GRASSES AND GRASSLIKE PLANTS OF UTAH

A FIELD GUIDE

UtahStateUniversity
COOPERATIVE EXTENSION

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Credits

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34 new plants included in this edition.

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Top-left: Dr. James Bowns, Southern Utah University
Top-right: Dr. Matt Lavin, Montana State University
Bottom-left: Sue Smith @ http://cals.arizona.edu/yavapaiplants
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This publication is a Field Guide only; to be used for quick identification of common grasses. It is not a complete reference. Additional information on individual plants may be obtained by consulting references cited or other experts.

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Introduction

This guide is meant to serve as a help in identifying many of the grasses and grass-like plants common to the rangelands, forests, and farmlands of Utah. It is not an exhaustive guide to the plants contained herein, nor is it a comprehensive summary of all the grasses and grass-like plants in Utah.

Using This Guide:
This guide is divided into two main divisions. First is the Grasses, and second, the Grass-likes. The Grasses are organized first by tribe, and second by scientific name. This will enable users of the guide to find closely related species near to each other, making it easier to distinguish a particular species. The grass-likes are divided first by family, and second by scientific name, also keeping like species together. There are colored tabs within the guide to distinguish tribes and families, and there is also a comprehensive index at the end of the book to further aid users in locating species. Each page provides the following information:

Photo Page: Photos of species and specific traits to help with identification.

Common Name: The most frequently used common name of a species.

Scientific Name: The most recent scientific name, according to the PLANTS Database.

Symbol: The NRCS plant symbol (from PLANTS Database).

Description: A description of the vegetative and reproductive characteristics of the plant to aid in identification.

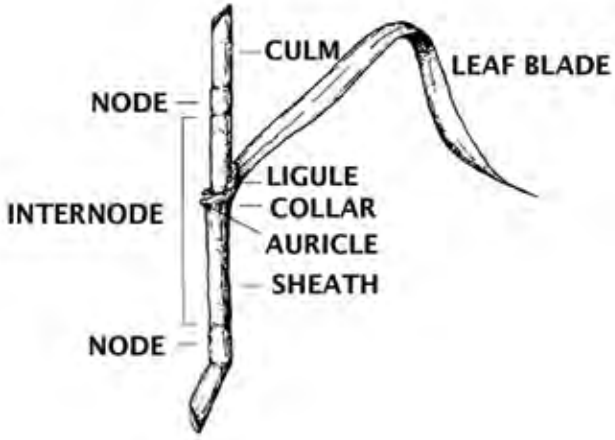
Distribution and Habitat: A description of the environment in which the grass or grass-like occurs.

General Information: An explanation of any intrinsic values a plant has, and may include values for livestock, wildlife, erosion control, medicinal purposes, etc.

Name Synonyms: Many grasses and grass-likes have multiple names. The most common is listed at the top of the page, and those less common are listed in this section.

Terms for Grass Structure

Stems and Leaves



Roots and Modified Stems

Fibrous Roots

Cheatgrass Roots, Dr. Roger Banner, USU Extension

Rhizomes

Phragmites Rhizomes, Ohio State Weed Lab, Ohio State University, Bugwood.org

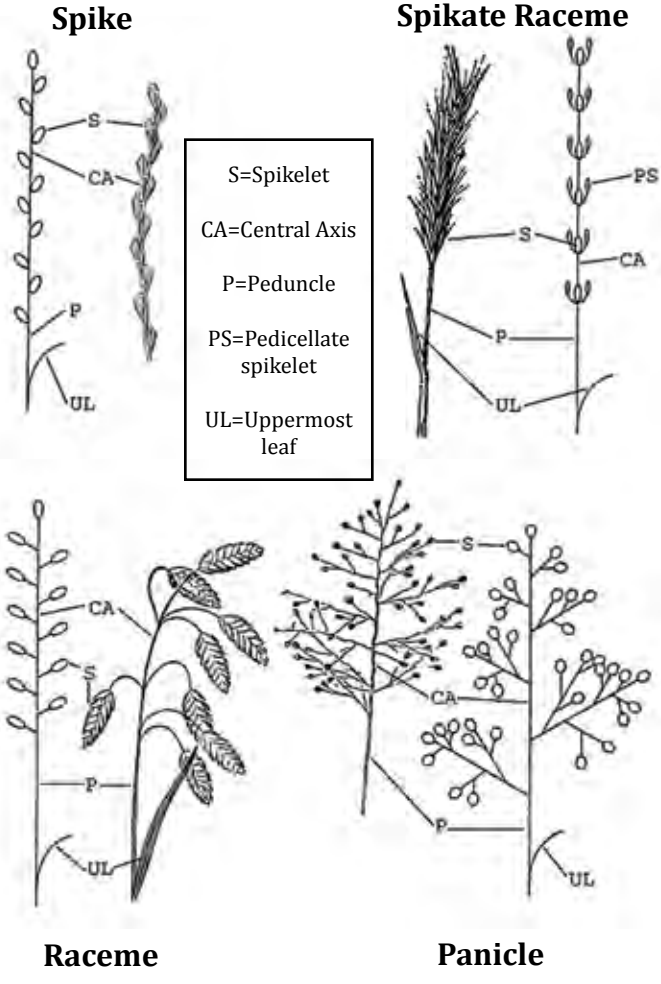
Stolons

Bermudagrass Stolons, Dr. Steve Dewey, Utah State University, Bugwood.org

Rhizome: A below ground, modified stem, new shoots at nodes.
Stolon: An above ground, modified stem, new shoots at nodes.

Inflorescence Types

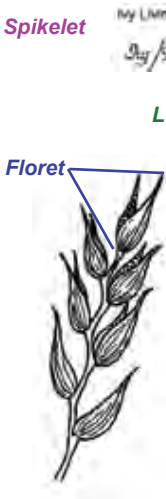
The ***inflorescence*** is the arrangement and attachment of spikelets on reproductive culms. The four main types are shown here.



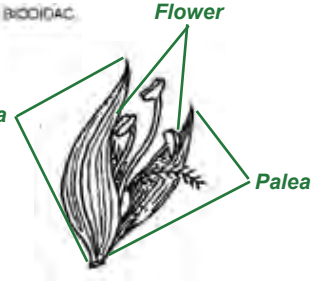
Grass Flower Structure

The grass flower structure begins with the **inflorescence** which is made of **spikelets**. **Spikelets** in turn are composed of **florets**, and **florets** contain the **flowers**.

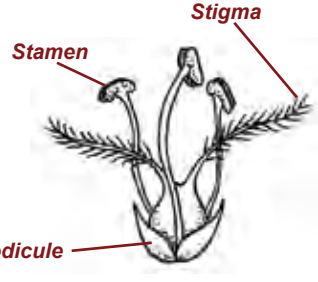
Inflorescence



Spikelet



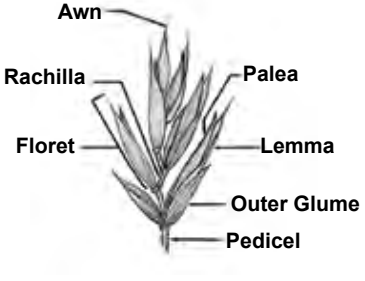
Floret



Flower

Spikelet: A pair of glumes (bracts) plus on or more florets.

Spikelet Diagram



Floret: Flower plus 2 modified leaves (bracts), the lemma and palea, that enclose the flower.

Flower: Small, consisting of an ovary with 2 plumose stigmas, 2 stamens, no petals.

Big Bluestem

(Andropogon gerardii)

Above: © 2007
Trent Draper

Right and below:
Dr. Matt Lavin,
Montana State University

Top right, above, & below:
Dr. Matt Lavin,
Montana State University

Big Bluestem
Andropogon gerardii

ANGE

Description:

Big bluestem is a robust, native, warm season perennial grass, often with scaly rhizomes, that grows 2′ – 8′ tall and bluish in appearance. The inflorescence is a panicle of 2-6 digitate or subdigitate racemose primary branches, 2″-3 ½″ long. The inflorescence usually has three branches which has led to the name "turkeyfoot." Spikelets are paired, nearly equal in length, lower spikelet is sessile and perfect, upper spikelet sterile or staminate. The beard-like hairs on the internodes of the rachis and on the pedicels of the perfect spikelets are from 1/8″ to 1/6″ long and have a yellow or golden hue. The glumes are hairless except on the margins and sometimes on the nerves. The awns are 1-2″ long, bent and twisted at the base. It flowers June-August, and disseminates seed through October. Big Bluestem is leafy at the base with some leaves occurring along the culm. Leaf sheaths are compressed and purplish at the base, and often hairy. Leaf blades are < 1′ long, flat to rolled inward, and slightly rough above. Lower blades are often hairy with rough margins. Ligules are short, hairy membranes.

Distribution and Habitat:

Big bluestem occurs from Saskatchewan to Quebec and in all states of the Eastern and Midwestern U.S. It is one of the most important range grasses of the Great Plains. It is not common in Utah but does occur on gravelly or clay soils on plains, along creeks and on dry hillsides at elevations from 2,900′-6,150′ in Emery, Garfield, Kane, San Juan, Washington and Wayne counties.

General Information:

Big bluestem provides good forage for all types of livestock, but becomes coarse late in the season. Growing points stay near ground level until late summer. It is also used for erosion control.

Name Synonyms: Turkeyfoot, Bluejoint beardgrass

Sand Bluestem

(Andropogon hallii)

Top left, above & below:
Dr. Matt Lavin, Montana State University

Steve Hurst @ USDA-NRCS PLANTS Database

Left: Dr. James Bowns, Southern Utah University

Sand Bluestem

Andropogon hallii

ANHA

Description:

Sand bluestem is a native, perennial, warm-season bunchgrass with creeping rhizomes and yellowish-green in color. Smooth, hairless culms are stout, 2′-5′ tall, simple, J-shaped at the base, branched above, smooth, somewhat whitish in appearance, and grooved on one side. Leaf sheaths are smooth and hairless. Ligules are ±⅛″ long and auricles are sometimes present. Leaf blades are mostly basal, flat to loosely rolled, up to ⅓″ broad, smooth and hairless, and up to 16″ long with prominent midribs. The inflorescence is a spike-like raceme, with the peduncle (central branch) initially concealed by the inflorescence sheath below and the lateral racemes often hidden partially in the sheath. The inflorescence generally has 2-6 finger-like racemes. The inflorescence has a very characteristic feathery appearance from the abundance of yellowish, silky hairs on the internodes. Spikelets are unawned, or with very short, straight awns. Flowers July-August, and disperses seed through September.

Distribution and Habitat:

Sand bluestem is found in Utah at elevations from 4,600′-5,800′ and where precipitation ranges from 14″-30″ annually and bimodal precipitation patterns exist. It grows well on sandy, loamy sand, or sandy loam soils in canyon bottoms. Associated species include Fremont cottonwood, sand sagebrush, copperweed, and skunkbush sumac.

General Information:

Sand bluestem is good to excellent forage for both livestock and wildlife due to its palatability and high yield. It does not do well with season-long or heavy grazing. It is excellent for erosion control on sites which are sand, loamy sand or sandy loam, especially in areas prone to blowouts.

Name Synonyms: Hall′s bluestem

Plant Resources Center, University of Texas-Austin

Above: Jose Hernandez @ USDA-NRCS PLANTS Database

Right: © 2007 Dr. Amadej Trnkoczy

Yellow Bluestem

(Bothriochloa ischaemum)

Jose Hernandez @ USDA-NRCS PLANTS Database

Above and below: © 2007 Dr. Amadej Trnkoczy

Yellow Bluestem

Bothriochloa ischaemum

BOIS

Description:

Yellow bluestem is a warm season, introduced, perennial bunchgrass growing 12″-40″ tall. The culms are erect or decumbent- to prostrate-ascending at the base and simple or sparingly branched above the base. The nodes are brown-purple, and bearded with short hairs flat against them. The leaves are mostly basal. Leaf sheaths are smooth and the ligules are membranes with a marginal fringe of minute hairs. Leaf blades are 1⅛″-6″ long, ¾″-1⅝″ wide, covered with a whitish or bluish waxy coating, slightly rough to the touch, with small tuber-like projections bearing a marginal fringe of minute hairs, and hairy at the base. Foliage is light green turning yellowish at maturity. The inflorescences are hand-shaped or fan-shaped panicles, purplish in color, composed of 2-10 racemes 1″-5″ long. The rachis and pedicels have a fringe of long, soft hairs. Spikelets are borne in pairs, one pedicilled and sterile and one attached directly to the rachis and perfect. Glumes are dissimilar. The lower glume is elliptical, equal to the length of the spikelet, papery, and without keels except near the tip. The lower glume is flat without pits; with soft, straight hairs; and hairy below. The upper glume is lance-shaped and 1-keeled.

Distribution and Habitat:

Yellow bluestem is often found in dry, stony places, borders of fields and slopes, along roadsides, and in pastures at elevations from 4,600′-6,250′ in Duchesne, Garfield and Utah Counties. It is drought resistant, but does not tolerate flooding. It is adapted to well-drained sandy soils, loams and clays and has some salt tolerance. It is adapted to summer precipitation areas or where application of additional water occurs.

