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EC05-170 Common Grasses of Nebraska: Prairies, Rangelands, Pasturelands

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COMMON GRASSES OF Nebraska

prairies • rangelands • pasturelands

James Stubbendieck, Professor of Grassland Ecology
Kay L. Kottas, Ecological Research Specialist

Department of Agronomy and Horticulture
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Introduction

All of the land comprising the State of Nebraska was purchased from France by the United States of America more than 200 years ago. At the time of the Louisiana Purchase (1803), prairie occupied over 46 million of the 49.5 million acres of what was to become Nebraska. It was not a single type of prairie. Short grass prairies grew in what was to become the Panhandle (Figure 1), and tallgrass prairies were in the eastern one-third of the region. Between were mixed grass prairies in the loess hills south to the future Kansas border. The Sandhills prairie occupied over one-fourth of the future state in the north central region all of the way to the future border with South Dakota. A small area of sandsage prairie, containing many of the same species of grass as in the Sandhills, occurred in the southwest corner of the future state. The borders between these prairies did not exist as sharp lines but were broad zones (ecotones) where one type of prairie gradually blended into the other.

The climate, primarily the amount of precipitation, dictated that taller species of grass could grow in the east with higher rainfall. Drier regions in the west could support only short and mid-height grasses. Little runoff occurs from the coarse textured soils in the Sandhills, and they readily provide moisture to plants, allowing taller grass species to grow in an area with average rainfall that should support only mixed grass vegetation.

Periodic drought in the region devastated the prairie vegetation and shifted the ecotones to the west until the rainfall increased. Drought helped to limit trees on the prairies. Frequent fires swept across the prairies, reducing the expansion of woody plants. Fires could occur in any month of the year. They kept the grasses, grass-like plants, and forbs (herbaceous plants with broad leaves, e.g., wildflowers) healthy. Bison, pronghorn, deer, elk, and other grazing animals (herbaceous plant eaters) and browsing animals (woody plant eaters) lived on the prairies. The herbage they didn’t eat often was consumed by fire.

As a consequence of settlement in the 1800s and early 1900s, many of the prairies were plowed and converted into cropland. Some have estimated that less than 1% of the acres of tallgrass prairie remain. Lands in the mixed grass and short grass prairie regions were converted to cropland, but a greater percentage of it remains. A much smaller amount of the Sandhills and sandsage prairies was cultivated. Much of the marginal and highly erode cropland has been returned to perennial grass cover. Today, most of the remaining unplowed land is managed for use by domestic grazing animals. These rangelands occur on 23.1 million acres. Pasturelands are areas planted to single species or mixtures of native or introduced grasses receiving more intensive management (e.g., fertilizer and irrigation) and grazed by livestock. Haylands include both native vegetation and planted species that are harvested as hay and fed to animals. Pasturelands and haylands (including alfalfa) are grown on about 3.7 million acres in Nebraska. Rangelands, pasturelands, and haylands cover 54% of the state.

Rangeland and pastureland grasses are the key components of the forage system supporting the beef cattle industry in the state. Knowledge of the important grasses and grass-like plants making up these renewable natural resources is important to those managing the land. The ability to identify grasses is an important skill for individuals interested in prairies and prairie management. This knowledge is essential to determine the condition or health of the vegetation, and to determine if management is moving the composition in a desired direction. Homeowners interested in including grasses in their landscape will benefit from the ability to identify the common grasses, as will individuals interested in nature or wildlife management.

The identification (flowering and vegetative) and uses and values of more than 100 grasses and grass-like plants are discussed in this manual. While several hundred species of grasses grow in Nebraska, the ones covered in this manual will account for more than 95% of the grass plants encountered in the state. Included are the most abundant and important grasses in Nebraska. Others are included because they are troublesome weeds or may become troublesome with improper management. Annual species used for temporary pasture, such as sudangrass, are not included.

Distribution and habitat for each species is presented. Ecological sites where these grasses occur in abundance are provided. An ecological site is the product of many environmental factors such as climate, soils, and topographic location. Each ecological site can support a plant community that differs from others in terms of kinds, proportions, and/or amounts of plants. A description of the 12 most common ecological sites in Nebraska may be found after the Glossary near the end of this manual. Descriptions and color photographs of these sites may be found in the Range Judging Handbook, E.C. 98-150, available from your nearest University of Nebraska–Lincoln Extension office.
Each plant has one valid scientific name. The scientific name consists of two main parts. The first part is the genus, and the second part is the specific epithet. The authority (name or names of the individuals credited with its classification) is added for completeness and accuracy. For example, the scientific name for little bluestem is:

<table>
<thead>
<tr>
<th>Genus:</th>
<th>Schizachyrium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific epithet:</td>
<td>scoparium</td>
</tr>
<tr>
<td>Authority:</td>
<td>(Michx.) Nash</td>
</tr>
</tbody>
</table>

Therefore, the species name is *Schizachyrium scoparium* (Michx.) Nash.

The name for a given plant, however, may change if that plant is reclassified or if it is discovered that another valid name for it was published earlier. In general, the scientific names and authorities in this manual are current. The scientific names occasionally change because of reclassification and correction. When the name has been changed, the former name, or synonym, has been included. Formerly, the scientific name for little bluestem was *Andropogon scoparius* Michx. Some species have more than one synonym.

The single, most frequently used common name in Nebraska has been included in this manual for each species. Common names may vary in different parts of the country and even in different parts of Nebraska. For example, the common name of the weedy grass *Bromus tectorum* L. is downy brome, but it has been called cheat, cheatgrass brome, chess, and military grass in different parts of the state.

Both native and introduced grasses are included. The origin of the species does not imply adaptation, forage value, use, or desirability on Nebraska grasslands. Most grasses native to Nebraska are good to excellent for grazing and/or haying; however, some native grasses are considered undesirable, and rangeland is managed to reduce their abundance. Introduced plants are those that have been brought into North America. Many of the introduced grasses, both desirable and undesirable, have become naturalized in Nebraska grasslands. Naturalized plants are adapted to the local environment and can grow and reproduce under those conditions. Some have been selected, improved, and used for rangeland and pastureland seeding.

Plants are arranged in this manual by season of growth. Warm-season grasses start growth in late spring, continue growing throughout the summer, and stop growth in early fall. Cool-season grasses begin growth in early spring and flower in spring. Growth slows or even stops in the summer and renews in the cool months of the fall if adequate soil moisture is available. Both types of grasses are important to rangeland and pastureland managers. Some livestock producers use cool-season, introduced pastureland grasses such as crested wheatgrass or smooth brome for early grazing. Later, they graze livestock on native rangeland where perennial, warm-season grasses dominate.

Within each season of growth, grasses in this manual are also arranged by the life span of the grasses. Perennial grasses live for more than one year while annual grasses do not. Annual grasses must flower and produce seed in one season. Seeds of many cool-season annual grasses germinate in the fall, and the plants overwinter in the seedling stage before growing and flowering the following growing season. These grasses are classified as winter annuals.
The grass-like plants are positioned after the grasses. These plants commonly grow intermixed with grasses. While they may first appear to be similar to grasses, their flowering parts are much different than those of grasses.

**Plant Groups**

Prairie, rangeland, and pastureland plants are divided into grasses, grass-like plants, forbs, woody plants, and succulents. These can be easily distinguished by certain characteristics.

Grasses have either hollow or solid stems with nodes. Leaves are two-ranked and have parallel veins. Nearly all of the grasses have ligules near the junction of the sheath and blade. Flowers (florets) are small, somewhat inconspicuous, and occur in spikelets.

Grass-like plants resemble grasses. Generally, they have solid stems without elongated internodes. Leaf veins are parallel, but the leaves are two-ranked or three-ranked and do not have ligules. Stems are often triangular, and the flowers are small and somewhat inconspicuous.

Forbs are herbaceous plants other than grasses and grass-like plants. They usually have solid stems and broad leaves with netted veins. Flowers are often large, colored, and showy. Occasionally, they are small and inconspicuous. Wildflowers fit into this category.

Woody plants have secondary growth of their aerial stems. These stems remain alive throughout the year, although they are dormant part of the time. Leaves are often broad and net veined. Flowers may be showy or inconspicuous. Trees and shrubs fit into this category.

Succulents are plants with fleshy tissue that stores water. The water is used by the plants during periods with insufficient soil moisture. Cacti are the most common succulents associated parts. These can be easily distinguished by certain characteristics.

The reproductive features of a grass-like plant are different than those of grasses. These features are shown in Figure 5. In Juncus, Schoeoplectus, and Scirpus, achenes (fruits) are enclosed in a capsule (perigynium). Reproductive stems of field horsetails (Equisetum spp.) arise as cones (strobili) from the tip of the stem with many sporangio-phores that contain spore-bearing sporangia underneath.

**Parts of a Grass Like Plant**

Grass-like plants are so-called because they have thin leaves, flowers in spikelets, and/or other characteristics that are comparable to grass plants. Most of these plants are sedges and rushes in the Cyperaceae or Juncaceae families. One grass-like plant, field horsetails (Equisetum spp.), is actually classified as a fern from the Equisetaceae family.

**Reproductive Characteristics**

The reproductive features of a grass-like plant are different than those of grasses. These features are shown in Figure 5. In Juncus, Schoeoplectus, and Scirpus, achenes (fruits) are enclosed in a capsule (perigynium). Reproductive stems of field horsetails (Equisetum spp.) arise as cones (strobili) from the tip of the stem with many sporangio-phores that contain spore-bearing sporangia underneath.

**Vegetative Characteristics**

Sedges (Carex sp.) have three-sided stems, as do bulrushes (Schoeoplectus). These generally also have leaves that look similar to grass leaves. The other rushes (Juncus sp.) have round stems and flowers that appear to arise on the side of the stem. Field horsetail (Equisetum sp.) has round stems in sections ringed by teeth. Reproductive stems are topped by cones (strobili). Sterile stems of Equisetum arvense are branched in whorls.
Figure 2. Grass plant including enlargements of a spikelet and junction of the blade and sheath with associated parts.
Figure 3A. Diagrammatic and actual representations of grass inflorescences.
panicle of alternate spicate primary unilateral branches

panicle of spicate primary unilateral branches

panicle of digitate spicate primary unilateral branches

panicle of subdigitate spicate primary unilateral branches

panicle of verticillate spicate primary unilateral branches

Figure 3B. Diagrammatic and actual representations of grass inflorescences.
Figure 3C. Diagrammatic and actual representations of grass inflorescences.
Figure 4. Ligule types, shapes, and margins.

LIGULE TYPE
- absent
- membranous
- ciliate
- ciliate membrane

LIGULE APEX SHAPE
- acuminate
- acute
- obtuse
- truncate

LIGULE MARGINS
- entire
- notched
- erose
Figure 5. Inflorescences and flowers of grass-like plants.
WARM-SEASON GRASSES

perennial

Big bluestem
Sand bluestem
Purple threeawn
Sideoats grama
Blue grama
Hairy grama
Buffalograss
Prairie sandreed
Windmillgrass
Bermudagrass
Inland saltgrass
Purple lovegrass
Sand lovegrass
Plains muhly
Sandhill muhly
Marsh muhly

Switchgrass
Sand paspalum
Common reed
Blowoutgrass
Tumblegrass
Little bluestem
Indianagrass
Johnsongrass
Prairie cordgrass
Alkali sacaton
Tall dropseed
Sand dropseed
Prairie dropseed
Purpletop
Eastern gamagrass
Common Name: Big bluestem  
Species: *Andropogon gerardii* Vitman  
Life Span: Perennial  
Origin: Native  
Season: Warm  
Growth Form: Sod-forming  
Flowering: July to October

**Inflorescence Characteristics**
- **type:** panicle of 2 to 6 (commonly 3) digitate racemes (5-10 cm long), terminal and axillary, fewer than 10 per culm  
- **spikelets:** paired spikelets of nearly equal length; lower spikelet sessile and fertile (7-10 mm long); pedicelled spikelet sterile and slightly grooved; glumes of pedicelled spikelet not grooved  
- **awns:** lemma of sessile spikelet awned (1-2 cm long), abruptly bent and tightly twisted below; pedicelled spikelet awnless  
- **glumes:** glumes of sessile spikelet nearly equal in length, first glume other: often purplish, sometimes yellowish

**Vegetative Characteristics**
- **culms:** erect (0.5-2.5 m tall), robust, may be branched toward top, glabrous  
- **sheaths:** often flattened, purplish at base, lower sheaths sometimes with long and soft hairs; margins transparent  
- **ligules:** ciliolate membrane (0.4-2.5 mm long), truncate  
- **blades:** flat to rolled (10-50 cm long, 5-10 mm wide), keeled; midrib prominent on the underside; lower blades often with long hairs; margins with fine teeth  
- **rhizomes:** short

**Distribution and Habitat**
Big bluestem grows abundantly on moist, deep, rather well-drained soils of valleys and ravines in conjunction with little bluestem, switchgrass, and indiangrass. It is often the predominant grass on overflow and subirrigated ecological sites throughout the state. In eastern Nebraska, it grows on upland sites. However, since it requires relatively large amounts of water, it is usually replaced by blue grama, needleandthread, and sideoats grama on upland sites in central and western Nebraska. Small amounts of big bluestem may be found on sharp breaks and moist slopes throughout the state. Rapid growth, reproduction by rhizomes, and a tall stature are responsible for its prominence on adapted sites. Big bluestem is a very desirable grass where adapted because of its high production of very palatable forage and hay. It is the principal component of prairie hay in the tallgrass prairie and is largely responsible for the widespread fame of Nebraska prairie hay.

**Uses and Values**

**Forage.** This warm-season grass grows rapidly from mid-spring to early fall and produces flowering stalks in late summer and early fall. It is highly palatable and nutritious and may be the most palatable common native grass in Nebraska. It is usually eaten in preference to other grasses in the summer, and it remains palatable after maturity. Big bluestem withstands grazing, but it will be replaced by less desirable grasses if continually closely grazed during the growing season. Under proper grazing, an abundance of foliage is produced from new shoots at the stem bases and from rhizomes.

**Establishment.** Big bluestem is highly recommended for rangeland seeding on subirrigated and overflow ecological sites throughout most of the state and on silty and clayey sites in the eastern half of Nebraska. Numerous cul-
tivars are available. It is adapted for warm-season irrigated pasture throughout the state in mixed or pure stands.

**Restoration.** It is a primary species in tallgrass prairie restorations, and small amounts of big bluestem seed should be added to mixed grass prairie restorations where soil moisture is favorable.

**Wildlife.** Big bluestem plants are eaten by big game and small mammals. The seeds are important food for upland game birds, songbirds, and small mammals.

**Ornamental.** Big bluestem is used as a drought tolerant ornamental and is valued for its reddish-purple fall color. Because of its growth form, it is used as a background plant or screen. It will tolerate heavy clay soils.

**Common Name:** Sand bluestem

| Species: | Andropogon hallii Hack. (=Andropogon gerardii var. paucipilus (Nash) Fern.) |
| Life Span: | Perennial |
| Origin: | Native |
| Season: | Warm |
| Growth Form: | Sod-forming |
| Flowering: | July to October |

**Inflorescence Characteristics**

- type: panicle of 2 to 7 digitate racemes, (4-10 cm long), arising from the end of each main branch, densely hairy; pubescence golden-yellow or white to reddish-brown color; base may be included in the sheath
- spikelets: paired spikelets; lower spikelet sessile and fertile (7-10 mm long); pedicelled spikelet sterile, slightly larger; pedicel with long yellow hair, not grooved
- awns: lemma of sessile spikelet usually awned (less than 5 mm long)
- glumes: glumes of sessile spikelet nearly equal (5-12 mm long); first glume slightly longer, often ciliate or with minute teeth on the nerves; second glume slightly keeled
- other: inflorescence with fewer, shorter awns and with more hair than big bluestem

**Vegetative Characteristics**

- culms: erect (0.4-2 m tall), stout, glabrous, waxy, may be bluish in color
- sheaths: flattened slightly, glabrous; veins prominent; sometimes with auricles on upper sheaths
- ligules: ciliate membrane (1-4.5 mm long), truncate, with a few long hairs attached behind at the collar
- blades: flat or loosely rolled (20-30 cm long, 3-9 mm wide), not strongly keeled, upper surface strongly ridged, rough to the touch; leaf margins rough; midrib prominent
- rhizomes: well-developed, long, and creeping

**Distribution and Habitat**

Sand bluestem is common on sandy soils throughout Nebraska and is usually abundant on the upper reaches of dunes in the Sandhills. Prairie sandreed is the only grass that exceeds the percentage composition and herbage production of sand bluestem on choppy sands and sands ecological sites in excellent condition. Although less abundant on sandy sites and shallow sites of sandy texture, it is still common and a major contributor to forage production in those locations. Sand bluestem is occasionally found on moderately coarse soils on thin silty ecological sites. Sand bluestem is sometimes classified as a variety of big bluestem rather than a distinct species, because both are morphologically similar and will cross pollinate to produce
plants which intergrade between the two types. Sand bluestem is, however, ecologically restricted to the more sandy sites and does have a range of adaptation to sandy sites that is distinct from big bluestem.

**Uses and Values**

**Forage.** Sand bluestem has a long growing season similar to that of big bluestem. It is highly palatable to all classes of livestock and has good forage value throughout the year. Sand bluestem is normally one of the first grasses to be grazed except in early spring or late fall when associated cool-season grasses are making rapid growth. Because of its rhizomatous growth habit, sand bluestem withstands considerable grazing. Continued heavy grazing will, however, cause it to lose vigor, develop a low growth habit, and gradually be replaced by less desirable grasses. Because of its high yield of palatable forage, sand bluestem is one of the most desirable grasses on Sandhills rangeland and should be given special consideration in grazing programs. Sand bluestem is an important component of upland hay in the Sandhills and provides palatable and nutritious hay.

**Establishment.** Sand bluestem is recommended for rangeland seeding throughout Nebraska on sandy, sands, and choppy sands ecological sites. It typically grows in large patches, and its extensive rhizome system makes it important for stabilizing sand, especially in blowouts.

**Restoration.** It is one of the primary grasses used in Sandhills prairie restorations.

**Wildlife.** Sand bluestem plants are eaten by big game and small mammals. The seeds are important food for upland game birds and songbirds.

**Ornamental.** Sand bluestem has not been used extensively as an ornamental. It has a softer look than big bluestem and could be used as a background plant or screen. Unlike big bluestem, it does not tolerate heavy clay soils.

### Common Name: Purple threeawn

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Purple threeawn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Aristida purpurea</em> Nutt.</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to August</td>
</tr>
</tbody>
</table>

#### Inflorescence Characteristics

- **type:** panicle (2-25 cm long), sometimes reduced to a raceme; branches pointing upward, somewhat flexuous, purplish to reddish
- **spikelets:** 1-flowered, lemma firm (8-15 mm long, excluding awns), base hairy

#### Vegetative Characteristics

- **culms:** erect (10-60 cm tall), glabrous
- **sheaths:** open, smooth to slightly scabrous; collar with a tuft of long and soft hairs on both sides; leaves mostly basal
- **ligules:** ciliate membrane (up to 1 mm long)
- **blades:** rolled to flat (2-30 cm long, 1-2 mm wide), sharply pointed, curved, scabrous, sometimes hairy
- **rhizomes:** none

#### Distribution and Habitat

This native grass is widely distributed throughout Nebraska except on low, wet sites. Purple threeawn grows on a wide range of soil textures and is found on all upland
ecological sites. It is a common component on abused, silty sites. Stands are normally quite scattered, but it may be locally abundant on dry, sandy soils of hillsides, rocky slopes, and disturbed sites.

Uses and Values

Forage. This warm-season grass provides a minor amount of usable forage. It is only occasionally grazed in early growth stages. After awns develop, the grass is worthless as forage. When sheep are grazed on rangeland containing purple threeawn, the long awns get into the fleece and also may cause irritation and abscesses in the mouth and nostrils. Because this grass is seldom eaten, it is able to spread into areas where productive and palatable grasses have been weakened by heavy grazing. It is a vigorous seed producer, and the awned seeds are scattered by wind and animals. Purple threeawn can tolerate dry conditions and rapidly invade bare or disturbed soil. It is sometimes a troublesome weed in new grass seedings. It grows best after a wet summer and fall followed by a dry winter, especially on rangeland where the desirable grasses have been depleted.

Establishment. Purple threeawn is not a desirable grass on rangeland and is not recommended for seeding.

Restoration. It is not used in prairie restorations.

Wildlife. Purple threeawn produces poor forage for wildlife. It provides limited cover, and small mammals eat the seeds.

Ornamental. It is sold as an ornamental because the nodding purplish inflorescence contrasts nicely with other foliage and background plants. This attractive accent is used in dryscapes because it requires little water. Purple threeawn grows best in full sunlight.

Common Name: Sideoats grama

Species: Bouteloua curtipendula (Michx.) Torr.

Life Span: Perennial

Origin: Native

Season: Warm

Growth Form: Sod-forming

Flowering: June to August

Inflorescence Characteristics

type: panicle (10-30 cm long) of 35 to 80 primary unilateral branches (1-3 cm long); 3 to 7 spikelets per branch on a flattened rachis, spikelets falling as a unit

spikelets: 2-flowered; 1 perfect floret (3-6 mm long), 3-nerved; imperfect floret reduced to a short lemma

awns: fertile lemma with 3 awn tips (1-2 mm long); imperfect lemma with 3 awns (3-6 mm long), unequal

glumes: unequal, first short (2.5-6 mm long), tapering to a point; second longer (4-8 mm long); purplish

other: individual branches turned to one side of the inflorescence, distant; branch base remains on culm after the spikelets fall

Vegetative Characteristics

culms: erect (0.1-1 m tall), tufted, glabrous, nodes purple

sheaths: round, glabrous below with a few long soft hairs above, prominently veined; collar with long hairs on margin, leaves mostly basal

ligules: ciliate membrane (less than 1 mm long), truncate

blades: flat to slightly rolled (2-30 cm long, 2-6 mm wide), edges with scattered hairs from bulb-like bases

rhizomes: scaly, short

Sideoats grama
Distribution and Habitat

This native grass grows throughout Nebraska but is most common in the central and eastern parts of the state. It occurs on all upland sites except sands and choppy sands and often is especially abundant on shallow, limy upland, silty, and thin loess ecological sites. In eastern Nebraska, it is more common on hills and drier slopes. It is more drought tolerant than big bluestem and indiangrass but less drought tolerant than blue grama and hairy grama.

Uses and Values

Forage. This warm-season grass grows rapidly in late spring and early summer and may remain green into late summer when soil moisture is adequate. Sideoats grama has good forage value. It is grazed mostly in late summer and fall but remains moderately palatable into the winter. The culms are unpalatable and usually are not grazed. It is not as palatable as blue grama. Sideoats grama makes good quality hay but yields are relatively low. Sideoats decreases with heavy grazing in the western part of Nebraska. It increases under close grazing on favorable sites in the higher precipitation zones where it replaces the taller grasses, but it does not withstand prolonged heavy grazing.

Establishment. Sideoats grama is widely used for rangeland seedings. It is recommended for seeding in native grass mixtures on silty, clayey, and sandy ecological sites throughout Nebraska and on overflow and subirrigated sites in the western part of the state. Sideoats grama is easily established, long lived, and readily spreads by seed and rhizomes. Density and vigor decrease during drought, but survival and recovery are good.

Restoration. Except on sandy soils, sideoats grama is important in prairie restorations across Nebraska. It is a primary species in mixed prairie restorations, and it should be included for drier locations in the tallgrass prairie region in eastern Nebraska and more moist areas in the shortgrass prairie of western Nebraska.

Wildlife. Sideoats grama produces forage for deer, pronghorn, bighorn sheep, and elk. The seeds are eaten by small mammals and game birds such as pheasants, quail, and doves.

Ornamental. Sideoats grama is an important ornamental grass requiring little supplemental water. Its inflorescence is purplish, and the whole plant turns reddish-white following frost. It prefers sunny sites and grows well in rock gardens or when planted with prairie wildflowers. Sideoats grama is frequently used in borders, but it provides only low quality turf.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Blue grama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Bouteloua gracilis</em> (Willd. ex Kunth) Lag. ex Griffiths</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>June to August</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

type: panicle of 1 to 3 (sometimes 4) spicate primary unilateral branches; branches (1.5-5 cm long) curved and spreading at maturity; 40 to 90 spikelets in 2 rows on 1 side of the rachis, crowded, comb-like

spikelets: 1 perfect floret, 1 (or more) reduced florets; fertile lemma (4.2-5.7 mm long) pubescent on back; reduced florets or rudiments (0.8-3 mm long) highly variable, may be reduced to 1 to 3 awns

Blue grama
awns: fertile lemma with 3 awns (0.5-1.5 mm long),
central awn the longest; rudimentary lemmas
with 1 to 3 awns (2.5-5 mm long) or may be
awnless
glumes: unequal; first short (1.5-3.5 mm long),
glabrous or with hairs on the nerve; second
longer (3.5-6 mm long), glabrous or with
hairs from swollen bases on the nerve
other: rachis doesn’t project beyond spikelets,
providing a visual distinction from hairy grama

Vegetative Characteristics
culms: erect (20-60 cm tall), slender, often geniculate below, densely tufted
sheaths: round, densely hairy to glabrous; dense, long hairs at the collar
ligules: ciliate membrane (0.1-0.5 mm long), truncate
blades: flat or loosely rolled (2-25 cm long, 1-5 mm wide), few soft hairs on both surfaces
rhizomes: no rhizomes or stolons, but blue grama in heavily grazed areas has the appearance of sod-forming grass

Distribution and Habitat
Blue grama is widely distributed in Nebraska and occurs on all ecological sites except wetland. It is most common in central and western Nebraska and is adapted to all soil textures. It is relatively more important on drier soils, since it cannot compete successfully with the taller grass species such as big bluestem and indiangrass. It is often the dominant grass on silty, clayey, and sandy sites in western Nebraska where it increases under heavy grazing or frequent mowing.

Uses and Values
Forage. Forage value of blue grama is good. Range cattle preference for this grass is low to moderate in the spring and early summer but very high in late summer and fall. It cures well. It is grazed during the winter, but it is easily covered by snow. Because of its short growth, it is not important for hay. Herbage yields are much lower than the taller grasses under ideal moisture conditions. Grazing capacity of blue grama on upland sites in western Nebraska, however, may equal or exceed that of warm-season, mid and tall grasses in years of average rainfall. Although palatability is good, blue grama is very tolerant to grazing, mowing, and trampling. Its low growth habit allows much leaf tissue to remain even under close grazing, which allows blue grama to maintain vigor and control erosion even under adverse conditions. It thrives best when not shaded by taller grasses. It may rapidly increase when the tall grasses are reduced by heavy grazing. Blue grama tolerates dry conditions, becoming dormant during drought. Blue grama renews growth quickly when soil moisture becomes available.

Establishment. Blue grama is recommended for native grass seedings on silty, clayey, and sandy sites in central and western Nebraska. It is frequently used in mixtures with buffalograss and taller grasses. Initial stands of blue grama are slow to develop, but seedlings are more tolerant of dry conditions and salinity than seedlings of sideoats grama.

Restoration. Blue grama should be a primary component of shortgrass and mixed grass prairie restorations. Small amounts of seed should be used in mixtures planted to restore upland prairies in the Sandhills and dry locations in the tallgrass prairie region.

Wildlife. Blue grama is a valuable plant for wildlife. Its seed is a source of food for upland birds, songbirds, and small mammals. Pronghorn, deer, elk, and bighorn sheep, as well as many small mammals, graze the plants.

Ornamental. Blue grama is tolerant of cold, heat, poor soils, drought, and mowing, making it an acceptable turf grass. Mowing promotes sod formation and little or no supplemental water is needed. It does well as a specimen plant in rock gardens and with wildflowers. It grows best in sunny sites. At frost, blue grama may develop a purple hue.

Common Name: Hairy grama

| Species: | Bouteloua hirsuta Lag. |
| Life Span: | Perennial |
| Origin: | Native |
| Season: | Warm |
| Growth Form: | Bunchgrass |
| Flowering: | July to September |

Inflorescence Characteristics
type: panicle of 1 to 4 spike-like primary branches, branches (2-4 cm long) straight or slightly curved; 18 to 50 spikelets in 2 rows on 1 side of the rachis, crowded, comb-like
spikelets: 1 perfect floret (2-5 mm long), 2 reduced florets, hairy; lemmas of reduced florets highly reduced, often to only 1 to 3 awns
awns: second glume awn-tipped, fertile floret with 3 awns (2.5 mm long), central awn longest; awns on reduced florets dark (2-4.5 mm long)
glumes: unequal, first short, second longer (3-5 mm long), very narrow to awn-like tip; short, stiff hairs on the midnerve; black glandular dots on the back
other: rachis extends beyond spikelets (5-20 mm long), providing a visual distinction from blue grama
Vegetative Characteristics

- **culms**: erect (15-60 cm tall), may be geniculate (bent upward) below, 4 to 8 nodes
- **sheaths**: veined, glabrous or lowermost thinly soft-haired; collar hairy with glandular hairs on the margins
- **ligules**: ciliate membrane (less than 1 mm long), truncate
- **blades**: flat or rolled (3-10 cm long, 1-3 mm wide), narrow, pointed, glandular hairs on the margins, may be hairy on upper surface near base
- **rhizomes**: no rhizomes or stolons, but hairy grama in heavily grazed areas has the appearance of a sod-forming grass

Distribution and Habitat

This native grass is distributed widely in Nebraska, but is most common in central and western Nebraska. It grows with blue grama but becomes particularly abundant on rough, rocky ridges and on loose sands. In the Sandhills and sandsage prairie, it is most common on hill tops and south and west slopes on sands and choppy sands ecological sites. Elsewhere, it may become common on dry soils of shallow and limy upland sites.

Uses and Values

**Forage.** Growth starts by mid-June or when moisture is available near that time. Palatability is highest in late summer and fall. Hairy grama is not as readily grazed as blue grama, and it is less tolerant than blue grama of heavy grazing. Sites where hairy grama is abundant are more valuable for grazing than for hay production. Hairy grama is resistant to both dry conditions and heavy grazing and usually increases under these pressures. Because of short growth and low forage yield, hairy grama makes a very small contribution of forage even on sites where it is abundant.

**Establishment.** It is not recommended for range seeding in Nebraska, but hairy grama seed is commonly mixed with blue grama when seed is from a native harvest. It is relatively difficult to establish.

**Restoration.** Small amounts of hairy grama seed should be included in restoration mixtures for upland sites in the Sandhills, mixed grass prairie, and shortgrass prairie in Nebraska.

**Wildlife.** Hairy grama seeds are eaten by small mammals, upland birds, and songbirds. It provides forage for large and small mammals.

**Ornamental.** Hairy grama does well as a specimen plant in rock gardens. It does not produce good turf. It grows best in sunny sites and requires less water than blue grama.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Buffalograss</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
<td><em>Buchloe dactyloides</em> (Nutt.) Engelm.</td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
<td>Perennial</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Warm</td>
</tr>
<tr>
<td><strong>Growth Form:</strong></td>
<td>Sod-forming</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>May to July</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

type: staminate (male) and pistillate (female) inflorescences produced on separate plants; staminate inflorescence is a panicle of 1 to 4 spicate primary unilateral branches (6-14 mm long), 6 to 12 spikelets in 2 rows on each branch, comb-like; pistillate plants have bur-like clusters (up to 1 cm in diameter) of spikelet, falling as a unit.
**Spikelets:**  staminate spikelets 2-flowered (4-5.5 mm long), lemmas longer than the glumes; pistillate spikelets 1-flowered, 3 to 7 in each bur-like cluster

**Awns:**  second glume of pistillate spikelets awn-tipped

**Glumes:**  staminate spikelet glumes unequal (first 1-3 mm long, second 2-4.5 mm long); pistillate spikelet glumes unequal, first glume highly reduced

**Other:**  staminate inflorescence exceeds leaves, pistillate inflorescence (bur-like cluster) usually at mid-culm and within the leaves

**Vegetative Characteristics**

**Culms:**  culm of staminate plants erect (5-25 cm tall), nodes glabrous; culms of pistillate plants much shorter

**Sheaths:**  rounded on the back, glabrous except for a few marginal hairs near the collar; partially encloses inflorescence in female plant

**Ligules:**  ciliate membrane (less than 1 mm long), truncate to obtuse, often flanked by longer hairs

**Blades:**  flat (1-15 cm long, 1-2.5 mm wide), curly, sparsely hairy on one or both surfaces, grayish-green

**Other:**  stoloniferous, low-growing

**Distribution and Habitat**

Buffalograss is found in all parts of the state, but it is most abundant in southern and western Nebraska. It is one of the primary grasses in short grass prairies where it is chiefly associated with blue grama and western wheatgrass. It is best adapted to swales and depressions on soils with heavy to medium texture and on bottomlands if competition from tall grasses is reduced. Buffalograss sod occupies hill tops of heavily grazed rangeland throughout the loess hills. It is not adapted to sandy soils and is uncommon in the Sandhills.

