2 to 2.5 cm. long, twice bent



seedhead

Distribution: dry plains, meadows, and open woods of medium to high altitudes of the western United States.

Discussion: Columbia needlegrass is usually good forage for all classes of livestock and wildlife. It begins growth in midspring and remains green throughout the summer. The leaves are mostly basal and the plant is usually able to withstand heavy grazing use by sheep as they avoid the flowering stems allowing them to make seed. Columbia needlegrass is often confused with green needlegrass, which has many fine hairs at the throat of the sheath. (*Synonym: S. columbiana.*)





Western Wheatgrass

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Agropyron smithii AGSM

Type: native, rhizomatous perennial

rhizome

Height: medium

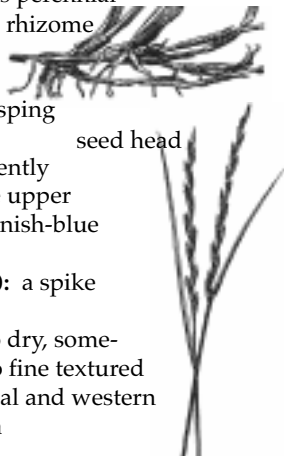
Auricle: clawlike and clasping

Blade (leaf): flat, prominently veined, very rough on the upper surface and margins, greenish-blue

Inflorescence (seed head): a spike

Distribution: on moist to dry, sometimes alkaline, medium to fine textured soils throughout the central and western United States and Canada

Discussion: Western wheatgrass is one of the more common and abundant wheatgrasses in the west, and is the Wyoming state grass. In Wyoming, this species is often the first perennial grass to reappear on abandoned, dry farmland. It has good palatability for all classes of livestock and wildlife, and makes very good winter forage. "Rosana" western wheatgrass is the variety most used in range seedings.



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Bluebunch Wheatgrass

Agropyron spicatum AGSP

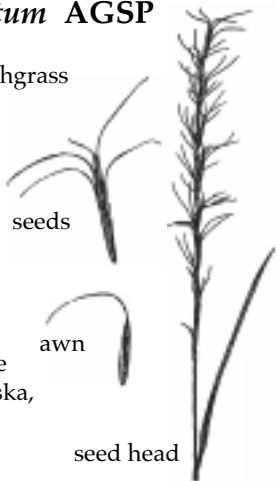
Type: native, perennial bunchgrass

Height: medium

Blade (leaf): flat to loosely rolled, slightly rough

Inflorescence (seed head): a spike, with awns

Distribution: throughout the western United States to Alaska, on plains and dry slopes, in coarse to fine textured soils



Discussion: Bluebunch wheatgrass is one of the leading native western forage plants and is a key species on many ranges. It is highly palatable, remaining green throughout the growing season if moisture conditions are favorable. Reproduction is entirely from seed. "Secar" is the recommended cultivated variety for rangeland seedings in Wyoming.





Thickspike Wheatgrass

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Agropyron dasystachyum AGDA

Type: native, rhizomatous perennial

Height: medium

Sheath: smooth to slightly rough

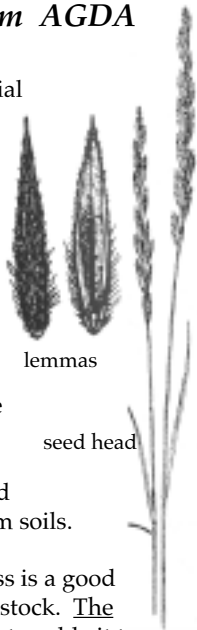
Auricle: clawlike and clasping

Blade (leaf): flat, ridged, slightly rough, bluish-green

Inflorescence (seed head): a spike

Distribution: throughout the northwestern USA to Michigan and Illinois. It prefers sandy to medium soils.

Discussion: Thickspike wheatgrass is a good forage species for all classes of livestock. The long creeping rhizomes of this plant enable it to withstand heavy grazing and considerable trampling. This plant is easily confused with western wheatgrass. The lemmas of thickspike wheatgrass are hairy, while those of western wheatgrass are without hairs. Seed is available for a variety known as "Critana" thickspike wheatgrass.