General Information:

Yellow bluestem has been used in Utah in roadside seeding mixtures. It produces excellent ground cover, even on infertile soils, and has an extensive root system. It is a palatable grass and is tolerant of grazing.

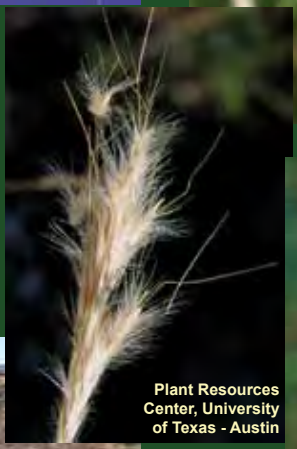
Name Synonyms: King ranch bluestem, Texas yellow beardgrass

Steve Hurst
@ USDA-NRCS
PLANTS Database

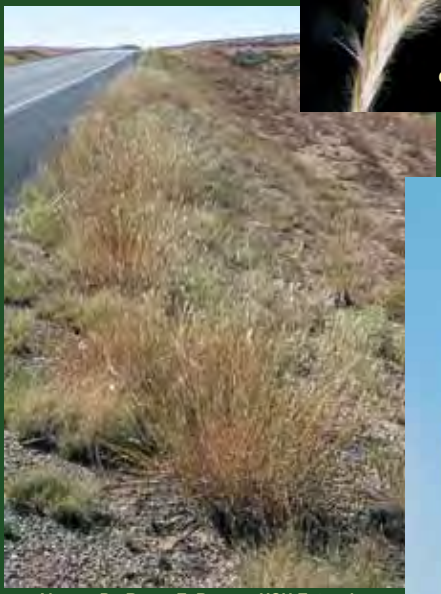
Plant Resources
Center,
University of
Texas - Austin

Silver Bluestem

(Bothriochloa saccharoides)



Plant Resources
Center, University
of Texas - Austin



Above: Dr. Roger E. Banner, USU Extension

Left and above:
John D. Byrd,
Mississippi
State University,
Bugwood.org

Silver Bluestem

Bothriochloa saccharoides

BOSA

Description:

Silver bluestem is a perennial, native, warm season grass with culms 14″-45″ tall. Culms are erect or geniculate (with elbow-like bends) at the base and branched at maturity. Leaf sheaths are glabrous and ridged near the collar. The collar has a few long hairs on the margin, with hairs sometimes extending up the leaf margins. Leaf blades are flat, linear, 2′-8″ long, and gradually tapering to a sharp tip. The leaves have a prominent midrib and white margins and ligules are membranous and irregularly toothed or entire. The oblong or lance-shaped panicle is 2″-5″ long and silvery white or light tan. The central stem or rachis is 1½″-3″ long with more than 10 branches up to 2″ long. Branches have spikelets on short pedicels and are fringed on the margins with many long silky hairs. Branch joints and pedicels are covered with long hairs. Spikelets are paired with the lower spikelet sessile and perfect, and the upper spikelet sterile and narrow. Upper lemma of lower spikelet has a delicate, twice-bent awn. Glumes are unequal and papery with the first 2-keeled, and second 1-keeled and 3-nerved.

Distribution and Habitat:

Silver bluestem is found on rocky slopes and is adapted to a broad range of soil types at elevations up to 5,000′. It has been used extensively throughout southern Utah for roadside seedings. It occurs in Grand, Kane, San Juan, and Washington Counties**.**

General Information:

Silver bluestem is not sufficiently abundant to be of much significance in Utah. It has been used primarily for revegetation of roadsides.

Name Synonyms: *Bothriochloa laguroides*

Left: Larry Allain @ USDA-NRCS PLANTS Database

Dr. Matt Lavin, Montana State University

Little Bluestem

(Schizachyrium scoparium)

Plant Resources Center, Univeristy of Texas - Austin

Dr. Matt Lavin, Montana State University

Right: Dr. Roger E. Banner, USU Extension

Little Bluestem

Schizachyrium scoparium

SCSC

Description:

Little bluestem is a native, warm season, perennial, and occasionally rhizomatous bunchgrass that is 12-24″ tall. It begins growth in late spring and continues growth until the first killing frost. Stems are coarse and erect, and leaves grow from the base. It has very flat bluish basal shoots. Plants are green to bluish, but turn to a reddish color after frost. The seedheads are racemes that are 1-2″ long, located at the tips of the stems and its branches. The rachis and spikelet pedicels (stems) are very hairy with white spreading hairs. Its glumes are firm and lemmas of the upper florets have bent, twisted awns ¼-⅝″ long. Leaf blades ≤¼″ wide, are flat and smooth but may be covered with hair at the base next to the sheath. Blades tend to fold at maturity. Leaves have very small ligules.

Distribution and Habitat:

Little bluestem occurs along waterways, in rock crevices, and in desert shrub, pinyon-juniper, ponderosa pine, and hanging garden communities of Southern Utah at elevations below 7,500′ where annual precipitation >10″. It is adapted to well-drained, sandy, infertile soils that are neutral to slightly alkaline. It is drought tolerant. Associated species include littleleaf mountain mahogany, big sagebrush, Utah serviceberry, roundleaf buffaloberry, pinyon, juniper, ponderosa pine, cliffrose, and skunkbush sumac.

General Information:

Little bluestem occurs throughout the U.S. and is consider to be only fair forage for grazing animals. It is commonly used in revegetation where soil conditions vary widely. It provides food and cover for birds and is also used in landscaping.

Below: Jennifer Anderson @ USDA-NRCS PLANTS Database

Above: Dr. Matt Lavin, Montana State University

Above and Left: Plant Resources Center, University of Texas-Austin

Indiangrass

(Sorghastrum nutans)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Dr. Roger Banner, USU Extension

Indiangrass
Sorghastrum nutans

SONU2

Description:

Indiangrass is a native, warm season, perennial grass with short, strong rhizomes and erect, tufted stems from 2½-5′ tall. It starts growth in late spring or early summer and flowers in mid- to late summer. Its seedhead is a single, narrow, plume-like panicle that is golden brown and 4-12″ long. Spikelets have firm to hardened glumes that are often dark in color and hairy at the base. Florets have awns from ½-1″ long that are twisted and bent. Seeds are light and fluffy with attached awns. Leaf blades are long, flat, ¼-⅜″ wide, and narrow at the point of attachment to the sheath. It has a distinguishingly characteristic ″rifle sight-shaped″ ligule.

Distribution and Habitat:

Indiangrass is found in hanging gardens and along washes at 3,700-7,200′ in Southern Utah where annual precipitation is ≤10″ but flooding with runoff water is common. It grows best in deep, well-drained floodplain soils but is tolerant of poorly to excessively drained soils, acid to alkaline conditions, and soil textures ranging from sandy to clayey. Associated species include sedges, rushes, common reed, willows, cottonwood, and other riparian species.

General Information:

Indiangrass is generally considered a grass of the Tall Grass Prairie. It occurs in Southern Utah in low elevation riparian communities in good condition. It is nutritious and preferred by wild and domestic grazing animals and is not tolerant of heavy, season-long grazing. It is an effective soil stabilizing plant .

James H. Miller, USDA Forest Service, Bugwood.org

Below: Steve Dewey, Utah State University, Bugwood.org

Johnsongrass

(Sorghum halepense)

Above and below: Chris Evans, River to River CWMA, Bugwood.org

Left: © 2009 Keir Morse, www.keiriosity.com

Charles T. Bryson, USDA ARS, Bugwood.org

Johnsongrass
Sorghum halepense

SOHA

Description:

Johnsongrass is an erect, smooth, introduced perennial with extensively creeping rhizomes. Stems are 2-5′ on length. The panicle inflorescence is 6-10″ long and somewhat spreading. The leaves are flat, up to 2′ in length, ¼ - 1″ wide and long-pointed.

Distribution and Habitat:

Johnsongrass grown for forage is found along moist roadsides and ditch-banks, in fields, and in waste places. In Utah it is found in Box Elder, Salt Lake, Utah, Piute, Wayne, Uintah, Kane and San Juan counties. It is common in Washington County.

General Information:

Johnsongrass is native to the Mediterranean region and found in all states of the U.S. except Minnesota. Although it is widely grown and used for forage, it is known to produce large quantities of cyanogenic glycosides which, under certain conditions such as moisture stress or frost, readily degrade to produce highly toxic Prussic acid, also called hydrocyanic acid (HCN). Conditions in the rumen also favor degradation of the glycoside to free HCN. Although Johnson grass produces palatable forage, it has the potential to cause HCN toxicity (poisoning) in ruminants. In rich, moist soil it spreads rapidly and is very difficult to control once established. It is considered a noxious weed in Utah.

Name Synonyms: Johnson grass

Below: Dr. Roger E. Banner, USU Extension

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James M. Andre

Left and Above:
Richard Old, XID
Services, Inc.,
Bugwood.org

Right: ©2007
Trent M. Draper

Purple Threeawn

(Aristida purpurea)

Plant Resources Center,
University of Texas-Austin

Purple Threeawn

Aristida purpurea

ARPU9

Description:

Purple threeawn is a native, cool season, perennial bunchgrass, with fine stems, growing 8-16″ tall. It starts growth in late spring and produces abundant seeds. Purple threeawn reproduces by both seeds and tillers. Its seedhead is a narrow to moderately spreading panicle, often >6″ long. It has few spikelets, each containing only 1 floret. The glumes are one-veined, awn-pointed or sharp-pointed, and unequal in length (1st glume about half the length of the 2nd glume). The lemmas have three-branched awns, 2-4″ long, and spreading at maturity. Seeds are enclosed by the awned lemmas. Leaves are mostly basal and hairless except at the collar. Leaf blades are narrow, rolled, and rather stiff, up to 6″ long (about as long as the stem). Leaves are rolled in the bud and the ligule is a fringe of short hairs. Auricles are absent.

Distribution and Habitat:

Purple threeawn is a strongly competitive native grass. If it dominates a site, it is often an indicator of disturbance, such as prairie dog towns; or a long-term, heavy, season-long grazing history. It is common to upland and semi-desert sites and has a competitive advantage in the shallower soils on these sites. It is more common at the lower elevations in Utah, being found at elevations from 2,500-9,000′ in the 8-14″ annual precipitation zone. It is best adapted to sand or sandy loam soils, but does well on stony, gravelly soils. Associated species include Indian ricegrass, big sagebrush, cheatgrass, needle-and-thread, blue grama, and annual forbs.

General Information:

Purple threeawn is not preferred by livestock or wildlife although it may be used during drought years. It has excellent drought resistance, giving it an advantage over other plants that are grazed during both the early and late season. The awns may contaminate fleece reducing its value, and may cause irritation and abscesses in the mouths and nostrils or damage to the eyes of grazing animals.

Name Synonyms: Fendler threeawn, Red threeawn

Below: Dr. Roger E. Banner, USU Extension

Steve Dewey, Utah State University, bugwood.org

Left: Richard Old, XID Services, Inc., bugwood.org

Left: © 2004 Steve Matson

Phragmites

(Phragmites australis)

Above photo: Ohio State Weed Lab, Ohio State University, bugwood.org

Above: Dr. Roger E. Banner, USU Extension

Phragmites

Phragmites australis

PHAU7

Description:

Phragmites is a native, warm season, perennial grass that is both rhizomatous and stoloniferous. It has thick (¼-⅝″), erect stems and grows 3-13′ tall. The seedhead is a panicle 6-14″ long by 3-8″ wide that is egg-shaped to lance-shaped, purplish when young, and straw-colored when mature. Spikelets have 3-10 florets. Lower glumes are ≤¼″ long and upper glumes are ≤⅜″ long. Lemmas are ≤⅝″ long, smooth and linear with inrolled margins. Leaf blades are flat, ≤20″ long by ≤2″ wide, very rough on the margins, and long-tapered at the tip. Leaf blades break off readily at the base when mature. Ligules are membranous with tiny hairs.

Distribution and Habitat:

Phragmites grows along waterways, in saline or freshwater marshes, and in sloughs at elevations from 3,000-6,400′. It occurs on coarse-fine textured soils that are frequently inundated or saturated. Associated species include common cattail, hardstem bulrush, inland saltgrass, and other wetland plants.

General Information:

Phragmites is a circumboreal plant that spreads quickly. Plants with stolons almost 60′ long have been documented in Southeastern Utah. It is difficult to control once established. It quickly moves into low water areas in periods of drought and is considered a problem plant along lake shore beaches. It aggressively spreads in wetlands closing off open water and crowding out lower-statured vegetation to the detriment of nesting habitat for some waterfowl and shorebirds. It has been used for thatching, lattices, arrow shafts, construction boards, mats, and erosion control.