**Uses and Values**

**Forage.** Buffalograss is somewhat less palatable than blue grama and is grazed primarily in late summer and fall. It makes rapid growth in late spring and summer. Buffalograss cures well but is often too short for dependable winter grazing. In general, it is of minor importance for grazing in Nebraska, except in the heavily used areas of the loess hills where it may be the most abundant species. Vegetation of shortgrass rangeland in western Nebraska — commonly referred to as “buffalograss” — normally contains blue grama and threadleaf sedge with only small amounts of buffalograss. Buffalograss cannot survive dry periods as well as blue grama, but it recovers rapidly following drought. It withstands heavy grazing and trampling even better than blue grama and increases under heavy grazing or mowing. Buffalograss increases in tallgrass communities when they are stressed by drought or heavy grazing.

**Establishment.** Seeding mixtures with buffalograss have been planted on silty and clayey ecological sites in western Nebraska. Buffalograss can be readily established from seed treated to enhance germination. Its low herbage yield, however, makes it less desirable as a forage plant in Nebraska, and its use in rangeland seeding usually is not recommended. Buffalograss makes a dense sod and effectively controls erosion on silt loam to clay soils.

**Restoration.** Buffalograss is a primary component of shortgrass prairie restorations. Small amounts of seed can be included in restorations in central and eastern Nebraska on dry uplands. Shade from taller grasses will cause it to decline. Care should be taken to only plant seed treated to improve germination.
**Wildlife.** Buffalograss provides some grazing for big game, and the seed is eaten by small mammals and songbirds.

**Ornamental.** Buffalograss is well adapted as a low maintenance turf grass on dry soils and in sunny sites. Stands can be established either from seed or sod plantings. It mixes easily with blue grama. Since it is a warm-season species, it does not green up as early in the spring or stay green as late in the fall as Kentucky bluegrass. Buffalograss requires little or no supplemental water. It becomes dormant during times of drought, but it recovers quickly. Many cultivars of buffalograss are available.

**Other**

False buffalograss [*Munroa squarrosa* (Nutt.) Torr.] grows in mats 12 to 50 cm wide and is common on recently disturbed sites such as anthills, prairie dog towns, pocket gopher mounds, trails, corrals, and drought-bared soil. It resembles buffalograss but differs in having bisexual flowers and sharply pointed leaves which grow in fascicles. Seeds are not produced in a bur but in a cluster of spikelets enclosed on a broad leaf sheath overtopped by blades of other leaves. Culms grow along the ground and commonly root at the nodes. False buffalograss is a native, warm-season, annual, having poor buffalograss value.

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**Prairie sandreed**

**Common Name:** Prairie sandreed

**Species:** *Calamovilfa longifolia* (Hook.) Scribn.

**Life Span:** Perennial

**Origin:** Native

**Season:** Warm

**Growth Form:** Sod-forming

**Flowering:** July to September

**Inflorescence Characteristics**

- **type:** panicle (15-40 cm long), narrow to spreading; shiny, tawny
- **spikelets:** 1-flowered; lemma pale (6-7 mm long); callus (base of spikelet) with long hairs
- **awns:** none
- **glumes:** unequal; first (4-7 mm long) shorter than the second (5-8 mm long), pointed, rigid, 1-nerved

**Vegetative Characteristics**

- **culms:** erect (0.5-1.8 m tall), solitary, robust, glabrous
- **sheaths:** round, glabrous to hairy, distinctly veined, short hair on margin; expanded or enlarged collars with hairs (2-3 mm long) at the throat
- **ligules:** fringe of hairs (0.5-3 mm long)
- **blades:** flat below, rolled above (10-50 cm long, 3-12 mm wide), stiff, glabrous, margins scabrous
- **rhizomes:** stout, scaly

**Distribution and Habitat**

This native grass is the most uniformly distributed and most abundant grass in the Nebraska Sandhills and in the sandsage prairie in southwest Nebraska on sandy, sands,
and choppy sands ecological sites. It grows in blowouts as well as on stable valley floors. Prairie sandreed may be locally common on deep, medium textured soils on overflow, silty, and limy upland sites. Prairie sandreed is rarely found on wetland, saline subirrigated, and shallow sites. On rolling sand hills, it grows evenly distributed in the vegetation stand in the Sandhills but tends to grow in large open colonies on finer textured soils.

**Uses and Values**

**Forage.** Prairie sandreed is a warm-season grass, which grows rapidly in late spring and throughout the summer, remains green until frost, and cures rather well. Although somewhat coarse and with many stems, palatability is fair to good and relatively stable throughout the growing season. Prairie sandreed is more palatable during early spring growth than later; however, it is primarily grazed in mid-summer through winter because other Sandhills grasses are more palatable early in the growing season. Upland hay cut in the Sandhills includes large amounts of prairie sandreed, and the quality is acceptable if it is not cut too late. Prairie sandreed is tolerant of dry conditions and tends to replace the bluestems in the Sandhills during periods of low rainfall. It is also tolerant of intensive grazing and increases under heavy grazing pressure. However, it may be eliminated by prolonged improper use. Because of its stable and uniformly high production of forage on sandy soils, it is one of the most important Sandhills forage grasses.

**Establishment.** Prairie sandreed is recommended in warm-season grass mixtures for seeding on sandy soils. Some prairie sandreed commonly occurs in seed mixtures harvested from native stands. Several commercial cultivars are available.

**Restoration.** Prairie sandreed is an important component of upland prairie restorations in the Sandhills. Plant bases with attached rhizomes may be transplanted in restorations of very small areas.

**Wildlife.** Prairie sandreed produces fair forage for big game. It provides important cover for nesting birds, and the seeds are eaten by birds and small mammals.

**Ornamental.** Prairie sandreed is infrequently used as a background or screen plant in areas with sandy soil.

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**Common Name:** Windmillgrass  
**Species:** Chloris verticillata Nutt.
**Life Span:** Perennial  
**Origin:** Native  
**Season:** Warm  
**Growth Form:** Bunchgrass  
**Flowering:** May to September
Vegetative Characteristics

culms: erect above (0.1–0.4 m), decumbent and geniculate below, flattened, solid; often rooting at the lower nodes
sheaths: keeled, glabrous
ligules: ciliate membrane (0.4–1 mm long), truncate; with long hairs behind and at the margins
blades: folded (1–11 cm long), keeled especially near the base, glabrous or scabrous
rhizomes: none

Distribution and Habitat

Windmillgrass may be found in all parts of the state, but it is most common in the southern and eastern portions. It grows in lawns, abused rangeland, waste areas, and along roadides. It grows in all types of soils and does best in well-drained soils.

Uses and Values

Forage. Windmillgrass provides poor forage for livestock. It is occasionally grazed while it is actively growing, but its palatability is low.

Establishment. It is not used in seedings and usually is considered to be a weed on grasslands. It can become a serious weed in lawns. Since it grows well along roadsides, its potential for roadside plantings is being evaluated.

Restoration. Windmillgrass is not used in prairie restorations.

Wildlife. Windmillgrass provides poor forage for big game. Birds and small mammals eat the seeds.

Ornamental. It has been grown as an ornamental because its inflorescence is unusual and attractive. Its use is not recommended because it can spread quickly into lawns.

Common Name: Bermudagrass

Species: Cynodon dactylon (L.) Pers.
Life Span: Perennial
Origin: Introduced
Season: Warm
Growth Form: Sod-forming
Flowering: June to October

Inflorescence Characteristics

type: panicle of 2 to 7 digitate spicate primary unilateral branches; branches (2–6 cm long) ascending to spreading; spikelets numerous on 2 rows on each branch, overlapping
spikelets: 1-flowered (2–2.5 mm long); lemma flattened awns: none
glumes: nearly equal (1.3–1.8 mm long), pointed, 1-nerved

Distribution and Habitat

Bermudagrass was introduced from Africa and planted in the southern states for forage. It is not common in Nebraska, growing only in the southeastern part of the state. It may be found in lawns, pastures, roadsides, and waste areas.

Uses and Values

Forage. It provides good forage for cattle in the spring and early summer. Its palatability rapidly decreases as it approaches maturity. In the southern states, it may be cut for hay, but hay quality is only fair.

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Establishment. Bermudagrass is not recommended for planting in Nebraska for pasture. It is sensitive to cold temperatures and is easily killed during winter.

Restoration. Bermudagrass is an introduced species and should not be used in prairie restorations.

Wildlife. Bermudagrass produces fair forage for big game animals in the spring and summer. Birds and small mammals eat the seed.

Ornamental. In areas where it is adapted, it is planted extensively for turf. Its rhizomes and stolons spread quickly, forming a dense turf.

Common Name: Inland saltgrass

<table>
<thead>
<tr>
<th>Species:</th>
<th>Distichlis spicata (L.) Greene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
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<tr>
<td>Origin:</td>
<td>Native</td>
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<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to August</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

- **type:** panicle (1-6 cm long), contracted
- **spikelets:** male and female inflorescence produced on separate plants (spikelets of both sexes 6-10 mm long); strongly compressed; female spikelet 3- to 8-flowered and greenish, male spikelet 6- to 11-flowered and yellowish; lemma firmer than glumes and sharply pointed (3-6 mm long); palea soft, narrowly winged
- **awns:** none
- **glumes:** unequal, sharply pointed, glabrous; first glume 5- to 9-nerved, (female 3-6 mm, male 2-4.5 mm long); second glume 5- to 11-nerved

Vegetative Characteristics

- **culms:** decumbent to erect (10-40 cm tall); internodes short and numerous, glabrous
- **sheaths:** closely overlapping, sometimes with long hairs in collar and upper edges
- **ligules:** ciliate membrane (less than 1 mm long), truncate, often flanked by long hairs
- **blades:** flat to rolled, (2-9 cm long, 1-3.5 mm wide), tightly rolled at the tip, sharply pointed, conspicuously 2-ranked (distichous)
- **rhizomes:** scaly; extensively creeping

Distribution and Habitat

This native, warm-season grass is found in Nebraska on saline subirrigated ecological sites often in pure stands where it forms a dense sod or in mixed stands with foxtail barley, alkali sacaton, and other salt tolerant plants. It tolerates high soil salinity and can grow even on soils crusted with salt. Inland saltgrass is also capable of growing on dry soils of silty, clayey, and even sandy and sands sites.

Uses and Values

**Forage.** Inland saltgrass has low palatability since it is wiry and tough, but it may be grazed when other forage is not available. Growth starts in early summer at a slow rate, and often remains green until fall. It is grazed to best advantage during late spring and summer when green and actively growing. When used for winter forage, saltgrass is low in phosphorus, protein, and vitamin A, and palatability is very low. Livestock grazing almost solely on dried saltgrass sometimes develop severe rumen compaction. Exclusive inland saltgrass diets should be avoided in the late fall and winter. Inland saltgrass is highly resistant to grazing and trampling damage because of its vigorous rhizomes. This is a desirable feature around areas of livestock concentration such as windmills, corrals, and trails. Continuous, close grazing is the most efficient way to use saltgrass, but this may quickly destroy the more palatable and more productive associated grasses. Inland saltgrass increases on saline subirrigated sites, but it is also very aggressive and...
may spread into dry sites when competition from other grasses is reduced.

**Establishment.** Inland saltgrass is not used in rangeland seedings in Nebraska.

**Restoration.** Its dense sod prevents erosion, and it is potentially valuable for restoration on saline and alkaline sites where few other species grow.

**Wildlife.** It produces poor forage for wildlife. Waterfowl and small mammals eat the seeds, and it provides a minor amount of cover for nesting birds.

**Ornamental.** Inland saltgrass is receiving attention as a turf grass for out-of-play areas on golf courses and other areas receiving heavy traffic.

### Common Name: Purple lovegrass

<table>
<thead>
<tr>
<th>Species:</th>
<th><em>Eragrostis spectabilis</em> (Pursh) Steud.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>July to October</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

- **type:** panicle (25-45 cm long, 15-30 cm wide), open and widely spreading; branches stiff, wiry; prominent hairs at the junction of panicle branches; purplish
- **spikelets:** 5-12-flowered (5-7 mm long), flattened; lemmas sharply pointed (1-2.2 mm long)
- **awns:** none
- **glumes:** slightly unequal (1-2.5 mm long), tips sharply pointed; slightly scabrous; first glume 1-nerved, second glume 1- to 3-nerved
- **other:** inflorescence separates from the plant at maturity

**Vegetative Characteristics**

- **culms:** erect (20-75 cm tall), tufted from a knotty base
- **sheaths:** keeled or flattened, shorter than the internodes, overlapping, usually with long hairs on collar and upper margins
- **ligules:** membranous (0.2-0.3 mm long), backed and flanked by a ring of hairs (2-4 mm long)
- **blades:** flat (15-40 cm long, 3-7 mm wide); folded or rolled on drying; stiff, usually with long hairs on the upper surface near the base
- **rhizomes:** usually with sort, stout rhizomes; but has the appearance of a bunchgrass

**Distribution and Habitat**

Purple lovegrass occurs in scattered stands over most of Nebraska, except in the extreme west. It is most abundant on sandy, sands, and choppy sands ecological sites. It may be found in small amounts on dry, silty, or clayey soils. It is common on roadsides, waste places, and old fields.

**Uses and Values**

**Forage.** Herbage produced by purple lovegrass is rather coarse, and the forage value is only fair when it is green and growing. The inflorescences and the mature foliage are largely ignored by cattle. Purple lovegrass is not a high forage producer.

**Establishment.** Purple lovegrass is not used in grassland seedings because of its low palatability and forage production.

**Restoration.** Purple lovegrass is not important for prairie restoration in Nebraska. It cannot withstand competition from vigorous prairie plants. Small amounts of seeds can be planted on harsh sites to add color to the vegetation.
Wildlife. It provides good nesting cover for some upland birds.

Ornamental. Purplish inflorescences and reddish-purple fall colors make purple lovegrass one of the most attractive native grasses and a popular ornamental grass. The inflorescences are used in fresh cut and dried arrangements.

**Common Name:** Sand lovegrass

**Species:** *Eragrostis trichodes* (Nutt.) Wood

**Life Span:** Perennial

**Origin:** Native

**Season:** Warm

**Growth Form:** Bunchgrass

**Flowering:** July to September

**Inflorescence Characteristics**

- **type:** panicle (35-55 cm long, 7-30 cm wide), open, much-branched, may be one-half the length of the plant; hair-like branches in groups of 3 or 4 with a few long hairs in the axils

- **spikelets:** 4- to 18-flowered (4-10 mm long, 1.5-3.5 mm wide), compressed; long pedicels, lemmas pointed (2.2-3.5 mm long), 3-nerved, lateral nerves prominent

- **awns:** none

- **glumes:** nearly equal (1.8-4 mm long), thin, pointed, 1-nerved

- **other:** panicle purple or red, becoming gold when mature

**Vegetative Characteristics**

- **culms:** erect (0.3-1.6 m tall), glabrous

- **sheaths:** round, overlapping, prominent hairs on upper edges, and on the collar, occasionally hairy on the back or margins

- **ligules:** ciliate membrane (0.2-0.5 mm long)

- **blades:** flat or somewhat rolled (15-45 cm long, 2-8 mm wide), scabrous on upper surface, taper to a slender point, midrib prominent

- **rhizomes:** none

**Distribution and Habitat**

Sand lovegrass is native to the Nebraska Sandhills and sandsage prairie where it is an important and abundant grass on sands and choppy sands sites. It grows best on north- and east-facing slopes where moisture conditions are more favorable. It is found as scattered plants on sandy sites and rarely on silty sites in mixtures with other native grasses.

**Uses and Values**

**Forage.** This warm-season grass starts growth as much as two weeks earlier than most other warm-season grasses. It is a good forage producer and remains green into the fall when good soil moisture prevails. It is very palatable and nutritious when it is green and growing. Sand lovegrass is highly preferred and may be used too heavily during the summer. Palatability is fair to good after maturity. Hay quality is high if it is cut early.

**Establishment.** Sand lovegrass is valuable for seeding on sands and sandy sites throughout Nebraska. It is commonly seeded to stabilize disturbed areas. On sandy soils, it is seeded with other palatable, warm-season, native grasses. It is also recommended as a component in warm-season grass mixtures on all except the driest silty sites. Sand lovegrass is valuable in mixtures since it increases yields at least for the first three or four years. It has high seeding vigor, establishes quickly, and withstands low soil fertility. Although individual plants are somewhat short-lived, it readily reseeds itself. Sand lovegrass seeds are extremely small, and it is one of only a few grasses that will germinate and grow after simply scattering seeds on the surface of the soil.
Restoration. It is important to include sand love-grass in restorations in the Sandhills. It establishes quickly and provides cover while other grasses are small. It will decrease after three or four years as other grasses begin to dominate.

Wildlife. Sand lovegrass is highly palatable to deer, elk, and pronghorn. It provides good nesting and protective cover for upland game birds.

Ornamental. The reddish-purple inflorescences that turn gold in the fall make this an attractive accent or screen plant. The inflorescences are used in fresh and dried arrangements.

<table>
<thead>
<tr>
<th>Common Name: Plains muhly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
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<tr>
<td><strong>Origin:</strong></td>
</tr>
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<td><strong>Season:</strong></td>
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<td><strong>Growth Form:</strong></td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- type: panicle (4-15 cm long), narrow, spike-like; branches erect and often lying against the rachis
- spikelets: 1-flowered (2.5-3.6 mm long); lemmas 3-nerved, pointed, may be finely hairy
- awns: none
- glumes: nearly equal (1.2-3 mm long), 1-nerved, taper to a point

**Vegetative Characteristics**
- culms: erect (20-60 cm tall), slender, stiff, wiry, much-branched; from a hard bulb-like and scaly base
- sheaths: flat (2.5-10 cm long, 1-2 mm wide)
- ligules: membranous (0.2-0.8 mm long)
- blades: flat or folded (2-22 cm long, 0.6-3.5 mm wide), prominently veined, with fine stiff hairs on upper surface
- rhizomes: none

**Distribution and Habitat**
This native grass is found on uplands and hillsides over much of the state, although it rarely grows on loose sands. It is particularly abundant on limey upland and thin loess ecological sites.

**Uses and Values**
- **Forage.** This warm-season grass commonly grows intermixed with little bluestem and sideoats grama and has good forage value. Stands are often somewhat scattered but on hillsides it may become thick and produce a considerable amount of forage. Plains muhly decreases under heavy grazing and is found principally on rangeland in good health.
- **Establishment.** Plains muhly seed is not readily available, and it is seldom used in grass seedings.
- **Restoration.** A small amount of plains muhly seeds can be added to mixtures in the shortgrass prairie and western mixed grass prairie regions if the restoration sites include hillsides and breaks. In most cases, seed will need to be harvested by hand from nearby grasslands.
- **Wildlife.** It furnishes fair to good forage for deer, pronghorn, bighorn sheep and elk and fair nesting cover for upland game birds. Plains muhly seeds are eaten by wild turkeys, upland game birds, songbirds, and small mammals.
- **Ornamental.** Plains muhly may be used as a specimen planting in rock gardens.
**Common Name:** Sandhill muhly

**Species:** Muhlenbergia pungens Thurb.

**Life Span:** Perennial

**Origin:** Native

**Season:** Warm

**Growth Form:** Sod-forming

**Flowering:** July to September

**Inflorescence Characteristics**
- **Type:** panicle (5-20 cm long, 2-6 cm wide when completely out of sheath), open; branches numerous, hair-like, spreading
- **Spikelets:** 1-flowered (4-5 mm long); lemmas 3-nerved (2.6-3.6 mm long), purplish-red
- **Awns:** glumes and lemmas awned (0.5-1.5 mm long), paleas 2-awned
- **Glumes:** nearly equal (1.2-2.6 mm long), often notched or toothed, 1-nerved

**Vegetative Characteristics**
- **Culms:** ascending to erect (20-50 cm); base much-branched, leafy; may be covered with fine, short, bristly hairs
- **Sheaths:** round to slightly flattened, open; margins wide, transparent
- **Ligules:** ciliate membrane (0.5-1.2 mm long), truncate
- **Blades:** flat to rolled (2-8 cm long, 1.2-2.2 mm wide), stiff, sharply pointed; nerves on upper surface are raised and covered by short, bristly hairs
- **Rhizomes:** large, scaly, creeping; causing the plants to be “ring-shaped” when the center portion dies

**Distribution and Habitat**
This native grass is found on sands and choppy sands ecological sites throughout Nebraska. It is most common on sandy ridge tops, edges of blowouts, and dry south and west sides of choppy sand hills. The primary importance of sandhill muhly is as an early successional species and as a soil stabilizer. It often grows with blowout grass and lemon scurfpea and provides preliminary control of wind erosion in blowouts. Its extensive, much-branched root system and moderately dense foliage cover make it adapted to protect loose sands from wind erosion. As the sands begin to stabilize, sandhill muhly is replaced partly or entirely by grasses such as prairie sandreed, switchgrass, sand bluestem, sand lovegrass, and little bluestem.

**Uses and Values**

**Forage.** This warm-season grass produces harsh, prickly foliage of poor forage value and is undesirable as a forage grass. It is seldom grazed unless cattle are forced to eat it because of a lack of other forage. It increases under heavy grazing or following fires, and it remains indefinitely on abused rangeland.

**Establishment.** Sandhill muhly is not used in grassland seedings.

**Restoration.** Sandhill muhly is seldom used in restorations because it normally grows in open sand and cannot successfully compete with taller grasses. Seed is not available commercially.

**Wildlife.** It is not used by wildlife for food or cover.

**Ornamental.** Sandhill muhly has been used as a specimen planting in rock gardens with the purplish-red inflorescences adding color to the landscape.
**Common Name:** Marsh muhly

**Species:** *Muhlenbergia racemosa* (Michx.) B.S.P.

**Life Span:** Perennial

**Origin:** Native

**Season:** Warm

**Growth Form:** Sod-forming

**Flowering:** July to October

### Inflorescence Characteristics

- **Type:** panicle (2-15 cm long, 4-15 mm wide), contracted, densely flowered, lobed or interrupted, occasionally partly enclosed in the upper sheath
- **Spikelets:** 1-flowered; lemma gradually pointed (2.2-3.8 mm long), pilose below, 3-nerved
- **Awns:** glumes awn-tipped or with slender awns (to 5 mm long), scabrous; lemma rarely awn-tipped
- **Glumes:** nearly equal (4.5-7.5 mm long including awn), one-third or more longer than the lemma, lanceolate, 1-nerved; nerve ciliate or scabrous

### Vegetative Characteristics

- **Culms:** erect (0.3-1.3 m tall), often branching at middle nodes, glabrous or minutely pubescent
- **Sheaths:** flattened, loose, glabrous to scabrous, margins thin and translucent
- **Ligules:** membranous (0.5-1.7 mm long), truncate to rounded, erose
- **Blades:** flat or occasionally loosely rolled (4-18 cm long, 2-7 mm wide), evenly distributed along the culm; leafy to near the base of the inflorescence
- **Rhizomes:** branching, scaly, white

### Distribution and Habitat

Marsh muhly grows throughout Nebraska in moist and dry soils of pastures, waste places, and roadsides. It grows well in partial shade, such as under trees.

### Uses and Values

**Forage.** Marsh muhly produces fair forage for livestock while it is green and actively growing.

**Establishment.** It is not used in rangeland and pasture seedings because productivity is low and there are better species to select for the seeding mixture.

**Restoration.** Marsh muhly is not used in prairie restorations.

**Wildlife.** Deer and elk graze marsh muhly.

**Ornamental.** It is not used as an ornamental.

### Other

Wirestem muhly [*Muhlenbergia frondosa* (Poir.) Fern.] and Mexican muhly [*Muhlenbergia mexicana* (L.) Trin.] have an appearance similar to that of marsh muhly and grow in similar habitats. These two muhlys differ from marsh muhly by having glumes that are relatively short (rarely to 4 mm), about equaling or slightly longer than the lemma, and awnless or awn-pointed. The internodes of Mexican muhly are dull and have short pubescence, especially near the summit, while the internodes of wirestem muhly are smooth and shining.
**Common Name:** Switchgrass  
**Species:** Panicum virgatum L.  
**Life Span:** Perennial  
**Origin:** Native  
**Season:** Warm  
**Growth Form:** Sod-forming  
**Flowering:** July to September

**Inflorescence Characteristics**  
- **type:** panicle (15-55 cm long), open, spreading; spikelets near ends of long branches, lower branches in whorls, pairs, or single  
- **spikelets:** 2-flowered; upper floret fertile (3-6 mm long), smooth and shiny, margins inrolled at base; lower floret reduced to a lemma  
- **awns:** none  
- **glumes:** unequal, first glume shorter (2-3.5 mm long) than the second (3.3-6 mm long), sharply pointed; base of the second glume enclosed by the first

**Vegetative Characteristics**  
- **culms:** erect (0.5-3 m tall), robust, usually unbranched above base  
- **sheaths:** round, margins may be hairy; often purple to red at the base  
- **ligules:** ciliate membrane (1.5-3.5 mm long), mostly hairs, truncate  
- **blades:** flat (10-60 cm long, 3-15 mm wide), firm, margins weakly barbed; triangular patch of hair at collar extending outward along midrib of leaf blade  
- **rhizomes:** creeping, scaly, numerous

**Distribution and Habitat**  
This native grass occurs throughout Nebraska on subirrigated, overflow, sands, sandy, and choppy sands ecological sites. In the eastern one-half of the state, it is also found on upland silty and clayey sites. It grows best where moisture is abundant and thrives on sites where big bluestem grows. However, like big bluestem, it is unable to survive prolonged drought and seldom grows on the dry, upland plains of western Nebraska. It is moderately salt tolerant and is common on saline subirrigated sites. It withstands considerable flooding for short periods.

**Uses and Values**  
**Forage.** This warm-season grass grows rapidly in late spring and early summer. During this time, it has good forage value and is readily grazed by cattle, horses, and sheep. As the stems and inflorescences begin to mature in midsummer, nutrient content and palatability decline rapidly. On rangeland grazed in the fall and winter, palatability is low, and only the leaves and inflorescences are normally eaten. On adapted sites, switchgrass yields high quantities of good quality hay when cut early. With maturity, palatability and quality drop more rapidly with switchgrass than with sand bluestem or big bluestem.

**Establishment.** Switchgrass is a major component of warm-season, native grass seedings and is most commonly planted in mixture with the bluestems, sideoats grama, indiangrass, and sand lovegrass. Several cultivars of high quality seed are readily available. Although seedlings are somewhat slow to establish, stands tend to improve as plants spread by rhizomes and through natural reseeding. Switchgrass is recommended for seeding throughout Nebraska on subirrigated, overflow, sands, and sandy ecological sites and on most moderately saline subirrigated sites. It is recommended also for silty and clayey sites in the eastern half of the state. Switchgrass is adapted for use in warm-season pastures when seeded alone or in mixtures with other tall, warm-season grasses. It is commonly seeded in waterways because it provides good soil erosion control.

**Restoration.** Switchgrass is a primary component of...
Sandhill and tallgrass prairie restorations. It will grow farther west in moist soils. Care should be taken in using only a small amount of switchgrass seed in restorations because it establishes relatively quickly and can crowd out other plants. Too much switchgrass in the mixture and a prescribed burning in the spring can result in a restored prairie with the appearance of a field of switchgrass.

**Wildlife.** Switchgrass is grazed by deer and elk. It provides excellent nesting cover for waterfowl and upland game birds. It provides escape and roosting cover for pheasants and other upland game birds. Its seeds are eaten by doves, pheasants, quail, wild turkeys, sharptail grouse, prairie chickens, and small mammals.

**Ornamental.** The finely textured or airy inflorescences produce a cloud-like effect, making switchgrass useful as a screen or background plant. The plants have a bluish cast in the summer and a reddish color in the fall. Caution should be exercised because switchgrass may spread quickly.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Sand paspalum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Paspalum setaceum</em> Michx.</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to September</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- **type:** panicle of subdigitate racemose branches (3-17 cm long); branches 1 to 3 on terminal peduncles, usually solitary on lateral branches, the lower branch often remaining partially in the sheath
- **spikelets:** 2-flowered (1.8-2.4 mm long, 1.6-2.2 mm wide); placed in 2 rows on 1 side of the rachis; nearly circular, may be hairy, pale-yellow to light-green, sometimes spotted; sterile lemma usually 3-nerved or 2-nerved (with the mid-nerve missing)
- **awns:** none
- **glumes:** first glume usually missing, second glume as large as the spikelet, 3- to 5-nerved

**Vegetative Characteristics**
- **culms:** erect to ascending (15-80 cm tall), nodes may be slightly pubescent
- **sheaths:** keeled or somewhat flattened, loose; hairy on the margins and throat, otherwise few or no hairs
- **ligules:** membranous (up to 1 mm long), often backed with hairs
- **blades:** flat (2-25 cm long, 3-15 mm wide), soft, may have a few long hairs to densely hairy

**Distribution and Habitat**
This native grass is found on sand, sandy, and choppy sands ecological sites throughout Nebraska. It grows as scattered, small bunches on dry, sandy soils intermixed with other typical Sandhills plants. It is most prevalent along roadways and areas where competition from other perennial grasses is minimal.

**Uses and Values**
- **Forage.** This warm-season grass has fair forage value. Although widely distributed on sandy soils, plants of sand paspalum are normally scattered and comprise only a minor part of the vegetation. Therefore, herbage yield is low, and the grass warrants only minor consideration in management. It readily establishes naturally on formerly cultivated land.
- **Establishment.** Sand paspalum is not included in grassland seedings.
- **Restoration.** It is not used in prairie restorations.
- **Wildlife.** Seeds are an important food for birds and small mammals.
- **Ornamental.** Sand paspalum is not used as an ornamental plant.
Common Name: Common reed

Species: *Phragmites australis* (Cav.) Trin. ex Steud. (= *Phragmites communis* Trin.)

Life Span: Perennial

Origin: Native and introduced

Season: Warm

Growth Form: Sod-forming

Flowering: July to October

**Inflorescence Characteristics**

- type: panicle (15-50 cm long, 5-20 cm wide), plume-like, much-branched; branches nodding at maturity, densely flowered; tawny to purplish
- spikelets: 3- to 7-flowered (1-1.8 cm long); lemmas sharply pointed, glabrous, 3-nerved; lowest floret staminate; hairs of the rachilla exceed the florets
- awns: fertile lemmas awned
- glumes: unequal; first glume shorter (2.5-5.5 mm long) than the second (5-8 mm long)

**Vegetative Characteristics**

- culms: erect (1-6 m tall, 5-20 mm in diameter), smooth, hollow; sometimes purplish
- sheaths: round, open, smooth, margins with fine hairs
- ligules: membranous (0.3-1 mm long), backed by both short and long silky hairs
- blades: flat (15-60 cm long, 1-6 mm wide) tapering to long-pointed tips; margins serrate, glabrous; upper surface ridge-veined, lower surface without hair or sparsely hairy
- rhizomes: extensive (up to 10 m in length), stout (up to 2 cm in diameter), scaly

**Distribution and Habitat**

Common reed is found throughout Nebraska forming dense patches in wet and moderately fertile soils of meadows, pastures, and fields and along roads, ditches, and the banks of ponds, lakes, streams and marshes. It tolerates moderate salinity. It is rapidly increasing along Nebraska’s rivers and their tributaries.

**Uses and Values**

**Forage.** Immature common reed is readily eaten by cattle and horses. It has fair to good forage value when young and rapidly growing, but palatability rapidly decreases with maturity. Even when it is abundant, it is not an important forage species.

**Establishment.** Common reed is not used in grassland seedings.

**Restoration.** It rapidly spreads and is rarely used in wetland restorations.

**Wildlife.** Common reed seeds are eaten by waterfowl, and the rhizomes and stems are eaten by muskrats. Red-wing blackbirds preferentially nest in common reed. The foliage may be lightly grazed by deer. It provides important escape cover for upland game birds and other wildlife.

**Ornamental.** Occasionally, it is used as a screen planting on wet sites with large dimensions.

**Other**

In addition to native plants, common reed also was introduced from Europe. The introduced plants have a dense inflorescence, yellow rhizomes that are oval in cross section, persistent leaf sheaths in fall, and tan stems that are scabrous. Native common reed has a more open and sparse inflorescence, white and round rhizomes, leaf sheaths that are easily detached in fall, and smooth culms that are red to chestnut in color.
### Inflorescence Characteristics
- **type:** panicle (10-50 cm long), open and branching, often one-third to one-half as long as the whole plant, oblong; panicle branches fine and hair-like, usually branched in pairs
- **spikelets:** 1- to 6-flowered (5-8 mm long), V-shaped, widely spreading at maturity; lemma translucent; tuft of hair at base of floret
- **awns:** none
- **glumes:** slightly unequal (1.8-5 mm long), narrow, tapering, thin; first glume 1-nerved; second glume 3-nerved

### Vegetative Characteristics
- **culms:** erect (0.5-1.3 m tall), coarse, tough, glabrous, base usually buried in the sand
- **sheaths:** nearly round, smooth, open, glabrous or may have short hairs on raised veins; collar slightly expanded
- **ligules:** ciliate membrane (2-3 mm long), truncate to rounded
- **blades:** rolled at maturity (10-75 cm long, 1.5-8 mm wide), tapering to a point, flexuous, glabrous; evenly spaced furrows on both surfaces
- **rhizomes:** long, slender, straw-colored, branching, sharply pointed; with fibrous roots at some of the nodes

### Distribution and Habitat
Blowoutgrass usually occurs in large colonies and is prominent only in blowouts and other disturbed sites in the Sandhills and the sandsage prairie. Its natural habitat is loose, windblown, sandy soil, and it is of minor importance on stabilized soil, even on the choopy sands ecological site. It may be found in almost pure stands or mixed with lemon scurfpea and sandhill muhly in active blowouts.