Idaho Fescue

Festuca idahoensis FEID

Type: native, erect, densely tufted, perennial bunchgrass

Height: short to medium

Roots: usually black

Blades (leaves): numerous, basal tightly inrolled, fine, silver-green

Inflorescence (seed head): narrow, dense panicle

Distribution: one of the most common grasses in the northwestern U.S. It is the dominant plant in many foothill and open wooded areas, growing on all exposures and under a wide variety of soil and moisture conditions. Idaho fescue is most common in fairly dry, well-drained, moderately deep, sandy or gravelly loams.

Discussion: Idaho fescue has fair to good palatability and will withstand excessive grazing. It will commonly replace rough fescue or blue-bunch wheatgrass on overgrazed ranges. Wildlife and all classes of livestock relish the early spring growth.







King Spikefescue

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Leucopoa kingii LEKI 2

Type: native, perennial bunchgrass

Height: medium

floret

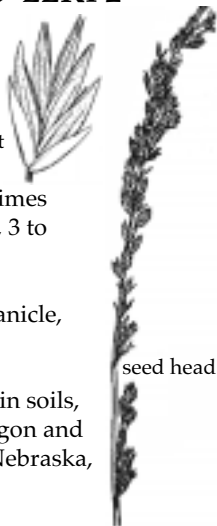
Blade (leaf): firm, flat, sometimes rolling, rough on the margins, 3 to 5 mm. wide

Inflorescence (seed head): panicle, somewhat narrow

Distribution: on dry mountain soils, 6000' to 10,000' elevation, Oregon and California, east to Montana, Nebraska, and Colorado.

Discussion: Spikefescue is a highly nutritious, productive and palatable grass. It prefers well drained, moderately deep soils of medium texture, but also occurs on rocky slopes.

Spikefescue occasionally has short rhizomes. It is a decreaser under grazing misuse. Spikefescue appears much like rough fescue. Rough fescue is purple at the base of the culm and spikefescue is brown.



Indian Ricegrass

Oryzopsis hymenoides ORHY

Type: native perennial,
densely tufted bunchgrass

Height: medium

ligule

Ligule: conspicuous, 5 to 7 mm.
long, gradually tapering to a
sharp point

Awn: about 4 mm. long

awn

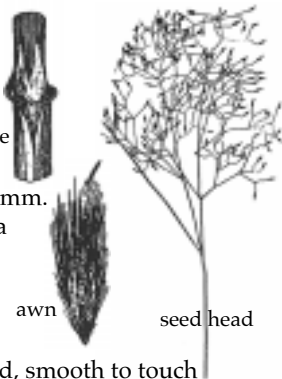
seed head

Blade (leaf): slender, inrolled, smooth to touch

Inflorescence (seed head): open, few-flowered
panicle, with branching in twos (dichotomous)

Distribution: throughout the western United
States extending from Canada to Mexico. It
favors dry, sandy or coarse textured soils.

Discussion: Indian ricegrass is one of the most important grasses on desert and semi-desert ranges. It provides excellent winter grazing to all classes of livestock. The seeds resemble those of common rice and were a staple food of many western Indian tribes.







Alkali Sacaton

Sporobolus airoides SPAI

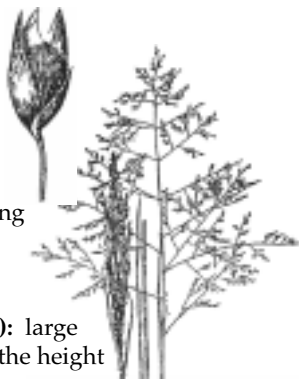
24

Type: native, perennial bunchgrass

Height: medium, 50 to 100 cm. tall

Blade (leaf): flat, becoming rolled at maturity, long, usually less than 4 mm.

Inflorescence (seed head): large open panicle, nearly half the height of the entire plant



seed head

Distribution: on moderately alkaline soils of meadows and valleys from the Dakotas throughout the western states.

Discussion: This warm season grass provides fair to good forage for all classes of livestock. It is quite palatable when growing, becoming unpalatable with maturity. Abundance decreases with heavy grazing.