Name Synonyms: Common reed

Above: © S.L. Hatch & J.E. Dawson

Below: ©2006 Steve Matson

Above: Steve Hurst @ USDA-NRCS PLANTS Database

Nodding Brome

(Bromus anomalus)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Nodding Brome

Bromus anomalus

BRAN

Description:

Nodding brome is a native, cool season, perennial, erect bunchgrass, 1½-2½′ tall. Stems are hairy at the nodes. Seedheads are open, nodding panicles, 4-8″ long. The panicle has 2-3 drooping branches per node. Spikelets are somewhat rounded, about 1¼″ long, and contain 5-10 florets at ends of slender branches. The glumes are hairy, the lemmas are broad and silky-haired with an awn about ⅛″ long from between the notched, two-lobed apex. Leaves are rolled in the bud and blades are ≤¼″ wide and ≤16″ long. The blades are flat, prominently veined and rough on both surfaces, often hairy above with rough margins. Sheaths are round with backward hairs and are prominently veined. They are closed to near the top in younger leaves and split in older ones. The collar is indistinct and auricles are absent. Ligules are short, membranous, squared-off, and brownish, with uneven jagged edges.

Distribution and Habitat:

Nodding brome is generally distributed throughout high mountain and lower elevation sites on nearly all exposures, but is found primarily on the north and east exposures. Its elevation range is from 6,000-12,000′. It is adapted to areas where annual precipitation averages 16-30″. Nodding brome is adapted to deep, well developed loam and clay loam soils, but will grow on sands and coarse gravelly or stony soils. Associated species include bluegrasses, silver sagebrush, aspen, cinquefoil, snowberry, delphinium, and penstemon.

General Information:

Nodding brome is a preferred forage plant by cattle and elk, and is rated as good forage for deer and sheep. Several species of small mammals store its seeds for food. It is a fair to good erosion control plant. Its graceful, nodding seedheads make it an unusually attractive plant for beautification and recreation area plantings. It is not tolerant of heavy, season-long grazing.

Japanese Brome

(Bromus japonicus)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Dr. Lynn Clark & Anna Gardner, Iowa State University

Right: © Patrick J. Alexander @ USDA-NRCS PLANTS Database

Left and above: Dr. Matt Lavin, Montana State University

Japanese Brome

Bromus japonicus

BRJA

Description:

Japanese brome is an introduced winter annual with stems 8″-28″ tall. It produces dense, low leafy growth in the fall, and spring growth begins early. Leaf blades and sheaths are usually covered with soft hairs directed downward. Ligules are small. The leaf blades are flat or curled inward, about ¼″ wide and 4″-8″ long. It reproduces by numerous inflorescence bearing tillers and seed. The inflorescence is a loosely spreading panicle, 4-8″ long with 3-5 lower, usually drooping branches. The pedicels are normally longer than the spikelets. Spikelets are 7-12-flowered, ¼″ wide and about ½″ long. The first glume is pointed at the tip and 3-nerved. Second glume is 5-nerved and longer and broader than the first glume. Lemmas are oblong to triangular, broader on the upper-half, curved around the seed, the tip blunt, but splitting to the awn which is attached below the tip. Awns are ¼-¾″ long, somewhat twisted and widely spreading at maturity. Palea are distinctly shorter than the lemmas.

Distribution and Habitat:

Japanese brome is most often found along roadsides, at field edges and other disturbed areas. It does best on medium texture soils that are moderately well-drained to well-drained. It is intolerant of alkaline soils. It is somewhat tolerant of flooding. It occurs throughout the West. It is found in a variety of habitats, and often occurs with pigweed, Utah juniper, big sagebrush, fourwing saltbush, rubber rabbitbrush and cheatgrass.

General Information:

Japanese brome has become a nuisance in depleted rangelands, hayfields, and dry soils in disturbed areas, and is often confused with cheatgrass. It is palatable in the early stages of growth before seeds and awns dry in the spring. A vigorous cover of desirable grasses is a good method of prevention on rangelands and in pastures.

Name Synonyms: Field brome, Japanese chess

Smooth Brome

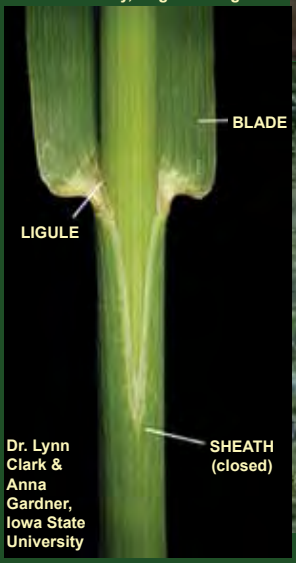
(Bromus inermis)

Ohio State Weed Lab Archive, Ohio State University, Bugwood.org

Above: Dr. Matt Lavin, Montana State University

Left: © 2009, James M. Andre

Above: John Cardina, Ohio State University, Bugwood.org



Dr. Lynn Clark & Anna Gardner, Iowa State University

Above: Dr. Matt Lavin, Montana State University

Smooth Brome

Bromus inermis

BRIN2

Description:

Smooth brome is an introduced, cool season, perennial, sod-forming grass 1½-3′ tall. It is erect, leafy, long-lived, and rhizomatous. It starts growth in early spring, flowers May-July, and reproduces from seeds, tillers, and rhizomes. Its seedhead is a compact to open panicle, 4-8″ long with branches in whorls and spikelets ¾-1″ long containing 5-10 florets. Spikelets are slender, rather flat and brownish at maturity. Lemmas are awnless to awn-tipped, smooth and split near the tip into two points. Leaves are smooth or occasionally hairy, particularly on the sheaths. Leaf blades are 8-15″ long, ¼-½″ wide, flat, and with a raised midrib below. Sheaths are closed, except near the collar and papery when dry. Leaves are rolled in the bud and ligules are ≤⅛″ long, rounded and membranous. Auricles are absent.

Distribution and Habitat:

Smooth brome has been used in seedings in many areas of the country. It is adapted at elevations from 3,000-12,000′ and has been planted on mountain loam sites and upland sites where annual precipitation or the equivalent irrigation is ≥16″. In drier areas, some irrigation is required. It spreads aggressively but is not tolerant of prolonged flooding. It is best adapted to fertile, loamy, deep soil including stony loam soils. It is mildly tolerant of alkaline conditions and moderately salt tolerant. Associated species include slender wheatgrass, intermediate wheatgrass, aspen, yarrow and big sagebrush.

General Information:

Smooth brome provides excellent forage for all classes of livestock and for wildlife. Animal preference for it rapidly declines after it flowers. It is planted for irrigated pasture and hay production. It provides excellent soil erosion control and is used widely for rehabilitating areas for forage production, wildlife habitat, landscape beautification, cover for recreational areas and campgrounds, roadside seedings and for ski slope and watershed stabilization.

Above: ©2008 Keir Morse, www.keiriosity.com

Below: ©2005 Steve Matson

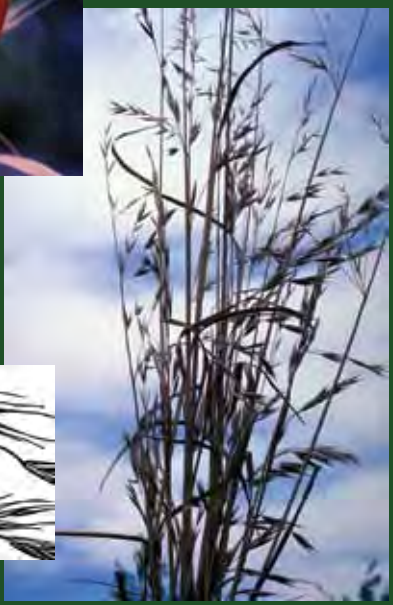
Steve Hurst @ USDA-NRCS PLANTS Database

Mountain Brome

(Bromus marginatus)

Below: ©2005 Steve Matson

Above and Right: USDA-NRCS Plant Materials Center



Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Mountain Brome

Bromus marginatus

BRMA4

Description:

Mountain brome is a native, cool season, perennial, rather short-lived (4-5 years) bunchgrass growing up to 3′ tall. It reproduces from seeds and tillers. It starts growth in early spring, and seeds mature by August. Seedlings are very vigorous. Its seedhead is an erect panicle, 4-8″ long with branches erect to spreading. Spikelets are distinctly flattened and contain 5-9 florets. Lemmas are hairy with a ¼″ awn arising between the teeth of the divided apex. Leaves are hairy with blades 6-12″ long and ≤⅜″ wide. Leaves are rolled in the bud and ligules are membranous, about ⅛″ long, and rounded. Auricles are absent.

Distribution and Habitat:

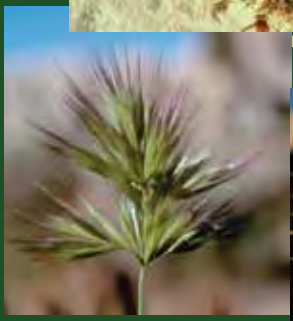
Mountain brome is a valuable native grass occurring in nearly all of the mountainous areas of Utah at elevations ranging from 5,000-13,000′. It grows on bottomland, mountain slopes, valleys, and ridge tops. It grows well in a wide variety of soils including poorly drained types. It is most abundant in moderately moist, well-developed, deep, medium-textured soils. Associated species include Idaho fescue, Richardson geranium, Columbia needlegrass, slender wheatgrass, snowberry, blue wildrye, bluebells, and aspen.

General Information:

Mountain brome provides excellent forage for cattle, horses, and elk, and fairly good forage for sheep and deer. The large seeds are eaten by many small mammals, especially rodents, and also by birds. Forage becomes harsh and fibrous at maturity. It is fairly sensitive to grazing by the larger animals. Reducing the grazing pressure when it is in the reproductive stages and limiting the use to moderate levels help maintain the plant. Mountain brome has been planted for revegetation and erosion control. It is effective in improving water infiltration.

Below: Dr. James Bowns
Southern Utah University

Left and Above: John M. Randall,
The Nature Conservency,
Bugwood.org



Red Brome

(Bromus rubens)

Left: Dr. Matt Lavin,
Montana State University

Right and Above: Dr. Roger E. Banner,
USU Extension

Red Brome

Bromus rubens

BRRU2

Description:

Red brome is an introduced, cool season, annual grass with solitary to numerous erect stems from a spreading base, growing 4-24″ tall. Its seedhead is an erect, dense, compact, almost spike-like panicle, 2-3″ long, that is reddish-purple when mature. Its spikelets are ⅔-1⅛″ long and contain 3-8 florets. The glumes are narrow and tapered to a sharp point with the 1st glume shorter than the 2nd. The lemmas have straight to slightly bent awns ⅜-1″ long, are slightly rough to hairy, are split with two sharp membranous points or teeth, and have 3-5 nerves. Its leaf blades are hairy, narrow, and flat to boat-shaped. Leaves are rolled in the bud and ligules are ≤⅛″ long. Sheaths are hairy and papery and auricles are absent.

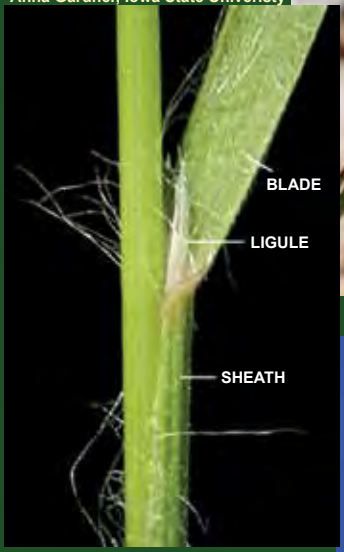
Distribution and Habitat:

Red brome is common on disturbed areas. It is adapted to the warmer climates of Utah and is found mostly in the Mojave Desert and semi-desert summer precipitation zone of southern Utah where the precipitation is 6-10″ annually. It occurs at elevations from 2,500-5,500′ and grows on a wide range of soils from shallow to deep and from fine to coarse textured. It does well in limy soils and on soils with a hardpan. Associated species include blackbrush, indigobush, creosotebush, range ratany, desert baileya, bush muhly, big galleta, and desert needlegrass.

General Information:

Red brome is an important forage for livestock and desert tortoise in the early spring. Generally, it is not considered a good forage plant because of the short season of growth and its sharp awns. It is a poor erosion control plant and provides abundant fuel for wildfire. It is fire tolerant and may burn regularly. It produces large numbers of viable seed.

Below: Dr. Lynn Clark &
Anna Gardner, Iowa State Univeristy



Above: © Gary A. Monroe @
USDA-NRCS PLANTS Database

Right: Steve Hurst @ USDA-
NRCS PLANTS Database

Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Cheatgrass
(Bromus tectorum)

Above: Dr. Roger E. Banner, USU Extension

Cheatgrass

Bromus tectorum

BRTE

Description:

Cheatgrass is an introduced, cool season, annual grass, 2″ -24″ tall. It has a branched base and is typically rusty-red to purple at maturity. Seeds germinate in the fall or early spring when moisture is available. Cheatgrass grows rapidly in spring (seeds mature within 2 months of the onset of spring growth). Its seedhead is an open, drooping, branched panicle with spikelets containing 5-8 florets. It has hairy or downy glumes and lemmas. Lemmas are narrow with awns ⅝″ long or longer. Leaf blades and sheaths are hairy and blades are flat, ⅛-¼″ wide. Leaves are rolled in the bud. Ligules are ≤⅛″ long, membranous, rounded to collar-shaped, with long pointed teeth. Auricles are absent.