### Uses and Values
**Forage.** Blowoutgrass is much less important as a forage grass than as a soil stabilizer. The forage quality of this warm-season grass is fair for cattle and horses in the summer, but it is not readily grazed when other forage grasses are present. It does remain green in the fall after many other grasses are mature and dry and then may be eaten by livestock. It cures well and furnishes limited forage in winter. Blowoutgrass resists heavy grazing. Care should be taken to restrict livestock grazing on areas where blowoutgrass is colonizing a blowout so that it may provide maximum cover of the ground to reduce wind erosion.

**Establishment.** Blowoutgrass is an early pioneer in active blowouts, and its greatest value is the reduction of wind erosion. Commercial seed is seldom available. Hand-stripping is the usual method of seed collection because using mechanical equipment in this habitat is difficult. Once established, blowoutgrass spreads rapidly by rhizomes. Rhizomes are produced at different depths, enabling plants to tolerate sharp shifts in the soil surface. New plants are generated from rhizomes, even if they are deeply buried by sand. As the blowout begins to stabilize, grasses such as sand bluestem, prairie sandreed, sand lovegrass, and sandhill muhly can establish, causing the decline of blowoutgrass.

**Restoration.** Sandhill prairie restorations seldom include blowouts, therefore, blowoutgrass rarely is used.

**Wildlife.** Small mammals and songbirds eat the seeds, and deer and pronghorn graze the foliage.

**Ornamental.** Blowoutgrass is not used as an ornamental.
Common Name: Tumblegrass

Species: *Schedonnardus paniculatus* (Nutt.) Trel.
Life Span: Perennial
Origin: Native
Season: Warm
Growth Form: Bunchgrass
Flowering: June to August

Inflorescence Characteristics
- **type:** panicle (30-60 cm long) of 3 to 13 spicate primary unilateral branches; branches (2-20 cm long), spreading, remote, curved at maturity
- **spikelets:** 1-flowered, widely spaced (3-4 mm long), slender, sessile imbedded in and appressed to branches; lemma 3-nerved
- **awns:** glumes may be awn-pointed
- **glumes:** unequal, second glume as long as the lemma (3-4 mm long); first glume shorter; narrow and tapering at both ends, 1-nerved
- **other:** inflorescence breaks off at the base and may be tumbled by the wind

Vegetative Characteristics
- **culms:** erect to ascending (10-70 cm tall); often decumbent at the base and stiffly curving upward
- **sheaths:** laterally compressed, loose, glabrous, crowded at the base of the plant
- **ligules:** membranous (1-3 mm long), rounded to pointed, erose
- **blades:** flat (2-12 cm long, 1-3 mm wide), stiff, smooth or with fine teeth on margins, margins white, midrib prominent; wavy and becoming twisted at maturity
- **rhizomes:** none

Distribution and Habitat
This native grass is common over most of Nebraska on roadsides, waste places, and abused rangeland. It is found on open, disturbed, and relatively dry ecological sites, but it never occupies extensive areas. It grows best in finely textured soils and is common on “slick spots” associated with impermeable soils high in sodium.

Uses and Values
**Forage.** Tumblegrass grows from early spring to late fall when moisture is available. Although widespread and locally abundant, tumblegrass produces little herbage and is of little significance as a forage plant. Forage quality is rated as poor. It tends to increase with abusive grazing and disturbance.

**Establishment.** It is not used in grassland seedings because of low productivity and poor forage quality.

**Restoration.** Tumblegrass is not recommended for restorations.

**Wildlife.** The seeds are eaten by small mammals and birds, but it has little value for forage or cover for wildlife.

**Ornamental.** Tumblegrass is not used as an ornamental.
### Common Name: Little bluestem

<table>
<thead>
<tr>
<th>Species:</th>
<th><em>Schizachyrium scoparium</em> (Michx.) Nash (=<em>Andropogon scoparius</em> Michx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
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<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>July to October</td>
</tr>
</tbody>
</table>

#### Inflorescence Characteristics
- **type**: spicate racemes (2.5-5 cm long), several per culm, jointed, breaking apart into spikelet pairs with the rachis joints; peduncle included in the sheath
- **spikelets**: paired; sessile spikelet perfect (6-8 mm long); pedicelled spikelet sterile; rachis and pedicels densely hairy
- **awns**: lemma of sessile spikelet awned (8-16 mm long); awn bent and twisted; lemma of pedicelled spikelet awnless or with a short awn
- **glumes**: thickened (2.5-4 mm long), rounded on the back, firm
- **other**: racemes in a zig-zag pattern at maturity

#### Vegetative Characteristics
- **culms**: erect or ascending (0.4-1.4 m tall), tufted, branching above; base flat, leafy; bluish-green and turning reddish-brown to purple when mature
- **sheaths**: flattened, laterally keeled, smooth, without hair to rarely pubescent
- **ligules**: ciliate membrane (1-3 mm long), truncate
- **blades**: folded (8-25 cm long, 2-6 mm wide), sometimes rolled backward toward the lower side, sharply pointed, may have long hairs, rough on upper surface and margins
- **rhizomes**: rarely, with short rhizomes

#### Distribution and Habitat
Little bluestem, the official state grass of Nebraska, is widely distributed throughout the state. It is found in all Nebraska counties and on all ecological sites except saline subirrigated and wetland. It is a major species on stabilized sandy and sands sites and on the north slopes of choppy sands sites. Outside the Sandhills, it is most abundant on rocky hillsides, steep slopes, ridge tops, and rolling terrain. Little bluestem is often the most prominent grass on limy upland, shallow, and thin loess ecological sites. It is abundant on silty sites in eastern Nebraska but is common on many other sites. It is not abundant but scattered on silty sites in southwestern Nebraska. Where moisture is ample but soils are not wet, little bluestem produces a dense sod in conjunction with other mid- and tall grasses. In central and western Nebraska, it grows characteristically as a bunchgrass.

#### Uses and Values
**Forage:** When moisture is adequate, little bluestem grows rapidly and uniformly from mid-June to early August. It has fair to good forage value for all classes of livestock when the leaves are tender and succulent. It is readily grazed after regrowth has exceeded the basal culms and sheaths remaining from the previous year. Inflorescences begin to appear by midsummer and exceed the foliage. Although livestock tend to avoid the inflorescences, they continue to select the basal leaves until plants reach maturity. Palatability of little bluestem is only fair, at best, for fall and winter grazing. Full use during the growing season helps to extend the period of palatable, nutritious forage production. Continuous close grazing at this time, however, will damage and may even kill little bluestem. Season of grazing is important as it tends to decrease under late spring and summer grazing and increase under winter use. Little bluestem is severely reduced by prolonged drought,
ticularly on upland clayey and silty sites, and is replaced by more hardy grasses such as the gramas. On adapted sites, it is a high forage producer. It is an important component of upland prairie hay and makes good quality hay if cut early.

Establishment: Little bluestem is widely used for rangeland seeding in Nebraska, and several cultivars are available. It is recommended for use in warm-season mixtures on sandy soil and overflow ecological sites throughout the state and on silty and clayey sites in the higher precipitation zones. It is less adapted for seeding on clayey and silty sites in western Nebraska. Even if successfully established in the lower precipitation zones, little bluestem often produces no more forage than blue grama and tends to be replaced by blue grama even under moderate grazing.

Restoration. Little bluestem is a primary species in prairie restorations throughout Nebraska. It should be one of the main components of seed mixtures in the mixed grass and Sandhill prairies, and smaller amounts should be included in mixtures used for restoration of shortgrass prairies in the west and tallgrass prairies in the east.

Wildlife. Little bluestem provides food and cover for wildlife. It is grazed by big game and provides nesting cover for prairie chickens and sharp-tailed grouse as well as other prairie bird species.

Ornamental. Little bluestem has a beautiful, airy inflorescence and is used in borders and in cut flower arrangements. It has a green to bluish-green color in the summer and is reddish in the fall. Cultivars differ in color expression. Little bluestem does better than its exotic counterparts under conditions of low rainfall in cultivated gardens throughout Nebraska.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Indiangrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Sorghastrum nutans (L.) Nash</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>August to October</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics
- type: panicle (15-30 cm long), somewhat condensed; branches are hairy, greyish; inflorescence is tawny or yellowish when mature
- spikelets: paired; sessile spikelet perfect (6-8 mm long); pedicelled spikelet sterile and reduced to a hairy pedicel
- awns: lemma of perfect spikelet awned; awns bent (1-2 cm long), tightly twisted below the bend and loosely twisted above the bend
- glumes: nearly equal (5.5-7.5 mm long), leathery, first with long stiff hairs and with edges turned up over the second

Distribution and Habitat
This important native grass grows throughout Nebraska and is common to most ecological sites, except wetland, in eastern Nebraska and the Sandhills. It is commonly associated with big bluestem, but usually indiangrass is less abundant. It is moderately salt tolerant and may be common on saline subirrigated sites if the salt content is not excessive. Indiangrass also occurs sparingly on most other sites where soil moisture is adequate. It will withstand occasional flooding. On upland sites with medium...
to heavy textured soils, indiangrass is much more common in eastern than in western Nebraska.

**Uses and Values**

Forage. This warm-season grass provides palatable herbage throughout the summer when its forage value is nearly as high as that of big bluestem. Indiangrass does not cure particularly well and is generally considered to be only moderately palatable after maturity. Therefore, it produces only fair forage for winter grazing. Although of nearly equal quality to big bluestem for grazing, total yield per acre in native stands is usually lower since it usually grows in smaller, more scattered patches. Indiangrass is not tolerant of repeated close grazing. It produces good hay if cut before maturity and is often an important component of hay in eastern Nebraska and in the subirrigated valleys of the Sandhills.

Establishment. Indiangrass is recommended for rangeland seeding on subirrigated, overflow, sands, and sandy ecological sites throughout Nebraska and on clayey and silty range sites in the eastern half of the state. It is adapted for use in warm-season pasture when grown in either pure stands or in mixtures with other tall, warm-season grasses such as big bluestem and switchgrass. Several cultivars of indiangrass are available commercially.

Restoration. Indiangrass is a primary component of seed mixtures used in tallgrass prairie restorations. It is important in the Sandhills, especially the eastern Sandhills. Small amounts of seed should be included in mixed grass prairie restorations, especially when the restoration sites include areas that tend to have favorable conditions of soil moisture.

Wildlife. Indiangrass plants are eaten by elk and deer. They provide cover and nesting materials for many types of birds and small mammals. The seeds are important food for upland game birds, songbirds, and small mammals. Indiangrass is an important species in wildlife plantings in Nebraska.

Ornamental. Indiangrass is an important landscape plant for Nebraska. Its golden plume-like inflorescence makes it attractive in the fall in background and screen plantings. It grows best in full sun, but it will tolerate light shade. Its rhizomes may allow it to spread into areas where it is not wanted.

**Inflorescence Characteristics**

- **Type:** panicle (15-50 cm long), open; panicle branches whorled; often purple
- **Spikelets:** 2-flowered; in pairs, sessile spikelet fertile (4-5.5 mm long), pedicellate spikelet staminate or neuter (5-7 mm long); lemmas of fertile spikelets thin and hyaline; first floret fertile, 2-nerved; second floret sterile, 3- to 7-nerved
- **Awns:** fertile lemma awnless or awned (7-20 mm long); awn geniculate and twisted
- **Glumes:** sessile spikelet glumes nearly equal (3.5-5.5 mm long), hard, shiny; nerves obscure; pedicellate spikelet glumes nearly equal (3.6-5.6 mm long), 5- to 9-nerved

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Indiangrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Sorghum halepense</em> (L.) Pers.</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Introduced</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>July to October</td>
</tr>
</tbody>
</table>

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Vegetative Characteristics

culms: erect (0.5-2.5 m tall), stout, pubescent at the nodes (otherwise without hair), rarely rooting at the nodes
sheaths: round to slightly keeled, open
ligules: membranous (2-5 mm long), truncate, erose blades: flat, (20-90 cm long, 1-3 cm wide), midrib prominent (lighter color), usually glabrous rhizomes: creeping, thick

Distribution and Habitat

Johnsongrass is native to the warm Mediterranean region of Europe and Africa. In Nebraska, it is found only in the southern counties. It is most common on bottomland, overflow, and other moist sites. Cold winters may keep it from spreading farther north. It grows in moist soil of pastures, roadsides, waste places, and cultivated fields.

Uses and Values

Forage. Johnsongrass is an escaped grass that was planted for pastures in the southern states. It has moderate forage value when it is grazed before reaching maturity. Johnsongrass can poison livestock, however, when hydrocyanic acid forms in regrowth after growth is interrupted by drought or frost.

Establishment. Johnsongrass is considered to be a weed and is not used in seedings.

Restoration. Introduced species are not used in restorations.

Wildlife. It provides roosting, loafing, and nesting cover for pheasants, prairie chickens, and quail.

Ornamental. Johnsongrass has no ornamental value.

Common Name: Prairie cordgrass

Species: Spartina pectinata Link
Life Span: Perennial
Origin: Native
Season: Warm
Growth Form: Sod-forming
Flowering: August to September

Inflorescence Characteristics

type: panicle of 6 to 40 spicate primary branches (each branch 4-15 cm long); ascending to spreading; spikelets arranged alternately in two rows on one side of the rachis, comb-like, dense
spikelets: 1-flowered; lemma laterally compressed (6-9 mm long), 3-nerved, keel scabrous awns: second glume awned; awn (4-10 mm long) stout with fine teeth on base; first glume with short awn (1-4 mm long)

Distribution and Habitat

Prairie cordgrass is abundant on wet, non-saline soils throughout the state. It is most common in sloughs and along the edges of lakes and marshes in Sandhill valleys and along the Elkhorn, Loup, Platte, and Missouri riv-
ers and their tributaries. Prairie cordgrass is one of the dominant native grasses on wetland ecological sites. Here it occurs in pure stands or with other grasses and sedges. Soils on which it grows are normally wet for several weeks each year and are too wet for big bluestem, switchgrass, and indiangrass; however, prairie cordgrass grows in scattered stands with these grasses on subirrigated ecological sites.

Uses and Values

Forage. This warm-season grass grows rapidly in late spring and throughout the summer. It is readily grazed in early growth stages. Relative forage value is good when it grows in association with coarse sedges, but it is only fair when growing with big bluestem, indiangrass, switchgrass, and bluejoint reedgrass. Under heavy spring grazing, prairie cordgrass becomes harsh and stemmy and only the leaf tips are eaten. A high yield of fair quality hay can be obtained from prairie cordgrass on wetland sites if it is cut before inflorescences emerge. If cut late, stems become woody, and hay is coarse and tough. Since regrowth is rapid, two or three cuttings often can be made if soils are dry enough to support haying equipment. Reproduction is usually by rhizomes except in bare areas where seedlings can establish.

Establishment. Prairie cordgrass is not usually recommended for rangeland seeding. If forage production is the objective, redtop bent, creeping foxtail, and reed canarygrass are preferred over prairie cordgrass. It is a valuable species for pond and stream bank stabilization. It stabilizes the soil and has some salt tolerance.

Restoration. Prairie cordgrass can be used in restoration of wetland sites and to stabilize banks of streams and ponds. It can be established by seed or by transplanting plant bases with attached rhizomes.

Wildlife. Prairie cordgrass forage is lightly grazed by big game. Its greatest value to wildlife is nesting, roosting, and escape cover. A few birds, such as red-winged blackbirds, nest in prairie cordgrass.

Ornamental. Prairie cordgrass is planted as an ornamental along streams and ponds and in other wet areas. It is very aggressive and can spread into surrounding areas. A variegated form with yellow leaf margins is available in nurseries.

Other

Alkali cordgrass (*Spartina gracilis* Trin.) closely resembles prairie cordgrass, but it can be distinguished by its smaller size and nearly awnless (0.8 mm or less) spikelets. Leaves are narrower (5 mm or less), spikes are shorter (5 cm or less), and seed stalks are shorter (1 m or less) than alkali cordgrass. Alkali cordgrass grows in wet, saline soils of the Sandhills and western Nebraska where few other grasses can thrive. Forage value and characteristics of hay grass are similar to prairie cordgrass. It is also a native, warm-season grass. Sloughgrass (*Beckmannia syzigachne* (Steu.) Fern.) is another native grass which grows on wet soils. Its inflorescence somewhat resembles the cordgrasses but differs in that the spikelets are globe-shaped and rounded at the tips rather than narrow. The glumes are broad and boat-shaped.

| Common Name: Alkali sacaton | Sporobolus airoides (Torr.) Torr. |
| Life Span: | Perennial |
| Origin: | Warm |
| Season: | Native |
| Growth Form: | Bunchgrass |
| Flowering: | June to October |

Inflorescence Characteristics

Type: panicle (20-45 cm long, 15-25 cm wide), highly variable in size, subpyramid- to pyramid-shaped, open; no spikelets near the base of the branches; often purplish to pink
spikelets: 1-flowered (1-2.8 mm long), mostly on spreading pedicels (0.5-2 mm long); lemma equaling the length of the second glume, pointed; palea nearly equal to the lemma

awns: none

glumes: unequal, first glume (0.5-2 mm long) pointed, usually 1-nerved, may be nerveless; second glume (1-2.8 mm long) 1-nerved, pointed

other: exerted from the sheath or only the upper portion exerted

**Vegetative Characteristics**

culms: erect (0.3-1.5 m tall), stout, tufted, shiny, glabrous; base bleached to a light color

sheaths: rounded, collar glabrous to sparsely pubescent (hairs 2-4 mm long); lower sheaths usually bleached to a light color

ligules: ciliate membrane (less than 1 mm long), backed or flanked with longer hairs (1-3 mm long)

blades: flat (5-45 cm long, 2-6 mm wide), becoming rolled and firm, pointed, wide at base; upper surface ridged

rhizomes: none

**Distribution and Habitat**

Alkali sacaton is well adapted to dry or moist saline bottomlands. It is common in river valleys in western Nebraska, particularly along the North Platte, White, and Niobrara rivers. Although most common in the western third of Nebraska, it also occurs along the Platte River in central Nebraska. It grows on rangeland in nearly pure stands or intermixed with inland saltgrass, western wheatgrass, and switchgrass.

**Uses and Values**

**Forage.** Alkali sacaton has fair to good forage value. Its herbage is palatable during early growth stages, but it becomes coarse and tough as it matures. It is not a desirable grass for prairie hay. Palatability of alkali sacaton is much lower than the bluestems and the gramas; however, when compared to the plants which grow with it on saline subirrigated ecological sites, forage value is good. Forage value before maturity is similar to that of western wheatgrass. Alkali sacaton produces a high volume of forage, but it is reduced by heavy grazing. Solid stands of this grass are best grazed in the spring and early summer; however, mature cattle do well on alkali sacaton in winter when adequate protein and mineral supplements are provided.

**Establishment.** Alkali sacaton has good salt tolerance and is recommended for native grass seedings on saline subirrigated sites in mixture with grasses such as western wheatgrass and switchgrass. In some parts of the United States, alkali sacaton has been used in remediation efforts. It removes selenium from the soil, storing it in its shoots.

**Restoration.** Alkali sacaton can be used in prairie restorations in saline bottomlands in western Nebraska.

**Wildlife.** Alkali sacaton provides valuable cover and forage for small mammals and birds. Deer, pronghorn, and elk lightly graze the foliage.

**Ornamental.** Arching mounds of fine foliage and light purple to pink panicles make alkali sacaton an attractive plant massed in perennial beds. Its tolerance of heavy clay to sandy soils, moist to occasionally dry conditions, and alkaline or saline soils makes it appropriate for difficult spots.

**Common Name:** Tall dropseed

**Species:** *Sporobolus compositus* (Poir.) Merr. [=*Sporobolus asper* (Michx.) Kunth]

**Life Span:** Perennial

**Origin:** Native

**Season:** Warm

**Growth Form:** Bunchgrass

**Flowering:** August to October
Inflorescence Characteristics

**type:** panicle (5-30 cm long, 4-15 mm wide), narrow or compact, terminal and axillary, pale or whitish, sometimes purplish

**spikelets:** 1-flowered (2.5-6.5 mm long); lemma flattened or keeled, somewhat rounded at the tip, glabrous, 1-nerved; palea conspicuous, equal in size to the lemma

**awns:** none

**glumes:** unequal; first glume shortest (1.5-4.5 mm long), one-half as long as the lemma; second glume (2-5 mm long), two-thirds to three-fourths as long as the lemma, keeled, pointed to blunt; midnerve bright green

**other:** inflorescence entirely or partially enclosed in inflated sheath

Vegetative Characteristics

**culms:** erect (0.6-1.2 m tall), slender, stout, solitary or in small groups, glabrous

**sheaths:** oval to round, open, split, glabrous or lower sheaths with long hairs near the collar

**ligules:** ciliate membrane (about 0.5 mm long), truncate

**blades:** flat to rolled at maturity (10-70 cm long, 1-4.5 mm wide), wide at base tapering to a fine point, few long hairs on margin, upper surface scabrous

**rhizomes:** rarely with short rhizomes but normally a bunchgrass

Distribution and Habitat

Tall dropseed is distributed widely in the state. It is found with big bluestem, little bluestem, indiangrass, and sideoats grama on medium and heavy-textured soils in the eastern half of Nebraska and on subirrigated and overflow ecological sites across the state. It is seldom seen on dry upland sites in the western half of Nebraska.

Uses and Values

**Forage.** Forage value of tall dropseed is fair. Palatability is highest when plants are immature and green, and it is low at maturity. Except on very dry sites, tall dropseed increases under heavy grazing at the expense of the more palatable mid- and tall grasses. Since it is one of the most drought tolerant grasses on the tallgrass prairie, it is able to compete better than many of the other grasses and becomes more conspicuous during dry years. Except in small localized areas, tall dropseed makes up only a minor part of the total forage production. Yields are not large, and it is not a particularly desirable forage grass.

**Establishment.** Tall dropseed is not recommended for rangeland seeding in Nebraska.

**Restoration.** Small amounts of tall dropseed normally occur in seed harvested from tallgrass prairies and are adequate to perpetuate this species in prairie restorations.

**Wildlife.** Tall dropseed seeds are valuable for small mammals and songbirds, but the plant provides little cover for nesting. It may be lightly grazed by big game.

**Ornamental.** The inflorescence of tall dropseed often remains included in the sheath and is therefore, not as showy as many other species of grass. Prairie dropseed is the preferred dropseed for ornamental use.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Sand dropseed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
<td><em>Sporobolus cryptandrus</em> (Torr.) A. Gray</td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
<td>Perennial</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Warm</td>
</tr>
<tr>
<td><strong>Growth Form:</strong></td>
<td>Bunchgrass</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>June to September</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

**type:** panicle (15-40 cm long, 2-15 cm wide), contracted to open above, terminal; branches distant, occasionally pubescent near panicle axis; often lead gray or purplish at flowering

Sand dropseed

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spikelets: 1-flowered (1.5-3 mm long), densely crowded on upper part of panicle branches, overlapping, short-pedicelled; lemmas pointed (1.4-2.5 mm long), 1-nerved; palea equaling or slightly larger than the lemma

awns: none

glumes: unequal; first (0.7-2 mm long) shorter than the second (1.4-2.7 mm long) thin, pointed; second glume equaling or slightly shorter than lemma, 1-nerved

other: inflorescence totally or partially enclosed in the subtending sheath

Vegetative Characteristics

culms: erect (0.3-1.2 m tall) to geniculate (bent abruptly) below, flattened to grooved on one side, glabrous

sheaths: rounded, longer than the internode, densely hairy at throat with a conspicuous tuft of hairs (2-4 mm long); with transparent and often ciliate margins

ligules: ciliate membrane (0.5-3 mm long), rounded to truncate

blades: flat, rolled on drying (4-35 cm long, 2-8 mm wide), tapering to a long slender tip, margins slightly scabrous

other: blade beneath inflorescence often oriented at nearly a right angle to the culm, forming a light tan “flag” which is persistent in the fall and winter

rhizomes: none

Distribution and Habitat

Sand dropseed is common and widely distributed on dry soils throughout Nebraska. It can be found on all ecological sites except wetland. Although most abundant on sandy soils, it frequently becomes locally prominent on medium-textured soils. Sand dropseed rapidly increases on sandy and silty soils when the other vegetation is heavily grazed or damaged by drought. It is one of the most important grasses on formerly cultivated land. Sand dropseed produces abundant quantities of seed and tolerates dry conditions. It is one of the first grasses to establish on disturbed rangelands and pastures and along roadsides.

Uses and Values

Forage. This warm-season grass begins growth in mid-spring, grows rapidly in early summer, and matures by midsummer. Forage value is fair. Palatability is only fair to good and is similar to that of prairie sandreed in midsummer, but sand dropseed provides poor forage after maturity. Forage yields are moderate, but sand dropseed may produce a major proportion of the available forage on degraded sandy and sands sites.

Establishment. Sand dropseed is not recommended for rangeland seeding in Nebraska. Sand dropseed invades old stands of alfalfa, particularly on sandy soils. It makes inferior grass hay and is very low yielding. Sand dropseed aggressively spreads into cool-season pastures seeded on sandy soils.

Restoration. Sand dropseed is rarely included in prairie restorations. If present, it is soon replaced by other species.

Wildlife. The seed of this species provides food for birds, prairie dogs, and other small mammals. The plants are grazed by bighorn sheep, deer, and pronghorn.

Ornamental. Sand dropseed is not commonly used as an ornamental, but it may be a good plant for dry, sandy sites.

Common Name: Prairie dropseed

<table>
<thead>
<tr>
<th>Species:</th>
<th>Sporobolus heterolepis (A. Gray)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>July to October</td>
</tr>
</tbody>
</table>

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Inflorescence Characteristics

- **Type:** panicle (5-20 cm long), open, somewhat pyramid-shaped; panicle branches spreading or somewhat erect.
- **Spikelets:** 1-flowered (4-6 mm long), awnless; globe-shaped fruit; lead colored.
- **Awns:** none.
- **Glumes:** unequal, pointed, shiny; first glume (1.5-4.5 mm long) slender, nerved or nerveless; second glume broader, longer (2.5-6 mm long), 1- or 3-nerved.
- **Other:** well-exerted from the sheath.

Vegetative Characteristics

- **Culms:** erect (30-70 cm tall), slender, glabrous, not branched above the base.
- **Sheaths:** round to slightly keeled, may be hairy on the throat, lower sheath may have long hairs; purplish at the base.
- **Ligules:** ciliate membrane (less than 1 mm long).
- **Blades:** flat at maturity, may be folded or rolled, (10-50 cm long, 4-10 mm wide), upper ones shorter, glabrous.
- **Rhizomes:** occasionally with short rhizomes but normally a bunchgrass.
- **Other:** forms a distinct bunch.

Distribution and Habitat

Prairie dropseed grows on upland sandy to silt loam soils in the eastern half of Nebraska. It is normally found as scattered plants growing on ridges and hill sides with needleandthread, little bluestem, and porcupinegrass. Occasionally, it is found on lowlands with big bluestem and indiangrass.

Uses and Values

**Forage.** Prairie dropseed has good forage quality before reaching maturity. When cut early, it provides good quality hay, but its fine leaves are rather difficult to mow. For both hay and pasture, it is somewhat more palatable than sand dropseed and tall dropseed. It declines under heavy grazing. Prairie dropseed may be locally important as a pasture or hay grass in eastern Nebraska.

**Restoration.** Prairie dropseed is not commonly recommended for grassland seeding.

**Ornamental.** The leaves of prairie dropseed are long, finely textured, and arch gracefully. The inflorescence emerges in late summer and produces a fine spray of delicate flowers above the foliage. This plant prefers full sun and is useful as a specimen plant or in borders. Prairie dropseed is valued for its creamy fall color and drought tolerance.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Purpletop</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
<td><em>Tridens flavus</em> (L.) A. S. Hitchc.</td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
<td>Perennial</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Warm</td>
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<td><strong>Growth Form:</strong></td>
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<td><strong>Flowering:</strong></td>
<td>July to October</td>
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</tbody>
</table>

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Inflorescence Characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spikelets</td>
<td>Male spikelets above, paired, 2-flowered (7-11 mm long), sessile or slightly pedicelled in two rows on the branch; female spikelets below, solitary (7-10 mm long), bead-like, imbedded in the branch, breaking into single spikelet segments at maturity.</td>
</tr>
<tr>
<td>Glumes</td>
<td>Male spikelet glumes equal (5-10 mm long), somewhat pear-shaped, leathery, keeled; female spikelet glumes equal (5-9 mm long), hard, shiny.</td>
</tr>
<tr>
<td>Other</td>
<td>Female portion of the inflorescence one-fourth or less of the entire length of the racemose branch.</td>
</tr>
</tbody>
</table>

Vegetative Characteristics

| Culms             | Erect (0.8-1.6 m tall), round or slightly compressed, glabrous             |
| Sheaths           | Keeled, open; pubescent in a triangular area near the collar, otherwise glabrous |
| Ligules           | Ciliate membrane (less than 1 mm long)                                     |
| Blades            | Flat (20-60 cm long, 3-12 mm wide), mid rib prominent near base, usually glabrous or sparsely pilose |
| Rhizomes          | Rarely with short rhizomes                                                 |

Distribution and Habitat

Purpletop grows in southeastern Nebraska in a broad range of soils. It is most noticeable along roadsides in the fall after the inflorescences have turned a deep purple color. Also, it may be found in pastures, open woods, abandoned farmland, and waste areas.

Uses and Values

Forage. Purpletop produces good forage for livestock until it reaches maturity in early fall. Seldom is it present in large enough quantities to be an important source of forage.

Establishment. It is infrequently used in grassland seedings.

Restoration. Purpletop does not compete well with taller grasses used in restoration of tallgrass prairies, and it is seldom included in restoration mixtures.

Wildlife. Deer lightly graze the foliage. Birds and small mammals eat the seed, and it provides nesting and escape cover for upland birds.

Ornamental. Screen plantings would be a potential use for purpletop.

Common Name: Eastern gamagrass

Species: *Tripsacum dactyloides* (L.) L.

Life Span: Perennial

Origin: Native

Season: Warm

Growth Form: Sod-forming

Flowering: June to September
Vegetative Characteristics

culms: erect (1.5-3.0 m tall), may be decumbent below, stout, solid, slightly flattened, glabrous
sheaths: round, usually shorter than the internodes, glabrous
ligules: ciliate membrane (0.4-2.5 mm long), truncate
blades: flat (3-75 cm long, 1-3 cm wide), midrib prominent, margin scabrous
rhizomes: thick, knotty, forming extensive colonies
other: close relative of corn; crushed eastern gamagrass leaves smell like crushed corn leaves

Distribution and Habitat

Eastern gamagrass is not common in Nebraska, but it is found in the southeastern part of the state. It may be found farther north and west if it has been planted in irrigated pastures. It grows in wet areas such as swales and stream banks, but it does not tolerate standing water for long periods. It is occasionally found growing on well-drained grasslands. It is most abundant in fertile soils.

Uses and Values

Forage. Eastern gamagrass is highly productive in fertile, moist soils and produces excellent forage for all classes of livestock throughout the growing season. The foliage rapidly breaks down to the soil surface in the fall, making it undependable for winter grazing. It is one of the most palatable grasses and may have been more abundant before settlement, which brought year-round, heavy grazing by livestock.

Establishment. It has been planted in pure stands in irrigated pastures, but establishment is slow and difficult. Its seeds are the largest of all the Nebraska grasses.

Restoration. Eastern gamagrass may be used in seeding mixtures for restoration of tallgrass prairies with moist soils. Plants become large in restorations, and few plants are needed. Since these plants are slow to start from seed, transplanting greenhouse-grown plants into the restorations is a good approach.

Wildlife. Eastern gamagrass provides excellent forage for deer. Turkeys, upland game birds, and small mammals eat the seeds. Upland game birds use it for nesting, escape, and roosting cover.

Ornamental. Eastern gamagrass is rarely used as an ornamental grass because it spreads by rhizomes and quickly takes up a lot of space. It is sometimes grown as a curiosity because it is a close relative to corn (Zea mays L.). Its inflorescences are used in fresh flower arrangements.
### Warm-Season Grasses (annual)

- Prairie threeawn
- Field sandbur
- Hairy crabgrass
- Barnyardgrass
- Stinkgrass
- Bearded sprangletop
- Witchgrass
- Fall panicum
- Yellow foxtail
- Bristly foxtail
- Green foxtail
- Poverty dropseed
- Purple sandgrass
**Common Name:** Prairie threeawn

**Species:** *Aristida oligantha* Michx.

**Life Span:** Annual

**Origin:** Native

**Season:** Warm

**Flowering:** August to September

**Inflorescence Characteristics**
- type: raceme (5-20 cm long), rarely a panicle, loose
- spikelets: 1-flowered; widely spaced, lemma firm (6-25 mm long, excluding awns), base of lemma hairy; pedicel short
- awns: lemma awn column branches into 3 awns (4-7 cm long), nearly equal or center awn longest; spreading
- glumes: nearly equal (2-3 cm long), tapering to awn-like point; first glume 3- to 7-nerved, second glume usually 1-nerved

**Vegetative Characteristics**
- culms: erect to decumbent (15-80 cm tall); much branched at lower nodes, freely branching above, wiry, base often purplish
- sheaths: rounded on back, may be a few hairs, hairy at collar
- ligules: ciliate membrane (0.1-0.5 mm long)
- blades: flat or loosely rolled (10-25 cm long, 1-4 mm wide), reduced above

**Distribution and Habitat**
This native grass occurs over most of Nebraska on dry soils and is most common on sandy and sandy calcareous soils. Generally, it becomes abundant only on deteriorated rangeland or on abandoned fields and waste places.