Mountain Brome

Bromus carinatus BRCA 5

Type: native, short-lived, perennial bunchgrass

awn

Height: medium to tall

Ligule: conspicuous, less than 3 mm. long

Blade (leaf): hairy on the back, 6 to 12 mm. wide

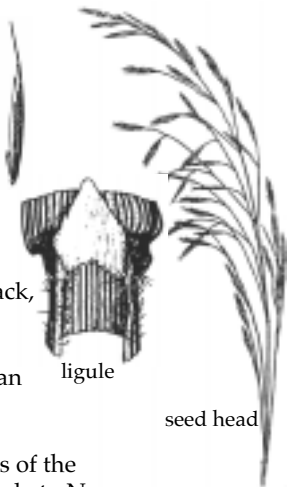
Inflorescence (seed head): an erect panicle

ligule

seed head

Distribution: on both slopes of the Rocky Mountains from Canada to New Mexico, introduced into the east

Discussion: Mountain brome prefers deep, rich, moderately moist soils, but will occur on fairly dry sites. These plants produce an abundance of forage that is utilized by all classes of livestock and big game animals. Mountain brome has been used for revegetation of logged areas and other disturbed mountain sites. (*Synonym: B. marginatus.*)







Basin Wildrye

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Elymus cinereus ELCI 2

Type: native, perennial bunchgrass, often with short rhizomes

Height: tall

Ligule: very prominent, 3 to 7 mm long

Blade (leaf): long, flat, strongly ligule nerved, as much as 2 cm. wide

Inflorescence (seed head): compact spike with 2 to 4 spikelets per node

Distribution: on moist to dry, light textured soils of slopes and ravines from Minnesota to British Columbia, Colorado, and California

Discussion: Basin wildrye is fairly abundant on Wyoming ranges and is readily grazed while young. It is usually not grazed in the summer. The plants produce an enormous amount of foliage and are important as winter feed. It does not tolerate close grazing, especially in the spring months. The seeds of this plant were used as food by many bands of Indians.



awn



seed head



Prairie Junegrass

Koeleria nitida KONI

Type: native, perennial bunchgrass

Height: short

Blade (leaf): flat or inrolled, soft

Inflorescence (seed head): panicle, narrow and spikelike

Distribution: throughout the United States, except for the southeastern section. It is one of the most common and widely distributed range grasses.

Discussion: Prairie junegrass is considered good forage for all classes of livestock, but does not produce large amounts of forage. It is a low growing plant with mostly basal leaves, and is an increaser with overgrazing. Prairie junegrass initiates growth early in the spring and greens up with fall rains.







Nebraska Sedge

Carex nebraskensis CANE 2

32

Type: native, perennial, sod-forming, grasslike

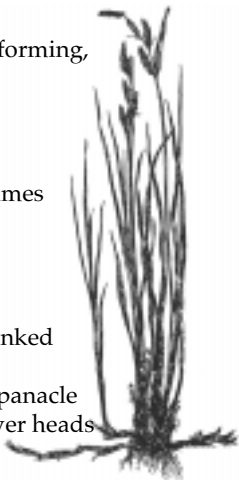
Height: medium to tall

Rhizome: stout, long, sometimes acting as a stolon

Stem: solid, three-sided

Blades (leaves): flat, three-ranked

Inflorescence (seed head): a panicle of spike-like heads, male flower heads above the female



Distribution: on wet meadows and swamps of the foothills and mountains of the western states

Discussion: Nebraska sedge is one of the most common sedges in the west and often makes up a major part of the hay harvested from native mountain meadows. The palatability of Nebraska sedge is usually good for cattle, but only fair for sheep. This could be because the sites where it grows are too wet for sheep to graze.

Glossary

Awn: A slender bristle at the end or on the back or edge of an organ. In grasses, the awn is a continuation of the glume or lemma, from the midnerve.

Blade: In grasses, the part of the leaf above the sheath.

Culm: The jointed stem of grasses.

Floret(s): The lemma and palea with the included flower parts.

Glume(s): The pair of bracts or scales at the base of a spikelet.

Inflorescence: The flowering part of a plant.

Lemma: One of the scales next to the flower or seed in grasses.

Ligule: The thin appendage or ring of hairs on the inside of a leaf at the junction of the sheath and blade.