Distribution and Habitat:

Cheatgrass is widely adapted. It grows on all exposures and relief from desert valley bottoms to the tops of the mountain peaks 2,500-13,000′ in elevation. It invades disturbed rangeland, roadsides, fields, and burned areas quickly. It is adapted to most soils unless extremely wet, saline, or alkaline and it thrives where there is only weak competition from perennial plants. Cheatgrass is an invasive plant on nearly all Utah rangelands and is therefore associated with numerous plant species.

General Information:

Cheatgrass provides good forage for many grazers in the vegetative stage, before the inflorescence emerges. At maturity, its awns may cause various injuries to the eyes and mouths of grazing animals as well as contaminate fleece. It provides food for upland birds and rodents. Chukars are uniquely adapted to cheatgrass infested range where it provides food and cover. Cheatgrass increases rapidly following hot summer fires that often kill non-sprouting shrubs and perennial grasses not adapted to fire. An increase in cheatgrass provides a fine fuel which, in turn, decreases the fire return interval. Cheatgrass does not invade and dominate perennial plant communities readily unless they are disturbed.

Name Synonyms: Downy brome, June grass

Pine Dropseed

(Blepharoneuron tricholepis)

Left, above, below, and bottom right: Sue Smith @ http://cals.arizona.edu/yavapaiplants

© S.L. Hatch & J. E. Dawson

Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Pine Dropseed

Blepharoneuron tricholepis

BLTR

Description:

Pine dropseed is a native, warm season, perennial, densely tufted bunchgrass that is slender, erect, and 10-13″ tall. It has basal leaves and fibrous roots and reproduces from seeds and tillers. It starts growth in late June or early July and completes growth in September. It generally comprises only a small portion of the vegetation. Its seedhead is a panicle 2-9″ long which can be open or contracted. Its football-shaped spikelets are small, containing one floret with a distinctive greenish-gray or bluish-gray color, and with silky hairs on the keel and marginal nerves. Leaf blades are abundant, but mostly small and basal. Ligules are fringed with hairs on the margins.

Distribution and Habitat:

Pine dropseed occurs in Southern Utah and is usually found in open parks and meadows in the subalpine zone and in open timber of the ponderosa pine and pinyon-juniper types. It is adapted to a broad range of soils, but is most abundant in rocky, moderately dry soils. Associated species include mountain muhly, junegrass, bluegrasses, and ponderosa pine.

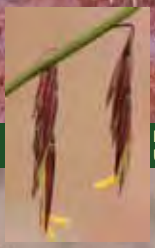
General Information:

Although it does not produce much foliage available as forage, the preference for pine dropseed is very high for all classes of livestock. Animal preference declines sharply with increasing maturity. The stems are ignored or only slightly grazed after maturing. It is generally one of the highest quality grasses in timbered areas. A healthy pine dropseed community is an indicator of a rangeland in good ecological condition. It contributes only marginally to soil stability.

Name Synonyms: Hairy dropseed

Right: © 2007 Trent M. Draper

Below: Dr. Matt Lavin, Montana State University



Left: Patrick J. Alexander @ USDA-NRCS PLANTS Database

Sideoats Grama

(Bouteloua curtipendula)

Howard F. Schwartz, Colorado State University, Bugwood.org

Above: Dr. Matt Lavin, Montana State University

Dr. James Bowns, Southern Utah University

Sideoats Grama

Bouteloua curtipendula

BOCU

Description:

Sideoats grama is an erect to decumbent perennial bunchgrass with solitary to densely tufted smooth culms 8″-39″ in length. Culms are purplish at the nodes. It often has slender to stout, scaly rhizomes. Leaves are mostly basal, abundant, coarse, and 4″-12″ long. Leaf blades and sheaths are bluish-green in color, sometimes with a purplish cast, especially in the spring. The herbage cures to a reddish-brown or straw color. Leaf blades are ±¼″ wide, flat to loosely curved inward, slightly rough, and sometimes with sparse hairy along the margins near the ligules. The ligule is membranous with hairs along the margin or a ring of short hairs. Auricles are absent. The panicle inflorescence is 5″-12″ long and consists of 25-50 spikelike branches, ¼″ - ¾″ long, bent backward or downward and arranged alternately on an elongated axis, mostly turned to one side. The spikelike branches have 5-8 spikelets each that are arranged on one side of the flattened rachis, but not comb-like as in other grama species. These spikelike branches disarticulate readily (drop) when mature, leaving a long zigzag central branch of the panicle. Spikelets contain 1 perfect flower with an imperfect floret above. Glumes are unequal, the first is small and thin, the second is larger, thick, tapering, and purplish. The fertile lemma is 3-toothed with 3 awn tips. The imperfect lemma has 3 awns.

Distribution and Habitat:

Sideoats grama is found on rocky open slopes, woodland, and forest openings at elevations 3,200′-8,000′. It is most abundant in medium to fine-textured soils in Duchesne, Emery, Garfield, Grand, Kane, Millard, San Juan, Sevier, Washington and Wayne counties.

General Information:

Sideoats grama produces high quality, nutritious forage that is relished by all classes of livestock throughout the summer and fall, and it remains moderately palatable into winter. It is not sufficiently abundant to be of much significance in Utah.

Left and below: Dr. Roger E. Banner, USU Extension

Black Grama

(Bouteloua eriopoda)

Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Dr. Matt Lavin, Montana State University

Below: Steve Hurst @ USDA-NRCS PLANTS Database

Black Grama

Bouteloua eriopoda

BOER4

Description:

Black grama is a slender branching, strongly rooted, tufted perennial. It spreads slowly by stolons and seeds have low germination. Leaf blades are 1″-3″ long, narrow, and flat but becoming twisted with margins rolled inward near the tip. The ligule is a ring of short hairs. Leaf sheaths are smooth and marked with fine, parallel lines. Culms are white woolly pubescent giving the appearance with the smooth leaf sheaths of stems with alternating pubescence and smooth sections. Culms are somewhat wiry, 4″-24″ in length. The panicle inflorescence consists of 2-5 loosely ascending spikes about 1″-2″ long, each bearing 9-20 uncrowded spikelets pressed flatly against the rachis. The spikelets are 1/3″ long. This gives the spike the appearance of a comb. The rachis extends beyond the last spikelet like a needle**.**

Distribution and Habitat:

Black grama is found from California to Kansas and Wyoming and into Mexico. It is characteristically a lower altitude grass (3,500′-5,500′ elevation), but it is occasionally found at elevations >7,000′. In Utah, it is found at elevations from 2,750′ – 7,950′ in Grand, San Juan, Wayne, Garfield, Kane and Washington counties. It is most common on dry, rocky hills in sandy or gravelly soil.

General Information:

Black Grama provides excellent forage. Heavy grazing will prevent its spread through stolons.

Name Synonyms: Woollyfoot grama, Hairyfoot grama

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Below: Howard F. Schwartz, Colorado State University, Bugwood.org

Above: © 2007 Trent M. Draper

Dr. Lynn Clark & Anna Gardner, Iowa State University

Blue Grama

(Bouteloua gracilis)

Below: Howard F. Schwartz, Colorado State University, Bugwood.org

Right: Dr. Roger E. Banner, USU Extension

Blue Grama

Bouteloua gracilis

BOGR2

Description:

Blue grama is a native, warm season perennial with seed stalks 6-20″ tall. It tillers readily, often forming an open sod. Growth starts in May or June, depending on soil temperature and moisture availability. It flowers from July until frost, and reproduces primarily from tillers. It does not tolerate shading by taller plants well. Seedheads are one-sided spikes up to 2″ long that are curved and comb-shaped at maturity. Spikelets are numerous, arranged in two rows on one side of the rachis, each containing one perfect floret and two imperfect florets reduced to bristles and scales. Lemmas of perfect florets are three-awned and glumes are hairy and awn-tipped. The leaf blades are narrow, mostly basal, sometimes curled but generally flat, and 1-6″ long. They are usually smooth but may be hairy on the margin near the base. Sheaths are smooth with a few hairs at the margins of the collar. Ligules are fringes of very short hairs and auricles are absent.

Distribution and Habitat:

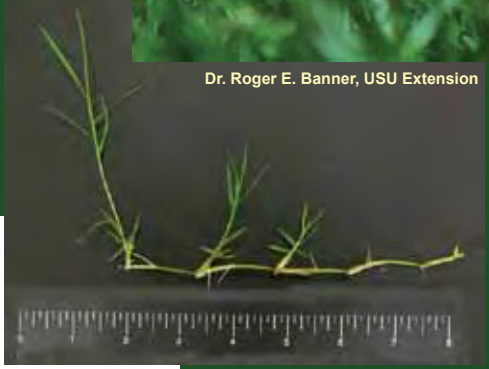
Blue grama occurs on a wide variety of sites in Central and Southern Utah at elevations of 3,500-8,000′. It occurs on open plains, mesas, foothills, and in woodlands in the 8-15″ bimodal precipitation zone where summer precipitation comprises a major portion of the annual rainfall. It grows in stony, cobbly, gravelly, sandy, or even fine soils with a high lime content. It is not found on wet, poorly drained soils. Associated species include needle-and-thread, Sandberg bluegrass, Indian ricegrass, galleta grass, sagebrush, and rabbitbrush.

General Information:

Blue grama provides good quality summer forage for all classes of domestic livestock and many wild animals. It retains forage quality at maturity. It can withstand relatively heavy grazing and is very drought tolerant. In Utah, it is a low producer because of highly variable summer precipitation. It has good soil stabilizing features for reducing wind erosion and minimizing sheet erosion from water.

Right: Dr. Matt Lavin, Montana State University

Left: Dr. Lynn Clark & Anna Gardner, Iowa State University



Dr. Roger E. Banner, USU Extension

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Bermudagrass

(Cynodon dactylon)

Above:

Bermudagrass
Cynodon dactylon

CYDA

Description:

Bermudagrass is a long-lived, warm season, perennial grass. It is strongly rhizomatous or stoloniferous reproducing vegetatively as well as from seed. Its stems are 8″-24″ long and leafy with smooth leaf sheaths. The stems lie along the ground, root at the nodes, and rise at the tip. Leaf blades are flat, 1″-2″ long, up to 1/6″ wide, rigid, may be hairy or smooth, and slightly rough to the touch. Ligules are circles of white hairs. The inflorescence is a panicle and consists of 3-6 digitately arranged spikes, 1″-2″ long.

Distribution and Habitat:

Bermudagrass is an introduced species from Africa which is widely distributed in warmer regions throughout the world. Numerous cultivars of Bermudagrass have been developed for specific purposes such as turf, forage, and erosion control. It is important in areas with relatively mild winters. It is best adapted to deep soils in areas with >16″ of annual precipitation or with irrigation but also grows well on poor or sandy soils with irrigation. Bermudagrass can withstand sedimentation and inundation. It grows well on poor or sandy soil with adequate water. Bermudagrass resists extreme drought and high temperatures (>100°F). In Utah Bermudagrass occurs in Cache, Weber, Salt Lake, Utah, Washington and San Juan counties.

General Information:

Bermudagrass is listed as a noxious plant in Utah, Arkansas, and California and is considered invasive by some sources. Forage value of Bermudagrass is good for all classes of livestock. It is used as a lawn grass and for binding sands.

Name Synonyms: Cynodon

Below: ©2002 Thomas M. Elder, M.D.

Above: ©2008 Steve Matson

Below: ©2006 Steve Matson

Fluffgrass

(Dasyochloa pulchella)

Right: Micheal L. Charters, Southern CA Wildfowers, www.calfora.net

Above: Dr. Roger E. Banner, USU Extension

Line Drawing at Right: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Fluffgrass

Dasyochloa pulchella

DAPU7

Description:

Fluffgrass is a native, warm season, perennial bunchgrass growing 3-6″ tall. It is low, densely tufted and sometimes forms open mats. It flowers from mid-July to mid-September. Its seedhead is a short panicle that usually does not extend beyond the leaf blades. It has 1-5 spikelets, that are almost attached directly to the rachis and that contain 5-10 florets. Its glumes are about equal, broad, awn-pointed, ¼-⅓″ long, and about as long as the spikelet. The lemmas are ≈⅛″ long, conspicuously long and hairy below, split about half way with an awn extending from between the two-lobed apex and about as long as the lobes. The seedhead produces and retains a pair of papery bracts when seeds fall. Leaves are short, stiff, sharp-pointed, rough, and in clusters at the top of the internode. These clusters frequently bend over to the ground and root, reproducing the plant vegetatively. The stems are low, tufted, slender, seldom over 6″ long and consist of one long internode. Fluffgrass is weakly rooted and easily dislodged from the soil.

Distribution and Habitat:

Fluffgrass occurs on the dry plains and rocky, barren foothills of desert areas of Southern Utah from 2,000-6,000′ elevation. It is found on sandy to gravelly soils and particularly on limey soils. It is well adapted to areas with <6″ average, but highly variable, annual precipitation. Associated species include red brome, indigobush, creosotebush, range ratany, bush muhly, desert baileya, joshua tree, big sagebrush, Utah juniper, pinyon, and other semi-desert and desert plants.