**Uses and Values**

**Forage.** Except for a brief period of fair to poor forage value during very early growth stages, this warm-season grass is worthless for forage. The long awns are tough, brittle, and can injure livestock who graze or eat it in contaminated hay. Prairie threeawn in hay sharply reduces hay quality, and the tough, fine stems interfere with mowing. This undesirable grass commonly spreads on abused rangeland and rundown, heavily grazed pastures. Since it is seldom eaten, continued heavy grazing removes the perennial grasses, thereby allowing prairie threeawn to thrive. Sound management is the best control, since a vigorous stand of the better grasses will crowd out prairie threeawn or prevent it from becoming established.

**Establishment.** Prairie threeawn is an annual grass, and it is not used in grassland seedings.

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**Common Name:** Field sandbur

**Species:** *Cenchrus longispinus* (Hack.) Fern.

**Life Span:** Annual (rarely a short-lived perennial)

**Origin:** Native

**Season:** Warm

**Flowering:** July to September

**Inflorescence Characteristics**
- type: spike-like panicle (3-8 cm long) of 6 to 20 spiny, hairy burs; usually terminal, sometimes partially enclosed in the upper leaf

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spikelets: 2-flowered; 1 fertile floret (5.5-7.5 mm long), 1 sterile floret (2-6.5 mm long); lemmas narrow, pointed, smooth; each spikelet surrounded by a bur; bur round or oval, densely hairy (3-8 mm wide), covered with 45 to 65 upward pointing spines (3-7 mm long)

awns: none, numerous spines

glumes: unequal; first glume less than one-third the length of spikelet (1.5-4.5 mm long), narrow, pointed; second glume wider, pointed (4.5-6 mm long)

other: 1 to several inflorescences per plant, inflorescences may be close to the ground or extending above the leafy base

**Vegetative Characteristics**

**culms:** ascending to decumbent (10-90 cm long), may grow flat on the ground, forming a mat; flattened

**sheaths:** open, loose, flattened, mostly glabrous, slightly hairy on the margins

**ligules:** ciliate membrane (1.5-2.5 mm long)

**blades:** flat (2-19 cm long, 2-6 mm wide), sometimes folded, tapering to a point; may be scabrous

**other:** occasionally rooting at the lower nodes of the stems, forming a mat

**Distribution and Habitat**

This native weedy grass is common throughout Nebraska on abused rangeland, building sites, roads, waste places, cultivated fields, and dry lawns. It grows particularly well on sandy soils, as its name implies, but also occurs on heavier soils.

**Uses and Values**

**Forage.** During early growth stages and before the burs are produced, sandbur plants are grazed to some extent, particularly if other forage is not available in quantity. However, once the burs begin to appear, the plants are avoided and become worthless for forage. Hay quality is sharply lowered if it contains sandburs. The barbed spines are extremely sharp and are hard to remove after puncturing the skin. The end may break off under the skin and cause infection. Sandbur rapidly increases on abused rangeland and other disturbed or denuded sites, particularly on dry, sandy soils. This grass is often troublesome when establishing new grass seedings. Seeds are easily transported by animals and machinery because of the spiny burs. Competition from adapted, perennial grasses is the best control. Mowing is not an effective control measure because of its low growth profile and its ability to readily initiate new inflorescences after clipping.

**Establishment.** This weedy, annual grass is never used in grassland seedings. Proper seedbed preparation including use of a cover crop and timely seeding helps control sandburs in seedings.

**Restoration.** Field sandbur is never included in prairie restorations.

**Wildlife.** Small mammals occasionally eat the seeds.

**Ornamental.** Field sandbur is undesirable as an ornamental.

Field sandbur
**Common Name:** Hairy crabgrass  
**Species:** Digitaria sanguinalis (L.) Scop.  
**Life Span:** Annual  
**Origin:** Introduced  
**Season:** Warm  
**Flowering:** August to October

### Inflorescence Characteristics
- **type:** panicle of digitate branches; branches flat (2-15 cm long); spikelets arranged in two rows on one side of the branch
- **spikelets:** 2-flowered; upper floret fertile; lemma equaling the spikelet in length (2-3 mm long), 7-nerved, scabrous
- **awns:** none
- **glumes:** unequal; first minute (less than 0.5 mm long); second lanceolate (1-1.8 mm long), 3-nerved

### Vegetative Characteristics
- **culms:** ascending (0.2-1.1 m tall); geniculate to decumbent, rooting at the nodes
- **sheaths:** keeled, covered with hair
- **ligules:** membranous (0.5-2 mm long), truncate, erose
- **blades:** flat (2-15 cm long, 3-13 mm wide); midrib prominent; usually both surfaces hairy
- **rhizomes:** none

### Distribution and Habitat
Hairy crabgrass grows throughout Nebraska in abused pastures, waste places, gardens, cultivated fields, and lawns. It is most common on bottomlands and overflow sites where moisture is less limiting. It is rarely found on uplands.

### Uses and Values
- **Forage.** Hairy crabgrass is palatable when it is actively growing, but it furnishes little forage for livestock.
- **Establishment.** It is a weedy species and is not used in grassland seedings.
- **Restoration.** This annual, introduced grass is not used in prairie restorations and can be a serious weed in restorations.
- **Wildlife.** Hairy crabgrass seeds and leaves are important food for wild turkeys. Seeds are an important food for ground-foraging birds.
- **Ornamental.** It is not used as an ornamental and is considered a weed in lawns.

### Other
Smooth crabgrass [Digitaria ischaemum (Schreb.) Schreb. ex Muhl.] is similar to hairy crabgrass, but it is not as coarse or tall, has less hair or no hair, and is bluish or purplish. It is most common in the eastern half of Nebraska in abused pastures, waste places, gardens, and lawns, but can be found westward scattered in lawns.

**Common Name:** Barnyardgrass  
**Species:** Echinochloa crus-galli (L.) Beauv.  
**Life Span:** Annual  
**Origin:** Introduced  
**Season:** Warm  
**Flowering:** June to September

### Inflorescence Characteristics
- **type:** panicle (5-21 cm long) upright or nodding, consisting of 5 to 12 raceme-like branches from the main branch; spikelets arranged on one side of each branch
spikelets: 2-flowered (one reduced to a sterile lemma), round, slightly flattened (2.5-3.5 mm long), somewhat rigid, covered with stiff hairs on glandular bumps
awns: glumes may be awned; first glume awn very short (less than 1 mm); awn of second glume longer (up to 1.5 mm long); lemma ending in an awn that may reach 3 cm long
glumes: unequal; first glume broad (1-2 mm long), clasping, sharply pointed, often with a short awn; second glume (2.5-4.5 mm long) pointed to awned
other: seeds are shiny, nearly oval, light brown to yellowish-gray

Vegetative Characteristics
culms: ascending to decumbent (0.3-1 m tall), arising from a jointed base which trails along the ground, stout
sheaths: open, compressed, sometimes keeled; glabrous, often with small glands on the margins near the collar
ligules: none

Distribution and Habitat
Barnyardgrass was introduced from Europe and is classified as a weed. It is found throughout Nebraska. It grows primarily on old fields, feed grounds, waste places and corrals and is particularly common on low, moist, disturbed areas high in fertility.

Uses and Values
Forage. This warm-season grass has fair to poor forage value. It furnishes fair forage when grazed during its early growth stages but becomes harsh and unpalatable as it nears maturity. It produces abundant seeds and rapidly invades overflow and subirrigated ecological sites which have been denuded or disturbed. Its forage production is unreliable, and it is considered to be an undesirable grass.

Establishment. This weedy grass should not be seeded.

Restoration. Barnyardgrass is an introduced species and is not included in prairie restorations.

Wildlife. Barnyardgrass seeds are an important food source for waterfowl, upland game birds, and songbirds.

Ornamental. Barnyardgrass has no value as an ornamental.

Other
Rough barnyardgrass [Echinochloa muricata (Beauv.) Fern.] closely resembles barnyardgrass. The tip of the fertile lemma is stiff and is not set off from the body by a line of stiff hairs. It is most common in the eastern half of Nebraska where it grows in moist soils of abused pastures and disturbed areas.

Common Name: Stinkgrass

Species: Eragrostis ciliaris (All.) Vign. ex Janchen
Life Span: Annual
Origin: Introduced
Season: Warm
Flowering: July to October

Inflorescence Characteristics
type: panicle (5.5-16 cm long, 2-8.5 cm wide), densely flowered; branches erect to spreading; dark green to tan
spikelets: 7- to 40-flowered, flattened, oblong to egg-shaped (3-20 mm long, 2-4 mm wide); at the end of panicle branches; lemmas strongly overlapping, broad and rounded at the tip, (1.7-2.5 mm long, 1 mm wide); 3-nerved; lateral nerves prominent

awns: none

glumes: unequal (first glume 1-2.5 mm long, second glume slightly longer), membranous, egg-shaped, narrow and may be pointed; 1- to 3-nerved

other: with glandular, pit-like depressions (appearing warty) on the branches of the inflorescence, and on the keels of lemmas

Vegetative Characteristics

culms: ascending to decumbent (10-60 cm tall), much-branched at the base, usually with a ring of hairs and glands below the nodes

sheaths: somewhat flattened, overlapping, hairs (1-3 mm long) at the throat, glandular pits on the keel

ligules: ciliate (0.4-0.9 mm long), hairs dense

blades: flat to somewhat rolled (10-20 cm long, 2.5-7 mm wide); glands on the margins and backside; conspicuous nerves, rarely hairy

Distribution and Habitat

Stinkgrass was accidentally introduced from Europe and is a common weed throughout Nebraska in waste places, fields, roadsides, and badly abused rangeland and pastures. It grows in most soils.

Uses and Values

Forage. This warm-season, weedy invader is worthless for forage. When crushed it has a disagreeable odor, which may contribute to its being unpalatable. Cattle will avoid it in hay. Since it is unable to compete with native forage grasses, it is found on rangeland only where the native cover has been removed or damaged. Abundant stands often follow tillage and may reduce soil moisture otherwise available to young grass seedlings. Providing a cover crop on land to be seeded to grass helps control weedy grasses such as stinkgrass.

Establishment. Stinkgrass is not included in grassland seedings.

Restoration. This weedy, introduced grass is not used in prairie restorations.

Wildlife. Stinkgrass is considered to be worthless for wildlife.

Ornamental. Stinkgrass is not used as an ornamental.

Other

Tufted lovegrass [Eragrostis pectinacea (Michx.) Nees ex Steud.] is a native annual species that is common across Nebraska in abused pastures, roadsides, disturbed areas, and waste places. It does not have glandular depressions on the panicle branches or lemmas. Its spikelets are usually smaller (3.5-7 mm long) and it has fewer florets (4- to 12-flowered) than stinkgrass.

Common Name: Bearded sprangletop

| Species: | Leptochloa fascicularis (Lam.) |
| Life Span: | Annual |
| Origin: | Native |
| Season: | Warm |
| Flowering: | July to September |

Inflorescence Characteristics

type: panicle of spike-like racemose branches (10-50 cm long), often partially enclosed in the uppermost sheath; branches erect (2-13 cm long)
spikelets: 5 to 12 florets (5-11 mm long); lemmas overlapping each other, split into two teeth at the tip; 3-nerved, lower portions of the nerves pubescent

glomeres: unequal; first glume shorter (1.5-3.5 mm long); second, longest (2.5-6 mm long), 1-nerved

awns: lemmas often bearing awns (up to 1.5 mm long); midrib of second glume sometimes extending into a short awn

other: spikelets maturing with a bluish, grayish, or violet coloration

**Vegetative Characteristics**

- **culm:** erect to decumbent, relatively stout, moderately branched
- **sheath:** slightly keeled, upper sheaths rounded in the back; glabrous to scabrous
- **blade:** flat (5-50 cm long, 2.5-6 mm wide), slightly keeled near the base, glabrous to scabrous; midrib prominent and whitish
- **ligule:** membranous (2-8 mm long), lacerate with lateral lobes appearing like auricles
- **rhizomes:** none

**Distribution and Habitat**

Bearded sprangletop is scattered across Nebraska in muddy or wet soils along lakes, streams, and ponds. It commonly grows on drying mud flats around ponds in grasslands. It may be found in gardens and disturbed areas.

**Uses and Values**

- **Forage.** Bearded sprangletop produces poor forage for livestock.
- **Establishment.** It is a weedy species and is not used in grassland seeding mixtures.
- **Restoration.** Bearded sprangletop is an annual and is not used in prairie restorations.
- **Wildlife.** It provides poor forage for big game. Upland game birds and songbirds eat the seeds.
- **Ornamental.** Bearded sprangletop is not used as an ornamental.

**Common Name:** Witchgrass

<table>
<thead>
<tr>
<th><strong>Species:</strong></th>
<th>Panicum capillare L.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life Span:</strong></td>
<td>Annual</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Warm</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>July to October</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

- **type:** panicle (10-30 cm long), nearly twice as wide as long, open, spreading, often one-half the length of the entire plant; densely flowered; many-branched; often partially enclosed in the upper sheath
- **spikelets:** 2-flowered (2.5-3.5 mm long); 1 perfect floret and a sterile lemma; at the ends of short panicle branches; fertile lemma sharply pointed
- **awns:** none
- **glomeres:** unequal; first glume broad (1-2 mm long); second glume narrow (2-3 mm long), both pointed; nerves with fine teeth, especially near tip
other: inflorescence breaks off at maturity and may be tumbled along the ground by the wind

Vegetative Characteristics
culms: erect to decumbent (10-70 cm tall), sparingly branched at lower nodes; may be pubescent, especially at the nodes
sheaths: round, with long hairs
ligules: ciliate membrane (0.5-2.2 mm long)
blades: flat or folded (10-25 cm long, 4-12 mm wide), sparingly hairy with long soft hairs
other: often rooting at the lower nodes of curved base, forming mats

Distribution and Habitat
This weedy grass is common throughout Nebraska on nearly all ecological sites. It grows on abused pastures and rangeland, as well as on cultivated land, waste places, and roadsides. It is particularly abundant where the soil is sandy. Witchgrass quickly spreads into areas where competition from perennial plants is at a minimum. It is often very common for one or two years on abandoned farmland but is soon replaced by more competitive plants.

Uses and Values
Forage. This undesirable, warm-season grass has poor forage value. Plants in early growth stages may be lightly grazed, but witchgrass is ignored after the inflorescences begin to develop. Livestock may utilize these plants for only two or three weeks in the summer.

Establishment. This weedy grass is not used in grassland seedings. When abundant in new seedings, witchgrass may reduce establishment of the desirable grasses by reducing soil moisture.

Restoration. This weedy annual is not used in prairie restorations.

Wildlife. Witchgrass seeds are an important source of food for ground-foraging birds such as mourning doves and quail.

Ornamental. This coarsely textured grass is not used as an ornamental.

Common Name: Fall panicum

<table>
<thead>
<tr>
<th>Species:</th>
<th>Panicum dichotomiflorum Michx.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Span:</td>
<td>Annual</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Flowering:</td>
<td>July to October</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics
type: panicle (10-40 cm long), open
spikelets: 2-flowered (2.1-3.6 mm long), gradually pointed, green, turning yellow with maturity; 1 fertile lemma (1.8-2.4 mm long), smooth; palea 2-nerved; lower lemma sterile, similar to second glume in size, texture, and shape
awns: none
glumes: unequal; first glume truncate to obtuse-tipped (0.5-1.2 mm long), several-nerved, obscure; second glume 2-3.5 mm long, 5- to 9-nerved

Vegetative Characteristics
culms: erect to decumbent and geniculate below (0.2-0.5 m tall), commonly with a zigzag shape, round to slightly flattened, generally glabrous, bright green in color; nodes swollen
sheaths: round or slightly keeled, usually glabrous
ligules: ciliate membrane (1.2-2.5 mm long), truncate
blades: flat (5-40 cm long, 5-15 mm wide), usually glabrous or nearly so, midrib usually white and prominent
rhizomes: none
Distribution and Habitat
Fall panicum is commonly found in abused pastures in southeastern Nebraska, but it extends westward over most of the eastern two-thirds of the state. It is also found in roadsides, cultivated fields, waste areas, and disturbed areas in most types of soil.

Uses and Values

Forage. Fall panicum produces only fair quality forage for livestock when it is young and actively growing. Otherwise, forage quality is poor. It may be locally abundant enough to provide forage during a limited part of the year. Fall panicum is not highly palatable to livestock, and livestock will eat many other plants before grazing this weedy grass.

Establishment. Fall panicum is not used in grassland seedings.

Restorations. It is a weedy species that is not used in prairie restorations.

Wildlife. Seeds of fall panicum can be an important source of food for waterfowl, mourning doves, and ground-foraging songbirds.

Ornamental. Fall panicum is not used as an ornamental.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Yellow foxtail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Setaria pumila (Poir.) Roemer and J. A. Shultes [=Setaria glauca (L.) Beauv.]</td>
</tr>
<tr>
<td>Life Span</td>
<td>Annual</td>
</tr>
<tr>
<td>Origin</td>
<td>Introduced</td>
</tr>
<tr>
<td>Season</td>
<td>Warm</td>
</tr>
<tr>
<td>Flowering</td>
<td>July to September</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics
- Type: panicle (3-15 cm long, 1-1.5 cm wide), dense, cylindrical; main branch with long hairs; branches short
- Spikelets: 2-flowered, spikelets rounded (2.5-3.5 mm long); upper floret perfect; lower floret staminate; 4-12 yellow bristles coming from the base of each spikelet, the bristles with tiny barbs and irregular in length (3-8 mm long)
awns: none, but bristles may appear to be awns
glumes: unequal; first glume shorter (0.9-1.8 mm long), second glume longer (1.4-2.4 mm long)

Vegetative Characteristics
culms: ascending to decumbent (0.2-1.2 m tall), branched from the base; nodes smooth
sheaths: flattened, smooth, glabrous
ligules: ciliate membrane (0.5-1.8 mm long)
blades: flat to folded (5-30 cm long, 3-12 mm wide), twisted in a loose spiral, long hairs near throat
rhizomes: none

Distribution and Habitat
This weedy grass is a native of Europe. It is common on cultivated ground, lawns, waste places, roadsides, and abused grazing land. Although widely distributed over the state, it is most abundant in central and eastern Nebraska. Yellow foxtail rapidly invades disturbed areas, and its abundance on rangeland or pastures indicates a deteriorated stand of forage plants. It is an early invader on abandoned farmland. It is very troublesome in rangeland seedings since it often produces dense stands which strongly compete with new seedlings of the desired grasses.

Uses and Values
Forage. This warm-season grass is moderately palatable and considered fair forage when rapidly growing; however, it becomes unpalatable upon maturity and has poor forage value thereafter. It is not considered a desirable plant on grazing lands or in hay meadows.

Establishment. Yellow foxtail is a weedy grass, and not used in grassland seedings.

Restoration. This annual, introduced grass is not used in prairie restorations.

Wildlife. Yellow foxtail seeds provide food and plants provide cover for upland game birds and songbirds.

Ornamental. It is not used as an ornamental.

Common Name: Bristly foxtail
Species: Setaria verticillata (L.) Beauv.
Life Span: Annual
Origin: Introduced
Season: Warm
Flowering: July to September

Inflorescence Characteristics
type: panicle (5-18 cm long, 5-15 mm wide), cylindrical, spikelike, somewhat interrupted below, erect or nodding; branches arranged in whorls
spikelets: 2-flowered (1.5-2 mm long); lemmas equaling the spikelet in length; first lemma sterile, 5-nerved, second lemma fertile and finely transversely wrinkled; subtended by 1 or 2 bristles (2-7 mm long), pointing downward, scabrous
awns: none; bristles may appear to be awns
glumes: unequal; first glume smallest (0.5-1.1 mm long), 1- to 3-nerved; second glume largest (1.5-2.2 mm long), 5- to 7-nerved
Vegetative Characteristics

culms: ascending (0.3-1.2 m tall), often geniculate below, branching below, glabrous; rarely rooting at the nodes
sheaths: keeled, glabrous or scabrous; margins pubescent
ligules: ciliate membrane (0.5-2.2 mm long)
blades: flat (10-30 cm long, 5-15 mm wide), glabrous or scabrous
rhizomes: none

Distribution and Habitat
Bristly foxtail was accidentally introduced from Europe. It is found throughout Nebraska in abused pastures, waste places, gardens, disturbed sites, and cultivated fields. It grows in nearly all soil types.

Uses and Values
Forage. Bristly foxtail may be lightly grazed when it is immature. After inflorescences have appeared, it is nearly worthless for forage.
Establishment. Bristly foxtail is classified as a weed, and it is not used in grassland seedings.
Restoration. It is an annual, introduced grass and is not appropriate for prairie restorations.
Wildlife. Its seeds are consumed by birds and small mammals. Plants provide roosting and escape cover for upland gamebirds.
Ornamental. It has no value as an ornamental.

Other
The bristles adhere to animals and to clothing, allowing the seeds to be spread. Bristly foxtail can be identified from the other foxtails by firmly touching the inflorescence to determine if it will lightly adhere to the skin. It adheres because the bristles are barbed downward.

Common Name: Green foxtail
Species: Setaria viridis (L.) Beauv.
Life Span: Annual
Origin: Introduced
Season: Warm
Flowering: July to September

Inflorescence Characteristics
type: panicle (3-15 cm long), cylindrical, erect; central axis with long hairs; side branches short
spikelets: 2-flowered; upper floret fertile (1.6-2.1 mm long), rounded, nearly flat on one side; lower floret reduced to a sterile lemma (1.6-2.3 mm long); 1 to 3 bristles (4-11 mm long) coming from the base; bristles with tiny barbs
awns: none, but the bristles may appear to be awns
glumes: unequal; first glume small (0.5-1 mm long), sharply pointed; second glume larger (1.6-2 mm long)
other: green foxtail usually flowers one to two weeks before yellow foxtail
Distribution and Habitat

This grass is a native of Europe but commonly grows intermixed with yellow foxtail in Nebraska. It is widely distributed throughout the state and is more abundant in western Nebraska than yellow foxtail. It is also a serious pest on disturbed lands.

Uses and Values

Forage. Green foxtail is moderately palatable when it is rapidly growing and is considered to be fair forage. It rapidly becomes unpalatable after inflorescences are produced. It is considered to be a weed on grazing lands and hay lands.

Establishment. Green foxtail is a weedy grass and not used in seedings.

Restoration. It is an annual, introduced species and is not used in prairie restorations.

Wildlife. Its seeds provide food for birds and small mammals.

Ornamental. Green foxtail is not used as an ornamental.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Poverty dropseed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Sporobolus vaginiflorus</em> (Torr. ex A. Gray) Wood</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Annual</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Warm</td>
</tr>
<tr>
<td>Flowering:</td>
<td>September to October</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

- **type:** panicle (1-4 cm long, 2-5 mm wide), contracted, terminal and lateral
- **spikelets:** 1-flowered; lemma elongate (2.2-2.5 mm long), sharply pointed, with short hairs, often mottled with dark purple
- **awns:** none
- **glumes:** nearly equal (2.5-5 mm long), first glume shorter, 1-nerved, membranous, glabrous mostly enclosed in the subtending leaf sheath to somewhat extended from the sheath
- **other:** none

Vegetative Characteristics

- **culms:** erect to ascending (0.1-0.7 m tall), often decumbent below, slender, wiry, grooved or flattened on 1 side, glabrous or scabrous
- **sheaths:** round, mostly shorter than the nodes; glabrous but often with scattered hairs near the collar
- **ligules:** ciliate membrane (0.3 mm long)
- **blades:** flat to rolled (2-12 cm long, 0.5-2 mm wide), scabrous, sometimes with scattered hairs from pustules near the base
- **rhizomes:** none

Distribution and Habitat

Poverty dropseed is most common in eastern Nebraska where it grows in abused pastures, waste areas, lawns, and along trails and roads. It is most abundant in sandy and sandy clay soils.

Uses and Values

Forage. Poverty dropseed produces poor forage for livestock. It appears late in the summer and is grazed only when it is immature.

Establishment. It is an annual grass and is not used in seedings.

Restoration. Poverty dropseed is not included in prairie restorations.

Wildlife. Seeds of poverty dropseed are eaten by prairie chickens.

Ornamental. It is not used as an ornamental.

Other

Annual dropseed (*Sporobolus neglectus* Nash) is similar to poverty dropseed in appearance, ecology, and growth. Glumes of annual dropseed are generally shorter (less than 2.5 mm long), and its lemmas do not have a covering of hair.
Common Name: Purple sandgrass

Species: *Triplasis purpurea* (Walt.) Chapman

Life Span: Annual

Origin: Native

Season: Warm

Flowering: August to September

**Inflorescence Characteristics**

- **type:** panicle (3-12 cm long), terminal and axillary, few branched; often purple
- **spikelets:** 2- to 4-flowered; lemma blunt (3-4 mm long), 3-nerved; nerves and callus (base of lemma) densely pubescent; palea silky pubescent on the upper one-half
- **awns:** lemma with a short awn (about 1 mm long)
- **glumes:** unequal (first 1-3.5 mm long, second 2-4 mm long), 1-nerved
- **other:** partially to mostly enclosed in the subtending sheath

**Vegetative Characteristics**

- **culms:** ascending to erect (12-50 cm tall), flattened, concave; nodes pubescent
- **sheaths:** flattened, swollen near the base, pilose and scabrous
- **ligules:** fringe of hairs (0.5-1.5 mm long)
- **blades:** flat to loosely rolled (1-10 cm long, 1-3 mm wide), margins scabrous
- **rhizomes:** none

**Distribution and Habitat**

Purple sandgrass is scattered across Nebraska, but it is not common in the Panhandle. It grows in very dry, sandy soils in pastures, rangeland, and roadsides. It is abundant in sandy accretion land along rivers and tributaries where perennial grasses are absent.

**Uses and Values**

- **Forage.** Forage production of purple sandgrass is very low. It is grazed occasionally in mid-summer when it is immature. It has a shallow root system, and livestock frequently pull the plant out of the dry sand as they graze it.
- **Establishment.** Purple sandgrass is an annual and is not used in grassland seedings.
- **Restoration.** It is not used in prairie restorations.
- **Wildlife.** Ground-foraging birds and small mammals eat the seeds.
- **Ornamental.** Purple sandgrass is not used as an ornamental.
## COOL-SEASON GRASSES

### perennial

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Common Name: Crested wheatgrass

Species: *Agropyron cristatum* (L.) Gaertn.

Life Span: Perennial

Origin: Introduced

Season: Cool

Growth Form: Bunchgrass

Flowering: June to August

Inflorescence Characteristics

type: spike (2-9 cm long, 7-20 mm wide), dense, tapering to both ends; main branch pubescent and occasionally wavy; 1 spikelet per node; spikelets closely overlapping, several times longer than the rachis internodes, pointing up and outward from the main branch

spikelets: 3- to 8-flowered (5-15 mm long), flattened and placed sideways on the main branch; lemmas pointed, may be hairy

awns: glumes and lemmas tapering to awns (1-5 mm long)

glumes: about equal (3-6 mm long), second slightly longer; pointed, firm, somewhat keeled and twisted, often hairy

Vegetative Characteristics

culms: erect to ascending (0.2-1 m tall), base occasionally geniculate; tufted, glabrous

sheaths: round, open, margins overlapping, usually glabrous

auricles: slender (1 mm long)

ligules: membranous (0.5-1.5 mm long), rounded to truncate, erose

blades: flat (5-20 cm long, 2-10 mm wide), nerves raised on the upper surface of the blade, smooth below, margins with small teeth

rhizomes: none

Distribution and Habitat

Crested wheatgrass is native to eastern Europe and Asia. It was introduced from Russia into the United States in about 1898, but was not commonly seeded until the 1930s when it was used to stabilize old cultivated fields. It is common in many counties in northern and western Nebraska where it has been seeded for pasture and hay production and was formerly seeded for cover on roadides. It is most abundant on dry, medium textured soils and is less adapted to heavy clays and sands. It is relatively tolerant of saline soils.

Uses and Values

Forage. Because of its rapid, early spring growth, this cool-season grass is valuable for early pasture. It is ready for grazing about ten days to two weeks before intermediate wheatgrass, tall wheatgrass, western wheatgrass, and smooth brome. It is highly palatable and nutritious in the spring when it is green and rapidly growing. After flowering, however, the grass becomes coarse, and the palatability and nutritional value decrease. Since crested wheatgrass matures early, it is less desirable than other wheatgrasses for late spring and early summer grazing. Under ideal soil moisture conditions, it yields less forage than intermediate wheatgrass or smooth brome. Livestock make best use of crested wheatgrass from about April 15 to June 15 when early green forage is a critical need for many Nebraska livestock operations. Crested wheatgrass also may provide valuable fall grazing if late summer moisture is adequate to stimulate regrowth.

Establishment. Crested wheatgrass is recommended for seeding in pure stands on silty to clay loam sites in the western third of Nebraska. It is less adapted to very heavy clay soils than to medium textured soils and should not be planted on loose, sandy soils. Crested wheatgrass withstands drought and cold, has moderate salt tolerance, and establishes a stand rather rapidly. It recovers well from intensive grazing, competes with weeds, and volunteers from shattered seed. Under proper management, including...
adequate nitrogen fertilization, crested wheatgrass stands can be maintained indefinitely in western Nebraska.

**Restoration.** Crested wheatgrass is an introduced species and is not used in prairie restorations.

**Wildlife.** Crested wheatgrass provides fair forage for wildlife. It is valuable to deer, elk, bighorn sheep, and pronghorn for early spring grazing. Elk graze the foliage in winter. It provides nesting and escape cover for upland game birds.

**Ornamental.** Crested wheatgrass is used occasionally as a low maintenance turf.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Redtop bent</th>
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<tbody>
<tr>
<td>Species:</td>
<td>Agrostis stolonifera L.</td>
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<td>Life Span:</td>
<td>Perennial</td>
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<tr>
<td>Origin:</td>
<td>Introduced</td>
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<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>June to August</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

type: panicle (5-30 cm long, 5-50 mm wide), pyramid-shaped, open, densely flowered; branches spreading; lower panicle branches whorled; purplish-red when flowering

spikelets: 1-flowered; lemma (1.2-2.5 mm long) blunt-tipped; palea one-half to two-thirds as long as the lemma

awns: none

glumes: nearly equal (1.5-3 mm long), longer than lemma, pointed, without hair

**Vegetative Characteristics**
culms: erect (0.5-1.5 m tall) or sometimes decumbent

sheaths: round, glabrous, frequently purple to red

ligules: membranous (1-7 mm long), rounded to truncate, entire to erose

blades: flat (4-25 cm long, 2-10 mm wide), pointed at the tip; with distinct veins on the upper surface; margins finely barbed

rhizomes: creeping, scaly

other: rarely with stolons

**Distribution and Habitat**

Redtop bent was introduced from Europe by early colonists as a pasture and hay grass. Today, it is common in hay meadows in the Sandhills and in the Elkhorn, Platte, and Loup river valleys. It produces well and spreads rapidly on low, poorly drained meadows subject to frequent flooding where few other grasses will persist. It will grow on acidic soil and poor, clayey soil with low fertility. It is moderately salt tolerant.

**Uses and Values**

**Forage.** Redtop bent makes acceptable hay on wetland if cut in the early flowering stage, but it will quickly become stemmy and unpalatable if cutting is delayed. With periodic close grazing under a rotation grazing program, redtop bent can be made to produce palatable, green forage throughout the growing season.

**Establishment.** Redtop bent is adapted for seeding on wetland and subirrigated ecological sites. Interseeding redtop bent on wet hay meadows with a reduced grass stand often increases yields; however, where a good stand of native grasses is present, introducing redtop bent will not always increase hay yield and may reduce quality. Redtop bent can withstand heavy trampling and close grazing. Also, it is cold resistant.

**Restoration.** Redtop is an introduced species and is not used in prairie restorations.

**Wildlife.** Redtop bent produces fair forage for elk, deer, and small mammals. It provides good nesting, brood rearing, and concealment cover for waterfowl and upland game birds. Its seeds are eaten by birds.