Palea: The inner bract or scale of a floret, sometimes partly enclosed by the lemma.

Panicle: An inflorescence with a main axis and subdivided branches.

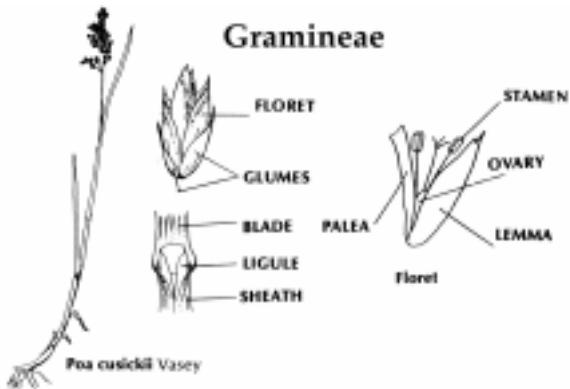
Rhizome: An underground stem or rootstock.

Sheath: The lower part of a leaf that encloses the stem (grasses).

Sod former: Perennial plants which form a mass of individuals by means of rhizomes or stolons. Compare to bunchgrasses.

Spikelet: The basic unit of the inflorescence in grasses, consisting of two glumes and one or more florets.

Key to Common Grasses in Agriculture



Flowers in spikes, attached directly to stem

Plants over 4 ft. tall, leaves flat and over 1/2 inch wide, 3 or more spikelets per node, awnless to awn tipped.....

Elymus cinereus
"Basin wildrye"



Plants under 4 ft. tall, leaves mostly curled or if flat not over 1/4 inch wide, 1 spikelet per node some with 2 in the middle.



Bunchgrass, no rhizomes



Leaves mostly curled, rarely flat, auricles present.....

Agropyron spicatum

"Bluebunch wheatgrass"



Rhizomatous, leaves curled

Lemmas not hairy.....

Agropyron smithii

"Western wheatgrass"

Lemmas hairy.....

Agropyron dasystachyum

"Thickspike wheatgrass"

Bluebunch
auricle

1. Flowers not in spikes (may look like it but flowers not directly attached to the stem)



Flowers compact and compressed to the stem so it looks like a spike, very hairy plant, usually awnless.....

Koeleria nitida

"Prairie junegrass"



Rhizomatous

1. Flowers loosely spread out on stem 1-10
flowers (florets) per spikelet

2. One-flowered



3. Awnless.....

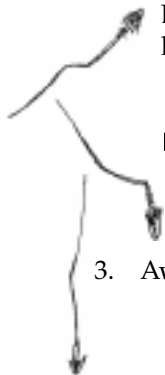
Sporobolus airoides
"Alkali sacaton"



3. Awns up to 1/4 inch long.....

Oryzopsis hymenoides
"Indian ricegrass"

3. Awns 1/4 to 2 inches long
Lemma hairs all about the same
length.....



Stipa nelsonii

"Columbia needlegrass"

- Lemma hairs much longer at the
tip.....

Stipa viridula

"Green needlegrass"

3. Awns over 3 inches long.....

Stipa comata

"Needleandthread"

2. More than one-flowered



Awned with auricles, large spikelets....

Bromus carinatus

"Mountain brome"



Awned with no auricles, smaller spikelets.....

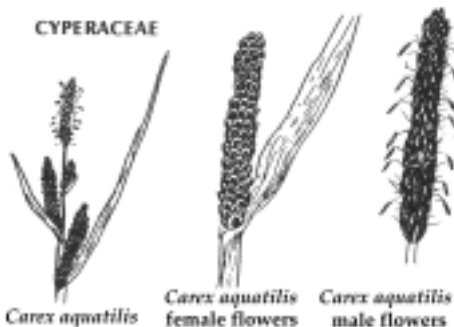
Festuca idahoensis
"Idaho fescue"



Awnless.....

Leucopoa kingii
"King spikefescue"

Other plants looking like grasses but with the following characteristics. Leaves 3-sided and only 1 leaf per stem. Flowers very compact and often dark colored.



The one very good species with a wider leaf most is *Carex nebraskensis* or Nebraska sedge. Sedges, in general, are all palatable and reasonable forage.

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