General Information:

Fluffgrass provides only limited forage for livestock and is not a preferred species. It is commonly used throughout the year by certain wildlife species like desert tortoise. It has aesthetic value in that its fluffiness contrasts with the stark, open background of its relatively barren habitat. Fluffgrass in abundance is indicative of low site productivity.

Name Synonyms: Low woollygrass, Low tridens, Desert fluffgrass

© 2005 Steve Matson

Below: Dr. Matt Lavin, Montana State University

Right: Larry Allain , National Wetland Research Center, USGS

Below: Intermountain Herbarium, Utah State University

Inland Saltgrass

(Distichlis spicata)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above: Dr. Matt Lavin, Montana State University

Above: Dr. Roger E. Banner, USU Extension

Inland Saltgrass

Distichlis spicata

DISP

Description:

Inland saltgrass is a native, warm season, perennial sod-forming grass 4-16″ tall, with tough, scaly rhizomes and rigid stems. It starts growth in the early summer, and has a slow growth rate remaining green until fall. Few seeds are produced and reproduction is mostly from rhizomes. Its seedheads are contracted, dense panicles that are yellowish at maturity. It is dioecious with male seedheads larger, denser, and on longer culms than female seedheads. Spikelets are flattened, awnless, and produce 8-15 florets. Leaves blades are sparsely hairy, stiff, flattened at base, sharp pointed, coarse, and spaced along the entire length of the stem. Leaf sheaths overlap and leaves are folded in the bud. The collars are hairy and ligules have a fringe of short hairs. Auricles are absent.

Distribution and Habitat:

Inland saltgrass grows from the low elevation valley bottoms to the middle sagebrush grass zone. It is common in wetlands associated with broad, flat valleys and basins, in swales, on the margins of ponds, lakes and reservoirs, and in seepage areas. In Utah, it occurs in many river bottoms as a rather solid, yellowish-green colored sod. The elevation range is 2,500-6,000′ where precipitation averages 8-14″ annually. It is adapted to poorly drained, heavy clay soils in saline and alkaline environments where periodic flooding and saturated soils are common. Associated species include alkali sacaton, greasewood, and pickleweed.

General Information:

Inland saltgrass is not preferred by livestock and big game and receives use only after other forages have cured in the late summer. If grazed alone in the fall or winter, saltgrass can cause rumen compaction in cattle. It is resistant to fire and trampling. Small mammals and birds use saltgrass for cover and nesting, as well as a food source.

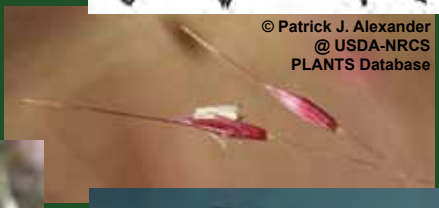
Name Synonyms: Alkali saltgrass, Saltgrass

Bush Muhly

(Muhlenbergia porteri)

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Above: Dr. Roger E. Banner,
USU Extension



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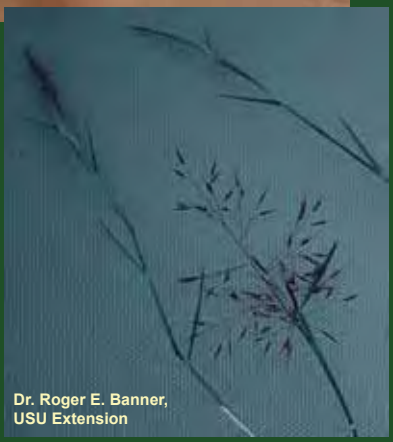
PLANTS Database

Above: © 2005 James M. Andre



Dr. Roger E. Banner,
USU Extension

Bush Muhly

Muhlenbergia porteri

MUPO2

Description:

Bush muhly is a native, perennial, warm season bunchgrass that grows 1-3′ tall and reproduces from seed. It is weak-stemmed, fine, and wiry. Its stems are leafy the entire length, highly branched, bent at the nodes, and knotty at the base. Purplish-green stems and leaves remain green through most of the year. Its seedhead is a fine many-branched panicle with one small flower/seed per spikelet. It begins growth in late winter or early spring and flowers from early spring to early summer. Given sufficient moisture, bush muhly does not die back to the root crown in winter with new growth starting from near the base of the previous year′s stems.

Distribution and Habitat:

Bush muhly is drought-resistant and occurs in desert grasslands and desert shrublands in the Mojave Desert and the Great Basin. It occurs mostly on rocky or sandy sites on lower plains, dry mesas, canyons, foothills, and open hillsides at elevations from 760-4,300′. Throughout much of its range it is often found growing under the protection of shrubs, such as mesquite and creosotebush. Associated species in Utah include mesquite, creosotebush, Joshua tree, red brome, purple sage, globemallow, range ratany, big galleta, winterfat, desert needlegrass and desert baileya.

General Information:

Bush muhly is nutritious, highly preferred, and readily eaten by livestock throughout the year. It is an important forage for desert tortoise. It is susceptible to heavy grazing because of its branching habit. It does not tolerate heavy grazing. In areas where creosotebush is less than 3′ in stature, bush muhly appears to affect the creosotebush detrimentally and in some instances may be responsible for its death by competing for moisture, nutrients, and sunlight.

Name Synonyms: Hoegrass

Below: Dr. James Bowns, Southern Utah University

Above and Left: Dr. Roger E. Banner, USU Extension

Sandhill Muhly

(Muhlebergia pungens)

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Dr. Roger E. Banner, USU Extension

Sandhill Muhly

Muhlenbergia pungens

MUPU2

Description:

Sandhill muhly is a native, warm season, perennial bunchgrass with coarse, scaly rhizomes that is 4-24″ tall. It often forms large rounded clumps or rings dying out in the center. Its seedhead is an open panicle 3-6″ long and 1-3″ wide, with branches and hairlike pedicels spreading widely and much longer than the spikelets. Spikelets contain 1 floret, are ⅛-¼″ long including awns, and are mostly reddish-purple to brownish. The glumes are often awn-tipped, rough, narrowly tapering to the tip or oval, and considerably shorter than the lemmas. Lemmas are narrow and gradually taper to a short awn. Paleas are equal to or slightly longer than the body of the lemma with 2 nerves that form awn-tips. Leaf blades are rigid, rolled inward, sharply tipped, 1-2½″ long and very narrow, and smooth or with fine hairs. Ligules are short, often with membranous lobes on the sides, and occasionally appearing to consist of a ring of hairs. Leaf sheaths are woolly-hairy at the base and smooth above. Stems are erect or more often decumbent-ascending and much branched above the base. Seeds are small. Sandhill muhly reproduces by rhizomes and seed.

Distribution and Habitat:

Sandhill muhly is found across Southern Utah at elevations from 3,500-6,500′ in desert shrub and pinyon-juniper communities. It occurs primarily on sands. Associated species include sand sagebrush, yucca, Indian ricegrass, pinyon, juniper, skunkbush sumac, penstemons, bitterbrush, blackbrush, pointleaf manzanita, and Utah serviceberry.

General Information:

Sandhill muhly has little value as forage for livestock or wild grazers. It is effective in controlling wind erosion in very sandy areas but seed is not produced commercially.

Name Synonyms: Wickiup grass

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Left: ©2010 James M. Andre

Right: © 2009 Steve Matson

Below: Dr. Matt Lavin, Montana State University

Galleta

(Pleuraphis jamesii)

Below: © 2008 Steve Matson

Above: © 2009 Steve Matson

Above: Dr. Roger E. Banner, USU Extension

Galleta

Pleuraphis jamesii

PLJA

Description:

Galleta is a native, warm season, perennial grass 3-20″ tall. It has coarse rhizomes and grows as open sod or in small bunches. Its stems are solid and hairy at the nodes. It grows mainly in summer after sufficient rain, but can also grow and flower in the spring. It reproduces from rhizomes and seeds and may occur in nearly pure or scattered stands. The seedhead is an erect, purplish to straw-colored spike, 1½-3″ long, with 3 spikelets per rachis joint. Spikelets alternate on the rachis, are about ¼″ long, chaffy, clustered, and hairy at base. Spikelet clusters fall as a group when mature, leaving a persistent zigzag seed stalk. Leaf blades are narrow, mostly basal, 1-3″ long, rough on the margins, curling, and straw yellow when mature and dry. The leaf collar has a few long hairs. Leaves are rolled in bud. The ligule is ≤⅛″ long, membranous, deeply cut on margins and auricles are absent.

Distribution and Habitat:

Galleta is an important native range grass in the drier foothills and deserts of Utah. It occurs at elevations from 2,500-7,500′ in the 5-16″ bimodal rainfall zones where summer rain is a significant portion of annual precipitation. It occurs in a wide variety of soils from shallow to deep and from coarse to fine textured, but is most abundant on fine textured soils. It is often found on clay soils where other grasses are rare. Associated species include blue grama, big sagebrush, sandberg bluegrass, and winterfat.

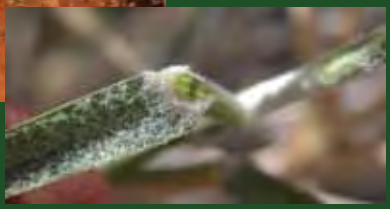
General Information:

Galleta is a desirable forage plant for cattle, horses, and sheep, particularly when used during late spring and summer. It is also used some by deer and antelope. It can withstand heavy grazing. It is useful for roadside seedings, campground, and picnic areas because it tolerates trampling. Occasional deferment from grazing during the period of flowering and seed formation will keep galleta productive and competitive. It is considered to be an excellent plant for erosion control on semi-desert sites.

Name Synonyms: Curly grass

Below: Dr. James Bowns, USU Extension

Hitchcock & Chase, 1950,
Manual of the Grasses of the United States



Above, below, and left: Photographer, Hartmut Wisch

Photographer, Hartmut Wisch

Big Galleta

(Pleuraphis rigida)

Above: Photographer, Hartmut Wisch

Big Galleta

Pleuraphis rigida

PLRI3

Description:

Big galleta is a native, perennial, rhizomatous grass, highly branched at the base giving it a bush-like appearance. Plants form dense clumps up to 3′ tall by 4′ wide. Its root system tends to be shallow and extends radially from the base of the plant. It reproduces mainly by rhizomes and tillering. It generally undergoes 2 major growth periods, coinciding with bimodal rainfall patterns within its area of distribution. It can complete its life cycle rapidly and typically flowers February-June in the Mohave Desert. Seedheads are spikes composed of groups of chaffy seed which drop at maturity leaving a zigzag seedstalk 1½ -4″ long. Leaves are blue-green, coarse, nearly straight, and fairly wide. The edges are sometimes rolled. Leaves are attached both at the base of the plant and along the upright stems that bear seedheads. Leaf blades may be partly covered with short, light woolly fuzz. Its coarse, rigid stems can either be erect or decumbent reaching 12-40″ in length.

Distribution and Habitat:

Big galleta is long lived and very drought tolerant. Its range extends from southern Utah and Nevada south through California and Arizona and into northern Mexico. In Utah, it is common on the sand dunes in Washington and Kane counties. Big galleta is found on dry, open, sandy to rocky slopes, flats and washes on areas below 4,000′. It occurs on all soil textures, but is less robust on clays. Associated species are creosote-bush, white bursage, blackbrush, Joshua tree, range ratany, winterfat, and brittlebush.

General Information:

Big galleta provides forage for cattle, sheep and wildlife. Acceptability ranges from fair to good. The coarse, rigid culms make it relatively resistant to heavy grazing and trampling. The clumped growth form stabilizes blowing sand and it is used for revegetation and erosion control.

Slim Tridens

(Tridens muticus)

Above and right: Patrick J. Alexander @ USDA-NRCS PLANTS Database

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above, left, and below: © 2011 Steve Matson

Slim Tridens

Tridens muticus

TRMU

Description:

Slim tridens is a native, warm-season, perennial bunchgrass, with rhizomes and stolons. Individual plants form dense tufts that are usually narrow and not more than 4 inches in diameter. The stems are erect, slender, somewhat swollen at the base, and 8″-32″ long. The nodes are often soft with short hairs. Leaf blades are narrow, rolled inward, and tapered to the tip. Leaf blades may be smooth, rough to the touch, or sparsely hairy. The leaf sheaths are shorter than the internodes and usually covered with short hairs and the ligules are rings of hairs. The inflorescences are dense panicles 2¾″-8″ long and up to ⅓″ wide. Spikelets are ⅓″-½″ in length, occur on short pedicels, and overlap. Spikelets are 5-11-flowered, and glumes and lemmas are usually pale purple in color. The lower glumes are 1-3-veined and the upper glumes are 1-7-veined. The midveins have long, soft hairs to midlength and lateral veins of the lemmas have long, soft hairs to well above midlength. The paleae are shorter than the lemmas and have hairy edges.

Distribution and Habitat:

Slim tridens occurs on dry plains, gravelly slopes, canyons and rocky hills at elevations from 2,200′ to 6,000′. It is adapted to well-drained, rocky calcareous, sandy or clayey soils. It is tolerant of both high temperatures and drought. It is often found in association with creosotebush, pinyon-juniper, desert shrub, and sagebrush communities in Southern Utah. It is known to occur in Grand, San Juan, Garfield, Millard, Beaver and Washington counties.