**Ornamental.** Redtop bent is used as a turf species. It flourishes with close mowing, forming a dense sod which provides good surface erosion control. The leaves of redtop bent are wider than those of most of the other bentgrasses.
**Common Name:** Creeping foxtail

**Species:** *Alopecurus arundinaceus* Poir.

**Life Span:** Perennial

**Origin:** Introduced

**Season:** Cool

**Growth Form:** Sod-forming

**Flowering:** May to August

**Inflorescence Characteristics**
- type: panicle (5-10 cm long, 6-12 mm thick), cylindrical, spike-like
- spikelets: 1-flowered, oblong to long and narrow; may be densely hairy; lemmas small (2-4 mm long)
- awns: lemma may have a short awn (0.5 to 6 mm long), straight or slightly geniculate
- glumes: nearly equal (3.5-5.5 mm long), keeled, strong midnerve, densely hairy especially toward top, pointed

**Vegetative Characteristics**
- culms: erect (0.9-1.2 m tall), straight, stout
- sheaths: round, open, margins overlapping, finely hairy, purple-tinged at base, sometimes strongly angled away from culm; collar broad, divided
- ligules: membranous (1.5-4 mm long), rounded to acuminate
- blades: flat (5-10 cm long, 6-12 mm wide), reduced above, upper surface smooth or scabrous
- rhizomes: dense, vigorous rhizomes

**Distribution and Habitat**
Creeping foxtail is native to Eurasia. The precise date of introduction into the United States is unknown, but it arrived in North Dakota in the early 1900s. In its native Eurasia, it grows on wet, salty soil and flood plains along rivers and streams. Because of its adaptation to wet sites, cold environments, and tolerance to salty or alkaline soil conditions, it has been found to be a very good species for introduction into similar sites and areas in the United States. One common cultivar is Garrison, leading to the commonly used name of Garrison creeping foxtail. This grass grows well in areas that frequently flood and subirrigated sites in the Sandhills.

**Uses and Values**
**Forage.** Under optimum soil moisture, fertility, and management, creeping foxtail produces high yields of excellent quality forage. It is best adapted to sites where soil moisture is continually available. It can tolerate extensive periods of flooding much like reed canarygrass. Creeping foxtail is adapted to a broad range of soils and is tolerant of both moderately acid and moderately alkaline soils. Once established, this grass is very winter hardy. Under optimum conditions, it spreads quite rapidly and can vigorously compete with other plants. Pure stands are highly productive when they are well fertilized. It has been used in irrigated pasture mixtures for over 30 years because of its high forage quality, regrowth ability, and ability to spread rapidly into open areas within the stand.

**Establishment.** The light fluffy seed of creeping foxtail requires special equipment for both harvesting seed and planting. Seedlings are small and weak during the first four to six weeks after emergence, but grow rapidly thereafter, often producing rhizomes within two months. Once established, creeping foxtail is very competitive, forming a dense mat of roots near the soil surface.

**Restoration.** Creeping foxtail is an introduced species and is not used in prairie restorations.
Wildlife. Creeping foxtail provides nesting cover for waterfowl and upland game birds. Deer, elk, and pronghorn graze the foliage.

Ornamental. Creeping foxtail can be planted on wet sites and along streams and ponds. Caution must be used because it can spread rapidly.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Meadow brome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Bromus biebersteinii Roemer &amp; J. A. Schultes</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Introduced</td>
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<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to June</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics
- type: panicle (7-20 cm long), open, elevated high above foliage; branches in clusters at base of the inflorescence
- spikelets: 5- to 13-flowered (1.5-3 cm long), rounded to flattened, pointed; lemma rounded, slightly toothed at the tip
- awns: lemma awned (5-10 mm long) from between the teeth; glumes awn-tipped to short-awned
- glumes: unequal (5-15 mm long); midnerve prominent, with tiny barbs and extending into a short awn

Vegetative Characteristics
- culms: erect (0.5-1 m tall), numerous
- sheaths: round, closed, very pubescent when young, with transparent margins
- ligules: membranous (0.5-2 mm long)
- blades: flat (15-40 cm long, 4-15 mm wide), lax, upper surface pubescent
- rhizomes: none

Distribution and Habitat
Meadow brome was introduced from Europe, but was not frequently seeded in the United States until the cultivar Regar was released by the Idaho Experiment Station and the USDA in 1966. In Nebraska, this species is used as a component of irrigated mixtures or planted in areas where smooth brome is well adapted. Under dryland conditions, it is planted only in the eastern half of the state.

Uses and Values
Forage. Meadow brome has many of the good qualities of both smooth brome and orchardgrass. It is adapted to the same environments as smooth brome both under irrigation and dryland conditions, but it is more winter hardy than orchardgrass. Meadow brome provides a good seasonal distribution of forage much like that of orchardgrass. This makes it a valuable component of irrigated pasture mixtures. Spring growth is among the earliest of the cool-season grasses common to Nebraska. It is compatible with alfalfa and is not as aggressive as smooth brome in competing with alfalfa. Forage quality is excellent both for grazing and when cut as hay.

Establishment. Meadow brome has excellent seedling vigor and stands are easy to establish. It is winter hardy and long-lived. With time, it may become a more important grass in Nebraska as more emphasis is placed on special use grasses in forage systems.

Restoration. Meadow brome is an introduced species and is not used in prairie restorations.

Wildlife. Deer, elk, and pronghorn graze the foliage of meadow brome.

Ornamental. Meadow brome has been used in border plantings.
Common Name: Smooth brome

Species: Bromus inermis Leyss.
Life Span: Perennial
Origin: Introduced
Season: Cool
Growth Form: Sod-forming
Flowering: May to July

Inflorescence Characteristics
- type: panicle (7-20 cm long), compact to somewhat open; branches ascending; lower branches in whorls; becoming purplish or brownish with maturity
- spikelets: 5-13-flowered (1.5-4 cm long, 7-24 cm long), lemmas rounded on the back (9-14 mm long), pointed, 2-lobed at tip
- awns: lemmas awnless or with a short awn (1-2 mm)
- glumes: unequal; first glume 1-nerved (4-8 mm long), second 3-nerved (6-10 mm long)

Vegetative Characteristics
- culms: erect to rarely decumbent (0.5-1.2 m tall), glabrous
- sheaths: round, closed; glabrous to slightly scabrous, may have long hairs; prominently veined; margins fused
- ligules: membranous (0.5-2.5 mm long), obtuse, minutely ciliate or erose
- blades: flat (15-40 cm long, 4-15 mm wide), folded below, occasionally with hairs; margins with tiny barbs; with a conspicuous "W" constriction on upper portion
- rhizomes: creeping

Distribution and Habitat
Smooth brome was introduced from Europe in the 1880s. It has long been seeded as a cultivated pasture grass in Nebraska. It is common throughout the state. It grows along roadsides and ditches, in pastures, disturbed areas, and waste places. It is common in irrigated pastures in western Nebraska.

Uses and Values
Forage. Smooth brome is a cool-season grass which produces abundant forage in the spring and late summer for hay or pasture. Growth is normally sufficient to allow grazing by late April or early May. It is quite palatable for all classes of livestock. When mature, palatability and forage quality drop sharply. Nitrogen fertilization is usually required to maintain high yield even when seeded with a legume. Smooth brome responds to intensive management practices such as irrigation, fertilization, and rotational grazing. Such practices reduce, but do not prevent, the normal summer slump in forage production. Heavy grazing is particularly damaging in very early spring and in the fall before growth stops.

Establishment. Smooth brome is widely adapted for seeding in eastern and central Nebraska on clayey, silty, overflow, and subirrigated sites. It is adapted to sandy sites only when regularly fertilized with nitrogen. In western Nebraska, it is limited to more favorable conditions such as on subirrigated and overflow ecological sites. Under irrigation smooth brome is seeded with other grasses and/or alfalfa. Because it does not withstand prolonged drought, it is not seeded on dry upland sites in western Nebraska. When seeded on adapted sites, smooth brome is tolerant to cold temperatures. Late summer seeding for establishment is preferred.

Restoration. Smooth brome is an introduced species and is not used in prairie restorations. In eastern Nebraska, it can invade prairies and become a major weedy species.

Wildlife. Smooth brome provides good forage for big game. While it is no longer seeded on Nebraska roadsides, it is common in older roadside seedings where it provides nesting cover for pheasants. It is sometimes mixed with other grasses and planted for wildlife habitat.

Ornamental. Smooth brome is an aggressive, invasive species and is not normally used as an ornamental.
**Common Name:** Bluejoint reedgrass  
**Species:** *Calamagrostis canadensis* (Michx.) Beauv.  
**Life Span:** Perennial  
**Origin:** Native  
**Season:** Cool  
**Growth Form:** Sod-forming  
**Flowering:** June to August

**Inflorescence Characteristics**  
- **type:** panicle (6-25 cm long, 1-15 cm wide), contracted to open, nodding; branches visible; purplish, sometimes greenish or straw-colored  
- **spikelets:** 1-flowered (2-4 mm long); lemma may have teeth at the tip, long hairs (1.5-2.5 mm long) from the callus (base of the lemma)  
- **awns:** lemma awned from the middle of the back; awn fine (1-2 mm long), usually straight  
- **glumes:** equal (3-4 mm long), sharply pointed, scabrous with minute teeth, especially on the keel

**Vegetative Characteristics**  
- **culms:** erect (0.6-1.5 m tall), tufted  
- **sheaths:** round or slightly flattened, open, glabrous to scabrous  
- **ligules:** membranous (3-8 mm), acute to truncate, slightly toothed or split  
- **blades:** flat to rolled (8-40 cm long, 2-8 mm wide), numerous; lax or drooping, glabrous, may be scabrous  
- **rhizomes:** creeping

**Distribution and Habitat**  
This native grass is scattered across Nebraska and may be locally common. It grows on wet soils and not on upland sites. It is found on marshy lands, wet meadows, along streams and in moist, shaded draws.

**Uses and Values**  
**Forage.** Forage value of this cool-season grass is fair to good in the spring for cattle and horses. Best grazing is when the plants are immature, but palatability drops in the summer. However, wet meadows where bluejoint reedgrass commonly grows normally cannot be grazed in the spring because of high water tables and muddy soils. Excessive trampling under these conditions is undesirable. Since bluejoint reedgrass is common only on wetland ecological sites, its major use is for hay. It makes good quality hay when it can be cut before advanced stages of maturity. Bluejoint reedgrass often occurs in dense patches which are high yielding.

**Establishment.** Bluejoint reedgrass is used in seeding mixes for wetland ecological sites.  
**Restoration.** It may be used in prairie restorations on lowland sites with wet soils.  
**Wildlife.** It provides nesting cover for upland game birds and waterfowl. It stands up well in winter, providing valuable cover for upland game birds. Bluejoint reedgrass is grazed by pronghorn, deer, elk, and bighorn sheep.

**Ornamental.** Bluejoint reedgrass can be used around ponds, along waterways, and as a background planting. It spreads rapidly by rhizomes, and caution must be used.

**Other**  
Northern reedgrass (*Calamagrostis stricta* (Timm) Koel. subsp. *inexansa* (A. Gray) C. W. Green] and narrow reedgrass (*Calamagrostis stricta* (Timm) Koel. subsp. *stricta*), also called ponygrass, are two closely related reedgrass species which occur in Nebraska. Both resemble bluejoint reedgrass, but they have more compact and erect panicles, shorter stature, and have narrower and more erect leaf blades. Both are similar in forage value, growth habits, and distribution to bluejoint reedgrass but are less common in the state.
Common Name: **Orchardgrass**

Species: *Dactylis glomerata* L.

Life Span: Perennial

Origin: Introduced

Season: Cool

Growth Form: Bunchgrass

Flowering: May to September

**Inflorescence Characteristics**

* type: panicle (3-20 cm long); with spikelets grouped together in dense, one-sided clusters at the end of panicle branches; lower 2 or 3 panicle branches long; upper branches very short

* spikelets: 2-5-flowered (5-9 mm long); lemmas flattened (3-7 mm long), the keel with tiny stiff hairs, margins transparent

* awns: glumes and lemmas sharply pointed to awntipped (up to 1 mm long)

* glumes: about equal (2.5-7 mm long), flattened, pointed, 1-nerved, hairs on the nerve

**Vegetative Characteristics**

* culms: erect (0.3-1.2 m tall), glabrous

* sheaths: flattened or keeled; mostly closed, may be scabrous, shorter than the internodes

* ligules: membranous (2-8 mm long), obtuse, erose to lacerate

* blades: flat or folded (10-40 cm long, 2-11 mm wide), smooth to scabrous on both surfaces, glabrous; midrib prominent and with tiny teeth

* rhizomes: rarely with short rhizomes, but it has the appearance of a bunchgrass

**Distribution and Habitat**

Orchardgrass was introduced into the United States from Eurasia in the mid 1700s. Its distribution in central and western Nebraska is limited to irrigated pastures, subirrigated meadows, along ditch banks, and on moist soils. It may occur in pasture mixtures in eastern Nebraska and in waste places, roadsides, and lawns.

**Uses and Values**

**Forage.** Orchardgrass starts growth early in the spring, and new, immature growth is highly palatable to livestock. It grows and matures rapidly and as it matures, its palatability and nutritive value decline. To keep orchardgrass green throughout the summer and to prevent large, unpalatable colonies from forming, it should be grazed or hayed while it is actively growing. Periodic grazing in a rotation system is the most effective way of maintaining a continuous yield of palatable forage. Orchardgrass recovers from grazing or mowing more rapidly than smooth brome and continues growth during midsummer when smooth brome becomes somewhat dormant. Rapid recovery from defoliation and ability to grow in midsummer result in a more uniform yield for the season.

**Establishment.** Orchardgrass is valuable as an irrigated or subirrigated hay or pasture grass in Nebraska. It is shade tolerant, moderately heat and cold resistant, and establishes rapidly. It is sometimes injured if it starts to grow during a warm period in February and then is subjected to a period of extreme cold weather. It does not tolerate prolonged drought and is only slightly salt tolerant. Its use in nonirrigated pasture mixtures should be restricted to eastern Nebraska where soil moisture conditions are favorable. Several cultivars are available. This grass produces best on fertile soils and responds well to nitrogen fertilization. It is an excellent grass to seed with alfalfa.

**Restoration.** Orchardgrass is an introduced species and is not used in prairie restorations.

**Wildlife.** Orchardgrass is excellent for big game, especially deer and elk. Geese graze the foliage. It provides nesting, brood rearing, escape cover, and winter cover for pheasants and other upland game birds. Small mammals and birds eat the seeds.

**Ornamental.** Orchardgrass is considered to be a weed in lawns, but it is occasionally seeded alone for use as a low maintenance turf. It grows relatively well in shady areas.
Common Name: Canada wildrye

Species: Elymus canadensis L.
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Bunchgrass
Flowering: June to August

Inflorescence Characteristics
- type: spike (8-25 cm long), erect to arching, thick, bristly; 2 to 4 spikelets per node, overlapping, slightly spreading
- spikelets: 2- to 6-flowered (1.2-1.5 cm long, excluding awns); lemmas broad at base (8-15 mm long), surfaces may be scabrous or have long stiff hairs
- awns: lemma awned (1.5-4 cm long), flexuous, curving outward at maturity; glumes tapering to awns (1.5-3.5 cm long)
- glumes: about equal (1-2 cm long), broad at base and tapering to an awn

Vegetative Characteristics
- culms: ascending to erect (1.0-1.5 m tall), tufted, coarse, leafy
- sheaths: round, smooth, rarely hairy
- auricles: well developed (1-2 mm long), clasping, finger-like
- ligules: membranous (0.5-2 mm long), truncate, erose or rarely ciliate
- blades: flat or folded (5-40 cm long, 7-20 mm wide), elongate, ascending, tapering to a fine point, upper surface scabrous, margin finely toothed, midrib prominent below
- rhizomes: none

Distribution and Habitat
This native grass is scattered throughout Nebraska but is less common in western Nebraska. It grows primarily where moisture is abundant, such as on overflow and sub-irrigated sites. On upland sites, it grows where favorable local moisture concentrations prevail, such as near small mammal mounds, edges of roads, and in ditches. Canada wildrye is adapted to the full range of soil textures from gravelly to clayey.

Uses and Values
Forage. This cool-season grass is a satisfactory but not outstanding rangeland grass. It is moderately palatable in the spring when green and growing, but palatability and nutritive value drop sharply as the plant matures in early summer. When cut before inflorescences appear, it provides hay of fair to good quality. It does not cure well. It does not tolerate continuous grazing. Natural seeding and seedling vigor allow it to establish quickly on locally disturbed sites. Since it normally makes up only a small part of native vegetation, it is of minor importance on Nebraska rangeland.

Establishment. Canada wildrye is used extensively in mixtures for rangeland seeding, prairie restoration, and wildlife plantings. It has good tolerance of soil salinity and is adapted to nearly all soil textures.

Restoration. Canada wildrye should be included in prairie restorations in central and eastern Nebraska where soil moisture is sufficient. It is rare in native prairies and, therefore, should be a minor component of the seed mixture for the restoration.

Wildlife. Canada wildrye provides forage for big game in the spring and early summer before production of inflorescences. It furnishes excellent habitat for upland game birds and small mammals by providing nesting, brood, escape, and winter cover.

Ornamental. It may be used as a screen, background, or specimen planting. The arching inflorescences are used in fresh and dried flower arrangements.

Other
Virginia wildrye (Elymus virginicus L.) grows in shaded areas throughout Nebraska. It closely resembles Canada wildrye, except that Virginia wildrye has straight awns that are only about 1 cm in length.
Common Name: **Tall wheatgrass**

Species: *Elymus elongatus* (Host) Nevski

Life Span: Perennial

Origin: Introduced

Season: Cool

Growth Form: Bunchgrass

Flowering: June to September

**Inflorescence Characteristics**

- **type:** spike (15-30 cm long), often loose and open; upper spikelets slightly overlapping and pointing away from main branch, lower spikelets widely spaced and close to culm
- **spikelets:** 6- to 12-flowered (1.5-2.5 cm long); lemmas large (8.5-11 mm long), obtuse to rounded, midnerve thickened
- **awns:** lemmas very rarely awned
- **glumes:** oblong, unequal (first glume 6-9 mm long, second 7-10 mm long)

**Vegetative Characteristics**

- **culms:** erect (0.7-1.5 m tall), tufted, stout
- **sheaths:** round, smooth, margins fringed with hairs
- **auricles:** erect (1-2 mm long), not clasping
- **ligules:** membranous (less than 1 mm long), inconspicuous, with a few hairs
- **blades:** flat to loosely rolled (15-40 cm long, 2.5-5 mm wide), stiff, veins thick, may be slightly scabrous, sometimes sparsely covered with long hairs
- **rhizomes:** none

**Distribution and Habitat**

This grass was introduced in 1909 from Turkey, where it grows on saline meadows and seashores. It grows throughout Nebraska, but it is most commonly found in the North Platte and Platte river valleys where it has been seeded on wet, saline soils.

**Uses and Values**

**Forage.** This cool-season grass is ready for grazing later in the spring than crested wheatgrass. It is a coarse grass that has only fair to good palatability for cattle early in the growing season. Palatability declines to poor at the time when inflorescences appear. Tall wheatgrass remains green and productive for late spring and early summer grazing and often makes good regrowth in the fall. Because of its coarseness, sheep make uneven and patchy use of the forage. For best results even with cattle, tall wheatgrass should be planted in pure stands and grazed in a rotation system to prevent undue selective and patchy grazing. Tall wheatgrass is very productive once established on favorable sites.

**Establishment.** Tall wheatgrass is highly tolerant of saline and alkaline soils with high water tables. For this reason, it is recommended for seeding on saline subirrigated sites with high pH and poor drainage. Although it also produces well on normal subirrigated sites, tall wheatgrass has no advantage over intermediate wheatgrass and smooth brome on the more favorable upland sites of central and eastern Nebraska, and it is less adapted to the dry upland soils of western Nebraska than crested wheatgrass and Russian wildrye.

**Restoration.** Tall wheatgrass is an introduced species and is not used in prairie restorations.

**Wildlife.** The abundant foliage furnishes cover for upland game birds and big game. Big game animals occasionally lightly graze tall wheatgrass. The seeds are eaten by birds and small mammals.

**Ornamental.** Tall wheatgrass has been used as a screen planting.
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Squirreltail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td><em>Elymus elymoides</em> (Raf.) Swezey (=Sitanion hystrix) (Nutt.) J. G. Smith</td>
</tr>
<tr>
<td>Life Span</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin</td>
<td>Native</td>
</tr>
<tr>
<td>Season</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering</td>
<td>May to June</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- **type:** spike (2-15 cm long, excluding the awns), cylindrical, stiff, erect; 2 spikelets per node
- **spikelets:** 2- to 6-flowered; lemma rounded (8-10 mm long); may be slightly hairy
- **awns:** lemmas awned (5-15 mm long); glumes awned (2-10 cm long); awns widely spreading at maturity, stiff, green or tinged with purple
- **glumes:** very narrow, the nerves extending into long, scabrous awns
- **other:** sometimes partially enclosed by an inflated sheath

**Vegetative Characteristics**
- **culms:** erect (10-60 cm tall), stiff, densely tufted, glabrous to pubescent
- **sheaths:** round, open, usually overlapping, translucent margins; may be slightly hairy, collar not hairy
- **auricles:** small (up to 1 mm long), often purplish
- **ligules:** membranous (0.6-1 mm long), obtuse, erose to ciliate
- **blades:** flat to rolled (5-20 cm long, 1-5 mm wide), stiff and ascending, tapering to a fine point, prominently veined
- **rhizomes:** none

**Distribution and Habitat**
This native grass is found on dry upland sites in central and western Nebraska. It is most common in southwest Nebraska. Squirreltail occurs as scattered plants. It is primarily associated with blue grama but may be locally prominent on disturbed areas.

**Uses and Values**
- **Forage.** This cool-season grass produces fair forage for cattle and sheep during the spring and early summer. During midsummer it becomes unpalatable because of troublesome awns and rather harsh forage. Mature awns may injure livestock. After inflorescences have broken and fallen, the foliage may be eaten to some extent in late summer and fall. It rarely becomes sufficiently abundant to produce much forage under Nebraska conditions.

  **Establishment.** Squirreltail is not recommended for seeding mixtures in Nebraska.

  **Restoration.** It is not used in prairie restorations.

  **Wildlife.** It produces poor forage for big game and fair forage for small mammals. It provides some cover for upland game birds and small mammals.

  **Ornamental.** The purple-tinged inflorescences with long awns are attractive and it is occasionally used as an accent plant.
**Common Name:** Intermediate wheatgrass  

**Species:** Elymus hispidus (P. Opiz) Melderis  

= Agropyron intermedium  

(Host) Beauv., Thinopyrum intermedium (Host.) Barlow & D. R. Dewey  

**Life Span:** Perennial  

**Origin:** Introduced  

**Season:** Cool  

**Growth Form:** Sod-forming  

**Flowering:** June to September  

**Inflorescence Characteristics**  

- type: spike (8-25 cm long), slender; spikelets 1 per node, may be slightly overlapping, at maturity spikelets may be curving away from the main branch  
- spikelets: 3- to 8-flowered (1-2 cm long), lemmas lanceolate (7-11 mm long), may have hairs (4-7 mm long)  
- awns: none, lemma may be awn-tipped  
- glumes: nearly equal (4-9 mm long), about one-half as long as spikelet, may be with long dense hairs, distinct nerves, blunt or notched at the tip with rounded lobes  

**Vegetative Characteristics**  

- culms: erect (0.5-1.2 m tall), robust, glabrous, waxy, bluish  
- sheaths: round, open, occasionally hairy, margins ciliate  
- auricles: well-developed (1-2 mm long), sharply pointed  
- ligules: membranous (1-2 mm long), truncate, erose to entire  
- blades: flat or loosely rolled (10-40 cm long, 5-10 mm wide), stiff, broad at base and tapering to a point, strongly veined, green or waxy and bluish, glabrous  
- rhizomes: creeping, abundant  

**Distribution and Habitat**  

This grass was introduced from Europe in the 1930s. It has become rather common over Nebraska from seedings, but it is less common in the eastern half of the state than smooth brome. Also, it grows on roadsides, disturbed areas, and fields. Intermediate wheatgrass is adapted to a broad range of soil textures and soil moisture conditions.

**Uses and Values**  

**Forage.** This cool-season grass is ready for grazing about two weeks later than crested wheatgrass. It matures later than many cool-season grasses and produces excellent quality forage in the spring and summer. When growth stops during hot, dry summers, the forage cures well and remains palatable. Growth resumes in late summer after rain. It has been used successfully as an irrigated pasture grass in pure stands, especially when emphasis is on spring and fall production. Forage production is difficult to maintain during the hot part of the summer, even with adequate water and fertilizer. Intermediate wheatgrass is also adapted for hay production on overflow and sandy sites, particularly in western Nebraska. Hay yields have been satisfactory on fertile upland sites in the northern counties. Hay cut in the early flowering stage is of good quality.  

**Establishment.** Intermediate wheatgrass is recommended for seeding on fertile soils throughout most of Nebraska, especially on moderately saline or alkaline soils. In eastern Nebraska, it is adapted to sites on which smooth brome is found. In western Nebraska, it is adapted to all upland sites, except the most arid uplands west of North Platte and south of the North Platte River. On such unfavorable sites, intermediate wheatgrass may quickly establish only to be eliminated by drought. It is more tolerant of dry conditions than smooth brome but less tolerant than Russian wildrye and crested wheatgrass. It produces well on overflow sites but will not withstand wet, highly saline

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or alkaline soils. Because of its greater tolerance of low soil moisture, intermediate wheatgrass also responds well in situations where supplemental water is available only in the spring or fall.

Restoration. Intermediate wheatgrass is an introduced species and is not used in prairie restorations.

Wildlife. Intermediate wheatgrass produces fair forage for big game animals. It provides nesting and escape cover for upland game birds. Birds and small mammals eat the seed.

Ornamental. Intermediate wheatgrass has been used as a background planting. Care should be taken because it can spread quickly from rhizomes.

<table>
<thead>
<tr>
<th>Common Name: Quackgrass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
</tr>
<tr>
<td><strong>Season:</strong></td>
</tr>
<tr>
<td><strong>Growth Form:</strong></td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

type: spike (5-30 cm long), slender, loose to compact, somewhat resembling the slender heads of wheat; spikelets arranged in 2 rows, flat-wise to the rachis

spikelets: 3- to 8-flowered (1-2 cm long); lemmas 8-13 mm long, 5-nerved

glumes: nearly equal (5-12 mm long); first glume slightly shorter than the second glume; firm; 3- to 7-nerved

awns: glumes awned (3-5 mm long) or awnless; lemmas awned (2-5 mm long), awn-tipped, or awnless

**Vegetative Characteristics**

culms: erect to decumbent (0.3-1.1 m tall), often geniculate, branched at the base, hollow

sheaths: round, glabrous to pilose

auricles: small, generally conspicuous

ligules: membranous (0.1-0.8 mm long), truncate

blades: flat (6-30 cm long, 3-15 mm wide), glabrous to sparsely pubescent above

rhizomes: extensively creeping, yellowish to white (up to 3 m long), sharply pointed

**Distribution and Habitat**

Quackgrass is native to Europe; however, it has become naturalized in Nebraska and is found in most of the state.

It grows in moist areas of pastures, meadows, rangeland, lawns, roadsides, ditches, and cultivated fields. It is a serious, invasive weed in cultivated land.

**Uses and Values**

**Forage.** Quackgrass furnishes fair to good forage for livestock. It is most palatable and nutritious in the spring. It can be cut for hay, but it may rapidly spread and become a serious weed.

**Establishment.** It is not recommended for seeding because of its ability to rapidly spread.

**Restoration.** Quackgrass is an introduced species and is not used in prairie restorations.

**Wildlife.** Deer, pronghorn, and small mammals utilize its forage. Prairie chickens, wild turkeys, and small mammals eat quackgrass seeds.

**Ornamental.** Quackgrass is not used as an ornamental because it spreads rapidly.
Common Name: Western wheatgrass

Species: *Elymus smithii* (Rydb.) Gould

 [=*Agropyron smithii* Rydb., *Pascopyrum smithii* (Rydb.) A. Love]

Life Span: Perennial

Origin: Native

Season: Cool

Growth Form: Sod-forming

Flowering: May to September

Inflorescence Characteristics

type: spike (6-20 cm long), erect, often dense, stiff; spikelets closely overlapping (about one-half of each spikelet overlaps); spikelets usually solitary or occasionally 2 per node

spikelets: 5- to 12-flowered (1.5-2.5 cm long), compressed; lemmas sharply pointed (8-14 mm long), rigid, occasionally densely hairy, 5-nerved

awns: usually none; glumes occasionally awn-tipped or awned (to 5 mm long)

glumes: unequal, first shorter (6-12 mm long) than the second (7-15 mm long), asymmetrical, narrow, rigid, faintly 3- to 5-nerved

Vegetative Characteristics

culms: erect (30-90 cm tall), stiff, single or in small clusters, glabrous, waxy

sheaths: round, open, shorter than the internodes, glabrous, may be scabrous

auricles: short, clasp the stems, clawlike, sometimes purplish at base

ligules: membranous (to 1 mm long), truncate, erose to minutely ciliate

blades: flat to rolled (10-25 cm long, 2-6 mm wide), rigid, tapering to a sharp point, strongly veined

rhizomes: slender, creeping

other: whole plant may appear blue-green and have a waxy coating

Distribution and Habitat

Western wheatgrass is the most common and widely distributed native cool-season grass in Nebraska. It thrives on loam to heavy clay soils, withstands a claypan, and tolerates saline soil. It is often found in pure stands on overflow sites and lower slopes of silty sites. It grows intermixed with blue grama, needleandthread, and threadleaf sedge on silty and clayey sites but is scattered and low-growing on dry uplands. It ranges from abundant to common on saline subirrigated, subirrigated, limy upland, shallow, and thin loess ecological sites, and is occasionally found even on sands sites. Western wheatgrass may spread by rhizomes and replace associated grasses damaged by trampling, drought, or covered by wind- or water-eroded soil.

Uses and Values

Forage. This cool-season grass grows rapidly in late April and May, but it starts about two weeks later than threadleaf sedge, sandberg bluegrass, and crested wheatgrass. Palatability varies from fair to good while it is green and growing, but it becomes coarse and stemmy by early summer and is then seldom grazed in mixed stands until regrowth starts again in the fall. Fall regrowth of this grass cures well, retains much of its nutritional value, and is considered good winter forage for sheep and cattle. Wheatgrass swales are commonly cut for hay in central and western Nebraska. When cut in early bloom, western wheatgrass makes fair quality hay.

Establishment. This productive grass is valuable for seeding in native grass mixtures on overflow, silty, clayey, saline subirrigated, and sandy ecological sites, particularly in central and western Nebraska. It is occasionally seeded in pure stands for cool-season pasture. When compared with intermediate wheatgrass on silty soils, it is slower to
establish, better at tolerating dry conditions, less palatable, and matures earlier in the spring.

Restoration. Western wheatgrass is an important species for prairie restoration in many parts of Nebraska. It is especially important when the soil has significant clay content.

Wildlife. Western wheatgrass provides fair forage for pronghorn and other big game animals. Upland game birds and small mammals eat the seed.

Ornamental. The blueish-green foliage is attractive. Western wheatgrass planted in landscapes spreads rapidly by rhizomes.

Common Name: Slender wheatgrass
Species: *Elymus trachycaulus* (Link)


Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Bunchgrass
Flowering: June to August

Inflorescence Characteristics

*type:* spike (5-25 cm long), slender, compact, 1 spikelet per node, spikelets closely overlapping (usually one-half of each spikelet overlaps); sometimes violet-tinged

*spikelets:* 4- to 7-flowered (1-2 cm long); lemmas pointed (8-13 mm long), short hairs may be present on rachilla and margins of lemma

*awns:* lemma may be awned, length highly variable (1-30 mm long); glumes may taper to short awns

*glumes:* nearly equal (6-14 mm long), nearly enclosing the florets, second longer than the first, strongly 5- to 7-nerved; margins transparent and slightly scabrous; nerves dark green

Vegetative Characteristics

culms: erect to ascending (0.5-1.5 m tall), slender, tufted; green or slightly blue-green, glabrous; nodes dark

sheaths: round, glabrous or with fine hairs

auricles: short (0.3-1 mm long) or absent, only one may be present

ligules: membranous (0.4-0.8 mm long), obtuse, erose to ciliate

blades: flat or folded (5-25 cm long and 2-8 mm wide), usually flat; slender with a pointed tip, glabrous, margins with a narrow white band, slightly barbed

rhizomes: rare

Distribution and Habitat

Slender wheatgrass is relatively common on upland sites in western Nebraska, particularly in the northwest corner of the state. It grows abundantly on subirrigated ecological sites over the western two-thirds of the state. It seldom grows in dense or pure stands but is found mostly as scattered plants.

Uses and Values

*Forage.* Slender wheatgrass is rated as good forage for cattle and fair to good for sheep. This native, cool-season grass remains green and nutritious through most of the summer. It has moderate forage yield where plants are abundant and often makes up a significant part of the yield of hay from subirrigated meadows.

*Establishment.* Slender wheatgrass is adapted for seeding in western Nebraska on silty and clayey sites and may be seeded on sandy and subirrigated sites; however, it is much less commonly included in seeding mixtures than western wheatgrass because its forage yields are lower. Seed production is ample, seedlings are vigorous, and plants are
cold resistant. It is moderately salt tolerant but is less tolerant of drought as well as western and crested wheatgrass.

**Restoration.** Slender wheatgrass should be a minor component of seed mixtures for prairie restorations in western Nebraska.

**Wildlife.** Slender wheatgrass provides good to excellent forage for pronghorn, deer, bighorn sheep, and elk. It provides nesting and escape cover for upland game birds.

**Ornamental.** Slender wheatgrass can be used as a screen planting.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Fowl mannagrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Glyceria striata</em> (Lam.) A. S. Hitchc.</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Sod-forming</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to July</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- type: panicle (10-25 cm long), open; branches ascending from the base, then nodding
- spikelets: 3- to 8-flowered (2.5-4 mm long); lemmas obtuse (1.2-2 mm long), 7-nerved, pubescent
- awns: none
- glumes: unequal (first 0.5-1 mm long, second 0.6-1.5 mm long), obtuse, papery

**Vegetative Characteristics**
- culms: erect to decumbent (0.3-1.4 m tall), stout to slender, glabrous, sometimes rooting at the nodes
- sheaths: slightly keeled, closed near the throat, scabrous
- ligules: membranous (1-5 mm long), obtuse or acute, sometimes closed in front
- blades: flat or folded (10-45 cm long, 2-6 mm wide), smooth or scabrous
- rhizomes: creeping

**Distribution and Habitat**
Fowl mannagrass grows throughout Nebraska in wet meadows, along streams and ponds, and in wet woods. It can be the most abundant grass in wet habitats.

**Uses and Values**
**Forage.** Fowl mannagrass produces good forage for livestock. It is a common component of hay harvested from the wetter areas of meadows. Its quality in hay is good if it is harvested before it reaches maturity.

**Establishment.** It is an important component of seeding mixtures for wet habitats.

**Restoration.** Fowl mannagrass should be a small component of seed mixtures used for restoration of wet sites in Nebraska.

**Wildlife.** Fowl mannagrass seeds are an important source of food for waterfowl. Geese eat the young shoots. It provides nesting cover for waterfowl and upland game birds.

**Ornamental.** It is not used as an ornamental.

**Other**
American mannagrass (*Glyceria grandis* S. Wats.) grows in the northern half of Nebraska. While it is similar in height to fowl mannagrass, American mannagrass has wider leaves (7-14 mm wide), a larger panicle (20-40 cm long), and the first glume is longer than 1 m. Its glumes are white, and its lemmas and leaf sheaths are purplish. American mannagrass grows in somewhat drier habitats than fowl mannagrass.
**Hesperostipa comata** (Trin. & Rupr.) Barkw. (=*Stipa comata* Trin. & Rupr.)

**Common Name:** Needleandthread  
**Species:** Hesperostipa comata (Trin. & Rupr.) Barkw. (=*Stipa comata* Trin. & Rupr.)

**Life Span:** Perennial  
**Origin:** Native  
**Season:** Cool  
**Growth Form:** Bunchgrass

**Inflorescence Characteristics**  
**Type:** panicle (10-35 cm long), contracted to open, loose; branches slender, scabrous; spikelets few  
**Spikelets:** 1-flowered; lemma relatively large (1-1.5 cm long), pale to brown at maturity, base of spikelet covered with stiff hairs (0.2-0.5 mm long); callus (base of the lemma) sharply pointed  
**Awns:** lemma awned (10-20 cm long), flexuous; lowest segment twisted and with short hairs; terminal segment not twisted, smooth to slightly scabrous  
**Glumes:** slightly unequal (1.5-3.5 cm long), first longest; narrowing to slender tips  
**Other:** lower part of inflorescence enclosed in a loose, inflated sheath

**Vegetative Characteristics**  
**Culms:** erect (0.3-1.2 m tall), densely tufted; nodes sometimes with hairs, otherwise culm is without hair  
**Sheaths:** round, open, usually longer than the internodes, smooth to slightly scabrous, prominently veined  
**Ligules:** membranous (2-6 mm long); acuminate, split or widely notched at top  
**Blades:** flat or rolled (5-40 cm long, 1-3 mm wide), slightly scabrous on the upper surface  
**Rhizomes:** none

**Distribution and Habitat**  
This native grass is common to abundant on most upland sites in central and western Nebraska. In the Sandhills, it is most common on sands and sandy ecological sites and less common on choppy sands sites. It is most prominent on medium and heavy textured soils in the northern Panhandle but is less abundant south of the North Platte River. Needleandthread is a common associate of blue grama, western wheatgrass, and threadleaf sedge on medium textured soils on western Nebraska rangelands.

**Uses and Values**  
**Forage.** This cool-season grass produces early spring forage and remains actively growing until about mid-June. During this period and until the inflorescences begin to form, needleandthread is very palatable and nutritious. During midsummer, it is semi-dormant and is grazed little. Regrowth begins in late summer if soil moisture is adequate, and livestock will again prefer it. It cures well and is readily eaten during the winter even when dry and dormant. Needleandthread is an important grass because of its widespread distribution and abundance in the rangeland regions of Nebraska. Continued heavy, early spring grazing is harmful to needleandthread. The awns may be troublesome and cause mechanical injury to grazing animals, but they are rapidly shed from the plants as they mature in July. This grass is a frequent component of upland hay, particularly in the Sandhills. It makes good quality hay if cut before the awns are produced.

**Establishment.** Seeding of needleandthread is more common in states to the west and southwest of Nebraska. In Nebraska, it can be an important species for upland seedings. The awns make seed harvest and handling difficult and must be removed for the seeds to pass through a drill.

**Restoration.** Needleandthread should be an important component of prairie restorations in central and western Nebraska.

**Wildlife.** Needleandthread produces poor to fair forage for big game. It may be extensively utilized by elk, bighorn sheep, and pronghorn in winter and deer in spring. Seeds provide food for small mammals and birds.
Common Name: Porcupinegrass
Species: *Hesperostipa spartea* (Trin.) Barkw. (=*Stipa spartea* Trin.)
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Bunchgrass

**Inflorescence Characteristics**
- **Type:** Panicle (10-40 cm long), open, lax, nodding; branches few, slender, each with 1 or 2 spikelets
- **Spikelets:** 1-flowered; lemmas narrow (1.5-2.5 cm long), brown, rigid, with long hairs, callus (base of lemma) sharply pointed
- **Awns:** Lemmas awned (12-20 cm long); twice geniculate, spirally twisted on lower segment, top segment is straight and not twisted
- **Glumes:** Unequal (3-4 cm long), first glume longest, tapering to a point

**Vegetative Characteristics**
- **Culms:** Erect (0.5-1.2 m tall), tufted
- **Sheaths:** Round, open, mostly overlapping, prominently veined
- **Ligules:** Membranous, rather firm (4-5 mm long), truncate, often split
- **Blades:** Flat or rolled (5-45 cm long, 3-5 mm wide), scabrous on upper surface and margins, prominently veined, may have short stiff hairs on upper surface, smooth and shiny below
- **Rhizomes:** None

**Distribution and Habitat**
This native grass is found primarily in northern and eastern Nebraska. It is less drought tolerant than needleandthread and is uncommon in southwestern and western Nebraska. On silty and clayey sites, it grows on hills, ridges, at heads of draws, and on lower slopes in association with little bluestem, prairie junegrass, and sideoats grama. It is also scattered on Sandhill uplands, especially the eastern Sandhills. Its range overlaps that of needleandthread in the Sandhills and on clayey sites along the northern boundary of Nebraska.

**Uses and Values**
- **Forage.** Season of growth, palatability, and management are similar to needleandthread. This cool-season grass grows rapidly in the spring and is best used for spring and fall grazing. Forage is somewhat coarser than needleandthread. Continuous, heavy spring grazing can be damaging to porcupinegrass. The awned seeds are very coarse and may cause serious mechanical injury to livestock. Porcupinegrass is largely avoided from the time the inflorescences emerge until the seeds are shed, but fall regrowth is readily grazed. Since it grows in scattered stands, herbage yield is rather low. When cut for hay, it is of good quality, but harvesting must be done early before inflorescence development.
- **Establishment.** Porcupinegrass is an important species for grassland seedings in eastern and northeastern Nebraska. Awns make seed harvesting and handling difficult, and they must be removed in order for the seeds to pass through a drill. Commercial seed is not always available.
- **Restoration.** Porcupinegrass should be used in tallgrass prairie restorations in eastern Nebraska.
- **Wildlife.** Porcupinegrass provides fair to poor forage for big game. The seeds are important food for birds and small mammals.
- **Ornamental.** Porcupinegrass has been used as a specimen planting, but its use as an ornamental is infrequent.
Common Name: **Foxtail barley**

**Species:** Hordeum jubatum L.

**Life Span:** Perennial

**Origin:** Native

**Season:** Cool

**Growth Form:** Bunch grass

**Flowering:** June to August

**Inflorescence Characteristics**

- **Type:** spicate raceme (4-10 cm long, 4-6 cm wide, including awns), nodding; 3 spikelets per node; center spikelet fertile; 2 lateral spikelets sterile and on pedicels; often purple, turning pale with age

- **Spikelets:** central spikelet 1-flowered, fertile lemma narrow (4-8 mm long); lateral spikelets 1-flowered, sterile, lemma reduced (0.7-1.2 mm long), often appearing as little more than a series of 3 awns

- **Awns:** lemma and glumes awned (1-6 cm long)

- **Glumes:** unequal; outer glumes of side spikelets narrow and bristle-like, glumes of center spikelet and inner glumes of side spikelets wider and flattened at the base; fringed with tiny, stiff hairs on margins

- **Other:** inflorescence breaks apart at maturity; may be enclosed in upper leaf sheath

**Vegetative Characteristics**

- **Culms:** erect (20-70 cm tall), decumbent below, tufted, slender, without hairs to softly pubescent; nodes dark

- **Sheaths:** round, open, shorter than the internodes, glabrous to lightly pubescent

- **Auricles:** absent or small (0.5 mm long), sometimes present on some leaves of a plant and not on others

- **Ligules:** membranous (up to 1 mm long), truncate, fringed with fine hairs

- **Blades:** flat (5-15 cm long, 2-5 mm wide), tapering to a fine point

- **Rhizomes:** none

**Distribution and Habitat**

This undesirable native grass occurs throughout Nebraska. It is particularly abundant on saline subirrigated ecological sites but is also common on subirrigated, overflow, and wetland sites. It occurs in waste places, roadides, ditches, and along streams. On upland silty and clayey sites in western Nebraska, foxtail barley grows only in areas where extra water accumulates such as seeps and around stock water developments. Foxtail barley sometimes is a serious weed in warm-season pastures on uplands in eastern Nebraska. It is highly salt tolerant on wet soils and may assume complete dominance when other species are depleted. An abundance of foxtail barley in either native or seeded meadows may indicate improper management. Dense stands are usually associated with disturbance by improper grazing or close mowing. Since foxtail barley is a short-lived perennial and new seedlings come primarily from the current year's seed crop, mowing to prevent seed production is a potential control measure. Chemical control in pastures is impractical, except when used in conjunction with seeding to more desirable grasses.

**Uses and Values**

**Forage.** This cool-season grass is usually rated as poor forage for both cattle and sheep, but occasionally it is lightly grazed by cattle before inflorescence development. Inflorescences are not only unpalatable but are mechanically injurious to livestock when grazed or eaten as a contaminant in hay. The awns frequently cause sores in the mouth and around the nose and eyes and contaminate sheep fleeces. Foxtail barley greatly lowers hay quality.

**Establishment.** Foxtail barley is a weedy species and should not be used in grassland seedings.
**Restoration.** It is not a desirable species for prairie restorations.

**Wildlife.** Foxtail barley seeds are eaten by small mammals.

**Ornamental.** The silky inflorescences make foxtail barley an attractive plant. It has been used in fresh cut and dried flower arrangements. It should be planted with caution because it is a weedy species and can spread rapidly.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Prairie junegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
<td>Koeleria macrantha (Ledeb.) J. A. Shultes [=Koeleria pyramidata (Lam.) Beauv.]</td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
<td>Perennial</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Cool</td>
</tr>
<tr>
<td><strong>Growth Form:</strong></td>
<td>Bunchgrass</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>May to August</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- **type:** panicle (3-18 cm long, 1-3 cm wide), contracted and spike-like, dense, often lobed toward the base
- **spikelets:** 2- to 5-flowered; lemma narrow (3-6 mm long), flattened, tapering at both ends, sharply pointed, shiny
- **awns:** lemma may have a short awn at the tip
- **glumes:** almost equal (3-6 mm), unlike in shape; first 1-nerved, narrow; second 3-nerved and broader above the middle, shiny and translucent; shorter than the first floret

**Vegetative Characteristics**
- **culms:** erect (20-60 cm tall), tufted, with a few fine hairs just below the inflorescence
- **sheaths:** round, distinctly veined, hairs pointing backward, collar with long hairs on the margin; mostly basal
- **ligules:** membranous (0.5-1.5 mm long), may be minutely ciliate, obtuse to truncate, ebose to entire
- **blades:** flat or rolled (3-25 cm long, 1-3 mm wide), veins distinct, tip blunt; collar pubescent with hair on the margins
- **rhizomes:** none

**Distribution and Habitat**
This native grass is widely distributed on Nebraska uplands and occurs on all ecological sites except wetland. It grows on a wide variety of soil textures from clay to sand but is less successful in competing with tall grasses in moist bottoms and draws. It is commonly associated with little bluestem, the needlegrasses, and blue grama but is less drought tolerant than blue grama.

**Uses and Values**

**Forage.** This cool-season grass grows early in the spring. It is quite palatable to all classes of livestock in the spring and again in the fall after curing. It is less palatable during seed production and until curing is completed. The inflorescences are usually ignored by grazing animals. Although spring and fall are the best seasons of use, prairie junegrass sharply decreases if grazed each year in the spring. Prairie junegrass is a low forage producer since it occurs in scattered stands and has short, basal leaves, but it is a desirable grass. It produces satisfactory hay, but areas where prairie junegrass is common often have low yields.

**Establishment.** Prairie junegrass may be included in grass mixtures for rangeland seeding across much of Nebraska. It is especially important in seedings in the mixed grass prairie region.

**Restoration.** It should be used in seeding mixtures used to restore mixed grass prairies.

**Wildlife.** Prairie junegrass is grazed by deer, bighorn sheep, pronghorn, and elk. Its seeds are eaten by upland game birds and small mammals.

**Ornamental.** Its light colored inflorescences are
attractive, and it is used in border plantings and as an accent planting in rock gardens.

Other

Prairie wedgescale [Sphenopholis obtusata (Michx.) Scribn.] somewhat resembles prairie junegrass in being a non-rhizomatous midgrass with narrow, rather dense panicles which are spike-like to somewhat open. However, it differs from prairie junegrass in having smooth leaves and dissimilar glumes (the first glume is narrow and the second broadened near the tip) which fall to the ground with the spikelet. Prairie wedgescale is a cool-season grass and has good forage value. It prefers moist soil and is most common on silty sites in eastern Nebraska and on subirrigated and overflow sites.

Common Name: Tall fescue

Species: *Lolium arundinaceum* (Schreb.)
S. J. Darbyshire (=*Festuca arundinacea* Schreb.)

Life Span: Perennial
Origin: Introduced
Season: Cool
Growth Form: Bunchgrass
Flowering: May to October

Inflorescence Characteristics

type: panicle (10-30 cm long), open to relatively narrow, nodding
spikelets: 5- to 7-flowered (10-15 mm long); lemmas (7-10 mm long) faintly nerved, transparent and sharply pointed at the tip
awns: glumes and lemmas awnless or awn-tipped (up to 2 mm long)
glumes: unequal (4-7 mm long), narrow, tapering at both ends, with membranous margins

Vegetative Characteristics

culms: erect or ascending (0.5-1.5 m tall), strongly tufted, stout
sheaths: round, open, smooth or slightly scabrous
auricles: prominent, short, ciliate on the margins
ligules: membranous (0.2-0.7 mm long), truncate, erose or toothed
blades: flat or slightly rolled (5-45 cm long, 3-10 mm wide), stiff, scabrous on upper surface
rhizomes: occasionally with short rhizomes, but it has the appearance of a bunchgrass

Distribution and Habitat

Tall fescue was introduced from Europe, and its greatest use is in the southeast, south central, and Pacific northwest regions of the United States. In Nebraska, its use has been limited to the southeastern portion of the state. It grows in lawns, roadsides, and waste places.

Uses and Values

Forage. This cool-season grass is adapted to moist, deep soils, tolerates moderate soil salinity, but is not tolerant of extended drought. It is not adapted in Nebraska except in the higher rainfall areas of the eastern part of the state or under irrigation. Where moisture is continuous for growth, it has produced more forage than tall wheatgrass. Tall fescue is ready for grazing in the spring, somewhat later than tall wheatgrass. Tall fescue is more resistant to grazing, but it is much less salt tolerant than tall wheatgrass. Cattle and sheep make fair to good use of this grass when seeded in pure stands. It becomes coarse and low in palatability if left ungrazed or lightly grazed and allowed to mature. Nitrogen fertilization not only stimulates growth but also makes the herbage more palatable. Its coarse, basal leaves make it generally better suited for pasture than hay. Poor animal performance is common when grazing tall fescue. In some areas, cattle grazing tall fescue have developed a lameness commonly called “fescue foot.” Research has attributed this condition to an endophyte (fungus) that lives within the plant and produces a toxin that is absorbed by the animal’s digestive system.
Establishment. Tall fescue can be seeded in cool-season mixtures for pasture in eastern Nebraska and for irrigated pasture. Care should be taken to plant an endophyte-free cultivar.

Restoration. Tall fescue is an introduced species and is not used in prairie restorations.

Wildlife. Tall fescue provides nesting cover for upland game birds. Birds and small mammals eat the seeds.

Ornamental. Tall fescue can be used as turf, and a number of fine-leaved cultivars have been developed for this purpose. The texture of tall fescue foliage is much coarser than the texture of Kentucky bluegrass or buffalo-grass.

Other

Tall fescue is similar to meadow fescue \( \text{[Lolium pratense (Huds.) S. J. Darbyshire]} \) and has largely replaced it as a forage producer. Tall fescue is distinguished from meadow fescue by more robust growth, broader leaves, the deep green of the upper leaf surface, and a few short hairs on the margin of the collar.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Green needlegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>( \text{Nassella viridula (Trin.) Barkw.} ) (=( \text{Stipa viridula Trin.} ))</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>June to July</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

- type: panicle (10-20 cm long), narrow; branches in pairs, short; lower nodes of the panicle villous; tawny or greenish at maturity
- spikelets: 1-flowered; lemma narrow (5-7 mm long), brownish and plump (more than 1 mm wide) at maturity, hard, slightly pubescent, 5-nerved; callus, broad and short; crown with a tuft of hairs (longest 0.7-1 mm)
- awns: lemma awned (1.8-3.8 mm long), awn twice-geniculated, spirally twisted below bend; upper segment not twisted (often 1.5 cm or longer)
- glumes: nearly equal (7-14 mm long), exceed the lemma; narrow, with transparent pointed tip; glabrous; 5-nerved

Vegetative Characteristics

- culms: erect (0.3-1 m tall), straight, nodes may be purple; glabrous or with very short hairs below the nodes

sheaths: round to slightly flattened, prominently veined, overlapping, outer one may have long hairs; collar is hairy, especially on margins

ligules: membranous (upper ones 0.9-4.5 mm long, lower ones under 1 mm long), firm, rounded to truncate, may be erose

blades: flat (10-50 cm long, 2-6 mm wide), rolled at maturity, glabrous but pubescent near the collar, margins scabrous

rhizomes: none

Distribution and Habitat

Although this native grass grows throughout Nebraska, except in the southeast, it is most common in the northern Panhandle. It is not common in the Sandhills and south of the North Platte River. Green needlegrass often becomes locally abundant on clayey and overflow ecological sites in western Nebraska, but usually it occurs as scattered plants. It commonly is a co-dominant with western wheatgrass.
Uses and Values

Forage. This cool-season grass starts growth early in the spring and remains green through the summer, except in dry years. It regrows in the fall if soil moisture is sufficient. Forage value is good, and plants are grazed throughout the year. Green needlegrass responds well to spring deferment. Awns are not troublesome as in other needlegrasses. On favorable sites, it may furnish a considerable quantity of good quality hay.

Establishment. Green needlegrass is used extensively in upland restorations and rangeland seedings because of its early spring growth, long green period, high cold tolerance, and good seedling vigor. In general, western wheatgrass has been more successful than green needlegrass in native grass seedings in central and western Nebraska. The major difficulty in establishing stands of green needlegrass has been high seed dormancy, particularly in new seed.

Restoration. Green needlegrass should be an important component of prairie restorations in the northern portion of the Nebraska Panhandle.

Wildlife. Green needlegrass is readily grazed by deer, bighorn sheep, and elk. It is used to a lesser extent by pronghorn. Big game do not graze it after it reaches maturity. It is valuable for upland game bird cover and nesting. Birds and small mammals eat the seeds.

Ornamental. Green needlegrass has had limited use as a specimen planting.

Common Name: Scribner panicum
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Bunchgrass
Flowering: April to June

Inflorescence Characteristics
type: panicle (4-8 cm long), open; pedicels mostly shorter than 5 mm
spikelets: 1 fertile floret and 1 sterile floret, oval (2.5-3.5 mm long, 1.5-2.5 mm wide); sterile floret composed of lemma only; usually glabrous
awn: none
glumes: unequal; first glume (0.8-1.2 mm long) about one-third as long as spikelet, triangular; second glume nearly as long as spikelet
other: may be partially enclosed by upper leaf sheaths

Vegetative Characteristics
culms: erect or ascending (15-50 cm tall); glabrous or with short, soft hairs
sheaths: round, longer than internodes, loose; usually hairy, fewer hairs than on the blades
ligules: fringe of hairs (1-1.5 mm long)
bases: flat (5-10 cm long, 6-15 mm wide), pointed, glabrous or slightly hairy above, may be scabrous and hairy beneath
rhizomes: none
other: forms a rosette in fall and winter; may be easily confused with Wilcox panicum; Wilcox panicum has narrower blades with many long hairs on upper blades and sheaths

Distribution and Habitat
This native grass is widely distributed and common throughout Nebraska. It is found on all ecological sites except wetland. It grows between taller grasses and does best where other vegetation is not too dense. It is a common component on formerly cultivated fields in the Sandhills and abused sandy ecological sites.

Uses and Values

Forage. This cool-season grass starts growth in the fall, forming a winter rosette, and remains dormant but some-
what green through the winter, grows rapidly in the spring, and starts producing inflorescences in May and early June. Forage value is fair. During the fall and spring, it is quite palatable and selected by grazing livestock. By late spring it begins to dry, and grazing shifts to other grasses. Because of low growth, short period of good palatability, and ability to reseed rapidly, Scribner panicum is able to increase under heavy grazing. This grass never yields a large volume of herbage, but it has some value for providing range cattle with green forage in early spring.

**Establishment.** It is not used in grassland seedings in Nebraska.

**Restoration.** Scribner panicum is not used in prairie restorations because it cannot compete with taller grasses.

**Wildlife.** Scribner panicum is grazed in fall and winter by elk, deer, and pronghorn. Its seeds are eaten by upland game birds, songbirds, and small mammals.

**Ornamental.** Scribner panicum has been used as a specimen planting in rock gardens.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Wilcox panicum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td><em>Panicum wilcoxianum</em> Vasey</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to June</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

| type:              | panicle (3-8 cm long, 2-5 cm wide), open;           |
|                   | 12 to 32 spikelets per panicle; branches stiff,     |
|                   | spreading, curving upward                            |
| spikelets:        | 1 fertile floret and 1 sterile floret (2.5-3.3 mm long, 0.7 to 1.2 mm wide); sterile floret comprised of lemma only; covered with hairs|
| awns:             | none                                                 |
| glumes:           | unequal; first glume (0.7-1.2 mm long) triangular, second glume almost as long as spikelet |

**Vegetative Characteristics**

| culms:            | erect (10-35 cm tall), covered with long soft hairs except on nodes |
| sheaths:          | round, overlapping, with long hairs                   |
| ligules:          | fringe of hairs (up to 1 mm long)                      |
| blades:           | rolled (5-8 cm long, 2-6 mm wide), erect, sharply pointed, covered with long hairs |
| rhizomes:         | none                                                  |
| other:            | leaves form a rosette in fall and winter; may         |

**Distribution and Habitat**

Wilcox panicum is scattered throughout the state, but less common than Scribner panicum. It is found on prairies and plains, but it is most common on sands and choppy sands ecological sites.

**Uses and Values**

**Forage.** Wilcox panicum grows in the fall and remains somewhat green through winter. Growth begins early in spring, and seeds are produced in early to mid June. Palatability is fair for livestock, but it declines rapidly as it matures. Wilcox panicum never contributes much to the total production of a site.

**Establishment.** Wilcox panicum is not used in range-land seedings.

**Restoration.** Wilcox panicum is rarely used in prairie restorations because it cannot compete with taller grasses.

**Wildlife.** Deer and pronghorn graze the plants, especially in winter when they remain somewhat green. Upland game birds, songbirds, and small mammals eat the seeds.

**Ornamental.** Wilcox panicum is used occasionally in rock gardens and as a ground cover.
Common Name: Reed canarygrass

**Species:** Phalaris arundinacea L.

**Life Span:** Perennial

**Origin:** Native and introduced

**Season:** Cool

**Growth Form:** Sod-forming

**Flowering:** May to July

**Inflorescence Characteristics**
- type: panicle (7-18 cm long), compact, narrow, sometimes interrupted; spikelets in crowded clusters
- spikelets: 3-flowered, 1 fertile floret (4-6 mm long) flanked by 2 sterile florets (0.5-2 mm long); sterile florets appear as a pubescent membrane attached to the base of the fertile floret, inseparable
- awns: none
- glumes: unequal (4-7 mm long), narrow, sharply pointed, flattened with minute teeth on the edge
- other: seeds shiny, tan

**Vegetative Characteristics**
- culms: erect (0.5-1.5 m tall), coarse, glabrous
- sheaths: round, longer than the internodes or the upper shorter, usually glabrous
- ligules: membranous (2-6 mm long), acuminate to obtuse, may be slightly toothed
- blades: flat (10-45 cm long, 5-20 mm wide) or slightly keeled, with a prominent midrib below, glabrous, margins scabrous
- rhizomes: large creeping rhizomes enable the plant to grow in large bunches or a continuous sod

**Distribution and Habitat**
Reed canarygrass is native to most of Nebraska. It is more widely distributed now than formerly, because it has been seeded extensively in wetland, subirrigated, and overflow sites. Most plant material used for these seedings originally came from Europe. These introduced plants are more aggressive than the native plants. It prefers moist, cool sites and is found throughout the state on wet meadows and river banks and along drainage ditches.

**Uses and Values**
**Forage.** This cool-season grass makes rapid growth very early in the spring. It grows rapidly until seed maturity in early summer and remains green through the summer. When actively growing, the forage value of reed canarygrass is good. For best quality pasture, it should not be allowed to mature but should be grazed whenever it reaches 0.3-0.4 m in height. Reed canarygrass is known for its high yield of moderately palatable forage or hay on wetland ecological sites. Best quality hay is produced by mowing when the first inflorescences of reed canarygrass begin to appear. Hay quality may be improved by early spring grazing to delay maturity dates, thus reducing the coarseness of growth.

**Establishment.** Reed canarygrass is well adapted for seeding on wetland sites and on wetter portions of subirrigated sites, such as in Sandhill meadows. It can remain under water for several weeks without injury. It is moderately tolerant of salinity but should not be seeded on very salty or alkali soils. It also is useful for erosion control on moist or wet soils. Germination of reed canarygrass is best when it is planted within a year of when it was harvested, since seed viability drops rather quickly. Reed canarygrass also can be established by spreading sod pieces or freshly cut, well-jointed culm segments with a manure spreader on moist soil and covering them by a light disking or having livestock trample them into the mud. Where seedbed preparation is impossible because of wet soils or it is undesirable to establish in undisturbed sod, this method is often superior to seeding. When worked into mud or moist soil, pieces of root or mature plant cuttings with a node establish readily. On very wet soils, establishment from plant...
cuttings has been superior to establishment from pieces of sod.

**Restoration.** Reed canarygrass is not used in prairie restorations because it aggressively spreads in wet soils.

**Wildlife.** Reed canarygrass provides excellent nesting cover for wildlife. Its seeds are eaten by birds and small mammals.

**Ornamental.** Reed canarygrass can be planted along ponds and streams as well as on any other wet sites. Caution must be used because it aggressively spreads and crowds out other plants.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Timothy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Phleum pratense L.</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Introduced</td>
</tr>
<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>June to July</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- type: panicle (3-20 cm long, 5-9 mm wide), contracted, dense, cylindrical, spike-like
- spikelets: 1-flowered, flattened; lemma small (1.3-2.5 mm long); awns and midnerves forming a distinct “U”
- awns: glumes awned from tips (0.5-1.5 mm long), less than one-half the length of glumes, awn with fine teeth; central nerve of the lemma sometimes extended to an awn point
- glumes: equal (2-3.5 mm long), compressed, with long, stiff, outward-pointing hairs on the nerve, falling with the floret; margins paper-like

**Vegetative Characteristics**
- culms: erect (0.5-1.2 m tall), sometimes geniculate below, tufted, without hair; forming large colonies
- sheaths: round, open, glabrous, distinctly veined, often turning purple
- ligules: membranous (2-30 mm long), truncate to acute, entire
- blades: flat or loosely rolled (5-30 cm long, 5-8 mm wide), tapering to a sharp point, distinctly veined, margins with tiny barbs
- rhizomes: none
- other: swollen or bulb-like base

**Distribution and Habitat**
Timothy was introduced to North America from Eurasia by early colonists. It has been seeded primarily for hay in meadows in eastern Nebraska and across the state on subirrigated sites. Timothy commonly escapes cultivation and is found growing on moist, fertile sites such as roadsides, fields, and waste areas. Since it does not tolerate drought, it is seldom found on upland soils in central and western Nebraska.

**Uses and Values**

**Forage.** This cool-season grass is famed for its production of leafy, palatable hay. It is prized as hay for horses. In Nebraska, it has been used for improving subirrigated meadows in the Sandhills and river valleys. It grows well with red clover because both are adapted to subirrigated sites. It does not grow well on wetland or saline subirrigated sites. Where adapted, timothy is recommended over redtop bent for grass hay because of later maturity and higher quality. As a pasture grass, timothy produces leafy, nutritious forage throughout the summer. Occasionally, it has been used in permanent pasture mixtures in northeastern Nebraska or in subirrigated pastures across the state. However, it is not tolerant of grazing and has generally been replaced in pasture mixtures by smooth brome and orchardgrass.
Establishment. Timothy is seeded in subirrigated meadows. Seedlings are strong and vigorous. Seeding can be made in early spring or in late summer if soil moisture is favorable. Timothy requires ample moisture during the growing season, is cold and shade tolerant, and prefers fertile, rather heavy, nonsaline soils.

Restoration. Timothy is an introduced species and is not used in prairie restorations.

Wildlife. Timothy provides good to excellent forage for deer and elk. It is excellent nesting and brood rearing cover for pheasants. Small quantities of timothy hay are packaged and sold in pet stores for food for rabbits, guinea pigs, chinchillas, and prairie dogs.

Ornamental. Timothy is rarely used as an ornamental, but it makes an attractive mixture with other grasses and wildflowers for spot accents in moist gardens. The inflorescences are used in fresh and dried flower arrangements.

Common Name: Canada bluegrass

Species: Poa compressa L.
Life Span: Perennial
Origin: Introduced
Season: Cool
Growth Form: Sod-forming
Flowering: June to August

Inflorescence Characteristics
- type: panicle (2-10 cm long), narrow; branches usually short and close together
- spikelets: 2- to 6-flowered (3-6 mm long), crowded, lemmas pubescent on the mid- and marginal nerves, seldom with cobwebby hairs at the base of lemma
- awns: none
- glumes: nearly equal; first 1- to 3-nerved (1.5-3 mm long), narrow; second 3-nerved (1.8-3.5 mm long), broad, usually strongly keeled

Vegetative Characteristics
- culms: erect to ascending (20-80 cm tall), solitary or few, strongly flattened; bluish-green
- sheaths: strongly flattened and sharply keeled, open with hyaline margins; glabrous
- blades: folded or flat (2-15 cm long, 1-4 mm wide), boat-shaped tip
- ligules: membranous (0.7-2 mm long), obtuse to truncate
- rhizomes: slender, creeping
- other: Canada bluegrass can be easily distinguished from Kentucky bluegrass by its flat culms. Culms of Canada bluegrass cannot be rolled between the thumb and index finger.

Distribution and Habitat
This grass is native to eastern Europe and was introduced to North America in the late 1700s. It is widely distributed in Nebraska and has become naturalized on native hay meadows, bottomland pastures, open timber, waste areas, and roadsides. It is also commonly found in lawns. It requires more moisture for successful growth than occurs on upland sites of central and western Nebraska. Canada bluegrass will grow on soils with low fertility or poor drainage, but it is only slightly more drought tolerant than Kentucky bluegrass.

Uses and Values
- Forage. Canada bluegrass is a cool-season grass which grows rapidly early in the spring. It is very palatable and nutritious in the spring and fall. Since it matures later than Kentucky bluegrass, Canada bluegrass remains more palatable through the summer. It is resistant to grazing and trampling but recovers slowly after grazing.
- Establishment. Because of low productivity, Canada bluegrass is not recommended for seeding as a forage grass.
- Restoration. Canada bluegrass is an introduced grass and is not used in prairie restorations.
Wildlife. Big game animals graze Canada bluegrass when it is immature. Its seeds are eaten by birds and small mammals.