General Information:

Slim tridens is not usually a major component of a site, but in can contribute 10-15% of the total production on some sites. It is palatable and moderately nutritious, but too scattered and low in abundance to be an important forage species.

Left and right:
© 2008 Keir Morse,
www.keiriosity.com

Dr. Matt Lavin,
Montana State University

California Oatgrass

(Danthonia californica)

Above: © 2008 Keir Morse,
www.keiriosity.com

Above: Steve Hurst @ USDA-NRCS PLANTS Database

Above: Dr. Matt Lavin, Montana State University

California Oatgrass

Danthonia californica

DACA3

Description:

California oatgrass is a cool season, native, perennial, densely tufted bunchgrass with smooth stems that grows up to 3′ tall. Stems are sharply contracted at the nodes and separate readily at maturity. The inflorescence is usually unbranched (racemose) with 3-5 widely spreading spikelets bent backward or downward at maturity. The spikelets are broad, 5-8 flowered, on pedicels of their own length or longer, and usually purple. Glumes are lance-shaped, ½″-⅔″ long (including the often awnlike tip), exceeded by the awns of the upper florets, keeled, and with 5-7 nerves. The lemmas are ±½″ long and smooth (except for hair on the margins near midlength). Apical lobes are pointed or with awnlike tips. Lemmas have terminal awns ¼″-½″ long that are flat and twisted at the base. The callus at the base of the lemma is densely short-hairy along the sides. Sheaths are open and smooth to having long hairs with tufts of long hairs at the throat. Sheaths have membranous ligules with a relatively long-haired fringe. California oatgrass has both basal leaves and leaves attached to the stems. Leaf blades are rough on the top, narrow, flat to loosely-rolled inward, and 4″-10″ long. The upper leaves stand out at near right angles to the stem.

Distribution and Habitat:

California oatgrass is found on open slopes and in meadows. It is also found in pinyon-juniper, aspen-spruce-fir, and ponderosa pine communities at elevations ranging from 5,100′-10,000′. In Utah it occurs in Cache, Morgan, Summit, Utah, Wasatch, Duchesne, Daggett and Uintah counties.

General Information:

California oatgrass is palatable to all classes of livestock. It is also used for erosion control and revegetation. Seed from specific areas and at least one cultivar are available commercially.

Name Synonyms: California danthonia

Richard Old, XID Services, Inc., Bugwood.org

Below: Dr. Roger E. Banner, USU Extension

© J.E. Dawson & S.L. Hatch

Mediterranean Grass

(Schismus barbatus)

Right: Joseph M. DiTomaso, University of California - Davis, Bugwood.org

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Steve Hurst @ USDA-NRCS PLANTS Database

Mediterranean Grass

Schismus barbatus

Symbol

Description:

Mediterranean grass is an introduced, cool season, annual grass, which is tufted with erect or spreading stems. It has many weak stems with very narrow leaf blades. It often forms large prostrate mats on the ground. It is 2-14″ tall and reproduces by seed only. The seedhead is a panicle composed of a small cluster of short purplish branches grouped closely together on the upper part of the stem and is ½-2½″ long. The spikelets, often purple tinged, are ¼-⅜″ long, with 2 long outer bracts (glumes) ¾ to as long as the rest of the spikelet. It flowers January-May. Leave blades are rolled, narrow, 1-3″ long, and smooth or with a few hairs. The sheath has thin, translucent margins, and is smooth except for the margins of the collar which are hairy. The leaf is rolled in the bud, ligules composed of short and long hairs. Auricles are absent.

Distribution and Habitat:

Mediterranean grass was introduced from the Mediterranean region, has spread rapidly, and is now very common in vacant lots, city streets and roadsides, irrigated pastures and cultivated fields. It is also on dry slopes, desert mesas, river bottoms, and plains in desert regions. It can grow at elevations from 100-3,700′. It is locally abundant on some southwestern ranges, having some importance as a spring forage plant. It is an invasive species in the Sonoran Zone of Washington and Kane Counties in Utah. Mediterranean grass grows primarily in loam and gravelly loam soils, but does well in sands and sandy loams. Pan spots and soils high in lime are suitable for this plant. Associated species include red brome, filaree, sand dropseed, big sagebrush, and blackbrush.

General Information:

This plant is not preferred by either livestock or big game animals. It is used to some extent by rodents and small mammals. Where more desirable species fail to grow, it may have some value as a recreational area cover in the extremely dry areas of Southwestern Utah.

Name Synonyms: Schismus

© 2007
Steve Matson

Below: Dr. Matt Lavin,
Montana State University

Stinkgrass

(Eragrostis cilianensis)

Left and Above:
Dr. Matt Lavin,
Montana State
University

Above: Tracey Slotta @ USDA-
NRCS PLANTS Database

Forest & Kim Starr
US Geological Service

Stinkgrass

Eragrostis cilianensis

ERCI

Description:

Stinkgrass is an introduced, warm season, tufted, annual grass that grows from 6-24″ tall. Its stems are erect or decumbent. It flowers from July-September and reproduces by seed. It produces numerous seeds which is a characteristic common to many annual plants. Its seedhead is a panicle that is stiffly open, erect, egg-shaped to oblong, <1-6″ long and <1-2″ wide. The panicle branches are glandular and have a bad odor when fresh. They are dark gray-green to tawny. Each spikelet has 7-40 florets that are compressed and egg-shaped to arrow-shaped or oblong. Spikelets are ⅛-½″ long, ≤⅛″ wide, and pale to dark green. The glumes are subequal, short, 1-nerved, the midnerve often with craterlike glands. The lemmas are slightly more firm than the glumes, 3-nerved and keeled. The palea are ⅔ as long as lemmas. Leaf blades are flat to folded, ≤¼″ wide and light green to gray-green. The sheaths are open and hairy at the throat creating a dense fringe of straight short hairs.

Distribution and Habitat:

Stinkgrass is most abundant on disturbed areas like vacant lots, roadsides, gardens, and crop fields. It is a poor competitor and is seldom a nuisance on lands with healthy perennial plant cover. It grows at elevation from 2,800-7,600′. Stinkgrass, like many annuals, is adapted to a variety of soils and precipitation regimes. Associated species include annual kochia, prostrate spurge, pigweed, cheatgrass and common mallow.

General Information:

Stinkgrass can be poisonous to horses, especially when eaten in large quantities. However the smell may discourage consumption unless other forage is lacking. It has little value for wildlife or soil erosion control.

Name Synonyms: Strong-scented lovegrass, Candy-grass

Left:
Dr. Roger E. Banner,
USU Extension

American Mannagrass

(Glyceria grandis)

Above: © 2008
Steve Matson

Above, Below, and Left:
Dr. Matt Lavin,
Montana State University

American Mannagrass

Glyceria grandis

GLGR

Description:

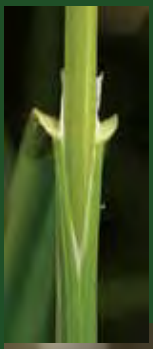
American mannagrass is a native, cool season, rhizomatous, perennial grass 2½′ to 8′ tall. Culms are erect or decumbent often rooting at lower nodes. Sheaths are closed from ¾ of their length to often almost entirely. Ligules are thin and membranous with irregularly cut edges. Blades are <⅛″ to ½″ wide, flat to loosely rolled inward from the edges and smooth to slightly rough to the touch. The inflorescences are open panicles with branches often drooping and laterally compressed spikelets oblong and 4- to 9-flowered. Glumes are usually smaller than adjacent lemmas. Lemmas are pale, thin to slightly leathery 7-nerved and typically purple or purple tinged. Lemmas are generally tapered from midlength to a firm, entire, blunt tip. Paleas are mostly equal in length to or a little longer than the lemmas.

Distribution and Habitat:

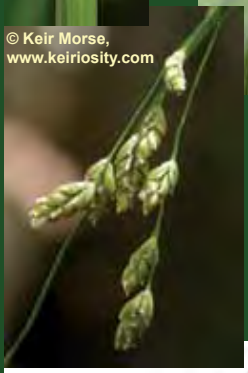
American mannagrass grows along waterways and in wet areas, sometimes partially submerged. It is found mainly in Northern Utah in Cache, Daggett, Davis, Duchesne, Garfield, Morgan, Piute, Rich, Salt Lake, Summit, Uintah Utah, Wasatch and Weber counties. It grows at elevations from 4,300′-8,000′ in Utah. American Mannagrass occurs through most of the Western U.S. and from the Northern Great Plains to Maine and south to Tennessee.

General Information:

American mannagrass is considered a wetland/riparian obligate species. It is palatable to livestock although it is not often abundant enough to be considered an important forage species.



Left and below:
© Keir Morse,
www.keiriosity.com



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Above and below: Dr. Matt Lavin,
Montana State University

Hitchcock & Chase,
1950. *Manual of
the Grasses of the
United States.*

Fowl Mannagrass

(Glyceria striata)

Fowl Mannagrass

Glyceria striata

GLST

Description:

Fowl mannagrass is a cool season, native, perennial grass with stems which are smooth, rather stout, up to 4′ tall. Stems are erect or growing from a decumbent, rooting base with creeping rhizomes. Leaf sheaths are closed mostly, have short ligules, and are smooth to rough. Leaf blades are flat to loosely rolled, <⅓″ wide and smooth or slightly rough to the touch. The inflorescence is an open panicle, 2″-12″ long with branches usually drooping. Spikelets are egg-shaped to oblong and about 1/6″ long. Spikelets have 3-6 flowers. The glumes are membranous, egg-shaped with ragged edges, pale or purple-tinged, and shorter than the lowest lemma. Lemmas are rounded on the back, 7-9 nerved, and green or purple-tinged.

Distribution and Habitat:

Fowl mannagrass is found in wet meadows, along streams, and in shallow water in aspen-spruce-fir ponderosa pine, and lodgepole pine communities at elevations chiefly between 4,000′-10,400′. Fowl mannagrass is considered a wetland obligate species.

General Information:

Fowl mannagrass is palatable to all classes of stock, especially cattle and horse, and produces a large amount of foliage. It is a rapidly establishing species suitable for restoration of riparian areas and wetland plant communities where a grass understory is desired. It grows well in full sun or dense shade.

Name Synonyms: Tall mannagrass

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

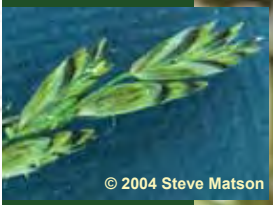
Left: Photo courtesy of Dr. Chris Call, Utah State University

Below: Sheri Hagwood @ USDA-NRCS PLANTS Database

Oniongrass

(Melica bulbosa)

Above: Dr. Matt Lavin, Montana State University



© 2004 Steve Matson

Right: Sheri Hagwood @ USDA-NRCS PLANTS Database

Oniongrass
Melica bulbosa

MEBU

Description:

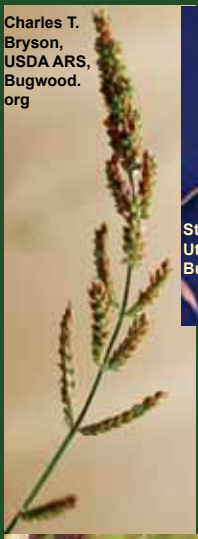
Oniongrass is a native, cool season, perennial, erect bunchgrass, often with rhizomes, that is 1-2 ½″ tall. Its seedhead is a panicle 4-6″ long with short, thick branches that point upward and are pressed close to the stem axis. The spikelets range from one to several per branch and overlap. The glumes are narrow, blunt and papery and are slightly shorter or equal to the first floret. The rough lemmas have stiff hairs or in some cases bumps, and are distinctly two-colored. The sterile upper florets consist only of empty lemmas. There are no awns. Leaf blades are flat to boat-shaped, often with short hairs, and ⅛-¼″ wide. The leaf sheaths are closed almost their full length and are rough with short, stiff hairs. The ligules are ⅛-¼″ long. The stems arise from a swollen, bulblike corm under a covering of old leaf sheaths. The stem nodes are dark at maturity.

Distribution and Habitat:

Oniongrass is widely distributed throughout the mountains in bottoms, on alluvial fans, on benches, on slopes, in valleys, and on ridgetops. It occurs primarily on north and east exposures at 5,000-10,500′ receiving 14-40″ of annual precipitation. It grows on deep well-developed loams and fine textured soils but also tolerates sands and clays that are moderately deep and gravelly or stony soils. Associated species include slender wheatgrass, silver sagebrush, mountain brome, arrowleaf balsamroot, bigtooth maple, snowberry, and aspen.

General Information:

Oniongrass is an excellent forage plant for all classes of domestic livestock, elk, and deer. A variety of small animals use both the seeds and the bulbs. It is an attractive plant of interest for its structural characteristics. It is fair to good as a plant for controlling erosion along with other plants but not very effective as a soil binder in pure stands.