Ornamental. Generally, it is not used as an ornamental or for turf.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Mutton bluegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Poa fendleriana (Steud.) Vasey</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Native</td>
</tr>
<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to August</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**

- type: panicle (2-10 cm long, 1-2 cm wide), narrow, densely flowered, 2 to 3 branches per node; branches erect or erect-spreading
- spikelets: 3- to 8-flowered (6-10 mm long, 1.8-3 mm wide), usually twice as long as wide; flat, papery; lemma compressed (4-6 mm long), 5-nerved, marginal nerves hairy
- awns: none
- glumes: about equal; first 1-nerved (2.8-4.5 mm long), second 3-nerved (3-5.5 mm long), strongly keeled

**Vegetative Characteristics**

- culms: erect to ascending or decumbent (15-80 cm tall), tufted, glabrous, scabrous below inflorescence
- sheaths: round, short, margins transparent, sheath bases white and expanded, persistent for several years
- ligules: membranous, variable (usually less than 1 mm long, but up to 7 mm long), rounded or truncate, erose
- blades: folded or rolled (10-20 cm long, 1-4 mm wide), stiff, scabrous, midrib double; bluish-green color, often remaining green
- rhizomes: rarely has slender rhizomes and generally has the appearance of a bunchgrass

**Distribution and Habitat**

Mutton bluegrass grows most commonly on drier, less fertile, shallow, gravelly, or sandy soils on open hillsides. In Nebraska, it is found exclusively in the Panhandle.

**Uses and Values**

**Forage.** Growth begins in early spring, and it is important for early grazing in areas where it is abundant. In early spring, forage value is excellent for cattle and horses and good for sheep. This species is one of the most drought tolerant of the bluegrasses. Mutton bluegrass is an effective barrier against erosion because of its deep fibrous root system.

**Establishment.** It is not used frequently in grass seedings because other higher producing grasses are available.

**Restoration.** Mutton bluegrass is rarely used in restorations.

**Wildlife.** It provides good forage for big game, and the seeds are eaten by birds and small mammals.

**Ornamental.** Mutton bluegrass is occasionally used in border plantings.
Common Name: Kentucky bluegrass

Species: Poa pratensis L.
Life Span: Perennial
Origin: Introduced
Season: Cool
Growth Form: Sod-forming
Flowering: May to September

Inflorescence Characteristics
- type: panicle (3-13 cm long, 3-8 cm wide), pyramid-shaped, open; branches long, branches at base in whorls of 3 to 5
- spikelets: 3- to 6-flowered (3-6 mm long), flattened, nearly as wide as long; lemmas keeled (2.5-4 mm long), pointed, with a tuft of long, silky hairs at the base; palea shorter than the lemma
- awns: none
- glumes: nearly equal (2-3.5 mm long), strongly keeled, very small barbs on margin; first glume 1-nerved, second glume 3-nerved

Vegetative Characteristics
- culms: erect (0.2-1 m tall), sometimes curving upward from the base, round, slender, wiry
- sheaths: flattened, closed about one-half of the length, smooth to slightly scabrous, distinctly veined
- ligules: membranous (1-2 mm long), truncate, entire
- blades: folded or flat (5-40 cm long, 1-5 mm wide), soft and smooth or nearly so, ending in a boat-shaped tip, midrib double
- rhizomes: numerous, creeping

Distribution and Habitat
Kentucky bluegrass is reported to have been introduced from Europe as a pasture grass before 1700. Some believe that it was in North America originally and should be classified as a native species. If it was introduced, its spread was so rapid and its naturalization so complete that it commonly preceded settlers into new areas. It is found in Nebraska on most ecological sites but is abundant only on those sites with favorable soil moisture conditions, such as subirrigated and overflow sites and in eastern Nebraska on upland sites. It is a major problem on subirrigated meadows, eastern Nebraska pastures, and tallgrass prairies where it replaces the more productive and desirable grasses.

Uses and Values
- Forage. When green and growing, Kentucky bluegrass is highly palatable and nutritious to all classes of livestock. This cool-season grass is often the earliest grass to begin growth in the spring. It goes into semi-dormancy in the summer, but is revived by late summer and fall rains.

Inflorescences begin appearing in early May. Few grasses are able to withstand continued heavy grazing as well as Kentucky bluegrass. For this reason, it increases rapidly on overgrazed pastures and meadows. Prescribed burning in late spring is an effective means of reducing Kentucky bluegrass when it is growing in tallgrass prairies. Summer dormancy and low herbage yield greatly limit the desirability of this grass. It is very sensitive to heat and to summer drought. Kentucky bluegrass is undesirable as a hay grass because of its low growth form, poor yield, and maturity before other grasses are ready to cut.

Establishment. Kentucky bluegrass should not be included in grassland seeding mixtures. Higher producing species are available for seeding mixtures.

Restoration. It is an introduced species and is not used in prairie restorations. It can become a serious weed in tallgrass and mixed grass prairies.

Wildlife. Kentucky bluegrass is grazed by deer, elk, and pronghorn. It provides nesting and roosting cover for quail. Its seeds are eaten by wild turkeys, several species of songbirds, and small mammals.

Ornamental. Kentucky bluegrass is the principal turf grass in Nebraska. It requires additional water and fertilizier to maintain its stand and appearance.
**Common Name:** Sandberg bluegrass

<table>
<thead>
<tr>
<th><strong>Species:</strong></th>
<th><em>Poa secunda</em> Presl. (=<em>Poa sandbergii</em> Vasey)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life Span:</strong></td>
<td>Perennial</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Native</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Cool</td>
</tr>
<tr>
<td><strong>Growth Form:</strong></td>
<td>Bunchgrass</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>May to July</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- **type:** panicle (2-8 cm long, usually less than 1 cm wide); 2 to 3 branches per node; branches unequal in length, yellowish; lateral branches lying against center branch
- **spikelets:** 2- to 5-flowered (4-7 mm long, 0.9-2 mm wide), round, slender; lower portion of lemma (3-5.5 mm long) rounded on back, short hairs on back, tips pointed, 5-nerved; purplish
- **awns:** none
- **glumes:** unequal, papery; first 1- to 3-nerved (2.2-2.5 mm long), second 3-nerved (3-4 mm long), shorter than lemma of lowermost floret

**Vegetative Characteristics**
- **culms:** erect to decumbent at the base (10-45 cm tall), wiry, glabrous, nodes occasionally reddish
- **sheaths:** round, glabrous, veins prominent; compressed with overlapping transparent margins
- **ligules:** membranous (1-4 mm long), acuminate, usually entire
- **blades:** flat, folded, or rolled (3-16 cm long, 1-3 mm wide); glabrous, midrib double, margins slightly barbed
- **rhizomes:** none

**Distribution and Habitat**
This grass is native to western Nebraska, where it is found on upland ecological sites with medium and heavy textured soils. It is particularly abundant on infertile shallow, dry, rocky soils of slopes and tops of ridges. It may become prominent on upland silty and clayey sites under heavy grazing.

**Uses and Values**

**Forage.** Sandberg bluegrass is a cool-season grass which begins growth very early in the spring, usually before needleandthread and western wheatgrass. It furnishes forage by mid-April. Sandberg bluegrass is palatable to livestock when green and growing, but nutritive content drops sharply as it matures. It is largely ignored by livestock after about mid-June, unless soil moisture is sufficient for late summer and fall regrowth. The volume of forage produced by this plant is low even when plants are abundant. It is quite drought tolerant because of its abundant, shallow roots and ability to grow and mature early while moisture supplies are still adequate. It replaces the more desirable perennial grasses under heavy grazing.

**Establishment.** Sandberg bluegrass is rarely included in grassland seeding mixtures.

**Restoration.** It can be used in upland prairie restorations in the Nebraska Panhandle.

**Wildlife.** Deer and pronghorn use the forage during the growing season, and elk graze Sandberg bluegrass in the winter. Upland game birds nest in it, and birds and small mammals eat the seeds.

**Ornamental.** Sandberg bluegrass has been used as a border planting and in rock gardens.

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Other

Another native perennial bluegrass is plains bluegrass (Poa arida Vasey). It resembles Sandberg bluegrass in having a narrow panicle and no cobwebby hairs at base of lemma. Plains bluegrass can be distinguished from Sandberg bluegrass by the presence of rhizomes. Like other bluegrasses, it is a cool-season plant. Plains bluegrass reportedly occurs throughout most of Nebraska but seldom is sufficiently abundant to produce much forage.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Russian wildrye</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Psathyrostachys juncea (Fisch.) Nevski (=Elymus junceus Fisch.)</td>
</tr>
<tr>
<td>Life Span:</td>
<td>Perennial</td>
</tr>
<tr>
<td>Origin:</td>
<td>Introduced</td>
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<tr>
<td>Season:</td>
<td>Cool</td>
</tr>
<tr>
<td>Growth Form:</td>
<td>Bunchgrass</td>
</tr>
<tr>
<td>Flowering:</td>
<td>May to June</td>
</tr>
</tbody>
</table>

Inflorescence Characteristics

type: spike (7-11 cm long and 4-9 mm wide), erect, straight, dense; spikelets 2 or 3 per node, strongly overlapping; inflorescence branches breaking apart at maturity

spikelets: 1- to 4-flowered (8-10 mm long), lemmas (6.5-8.5 mm long) finely hairy, often smooth and shiny at base

awns: lemma tipped with a short awn (0.5-2 mm long)

glumes: unequal (4-6.5 mm long), needle-like

Vegetative Characteristics

culms: erect (40-70 cm tall), densely tufted, fibrous at base from old sheaths; leaves mainly basal; culm may be scabrous just below spike

sheaths: glabrous, old sheaths remain at base

auricles: well developed, prominent and clasping the stem

ligules: ciliate membrane (up to 1 mm long), truncate

blades: flat or rolled (15-40 cm long, 1.5-4 mm wide), soft, lax, scabrous, distinctly nerved; bluish-green

rhizomes: none

Distribution and Habitat

Russian wildrye was introduced to North America from Siberia in 1907. Since the 1920s, it has been occasionally seeded for cool-season pasture in northern and western Nebraska. Russian wildrye is best adapted to western Nebraska. It grows best on loam and clay loam soils. It can tolerate cold, low moisture, and moderately saline and alkaline soils.

Uses and Values

Forage. This cool-season grass is one of the earliest grasses for grazing in the spring and is very palatable and nutritious at that time. Russian wildrye foliage tends to remain green and palatable through the summer even after early seed maturity. Growth is rapid following late summer and fall rains. High protein content and palatability make Russian wildrye highly prized for grazing from late August to mid-November. It can be used to extend the grazing period into the fall. Since the leaves cure well, it may be grazed into the winter but the mature inflorescences are avoided.

Establishment. Russian wildrye can be seeded for pasture because its basal leaf growth makes it more suited to grazing than using it as a hay crop. It is slow to establish. Seedlings tend to be weak and develop slowly, being sensitive to frost and drought. Established Russian wildrye plants are highly competitive with weeds and other grasses and tend to produce an open stand between bunches, especially in areas of low rainfall. For this reason, it should not be seeded on sites subject to severe wind or water erosion. It will grow any place that crested wheatgrass will grow, but it is better adapted than crested wheatgrass to upland saline
or alkaline soils. It produces less forage than tall wheatgrass on saline subirrigated sites.

**Restoration.** Russian wildrye is an introduced species and is not used in prairie restorations.

**Wildlife.** Russian wildrye is highly palatable to wildlife. Pronghorn, deer, bighorn sheep, and elk may graze it so closely that stands can be damaged. The seed readily shatters at maturity providing food for small mammals and upland game birds.

**Ornamental.** Its basal leaves and bluish-green color make Russian wildrye an attractive border plant.

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**Common Name:** **Indian ricegrass**

**Species:** *Stipa hymenoides* Roemer & J. A. Shultes [*= Oryzopsis hymenoides* Roemer & J. A. Shultes, *Achnatherum hymenoides* (Roemer & J. A. Schultes) Barkw.]

**Life Span:** Perennial

**Origin:** Native

**Season:** Cool

**Growth Form:** Bunchgrass

**Flowering:** May to July

**Inflorescence Characteristics**

- type: panicle (7-25 cm long), open; branches spreading (5-30 mm long), curved, in pairs, each bearing one spikelet
- spikelets: 1-flowered (5-8 mm long); lemma brown to black at maturity (3-5 mm long), whitish hairs (2.5-4.5 mm long) on lemma
- awns: lemma awned (3-8 mm), stout, straight to wavy, falling early; glumes sometimes short-awned
- glumes: nearly equal; first longest (5-8 mm long), second shorter (4-7.5 mm long), broad, thin, may be slightly hairy; 3- to 5-nerved; nerves prominent

**Vegetative Characteristics**

- culms: erect (30-80 cm tall), slender, stiff, densely tufted
- sheaths: round, open, glabrous or slightly scabrous, shorter than the internodes, overlapping below; fringed with hairs on collar and on 1 margin
- ligules: membranous (3-9 mm long), acuminate, may be deeply notched or erose
- blades: rolled (5-40 cm long, 1-2 mm wide), slender; midrib prominent below

**Distribution and Habitat**

This native grass is found in the Sandhills and on dry hills and canyons in western Nebraska. It is most common on choppy sands, sands, and sandy ecological sites, and it also occurs on silty, limy upland, thin loess, and shallow sites in western and northern Nebraska. It is also found on moderately saline but rather well-drained soils.

**Uses and Values**

**Forage.** This cool-season grass produces abundant foliage during spring and early summer when it is readily eaten. It has good forage value for sheep, cattle, and horses. It provides excellent winter grazing since it cures well, and the lower stems remain somewhat green and succulent through the winter. Heavy early spring grazing sharply reduces the vigor of Indian ricegrass and decreases the stand. It is more tolerant of grazing after about June 1 and responds well to spring deferment. The old stubble gives some protection against close grazing. Where Indian ricegrass plants are locally abundant in western Nebraska, they add materially to the forage production.
Establishment. Indian ricegrass should be included in seeding mixtures for rangeland restoration in central and western Nebraska. Indian ricegrass withstands dry conditions, is somewhat tolerant of alkali, and is adapted to soils of low fertility. Its major limitation has been high seed dormancy which results in poor first year stands. Seeds can be treated to reduce dormancy. Several cultivars are available.

Restoration. Indian ricegrass should be a component of prairie restorations in the Sandhills and western Nebraska.

Wildlife. Indian ricegrass produces an abundance of plump seeds with protein levels of 15% to 17%. The seed is excellent food for upland game birds, songbirds, and small mammals. Its high quality forage is utilized by big game animals, and it is especially valuable for winter grazing.

Ornamental. The large, open inflorescences are attractive additions to the landscape in borders and rock gardens. The inflorescences are used in fresh and dried flower arrangements.

Other

Littleseed ricegrass [*Piptatherum micranthum* (Trin. & Rupr.) Barkw.; =*Oryzopsis micrantha* (Trin. & Rupr.) Thurb.] is found over much of the same area of Nebraska. Its lemmas have no hair, are shiny, and are small (less than 3 mm long). Also, its glumes are small (less than 4 mm long).
**COOL-SEASON GRASSES**

### annual

- Japanese brome
- Downy brome
- Goosegrass
- Little barley
- Annual bluegrass
- Sixweeks fescue
<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Japanese brome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species:</strong></td>
<td><em>Bromus japonicus</em> Thunb.</td>
</tr>
<tr>
<td><strong>Life Span:</strong></td>
<td>Annual</td>
</tr>
<tr>
<td><strong>Origin:</strong></td>
<td>Introduced</td>
</tr>
<tr>
<td><strong>Season:</strong></td>
<td>Cool</td>
</tr>
<tr>
<td><strong>Flowering:</strong></td>
<td>May to July</td>
</tr>
</tbody>
</table>

**Inflorescence Characteristics**
- type: panicle (8-20 cm long), open; with slender, flexuous branches causing a drooping appearance
- spikelets: 6- to 11-flowered (15-25 mm long); lemmas relatively broad (7-9 mm long), glabrous, split or lobed near the tip
- awns: lemma of upper florets awned (8-13 mm long), awns become twisted and bent at maturity
- glumes: unequal (first glume 4-6 mm, second 6-8 mm long), broad, awnless

**Vegetative Characteristics**
- culms: erect to ascending (30-60 cm tall), slender, weak
- sheaths: round, closed, shaggy, densely hairy with long hairs
- ligules: membranous (less than 2 mm long), obtuse to rounded
- blades: flat (7-20 cm long, 1-7 mm wide), densely hairy or velvety, midvein prominent
- rhizomes: none

**Distribution and Habitat**
Japanese brome is widespread on waste areas and deteriorated rangeland in Nebraska. It is common on roadsides and in disturbed areas. It occurs on all ecological sites except wetland and often grows intermixed with downy brome.

**Uses and Values**

**Forage.** Japanese brome is similar to downy brome in its ecology, life cycle, uses and values. The discussion on downy brome applies as well to Japanese brome. It is an unpredictable forage producer, and is grazed primarily in early spring and late fall.

**Establishment.** This weedy species should not be seeded.

**Restoration.** Japanese brome is an annual, introduced species and is not used in prairie restorations.

**Wildlife.** Small mammals, songbirds, and prairie chickens eat the seeds.

**Ornamental.** Japanese brome is not used as an ornamental.

**Other**
Japanese brome is known to cross with two similar annual bromes, hairy chess (*Bromus commutatus* Schrad.) and cheat (*Bromus secalinus* L.). All are weedy grasses requiring similar management considerations and normally are unable to compete with healthy, vigorous, perennial grasses.
**Common Name:** Downy brome  
**Species:** Bromus tectorum L.  
**Life Span:** Annual  
**Origin:** Introduced  
**Season:** Cool  
**Flowering:** May to June

**Inflorescence Characteristics**
- Type: panicle (5-15 cm long), open, much-branched; branches and pedicels slender, flexuous, drooping; typically brownish-red to purple at maturity.
- Spikelets: 4- to 8-flowered (1.2-2 cm long, 3-6 mm wide, excluding awns); lemmas (9-15 mm long) with thin membranous margins and ending in long, slender teeth (1-3 mm long); lemmas with soft “downy” hairs.
- Awns: lemma awned (1.2-1.8 cm long); awn straight to slightly geniculate.
- Glumes: unequal; first glume 1-nerved (4-6 mm long), second glume 3-nerved (8-11 mm long), with broad transparent margins, glabrous to hirsute.

**Vegetative Characteristics**
- Culms: erect or decumbent at the base (10-60 cm tall), may be branched from the base.
- Sheaths: round, flattened toward collar, softly hairy.
- Ligules: membranous (1-3 mm long), obtuse to acuminate, may be toothed or erose.
- Blades: flat (5-12 cm long, 3-7 mm wide), with long soft hairs.
- Rhizomes: none.

**Distribution and Habitat**
Downy brome is a weedy species introduced unintentionally from Europe. It is widely distributed in Nebraska and is particularly common on silty, limy upland, and clayey ecological sites in western Nebraska. Since this plant readily invades sites where the natural vegetation has been weakened by improper grazing, drought, or previous cultivation, it is often an indicator of poor rangeland health. Downy brome does not compete strongly with established perennial grasses and occurs only in small amounts on rangeland in good health; however, once it becomes a dominant component of the vegetation, it is very difficult to control and retards rangeland improvement. Its growth fluctuates greatly from year to year and is favored by a moist and warm fall, winter, and spring. It is normally a winter annual, germinating in the fall and maturing the following spring; however, it may germinate in the spring if weather conditions are not favorable in the fall.

**Uses and Values**

- **Forage.** Downy brome remains green and palatable for only three to five weeks in the early spring and in the fall if moisture favors a new crop of seedlings. As it matures in the spring, it rapidly becomes unpalatable and low in nutritive content and digestibility. The awned seeds may cause sores in the mouth and eyes of grazing animals and contaminate sheep fleeces. Animals fed hay containing mature downy brome also may be injured. Dry downy brome burns readily and is a fire hazard.

- **Establishment.** Downy brome is a weedy species and is not used in grassland seedings.

- **Restoration.** It is an annual, introduced species and is not used in prairie restorations.

- **Wildlife.** New growth provides food for wild turkeys, deer, pronghorn, bighorn sheep, and prairie dogs. Seeds are eaten by wild turkeys, songbirds, and small mammals.

- **Ornamental.** Downy brome is not used as an ornamental.
**Common Name:** Goosegrass

**Species:** *Eleusine indica* (L.) Gaertn.  
(*=Cynosurus indicus* L.)

**Life Span:** Annual  
**Origin:** Introduced  
**Season:** Cool  
**Flowering:** July to October

### Inflorescence Characteristics
- **Type:** panicle of 1 to 10 spicate branches (each 4-15 cm long), mostly digitately arranged, 1 or 2 attached slightly below, rachis flattened and slightly winged; wing margin white
- **Spikelets:** 2- to 9-flowered, arranged laterally in 2 rows on 1 side of the rachis, crowded; lemmas flattened (2.5-4.5 mm long), 3- to 9-nerved, without hair; keel scabrous, whitish; palea 2-nerved; disarticulating above the glumes and between the florets
- **Awns:** none
- **Glumes:** unequal; first glume smallest (1.5-3 mm long), 1-nerved; second glume larger (3-5 mm long), 3- to 7-nerved, keel scabrous and winged; glabrous

### Vegetative Characteristics
- **Culms:** decumbent below, ascending above (0.1-0.8 m tall), slightly flattened, glabrous
- **Sheaths:** flattened to keeled, loose, overlapping, glabrous or pubescent on the margin near the top
- **Ligules:** membranous (0.6-2 mm long), lacerate
- **Blades:** flat or folded (5-20 cm long, 2-7 mm wide), tips blunt to rounded, mostly glabrous except sometimes with long hairs on the upper surface near the base
- **Rhizomes:** none

### Distribution and Habitat
Goosegrass was introduced from Eurasia. It is most common in the eastern half of Nebraska growing in pastures, roadsides, and waste areas. Goosegrass frequently grows in compacted soils along roads and trails.

### Uses and Values
**Forage:** Goosegrass is infrequently grazed by livestock or big game.

**Establishment:** Goosegrass is an introduced species with low productivity. It is not used in grassland seedings.

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**Restoration.** It is an annual, introduced species and is not used in prairie restorations.

**Wildlife.** The seeds are eaten by small mammals and birds, but it has little value as forage or cover for wildlife.

**Ornamental.** It is not used as an ornamental and can become a troublesome weed in lawns.
**Common Name:** Little barley  
**Species:** *Hordeum pusillum* Nutt.  
**Life Span:** Annual  
**Origin:** Native  
**Season:** Cool  
**Flowering:** May to June

**Inflorescence Characteristics**
- **type:** spicate raceme (2-8 cm long, 3-8 mm wide, excluding awns), narrow, erect, dense; 3 spikelets per node, the center spikelet fertile, the 2 lateral spikelets sterile and on pedicels
- **spikelets:** 1-flowered, lemma of central spikelet narrow (5-7 mm long); lemmas of lateral spikelets smaller (1.5-3.5 mm long)
- **awns:** lemma of central spikelet awned (2-7 mm long), lemmas of lateral spikelets short-awned, outer glumes of lateral spikelets awn-like, other glumes awned (7-15 mm long)
- **glumes:** equal; glumes of the central spikelet narrow (3.5-5.5 mm long), 3-nerved; glumes of the lateral spikelets shorter, inner 2 similar to central spikelet glumes; outer 2 awn-like, scabrous
- **other:** base of the inflorescence sometimes enclosed in the subtending sheath

**Vegetative Characteristics**
- **culms:** erect to usually ascending (10-40 cm tall); glabrous; nodes dark
- **sheaths:** round, glabrous or with a few hairs
- **auricles:** small auricles may or may not be present
- **ligules:** membranous (less than 1 mm long), truncate, may be erose
- **blades:** flat or folded (1-12 cm long, 2-5 mm wide), erect, margins weakly barbed, may be slightly hairy
- **rhizomes:** none

**Distribution and Habitat**
This native grass is widespread in Nebraska and common on dry or alkaline soils, particularly in disturbed areas where competition from perennial plants is low. Little barley may be very dense during years with favorable winter and spring moisture on formerly cultivated land or rangeland damaged by drought or improper use.

**Uses and Values**
- **Forage.** Some temporary grazing may be provided by this cool-season grass in late fall and early spring; however, forage production is low and variable. Plants produce seed and become dry and very unpalatable by early to mid-June. Little barley spreads in rangeland in poor health and cultivated pastures with poor stands, vigor, and fertility. Practices that will maintain rangeland and pastureland in a vigorous, productive condition will effectively control little barley.
- **Establishment.** It is an annual species and is not a component of grassland seedings.
- **Restoration.** Little barley is an annual, introduced species and is not seeded in prairie restorations.
- **Wildlife.** Seeds and leaves of little barley are eaten occasionally by waterfowl and small mammals.
- **Ornamental.** Little barley is not used as an ornamental.
Common Name: Annual bluegrass

Species: Poa annua L.
Life Span: Annual
Origin: Introduced
Season: Cool
Flowering: April to October

Inflorescence Characteristics
- type: panicle (3-15 cm long), pyramidal or ovate, open; branches solitary or paired
- spikelets: 2- to 10-flowered (2.5-6 mm long, 0.8-2 mm wide), florets distinctly separated from each other; lemmas keeled, margins thin and membranous, pubescent on the nerves
- awns: none
- glumes: unequal; first glume smaller (1.5-3 mm long), 1-nerved; second glume larger (2-4 mm long), 3-nerved; margins thin and membranous

Vegetative Characteristics
- culms: erect to ascending (5-30 cm tall), sometimes geniculate, slender, flattened, glabrous, may form mats
- sheaths: flattened, keeled, closed only near the base or up to two-thirds the length, glabrous
- ligules: membranous (1-3 mm long), truncate to acuminate
- blades: flat (1-14 cm long, 1-4 mm wide), tips abruptly pointed and boat-shaped, glabrous, soft
- rhizomes: none

Distribution and Habitat
Annual bluegrass is scattered in Nebraska, but it is most common in the eastern portion of the state. It grows in abused pastures, roadides, lawns, gardens, waste places, cultivated fields, and ditches.

Uses and Values
Forage. Annual bluegrass starts growth early in the spring before most other grasses. During this period, it supplies a small amount of forage for livestock. Its palatability quickly decreases, causing animals to switch to other species.

Establishment. This annual species is not used in grassland seedings.

Restoration. It is an introduced, annual species and is not used in prairie restorations.

Wildlife. Deer lightly graze annual bluegrass. Prairie chickens and small mammals eat the seeds.

Ornamental. Annual bluegrass is frequently an impurity in lawn grass seed. It is not desirable because it gives lawns an uneven appearance.
**Common Name:** Sixweeks fescue  
**Species:** Vulpia octoflora (Walt.) Rydb.  
[=Festuca octoflora (Walt.) Rydb.]  
**Life Span:** Annual  
**Origin:** Native  
**Season:** Cool  
**Flowering:** April to June  

### Inflorescence Characteristics
- **type:** panicle (1-15 cm long), narrow, compact; branches short  
- **spikelets:** 5- to 17-flowered, (4-10 mm long, excluding awns), arranged in a herringbone pattern, dense; rachilla visible between florets; lemmas (3.5-7 mm) round, slender, pointed  
- **awns:** lemmas awned (3-7 mm long), glumes with awn-tip or short awn  
- **glumes:** unequal; first glume (2-3 mm long) 1-nerved, second glume (3-6 mm long) 3-nerved; membranous, keeled, sharply pointed  

### Vegetative Characteristics
- **culms:** erect to ascending (10-60 cm tall), weak, solitary or in small groups  
- **sheaths:** round, open, glabrous or sparsely hairy  
- **ligules:** membranous (0.5-2 mm long), truncate, erose  
- **blades:** rolled (2-10 cm long, 0.5-2 mm wide), glabrous to sparsely hairy, margins may have few short hairs  
- **rhizomes:** none  

### Distribution and Habitat
Sixweeks fescue is a weedy, winter annual widespread on Nebraska pastures, rangeland, and waste places. It is found on practically all ecological sites where bare spaces between perennial grasses allow it to grow. It is particularly common on upland sites in the Sandhills.

### Uses and Values
**Forage.** This grass is unpalatable and nearly worthless for forage since it pulls up so easily. It is sometimes called "pullout grass." Cattle tend to avoid grazing in areas infested with sixweeks fescue. Although an abundance of sixweeks fescue is a result of improper grazing and indicative of rangeland in poor health, its prevalence in certain years appears to be primarily caused by climatic conditions. If the fall weather is warm and moist, seeds of sixweeks fescue germinate and the seedlings quickly emerge. Then, in late winter or early spring, growth is very rapid and plants quickly mature, taking on a tan color in contrast to the green color of associated grasses.

**Establishment.** This annual species is not used in grassland seedings.

**Restoration.** Sixweeks fescue is an annual and should not be used in prairie restorations.

**Wildlife.** Sharp-tailed grouse, songbirds, and small mammals eat the seeds.

**Ornamental.** Sixweeks fescue is not used as an ornamental.
GRASS-LIKE PLANTS

perennial

Needleleaf sedge
Threadleaf sedge
Sun sedge
Nebraska sedge
Yellow nutsedge
Field horsetail
American bulrush
Needleleaf sedge

Common Name: Needleleaf sedge
Species: *Carex eleocharis* L. H. Bailey
(=*Carex duriuscula* C. A. Mey.)
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Grass-like
Flowering: May to July

Floral and Fruit Characteristics
inflorescence: spikes (5-20 mm long, 5-10 mm wide), several, sessile, closely overlapping; bract below; male and female flowers intermixed
flowers: male flowers conspicuous above in the spike, female flowers scarcely distinguishable in the dense spikes
fruits: achenes (seeds), lens-shaped (1.5-2 mm wide); usually 1 to 8 per spike; scales short, wide, light to dark brown, margins transparent; nerves only slightly visible; beak scabrous

Vegetative Characteristics
stems: erect to ascending (2.5-15 cm tall), slender, smooth
leaves: mainly basal, firm, slender, flat and widest at base (1-1.5 mm wide at base), tapering and rolled above; ligule wider than long
rhizomes: slender, creeping

Distribution and Habitat
Needleleaf sedge is found in open, dry to moderately moist rangeland throughout Nebraska. It is most common on sandy soils where it is found in mixed stands with other grasses and sedges.

Uses and Values
Forage. Needleleaf sedge provides fair to good forage for livestock. It is especially palatable in the spring but is often grazed throughout the season. It is very resistant to grazing and is especially valued on abused rangeland.
Establishment. Needleleaf sedge is not used in grassland plantings.
Restoration. It is not used in prairie restorations.
Wildlife. Needleleaf sedge furnishes good forage for deer, elk, and pronghorn. These animals use it most in the winter and spring.
Ornamental. It is not used as an ornamental.

Threadleaf sedge

Common Name: Threadleaf sedge
Species: *Carex filifolia* Nutt.
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Grass-like
Flowering: April to June

Floral and Fruit Characteristics
inflorescence: spike (5-25 mm long, 1.5-3 mm wide), solitary, terminal, male (above) and female flowers (below) located at different places on the same plant (monoecious); male portion elevated on a short peduncle, light brown
flowers: male flowers 3 to 25; scales egg-shaped with the broadest part above the middle, reddish-brown; margins conspicuous, transparent, white; female flowers 1 to 15, erect; sac or scale (perigymia) that encloses the seed is egg-shaped to oblong (3-4.5 mm wide)
Vegetative Characteristics

Stems: thread-like (5-30 cm tall), stiff, wiry, slightly triangular
Leaves: rolled (3-20 cm long, 0.3-1 mm wide), thread-like, mostly basal, generally 2 to 3 per culm, light green, glabrous; sheaths brown near the base, glabrous
Other: densely tufted without creeping rhizomes; roots are fibrous, stout, and black

Distribution and Habitat
Threadleaf sedge is found on dry soils of open prairies and rolling hills. It may occur in almost pure stands, but usually it is mixed with a variety of grasses. It is most common in the Nebraska Panhandle.

Uses and Values
Forage. It provides good to excellent forage for livestock and wildlife. Threadleaf sedge, sometimes called “blackroot,” provides extremely valuable early spring forage. Palatability remains relatively high throughout the growing season. It can withstand considerable drought and relatively heavy grazing. Its growth is too low to contribute much to yield when hayed.

Establishment. It is not used in grassland seedings.

Restoration. Threadleaf sedge is not used in prairie restorations because achenes (seeds) are not available commercially. Hand transplanting is very time consuming.

Wildlife. Its forage is good to excellent for pronghorn, elk, bighorn sheep, and deer. It is especially important in winter and early spring. Birds and small mammals eat the seeds.

Ornamental. Threadleaf sedge has been used as a specimen planting in rock gardens. It forms a dense sod, but it spreads so slowly that it is not practical to use as turf.