Charles T. Bryson, USDA ARS, Bugwood.org

Steve Dewey, Utah State Univeristy, Bugwood.org

Barnyardgrass

(Echinochloa crus-galli)

Above and below: Dr. Matt Lavin, Montana State University

Above: Dr. Matt Lavin, Montana State University

Richard Old, XID Services, Inc., Bugwood.org

Right : Charles T. Bryson, USDA ARS, Bugwood.org

Barnyardgrass

Echinochloa crus-galli

ECCR

Description:

Barnyardgrass is an introduced, warm season, annual grass that grows 1-5′ tall. It flowers from July-September. Its seedhead is a panicle with flowers maturing from the bottom upwards. The panicle is often reddish to dark purple, 4-8″ long with crowded, 2-flowered spikelets, <¼″ long and with membranous, unequal glumes. The first glume is very short ≤1/16″ long, pointed, and 3-nerved. The second glume is longer (<⅛″ long), 5-nerved, and pointed, or short awned. The leaves are smooth or with sparse stiff hairs, ⅜-⅝″ wide, 4-12″ long, and without ligules and auricles. The leaf sheath is open. Its stems are erect and solitary or in small tufts. The bases of many stems are reddish to dark purple. Barnyardgrass is a self-pollinating, prolific seed producer (750,000-1 million/plant). The seed viability drops after one year, but can last up to 13 years.

Distribution and Habitat:

Barnyardgrass is found throughout Utah in cultivated fields, in rights-of-way, along waterways, and in disturbed areas with rich moist loamy soil. It occurs at elevations from 2,700-7,000′. It withstands periodic flooding and is not very drought, salt, or alkali tolerant. Associated species include annual kochia, pigweed, Johnsongrass, bermudagrass, and other plants common in moist disturbed areas.

General Information:

Forage value is fair to poor. It is grazed by livestock and can be harvested for hay. It is most acceptable as forage when grazed during early growth stages, but preference for it is low at maturity. It can provide quick, temporary erosion control but is considered invasive.

Above and below: Steve Dewey, Utah State University, Bugwood.org

Below: Dr. Matt Lavin, Montana State Univ.

Witchgrass

(Panicum capillare)

Steve Dewey, Utah State University, Bugwood.org

Above and below: Dr. Matt Lavin, Montana State University

Witchgrass
Panicum capillare

PACA6

Description:

Witchgrass is a clumping annual, 4″-50″ tall. It grows from fibrous, spreading roots, with 1 or more erect or more often decumbent-ascending culms, freely branching from the base, the branches often much shorter than the main stalk and spreading. The leaf sheaths are open, and conspicuously hairy with long, spreading, hairs usually from short bumps (papilla-based). The collar usually has long hairs and often appears whitish. The ligule is composed of a fringe of hairs. Leaf blades are flat or folded, linear with pointed tips, spreading, about 2″-16″ long, and ⅛″-¾″ wide. They are covered with short to long spreading papillae-based hairs. In the upper portions of the plant, leaves are gradually more reduced in size. The panicle inflorescence is open and about half the entire plant. It has few flowers and the branches soon become widely spread. In the axils of the branches of the panicle are barbed-hairy "pulvini" or cushions. The first glume is about ⅓ the length of the spikelet; paleae of sterile lemma are absent. After maturity, the panicles break off and roll like tumbleweeds.

Distribution and Habitat:

Witchgrass is commonly found along roadsides, in vacant lots, in agricultural fields, and other disturbed areas. It can become a nuisance in cultivated fields where crops are not well established. It grows well on wet areas and in sandy soil. Witchgrass is known to occur in moist areas in most, if not all, Utah counties.

General Information:

Witchgrass does not compete well with established perennial plants. When mature the panicle top breaks away and tumbles across the ground, scattering seed as it goes.

Name Synonyms: Old witchgrass

Below: © Max Licher, www.swbiodiversity.com

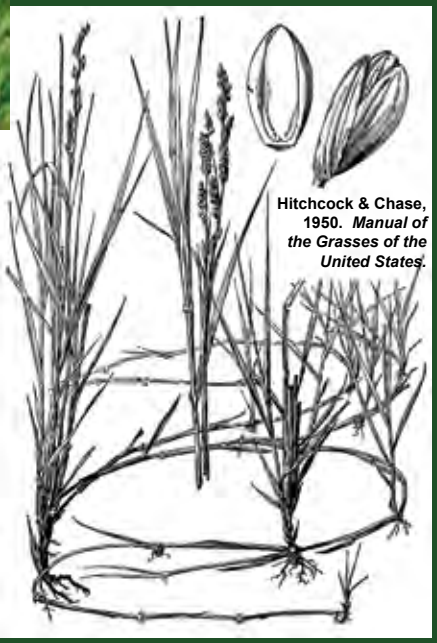
Patrick J. Alexander @ USDA-NRCS PLANTS Database

Patrick J. Alexander @ USDA-NRCS PLANTS Database

Vine Mesquite
(Panicum obtusum)

Above: © Max Licher, www.swbiodiversity.com

Below: Britton & Brown. 1913. *Illustrated flora of the Northern States & Canada*



Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Vine Mesquite

Panicum obtusum

PAOB

Description:

Vine mesquite is a perennial stoloniferous (and sometimes rhizomatous) warm season grass which starts growth from a knotty base. It is 1½′ to 2½′ tall. Stems are erect to decumbent-based and have smooth internodes but hairy nodes. It reproduces from seeds, rhizomes, and stolons. Stolons are several feet long and wiry with woolly nodes. The inflorescence is a panicle, up to 5″ long, with primary branches only. The lower end of the inflorescence is often enclosed in the sheath. Spikelets are 2-flowered, oblong or oval, blunt, and smooth. Lower floret is usually sterile; the upper lemma is fertile, oval, smooth, and minutely veined. The palea of the lower floret is often longer than the lemma. Glumes are almost equal, blunt or rounded. The first glume is nearly as long as the spikelet and brown at maturity. Leaf sheaths are mostly basal, rounded, cover ½ - ¾ the length of the internode, smooth to hairy at the collar. Leaf blades are flat, up to 10″, 1/4″ wide, with a prominent white midrib. Ligule is membranous, short and toothed.

Distribution and Habitat:

Vine mesquite is found on moist depressions that periodically dry out, on banks of rivers and irrigation ditches, and lowland pastures. It is adapted to a wide range of soil textures, but is most abundant on sandy to sandy-loam soils. It is found in Grand, San Juan, Wayne, Garfield, Kane and Washington counties. Associated species include alkali sacaton, inland saltgrass, western wheatgrass, and galleta.

General Information:

Vine mesquite is fair to good forage for livestock and fair for wildlife. It withstands heavy grazing well and produces fair hay. Doves and quail eat the seeds in fall and winter. It is also used for erosion control.

Name Synonyms: Vine-mesquite, Panic grass, Vine mesquite grass, *Hopia obtusa* (name currently used by Barkworth et al. 2007)

Left, below, and right:
Dr. Matt Lavin, Montana State University

Switchgrass

(Panicum virgatum)

Line Drawing: Hitchcock & Chase, 1950. ***Manual of the Grasses of the United States.***

Left: Plant Resources Center, University of Texas-Austin

Right:
Dr. Matt Lavin, Montana State University

Switchgrass

Panicum virgatum

PAVI2

Description:

Switchgrass is an erect native warm season perennial, producing numerous, scaly, creeping rhizomes which are purple tinged. Culms are 2′-6½′ tall and are found in clumps or are sometimes solitary. Culms are simple or sometimes branched above the base. Foliage is green or more often covered with a whitish or bluish waxy coating. Leaf sheaths are smooth or with hairs along the upper margins. The leaf sheath is longer than the short lower internodes and usually shorter than the upper internodes. They are often purplish to reddish at the base, and can be hairy. Leaf blades curve upward and are 4″ -24″ long, flexible, flat, slightly narrowed toward the base, ⅛″-⅔″ wide, and smooth to rough or sometimes long-hairy. Ligules are a membranous-based ring of hairs. The open panicle inflorescences are long-exserted from the topmost leaf-sheath, about 4″-20″ long, and about ½ as wide as it is tall. It is sometimes contracted and sometimes very open, and the spikelets are found at the ends of the branches. Lower branches may be in whorls, pairs, or singles. Spikelets are compressed from top to bottom and 2-flowered with the upper floret being fertile and the lower floret sterile. The lemma of the fertile floret is smooth, shiny, acute, inrolled at the base and clasping to the palea. Glumes are unequal. The first glume is sharp-pointed, clasping and ⅔-¾ as long as the spikelet. The second glume and sterile lemma are both much longer than the grain. Switchgrass is a highly variable species.

Distribution and Habitat:

Switchgrass is mostly found in meadows, along streambanks, in marshes, and on moist areas such as seeps. It can be found on sandy and gravelly soils as well as rich, deep soils. It tolerates flooding for short periods. In Utah, switchgrass is found in the southern half of the state where significant amounts of summer precipitation occur.

General Information:

When young, switchgrass provides good forage, but at maturity the stems become hard and unpalatable.

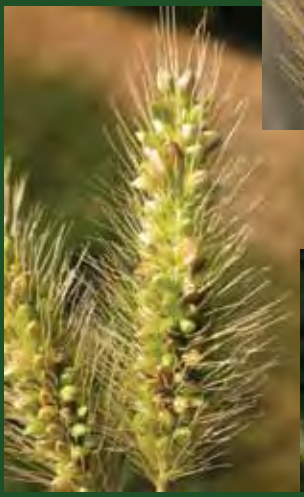
Right: Howard F. Schwartz, Colorado State University, Bugwood.org

Above: Patrick J. Alexander @ USDA-NRCS PLANTS Database

Green Bristlegrass

(Setaria viridis)

Below and right: Dr. Matt Lavin, Montana State University



Right: Richard Old, XID Services, Inc., Bugwood.org

Patrick J. Alexander @ USDA-NRCS PLANTS Database

Green Bristlegrass

Setaria viridis

SEVI4

Description:

Green bristlegrass is an introduced, tufted annual with smooth stems 6″-36″ tall. Stems are erect or abruptly bent upward at the nodes and occasionally it is branched above the base. The leaf sheath is often hairy along the margins above, sometimes hairy across the collar, and is either hairy or smooth otherwise. The ligule is a hairy membrane. Leaf blades are flat to folded, rough to the touch, up to ¾″ wide, and 2″-10″ long. The panicle inflorescence is cylindrical, rarely interrupted and up to 3½″ long. Each spikelet is below 1-4 rough, upwardly oriented bristles. The bristles are slender, straight, barbed upward, and up to ½″ long.

Distribution and Habitat:

Green bristlegrass is found in disturbed areas, pastures, waterways, roadsides, urban lawns and gardens, and cultivated fields. It occurs on wet to dry sites at elevations from 4,200′-6,900′ in Box Elder, Cache, Carbon, Duchesne, Garfield, Grand, Kane, Millard, Salt Lake, Summit, Tooele, Uintah, Utah, Washington, Wayne and Weber counties. It is now circumboreal, south throughout the U.S. and in Mexico to South America.

General Information:

Green bristlegrass is considered to be weedy or invasive. It may be known by one or more common names in different places.

Name Synonyms: Green foxtail, Bottle grass, Green millet, Wild millet, Pigeongrass

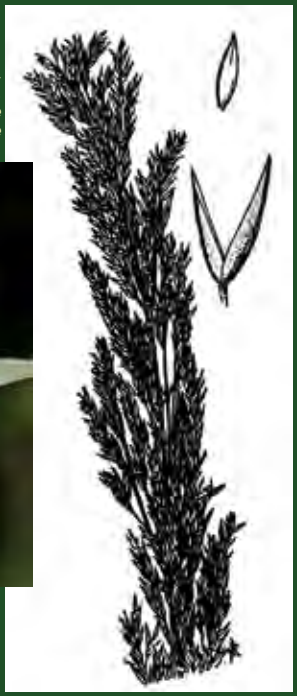
Robert H. Mohlenbrock @ USDA-NRCS PLANTS Database

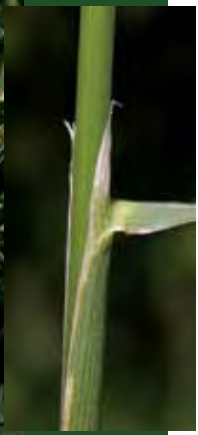
Below and right: © 2005 Steve Matson

Spike Bentgrass

(Agrostis exarata)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*





Left and above: © 2008 Keir Morse, www.keiriosity.com

Spike Bentgrass

Agrostis exarata

AGEX

Description:

Spike bentgrass is a cool season, native, sometimes rhizomatous, perennial bunchgrass. Culms are usually 3″-40″ tall and may be erect or decumbent at the base. It sometimes roots at a lower node. Leaf sheaths are smooth or slightly rough and leaf blades are narrow (<¼″), rough to the touch, usually flat, mostly basal, 2″-6″ long, and pale green to bluish green. The ligule is prominent, rough on the back side, appears toothed or jagged, and rounded or squared off at the tip. Auricles are absent. The panicle inflorescence is 2″-12″ long, contracted (<1½″ wide), spikelike, and sometimes interrupted. The branches are short, erect to slightly spreading at flowering, and mostly spikelet-bearing to the base. Spikelets are green to reddish-purple in color. Spikelets are 1-flowered and very small. Glumes are rough on the keel. The lemmas are about ⅔ as long as the glumes, unawned or short awned. The paleae are reduced to a minute nerveless scale.