Common Name: Sun sedge

Species: Carex heliophila Mackenzie
[=Carex inops L. H. Bailey subsp. eliophila (Mackenzie) Crins]

Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Grass-like
Flowering: May to July

Floral and Fruit Characteristics
Inflorescence: male spike (8-20 mm long) at the tip of the culm, appearing pedicelled above the female spikes; 1 or 2 female spikes (4-6 mm long) sessile to the culm; lowest bract scale-like or sometimes long and green

Flowers: several male flowers per spike; female flowers 5-15 per spike; scales pointed; sac (perigymia) that encloses the seed inflated at the tip (2-2.5 mm long, 1.2-1.8 mm wide), reddish-brown, resinous dotted, 2-edged, 2-ribbed

Fruits: oval to triangular, dull-green, covered with tiny hairs, keeled on both sides and ending in a beak (0.5-1 mm long)
Vegetative Characteristics

- stems: slender (5-35 cm tall), wiry, reddish-brown tinged
- leaves: thin (1-2.5 mm long), rather stiff, dull green; lower sheaths breaking and becoming fibrous
- rhizomes: creeping, slender, short or long

Distribution and Habitat

Sun sedge is found on upland rangeland throughout Nebraska, but it also may be found in forested areas. It generally occurs as scattered plants with the associated grasses rather than as a major component of the vegetation.

Uses and Values

- **Forage.** Sun sedge is especially important for forage in the early part of the grazing season and after summer rains. It seldom contributes much to the total amount of forage produced, but it is important because it contributes green forage before the major grass components start growth.
- **Establishment.** It is not used in grassland seedings.
- **Restoration.** Sun sedge is not used in prairie restorations.
- **Wildlife.** Sun sedge provides fair to good forage for deer, elk, bighorn sheep, and pronghorn.
- **Ornamental.** It is not used as an ornamental.

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Nebraska sedge</th>
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<tr>
<td>Species:</td>
<td><em>Carex nebrascensis</em> C. Dewey</td>
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<tr>
<td>Life Span:</td>
<td>Perennial</td>
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<tr>
<td>Origin:</td>
<td>Native</td>
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<td>Growth Form:</td>
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<td>Flowering:</td>
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Floral and Fruit Characteristics

- inflorescence: spikes 3 to 6; upper 1 or 2 spikes male (1.5-7 cm long, 3-9 mm wide), linear; lower 2 to 5 spikes female (1.5-6 cm long, 5-9 mm wide); lowest bract leaf-like, usually exceeding the inflorescence
- flowers: several male flowers per spike; scales brown to purplish-black, lance-shaped, pointed, midrib white, bending outward; sac (perigyma) of the female flowers oblong to egg-shaped (3-4 mm long, 2 mm wide), with reddish dots, strongly nervet
- fruits: achenes (seeds) lens-shaped (1.5-2.2 mm long, 1-1.3 mm wide)

Distribution and Habitat

This native sedge is common in wet areas, meadows and ditches. It is especially abundant on subirrigated and wetland ecological sites in the Sandhills region. It is found in some alkaline soils. Nebraska sedge grows throughout the state, but it is most common in the western half of Nebraska.
Uses and Values

Forage. Nebraska sedge is an important forage plant both for grazing and as hay. Although not as palatable as many species, it is a valuable late season forage that is often grazed heavily.

Establishment. It is not used in grassland seedings.

Restoration. Nebraska sedge is not used in prairie restorations because seed is not available commercially.

Wildlife. Nebraska sedge provides fair to good forage for deer, pronghorn, and elk. It furnishes nesting, brood rearing, and escape cover for waterfowl and upland game birds.

Ornamental. Generally, it is not used as an ornamental, but it can be transplanted by hand to appropriate wet sites.

Common Name: Yellow nutsedge
Species: Cyperus esculentus L.
Life Span: Perennial
Origin: Introduced
Season: Warm
Growth Form: Grass-like
Flowering: July-August

Floral and Fruit Characteristics

inflorescence: Compound umbel of several subsessile spikes, terminal; subtended by 3 to 9 blade-like involucral bracts, 1 or more bracts longer than the inflorescence; spikelets 8 to 25 per spike

flowers: flowers 8-20 (5-20 mm long, 0.7-1.8 mm wide), slender, highly reduced; rachilla winged

fruits: achenes (seeds), 3-angled with plane faces between, narrowly oblong (0.9-1.5 mm long, 0.5-0.8 mm wide); yellowish-brown to amber
Vegetative Characteristics

stems: erect (0.1-0.9 m tall), acutely 3-sided, solid, glabrous, appear waxy
leaves: 3-ranked; mostly basal; blades grass-like (8-80 mm long, 3-10 mm wide), crowded, pale green, glabrous
rhizomes: scaly, some terminating in hard tubers (1-2 cm long) or nutlets

Distribution and Habitat

Yellow nutsedge was introduced from Eurasia. It grows in moist soils of pastures in the eastern half of Nebraska and is scattered westward along streams, lakes, and in meadows where it is found in mixed stands with grasses. It often invades lawns, gardens, waste areas, cultivated fields, and roadsides.

Uses and Values

Forage. Yellow nutsedge is not a desirable plant, but it provides poor to fair forage for livestock. It is especially palatable in the spring, but it is grazed throughout the season.

Establishment. Yellow nutsedge is not used in grassland seedings.

Restoration. This aggressive weed is not used in prairie restorations.

Wildlife. Yellow nutsedge is grazed by deer. Young shoots are an important food for waterfowl, muskrats, and other rodents. Also, tubers or nutlets are consumed by ducks, pocket gophers, deer, muskrats, and wild turkeys.

Ornamental. This invasive species is not used as an ornamental.

Common Name: Field horsetail
Species: Equisetum arvense L.
Life Span: Perennial
Origin: Native
Season: Cool
Growth Form: Grass-like plant (fern)
Flowering: April to June

Floral and Fruit Characteristics

inflorescence: cones (strobili), terminal and solitary on the main stem, ellipsoid (1-3.5 cm long), on long peduncles
strobili: oblong to nearly cone-shaped; strobilus bearing numerous sporangia
spores: minute, numerous, globe-shaped, uniform, green

Distribution and Habitat

Field horsetail is scattered throughout the state. It is common on wet sites in the Sandhills. It grows along streams, ponds, and lake beds where the subsoil is moist and in low pastures, meadows, thickets, and disturbed areas.

Uses and Values

Forage. Field horsetail is not an important or desirable forage plant. In hay, excessive quantities (more than 20%
of the total amount) have been known to cause scours, paralysis, and occasionally death of horses and cattle. Management practices to encourage the vigor of associated species should be used as a means of reducing the proportion of field horsetail in hay. These improved management practices may include fertilization, proper cutting schedule, and/or seeding of adapted species.

**Establishment.** It is not used in grassland seedings.

**Restoration.** It is used occasionally in the restoration of small wet meadows where it is transplanted into the site.

**Wildlife.** Field horsetail forage is fair for deer and pronghorn in winter, and its roots and stems are eaten by wild geese.

**Ornamental:** Field horsetail is grown in Japanese gardens and along the edges of water gardens. This plant can be invasive, so container plantings sunk into the ground are often recommended.

### Common Name: American bulrush

**Species:**
- *Schoenoplectus pungens* (Vahl)
- *Palla var. longispicatus* (Britton)
- S. G. Smith (=*Scirpus americanus* Pers., misapplied to Nebraska specimens)

**Life Span:** Perennial

**Origin:** Native

**Season:** Cool

**Growth Form:** Grass-like plant

**Flowering:** May to September

### Floral and Fruit Characteristics

- **Inflorescence:** clusters, globe-like; 2-15 spikelets per cluster
- **Spikelets:** fertile (5-20 mm long, 4 mm wide), subtended by a bract (1-6 cm long); bract appears to be a continuation of the triangular stem; scales (4 mm long) with pointed tips, yellowish, to reddish-brown, thin and transparent
- **Fruits:** seed (achene) oval (3 mm long), with 4 bristles from the base reaching almost to tip of seed

### Vegetative Characteristics

- **Stems:** erect to ascending (0.1-1.5 m tall), sharply triangular in cross section; may be lax, bowing, or curving upward from horizontal stems, loosely clustered, often thick (1-2.5 cm wide)
- **Leaves:** flat or folded (10-20 cm long, 8-15 mm wide); few, usually 3 or more; basal, keeled creeping, horizontal rootstalks

### Distribution and Habitat

American bulrush can be found in all parts of Nebraska. It is common in marshes, wet meadows and other wet, low places. It commonly grows in alkali soils, but this is not considered an essential factor for its survival.

### Uses and Values

**Forage.** In drier years when sites that are normally wet can be hayed, American bulrush can make up a significant part of harvested hay from these sites. Forage quality is considered to be quite low. Coarse hay containing American bulrush is often fed on Sandhills trails, blowouts, and other areas subject to wind erosion, allowing the cattle to consume the more palatable species and leaving the coarse material for mulch and ground cover.

**Establishment.** It is not used in extensive plantings.

**Restoration.** Rootstalks of American bulrush can be transplanted into restorations of small, wet areas.

**Wildlife.** It provides escape and winter cover for wildlife.

**Ornamental.** American bulrush can be transplanted into banks of ponds, along streams, and into other wet areas.
COMMON GRASSES OF NEBRASKA

resources
glossary, ecological sites, selected references, index

Glossary

A

A- Prefix meaning without
Abandoned cropland Formerly cultivated land that is no longer farmed and has not been seeded to perennial plants
Abrupt Changing sharply or quickly, rather than gradually
Absent Not present; never developing
Achene A one-seeded, indehiscent fruit with a relatively thin wall in which the seed coat is not fused to the ovary wall
Acidic Soil with a low pH (less than 5.5)
Acuminate Gradually tapering to a sharp point and forming concave sides
Acute Tapering to a point with more or less straight sides
Adapted Plants that are able to grow and reproduce in a given area
Alkali A soil with a high pH (8.5 or higher) and high exchangeable sodium content (15% or more), normally interferes with the growth of most species
Annual Within one year; applied to plants which do not live more than one year
Apex The tip or distal end
Aquatic Growing in, on, or near water
Articulation A joint or point of attachment
Ascending Growing or angled upward; obliquely upward
Asymmetrical Not symmetrical; not divisible into equal halves
Auricle Ear-shaped lobes, such as those that occur at the base of leaf blades of some grasses
Awn A slender bristle at the end, on the back, or on the edge of an organ; the extension of a nerve beyond the leaf-like tissue
Awn column Undivided portion of the awn below the branches, such as in the genus Aristida
Awnless Without awns
Axil Angle between an organ and its axis
Axillary Growing in an axil
Axis The central or main longitudinal support upon which parts are attached

B

Background plant Usually taller plants placed at the back of a landscape planting
Barb A short, rigid projection
Basal Located at or near the base of a structure, such as leaves arising from the base of the stem
Beak A narrow or prolonged tip; a hard point or projection
Blade The part of the grass leaf above the sheath
Bleached Having lost most of the original color
Blowout A depression in the surface of sand or sandy soil caused by wind erosion
Blunt Having a point or edge that is not sharp
Border planting A mass of plants that define a property border, provide a backdrop for other plants, or create an outdoor living area; a screen planting also can be a border planting
Bottomlands Land occupying a low position in the topography
Bowing Bent in a simple curve
Bract Reduced leaves (frequently associated with the flowers)
Bracteole A bract borne on a secondary shoot or axis
Branch A lateral stem
Bristle A stiff, slender appendage
Brittle Easily broken
Browse Leaves, twigs, and other parts of woody plants consumed by animals; the act of consuming portions of woody plants
Bulb An underground bud with fleshy, thick scales
Bump An abrupt protuberance on the surface
Bunchgrass A grass that grows in a tuft; without stolons or rhizomes
Bur A rough and prickly covering of florets

Calcareous A soil containing sufficient calcium carbonate (often with magnesium carbonate) to effervesce when treated with hydrochloric acid
Callus  The indurate downward extension of tissue from the mature lemma in *Nassella*, *Hesperostipa*, *Aristida*, and some other genera; hardened tissue

Caryopsis  Usually the fruit or grain of grasses; more specifically, a special type of fruit in which the seed coat is fused to the fruit coat (pericarp)

Central  Situated at, in, or near the center

Channeled  Deeply grooved

Ciliate  Fringed with hairs on the margin

Clasping  One organ or tissue partially or totally wrapped around a second

Cluster  A number of similar tissues or organs growing together; a bunch

Coarse  Composed of relatively large parts; not fine textured or structured

Cobwebby  A tuft of tangled, fine hairs

Collar  The area on the lower side of a leaf at the junction of the blade and sheath

Colonizing  Spreading into a new area by seeds or by vegetative means

Colony  A group of plants of the same species growing in close association with each other; all members of the group may have originated from a single plant

Column  The lower portion of the awn of grasses

Comb-like  With narrow, closely set, and divergent segments like the teeth in a comb

Compact  Having a small, dense structure

Compressed  Flattened laterally

Concave  Hollowed inward like the inside of a bowl

Cone  A cluster of scales on an axis, scales may be persistent or deciduous

Conspicuous  Obvious; easy to notice

Constricted  Drawn together; appearing to be tightly held

Contaminate  The introduction of unwanted materials causing a reduction of value or use

Contorted  Bent; twisted

Contracted  Inflorescences that are narrow or dense, frequently spike-like

Convex  Rounded on the surface like the bottom or exterior of a bowl

Cool-season  A category of plants that grow best during the cool portions of the year

Cover  Usually standing plant material which is important for erosion prevention and/or wildlife habitat

Creeping  Continually spreading; a shoot or horizontal stem that roots at the nodes

Crowded  Pressed close together; a number of structures in a small space

Crown  The tuft of hairs at the summit of the lemma in some grasses such as in the genus *Nassella*

Culm  The hollow or pithy jointed stem or stalk of a grass, sedge, or rush

Cultivar  A named, improved variety or strain of a species

Cure  Drying, as in standing herbage or hay

Curved  Gently bent

Cylindric, Cylindrical  Shaped like a cylinder

Decum bent  Curved upward from a horizontal or inclined base, with only the end ascending

Deferment  Leaving rangeland or pastureland unstocked and ungrazed for a growing season or year

Delicate  Fine structure or texture

Dense  Crowded

Desirable  Preferred species for a given area or site

Deteriorated  No longer in high condition or health; in low condition or health caused by improper management

Diffuse  Open and much-branched, loosely branching

Digitate  Several members arising from one point at the summit of a support, like the fingers arising from the hand as a point of origin

Disarticulating, Disarticulation  Separating at maturity at a node or joint

Distant  To be separated by space

Distinct  Clearly evident; separate; apart

Distribution  Geographic range of a plant species

Disturbance  Alteration or destruction of the vegetative cover

Disturbed sites  Areas on which the vegetative cover has been altered or destroyed

Dominant  A species of plant that controls the character of the vegetation

Dormancy  An inactive state; period during which plants are not active, such as in winter

Drought  Two or more growing seasons with precipitation low enough to negatively influence plants

Dryscape  A landscape comprised of plants that require little or no supplemental water

Dull  Lacking brilliance or luster; not shiny

E

Ecological site  Classification of land based on potential vegetation, soils, topography, climate, and location

Ellipsoid  A solid body circular in cross-section and elliptic in long-section

Elongate  Narrow, the length many times the width or thickness

Embedded  Enclosed in a supporting structure or organ; imbedded

Enlarged  Greater size than normal

Entire  Whole; with a continuous margin

Erect  Upright; not reclining or leaning

Erose  Irregularly notched at the apex; appearing gnawed or eroded

Erosion  Wearing away of the soil by the action of water and/or wind

Exceed  Greater than; larger than

Expanded  Increased or extended

Exposed  Open to view

Exserted  Protruding or projecting beyond; not included

Extensive  Having a wide or considerable range or spread
Faint  Lacking distinctness
Fertile  Capable of producing fruit
Fibrous  Consisting of or containing mostly fibers; commonly used to describe branching root systems
Firm  Hard; resisting distortion when pressure is applied; indurate
Flanked  To be situated at either side of a structure
Flat, Flattened  Having the major surfaces essentially parallel and distinctly greater than the minor surfaces
Flexuous  Bent alternately in opposite directions; a wavy form
Floret  Lemma and palea with included flower of the grasses
Folded  A part or organ that is doubled over or laid over
Foliage  Plant material that is mainly leaves
Forage  Herbage usually consumed by animals
Fringed  Having a border consisting of hairs or other structures

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G

Geniculate  Bent abruptly, like a knee (grass bases may be bent in this manner)
Glabrous  Without hairs
Gland  A protuberance or depression that appears to secrete a fluid
Glandular  Supplied with glands
Glaucous  A waxy surface that easily rubs off
Globe-shaped  Nearly spherical in shape
Glossy  Having a surface luster; shiny
Glumes  The pair of bracts at the base of a spikelet in grasses
Grassland  Any place where grasses are the dominant plants
Grass-like  Herbaceous plants similar in appearance to grasses, such as sedges and rushes
Graze  To consume growing and/or standing grass or forb herbage; to place animals on grasslands to enable them to consume the herbage
Groove  A long, narrow channel or depression

H

Habitat  The place or environment where an animal or plant lives, grows, and reproduces
Harsh  A texture disagreeable to the touch; rough; unpleasant
Herbage  Above-ground material produced by herbaceous plants; vegetation that is available for consumption by grazing animals
Herbaceous  Perennial or annual plants that die back to the surface of the soil each year
Herringbone  Pattern made up of two rows of parallel lines with adjacent rows slanting in reverse directions
Hirsute  With straight, rather stiff hairs
Hollow  Unfilled space; empty
Hydrocyanic acid  An aqueous solution of hydrogen cyanide that is poisonous

I

Imbedded  Enclosed in a supporting structure or organ
Inflated  Swollen or expanded; puffed up
Inflorescence  The arrangement of flowers on an axis subtended by a leaf or portion thereof
Inseparable  Cannot be taken apart
Internerves  Spaces between the nerves
Internode  The part of a stem between two successive nodes
Interrupt  To break the uniformity; to come between two similar objects or structures
Intricate  Having many complex parts or elements
Introduced  Not native to North America
Invade  Move or spread into an area where a species did not grow before
Involucre  A whorl or circles of bracts below the flower or spikelet cluster

J

Jointed  Possessing nodes or articulations
Junction  Place at which two structures or organs join

K

Keel  The sharp fold or ridge at the back of a compressed sheath, blade, glume, lemma, or palea of grass florets
Keeled  Ridged, like the keel of a boat
Knot  The base of a woody branch enclosed in the stem from which it arises

L

Lacerate  Appearing torn at the edge or irregularly cleft
Lanceolate  Rather narrow, tapering to both ends, widest below the middle
Leathery  Having the texture of leather
Life span  The length of time a plant will live
Ligule  A membrane, ciliate membrane, or ring of hairs on the upper side of a leaf at the junction of the sheath and blade
Linear  Long and narrow with parallel sides
Lobe  The projecting part of an organ with divisions less than one-half the distance to the base or midvein, usually rounded or obtuse
Loose  Not arranged tightly together

M

Margin  An edge; border
Marsh  An area of perpetually wet soil
Mat  A tangled mass of plants growing close to the soil surface and generally rooting at the nodes
Mature  Fully developed
Meadow  Moist, level, lowland on which grasses dominate
Membrane  A thin, soft, and pliable tissue
Membranous, Membranaceous  Thin, opaque, not green; like a membrane
Midnerv, Midrib, Midvein  The central or principal vein of a leaf or bract
Minute  Small
Monoecious  Plants with male and female flowers at different locations on the same plant; all flowers unisexual

N

Naked  Uncovered; lacking pubescence; lacking enveloping structures
Native  Occurring in North America before settlement by Europeans
Nerve  The vascular bundles or veins of leaves, culms, glumes, paleas, lemmas, or other organs
Neuter  Lacking stamens and pistil
Nodding  Inclined somewhat from the vertical; drooping
Node  Points along the stem where leaves are borne; a joint in a stem or inflorescence
Notch  Gap; a V-shaped indentation
Numerous  Many

O

Ob-  A prefix meaning inversely
Obscure  Inconspicuous; not easily seen
Obtuse  Shape of an apex, with an angle greater than 90 degrees
Origin  Place where the species originally occurred
Ornamental  A plant cultivated for its beauty rather than for agronomic use
Ovary  The expanded, basal part of the pistil
Ovate, Ovoid  Shaped like an egg with the broadest portion towards the base
Overflow sites  Land that water flows across occasionally
Overlap  To extend over and cover part of an adjacent structure

P

Paired  Two, together
Palatable  Acceptable in taste and texture for consumption
Pale  Not bright; dim; deficient in color
Palea  The second bract of a floret, two-nerved
Panicle  Inflorescence with a main axis and rebranched branches
Papery  Having the texture of writing paper
Pastureland  Land used primarily for production of adapted, introduced or native species in a pure stand, grass mixture, or grass-legume mixture that is managed intensively (e.g., fertilization, weed control, renovation, and/or irrigation) for grazing animals
Pedicel  The stalk of a spikelet or single flower in an inflorescence
Pedicellate  Having a pedicel
Pedicelled  Borne on a pedicel
Peduncle  The stalk of a flower cluster or spikelet cluster
Perennial  Lasting more than two years; applied to plants or plant parts which live more than two years
Perfect  Applied to flowers having both stamens and pistil
Pericarp  Fruit coat or wall; wall of a ripened ovary
Perigynium  An inflated sac that encloses the achene in the genus Carex
Persistent  Remaining attached
Pilose  With long soft, straight hairs
Pistil  A combination of the stigma, style, and ovary; the female reproductive organ of a flower
Pistillate  Applied to flowers bearing pistils only; unisexual flowers
Pit  A small depression in a surface
Plains  Flat to rolling land usually dominated by grasses
Potherb  Plants that are boiled before being eaten
Prairie  A virtually treeless landscape in which the main natural vegetative features are a dominance of grasses together with forbs, shrubs, and grass-like plants
Preference  First choice; selection of certain plants or plant parts by grazing animals

R

Raceme  An inflorescence in which the spikelets or flowers are pedicelled on a rachis
Racemose  Raceme-like branch of the inflorescence
Rachilla  A small axis; applied especially to the axis of a spikelet
Rachis  The axis of a spike, spicate raceme, or raceme inflorescence or pinnately compound leaf
Rangeland  Land on which the potential natural plant community is predominantly grasses with forbs, grass-like plants, and shrubs suitable for grazing and browsing
Reduced  Smaller than normal; not functional
Remote  Widely spaced
Resinous  Producing any of numerous viscous substances such as resin or amber
Restoration  Returning the contour of the land and the vegetation to its original condition
Revegetation  Replacing current vegetation or starting vegetation on denuded land
Rhizomatous  Having rhizomes
Rhizome  An underground stem with nodes, scale-like leaves, and internodes
Right-of-way  Usually vegetated land along roads, highways, railroad tracks, pipelines, or transmission lines
Rigid  Firm; not flexible
Robust  Healthy; full-sized
Rock garden  A garden laid out among rocks or decorated with rocks with plants that usually are not given supplemental water
Rosette A basal, usually crowded, whorl of leaves
Rough Not smooth; surface marked by inequalities
Rudiment Imperfectly developed organ or part, usually non-functional
Rudimentary Underdeveloped
Rumen The large first compartment of the stomach of a ruminant animal

S

Sac A pouch or bag-like cavity
Saline A nonsodic soil containing sufficient soluble salts to impair its productivity
Saw-toothed Toothed edge with teeth pointing toward the tip
Scabrous Rough to the touch; short, angled hairs requiring magnification for observation
Scale Reduced leaves at the base of a shoot or a rhizome; a thin chaff-like portion of the bark of woody plants; a thin, flat structure
Scaly Having scales
Screen planting A wall of sufficiently tall plants that serves as a living wall to effectively block undesirable views
Season-long Throughout one season; frequently used to describe grazing during the growing season
Seed A ripened ovule
Seeding Planting seeds; an area planted with seeds
Segment A part of a structure which may be separated from the other parts
Sessile Without a pedicel or stalk
Shade An area where the sunlight is partially to fully blocked each day
Shiny Lustrous; possessing a sheen
Shoot A young stem or branch
Silky Fine, lustrous, long hair; resembling silk in appearance or texture
Scaly Having scales
Screen planting A wall of sufficiently tall plants that serves as a living wall to effectively block undesirable views
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Silky Fine, lustrous, long hair; resembling silk in appearance or texture
Sod-forming Creating a dense mat
Solitary Alone; one by itself
Species Taxonomic division of a genus; a class of individuals having a common genetic makeup and appearance
Specimen planting A planting that displays or exhibits a single plant with some outstanding form, texture, color, or other attribute

Spicate Spike-like
Spike An unbranched inflorescence in which the spikelets or flowers are sessile on a rachis (central axis)
Spike-like Having the appearance of a spike
Spikelet The unit of inflorescence in grasses usually consisting of two glumes, one or more florets, and a rachilla
Spine A stiff, pointed outgrowth
Split Divided lengthwise
Spot grazing Heavy, repeated grazing of localized areas
Stamen The pollen-producing structure of a flower; typically an anther borne at the apex of a filament
Staminate Flower containing only stamens, unisexual flowers
Stem The portion of the plant bearing nodes, leaves, and buds
Sterile Without functional pistils, may or may not bear stamen
Stiff Not easily bent; rigid
Stolon A horizontal, above-ground, modified propagating stem with nodes, internodes and leaves
Stoloniferous Bearing stolons
Strobilus A cone that produces spores
Stout Sturdy, strong, rigid
Sub- A prefix to denote somewhat, slightly, or in less degree
Subirrigated A site where the water table is between 0.25 and 1.5 m of the soil surface during the major part of the growing season
Subtend To underlie; located below
Summit The top or apex
Swale A low-lying depression in the land
Swollen Enlarged

T

Tapering Regularly narrowing toward one end
Tawny Pale brown or dirty yellow
Teeth Pointed lobes or divisions
Tepal A segment of the perianth
Terminal Born at or belonging to the extremity or summit
Texture Composition of the particles of the soil

Throat An opening; hollow and tube-like
Tiller A shoot from an adventitious bud at the base of a plant
Tinged Slightly colored
Tip Apex
Tolerant Said of plants or animal that can withstand extremes
Tooth A pointed projection or division
Trampling The action of animals repeatedly stepping on plants and soil
Translucent Semitransparent; transmitting light rays only partially
Transparent Fine or thin enough to be seen through
Triangular Having three edges and three angles
Truncate Ending abruptly; appearing to be cut off at the end
Tuber A short, fleshy underground stem
Tumble To roll over and over as when blown by the wind
Turf A mat of short grass; a lawn

U

Umbel A simple flat-topped or rounded inflorescence with pedicels radiating from a common point
Unilateral Arranged on or directed toward one side
Unisexual Said of flowers containing only stamens or only pistils
Upland Land occupying high positions in the topography where it is not influenced by overflow of water or by the water table

V

Variable Not always the same; not uniform
Vein A single branch of the vascular system of a plant
Velvety Soft and smooth like velvet
Vigor Active, healthy growth
Warm-season A category of plants with optimal growth during the warmer portions of the year
Wart A growth or large blister on the epidermis, resembling a wart on an animal
Waste place An area that is not used or managed
Waxy Margin with small, regular lobes; undulating surface or margin
Waxy Said of plant tissue covered with wax or a similar substance
Weak Frail; not stout nor rigid; partially or incompletely
Webbed Bearing fine, tangled hairs
Wetland A site where the water table is within 0.9 m of the soil surface during most of the year and is above the surface during the early growing season
Whorl A cluster of several branches or leaves around the axis arising from a common node
Wildflower A broadleaf herbaceous plant that frequently has a showy flower
Wing A thin projection or border
Wiry Being thin and resilient

Zig-zag A series of short, sharp bends
Grasslands in Nebraska consist of many kinds of plants and plant communities which have very different characteristics. These differences in vegetation are associated with differences in soils, topography, climate and geographic location. Vegetation changes with the amount and distribution of rainfall. Soils on a steep slope produce a different plant community than soils on a deep upland site because of differences in soil types and soil moisture availability. Across a broad expanse of grasslands there are several subunits (ecological sites), each having specific physical characteristics which differentiate one from the other.

An ecological site differs from other kinds of grassland in its ability to produce a characteristic historic climax plant community. An ecological site is the product of many environmental factors (climate, soils and geographic location). Each ecological site can support a historic climax plant community that differs from other ecological sites in terms of 1) kinds, 2) proportions, and/or 3) amount of plants. Natural areas and historic data are used to characterize the historic climax plant community of an ecological site. Twenty-four ecological sites are recognized by name in four vegetative zones of Nebraska. Plant communities within ecological sites take on different characteristics across the state because of the increasing average annual precipitation from west to east. To completely identify and name an ecological site, the vegetation zone in which it is located needs to be added.

A complete description and color photographs of ecological sites and four vegetation zones in Nebraska may be found in the University of Nebraska-Lincoln Extension Range Judging Handbook (EC 98-150). Relative positions of the 12 most important ecological sites are presented in Figure 6 and brief descriptions of the sites follow.

**Wetland Sites** occur on level bottom lands or in depressions. The land is somewhat marshy from subirrigation. The water table is at a depth of 10 to 60 inches (0.25 – 1.5 m) during the major part of the growing season. The soils vary from fine sand to silty clay loam in the surface layer and subsoil. In most places, soils are limy at the surface. The surface is high in organic matter.

**Saline Subirrigated Sites** occur on nearly level bottomlands, upland basins, foot slopes and stream terraces. The water table is at a depth of 10 to 60 inches (0.25 to 1.5 m) during the major part of the growing season. Soils are strongly saline and/or alkaline near the surface, often appearing as a whitish-gray deposit. Soils vary widely in texture and depth and are often limy in places. Ground cover varies from bare soil to a diversity of plants, depending on the amount of salt in the soil. Where the salt content is low, many of the same species common to the subirrigated site will grow. Soils that are high in salt content support only salt tolerant plants such as inland saltgrass, alkali sacaton, switchgrass, alkali cordgrass, western wheatgrass, sedges, and rushes.

**Silty Overflow Sites** occur on bottomlands which receive additional water from periodic overflow or run-off from higher elevations. The water table is more than 60 inches (1.5 m) below the surface. Soil textures vary from silty clay loam to silt in the surface layer and from very fine sandy loam to clay subsoils.

**Sands Sites** occur mainly on gentle to rolling upland slopes, but also may be found on stream terraces and bottomlands. Soils are deep, excessively drained and are subject to severe wind erosion when the protective vegetation cover is destroyed. Soil textures range from loamy sand to sand in the surface layer and from loamy sand to coarse sand in the subsoil. The dark, upper part of the soil profile is usually less than 6 inches (15 cm) deep and relatively high in organic matter. The sands site is the most widespread range site in the Sandhills.

**Sandy Sites** occur on nearly level to moderately steep slopes. Sandy sites occur on dry, flat valleys between choppy or rolling sand dunes. The soils are well drained and have fine sandy loam to fine sand in the surface layer, with fine sandy loam to fine sand in the subsoil. The underlying soil material varies widely. More than 6 inches (15 cm) of the upper soil profile is often of darker color due to organic matter accumulation. This topsoil may be over 12 inches (30 cm) thick in eastern Nebraska.

**Choppy Sands Sites** occur on steep, irregular slopes greater than 20 percent. Soils are deep, loose, excessively drained with a fine sand surface layer and subsoil. Ground
cover and soil profile development is even less than on a sands site. Dark coloring from organic matter in the surface soil is at a minimum and seldom over 2 to 3 inches (5-8 cm) deep. Wind erosion can lead to the development of blowouts where vegetation is sparse or absent. Narrow ridges and broken surfaces (catsteps) are characteristic of the site.

**Silty Sites** occur on nearly level to steep uplands and stream terraces. Soils are well drained but not to the extent of sand and sandy sites. Soil textures range from very fine sandy loam to silty clay loam in the surface layer and subsoil. This is the most common range site outside the Sandhills region and includes the loess plains and hills that are south and east of the Sandhills, along the Republican River, and on the upland plains and gentle slopes of southwestern Nebraska and the Panhandle. Most silty sites in the eastern and southern part of the state have been converted to crop production.

**Limy Upland Sites** occur on nearly level to steep uplands, foot slopes, and stream terraces. The soils are deep or moderately deep and range from fine sandy loam to clay loam in the surface layer and subsoil. The soils have an abundance of lime in the surface layer.

**Thin Loess Sites** occur on steep to very steep uplands that contain many catsteps and land slips. The soils are deep and have a silt loam surface layer. Subsoils are limy. Thin loess sites are located on canyons or hillsides associated with the major drainage ways south and east of the Sandhills, but are not restricted to these areas. In farming areas, row crop production predominates on the more level areas with the rougher terrain remaining in native grass.

**Clayey Sites** occur on nearly level to strongly sloping uplands. Soil texture ranges from silt loam to clay in the surface layer and silty clay in the subsoil. Soils are deep but water penetration and movement in the soil is restricted. When wet, soils are sticky but become very hard when dry. Clayey sites in Nebraska occur primarily along the White and Niobrara rivers in Sioux, Dawes, Sheridan, Keya Paha, and Boyd counties. Some are also present in eastern Nebraska.

**Shallow Sites** occur on nearly level to steep uplands. The soils are less than 20 inches (0.5 m) deep over underlying material consisting of shale, mixed sand and gravel, limestone, siltstone, or caliche. They have a loamy fine sand to clay surface layer. The effective root zone of plants is restricted to 20 inches (0.5 m). The vegetation varies on shallow sites depending upon soil depth, soil texture, and topographic features.

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Figure 6. Diagram illustrating the position of ecological sites in relation to one another and to topographic features.
selected references


Keim, F.D., G.W. Beadle, and A.L. Frolik. 1932. The identification of the more important prairie grasses of Nebraska by their vegetative characteristics. Research Bulletin 65. Agricultural Experiment Station, University of Nebraska, Lincoln.


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