Distribution and Habitat:

Spike bentgrass occurs in a wide variety of wet or moist habitats in Utah at elevations from 4,400′-10,500′. It is common along streams, in most parks, meadows, and open willow areas, but can also occur in moist areas in drier sites in association with wheatgrass, sagebrush, needlegrass, and oakbrush. It is relatively shade tolerant, and performs well on moderately acidic, mineral soils. Spike bentgrass likely occurs in all Utah counties.

General Information:

Spike bentgrass provides good forage for cattle, horses and elk, and fair forage for sheep and deer. Its foliage remains green and palatable throughout the summer. As a pioneer species, spike bentgrass has good potential for restoration of riparian areas and other seasonally wet or intermittently flooded habitats.

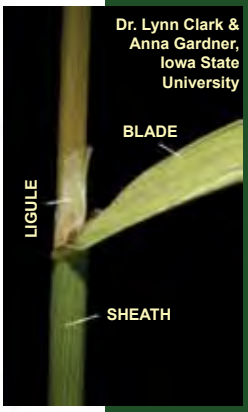
Name Synonyms: Spike redtop, Western bentgrass

Redtop

(Agrostis gigantea)

Right and Above:
Dr. Roger Banner,
USU Extension

Below: Dr. Roger Banner,
USU Extension



Dr. Lynn Clark &
Anna Gardner,
Iowa State
University

Line Drawing:
Hitchcock &
Chase, 1950.
*Manual of the
Grasses of the
United States.*

Redtop

Agrostis gigantea

AGGI2

Description:

Redtop is an introduced, cool season, perennial grass that is vigorously rhizomatous and grow 8-60″ tall. Its stems often lie along the ground at the base before turning upward and it usually produces a coarse, open turf. It starts growth in the early spring, flowers in early summer, and seeds are mature by August. It reproduces from rhizomes, stolons, and seeds. Seedheads are open, upright, pyramidal panicles, 4-8″ long, that are purplish-red when in blossom. Panicle branches are whorled at the lower rachis nodes. Spikelets are very small, numerous, and each containing one floret. Lemmas are awnless or rarely short-awned. Leaves are mostly smooth and basal. Leaf blades are ⅛-⅜″ wide and 2-7″ long, rather stiff, flat, and pointed at the tip, with distinct veins on top. Leaf margins are somewhat finely barbed and leaves are rolled in the bud. Ligules are ⅛-¼″ long, membranous, bluntly pointed or rounded, and with toothed or split margins. Auricles are absent.

Distribution and Habitat:

Redtop is well adapted to wet and semi-wet meadows, riparian areas, and irrigated pastures. It can withstand flooding for extended periods. It is found at elevations from 3,500-8,500′ with ≥18″ of precipitation or inflow water equivalent. It rapidly colonizes moist disturbed areas. It commonly occurs in moderately well-drained loamy soils with a high water table and periodic irrigation. It will grow on acidic soils, and is moderately salt tolerant. Associated species include Kentucky bluegrass, timothy, Nebraska sedge, water sedge, and Baltic rush.

General Information:

Redtop provides forage for grazers in the spring and summer. It also provides cover for small mammals and birds. It is an important commercial forage species, providing forage for horses, cattle and sheep. It is often cultivated as hay and is tolerant of mowing. It forms a dense sod providing surface erosion control, but the roots are shallow and provide limited protection to streambanks.

Name Synonyms: Redtop bent, Carpet bentgrass

Above: Steve Hurst @ USDA-NRCS PLANTS Database

All photos except top left: Dr. Matt Lavin, Montana State University

Garrison Creeping Foxtail

(Alopecurus arundinaceus)

Garrison Creeping Foxtail

Alopecurus arundinaceus

ALAR

Description:

Garrison creeping foxtail is an introduced perennial, sod-forming grass that begins growth early in the spring and continues growth until the fall freeze. It is robust and vigorous, with stout stems growing 12″-50″ tall and dense rhizomes. It has numerous stem leaves that are flat and green, mostly 1/3″ wide, smooth above and rough beneath. The ligule is membranous and rounded to acute. Auricles are absent. The inflorescence is a spike-like, cylindrical panicle, typically 2″-5″ long. It turns purplish or black at maturity. Individual spikelets are 1-flowered and urn-shaped. The glumes are fused at the base and are strongly keeled with a margin of stiff hairs. Lemmas are typically shorter than the glumes and many bear a straight to bent awn arising from below to slightly above mid-length. Anthers are usually purple, sometimes yellow or orange. Seeds mature beginning at the top of the seedhead and proceeds downward. The seeds are light and fluffy, shatter readily and are scattered by the wind.

Distribution and Habitat:

Garrison creeping foxtail is very cold tolerant and will persist in wet areas where the frost-free period averages less than 30 days. It requires 18″ or more of annual precipitation or irrigation for good production. It is adapted to a wide range of soil conditions, and can survive in pH levels from moderately acidic to weakly saline-alkali. Once established it will withstand inundation for periods of 60-75 days. It is often found in pure stands, but can be associated with reed canarygrass, tall wheatgrass, and meadow foxtail.

General Information:

Garrison creeping foxtail provides good quality forage throughout the growing season. It can be used for both hay and pasture. It is ideal for environments that are too wet to mow or graze in the early summer. It is an excellent forage plant for geese and is grazed by deer in the early spring and fall. It provides good cover and nesting sites for other wildlife species.

Name Synonyms: Creeping meadow foxtail

Left and below:
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Meadow Foxtail

(Alopecurus pratensis)

Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Steve Hurst @
USDA-NRCS
PLANTS
Database

Below: © 2005 Steve Matson

Meadow Foxtail

Alopecurus pratensis

ALPR3

Description:

Meadow foxtail is a stout, introduced perennial grass, occasionally with short rhizome, with culms 1′-2½′ tall. It may root at the lower nodes of the culms. Leaf sheaths are slightly loose or inflated. Nodes are swollen and glabrous. Ligules are membranous, obtuse to blunt. Each fertile culm has about 4 alternate leaves along the lower two-thirds of its length. The leaf blades are 3″-20″ long and hairless, becoming smaller as they ascend the culm. Lower blades are widely spreading, while upper blades are more ascending. The leaves are minutely sawtoothed along their margins and auricles are absent. The inflorescence is a spike-like panicle, 1½″- 3½″ long and ¼″ wide. This inflorescence is narrowly cylindrical in shape, soft-textured, and light green. The ascending spikelets often occur in pairs on short slender pedicels. Each spikelet consists of a pair of glumes and a single lemma with a perfect floret. Glumes are fused in the lower ¼ of the spikelet, sharply keeled, with silky hairs along the keels. Lemma is fused in the lower ⅓ of the spikelet, sharply keeled, hairless or slightly hairy with a single awn. The awn is twice bent and is joined with the lemma near the base.

Distribution and Habitat:

Meadow foxtail is a circumboreal species, growing in poorly to somewhat drained soils in meadows, along riverbanks, lakesides, ditches, roadsides, marshes, and fence rows. It prefers moist, fertile soils, but avoids waterlogged, light or dry soils. In Utah, meadow foxtail occurs in Cache, Summit, Daggett, Salt Lake, Utah, Wasatch, Tooele, Carbon, Sanpete, Emery, Sevier, Wayne and Garfield counties.

General Information:

Meadow foxtail provides good forage for livestock. This species is often mistaken for timothy, but can be distinguished by the inflorescence having a silkier textures, and the presence of only 1 awn (timothy has 2) per spikelet.

Left: Steve Hurst @ USDA-NRCS PLANTS Database

Tall Oatgrass

(Arrhenatherum elatius)

Left and Above: Dr. Matt Lavin, Montana State University

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Forest & Kim Starr, US Geological Service

Tall Oatgrass

Arrhenatherum elatius

AREL3

Description:

Tall oatgrass is a short lived introduced, cool season, perennial, loosely tufted bunchgrass. Culms are erect, 3′-5⅝′ tall, and smooth or sometimes hairy at the nodes. The bases are sometimes enlarged into bulbs. Leaf sheaths are smooth or sparsely hairy. Ligules are <⅛″ long, blunt or rounded, with irregularly toothed margins that may also have a fringe of hairs. Leaf blades are flat, <½″ wide, and smooth to slightly rough. The panicle inflorescence is narrowly oblong, 4″-12″ long, loose or more or less compact. Spikelets are narrowly lance-shaped, ⅜″-<½″ long, glistening, and 2-flowered. The florets are dissimilar; the lower floret is staminate or neuter and the upper floret is pistillate or perfect. The glumes are membranous, rough, and unequal. The first glume is ~¼″ long and 1-nerved. The second glume is ~⅜″ long and 3-nerved. The lemmas are 7-nerved and rough. The awn of the first lemma is ~½″ long, attached about midlength, elbow-like bent, and twisted below the bend. The awn of the second lemma is small, straight, attached just below the tip of the lemma, and rarely absent.

Distribution and Habitat:

Tall oatgrass is found along roadsides, streambanks, and in cultivated fields and seed plant communities at elevations from 4,300-10,200′ where annual precipitation is ≥16″. It is adapted to soils that are medium to fine in texture and is rarely found growing in sandy soils. It is known to occur in Box Elder, Beaver, Cache, Carbon, Davis, Duchesne, Juab, Millard, Morgan, Piute, Salt Lake, Sevier, San Juan, Sanpete, Summit, Tooele, Uintah, Utah, Wasatch, and Weber Counties. It is a circumboreal native of Eurasia. Associated species include orchardgrass, intermediate wheatgrass, smooth brome and timothy.

General Information:

Tall oatgrass was introduced as a pasture grass. It provides abundant forage for livestock and wildlife but is somewhat sensitive to grazing pressure. It has been used fairly extensively in land revegetation efforts. Seed is readily available and relatively inexpensive.

Below: Dr. Matt Lavin,
Montana State University

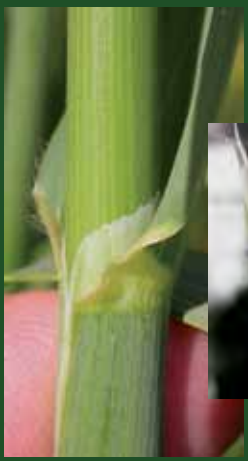
Below: John M. Randall,
The Nature Conservancy,
Bugwood.org

Above: © 2008 Keir Morse,
www.keiriosity.com

Below: Steve Dewey, Utah
State University, Bugwood.org

Wild Oats

(Avena fatua)



Above, center, and right: Dr. Matt Lavin,
Montana State University

Wild Oats

Avena fatua

AVFA

Description:

Wild oats is an introduced, annual grass with erect culms 3″-60″ tall. The leaf sheaths of basal leaves have scattered hair and sheaths of upper leaves are smooth. Collar has stiff hairs on front margins. Ligules are membranous, toothed, and pointed or rounded. Leaf blades are flat, 4″-18″ long, ⅝″ wide, and finely roughened. The panicle is open, with slender branches that are usually horizontally spreading, and with 8-30 spikelets per inflorescence. The spikelets are usually 2-3 flowered with the florets above the first two usually greatly reduced. The glumes are broadly lance-shaped, subequal, ⅔″-1⅛″ long, rounded on the back, and usually tapered to a sharp point. The glumes have 7-11 nerves and surpass the lower and often the uppermost florets. The lemmas are hardened, rounded on the back, ½″-¾″ long, and notched at the membranous tip, smooth throughout or hairy on the lower half. The lemma is awnless or the awn arises from midlength and varies from slender, short and more or less straight, to stout, ¾″-2″ long, reddish brown, and twisted/geniculate (elbow-shaped).

Distribution and Habitat:

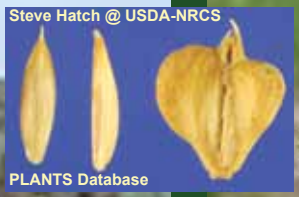
Wild oats are found in valleys and open slopes of foothill ranges, as well as in grain fields, roadsides, and disturbed areas throughout Utah. It is to be expected wherever cereal crops are grown. It is often found in association with many common field and garden weeds, including field bindweed, barnyardgrass, redroot pigweed, and Russian thistle.

General Information:

Wild oats is closely related to oats. It provides good quality forage when the plants are young, and before the awned spikelets mature. Once mature, the forage value is poor. It is considered a weed in cropland agriculture.

American Sloughgrass

(Beckmannia syzigachne)



Steve Hatch @ USDA-NRCS

PLANTS Database

Left, above & below: Sheri Hagwood @ USDA-NRCS PLANTS Database

Above: Dr. Matt Lavin, Montana State University

Above: Dr. Matt Lavin, Montana State University

American Sloughgrass

Beckmannia syzigachne

BESY

Description:

American sloughgrass is a native, cool-season robust annual or short lived perennial grass which is stout and erect, growing up to 4′ tall. Its shallow root system supports a leafy stem. The branched inflorescence is a closed panicle. Spikelets are 1-2-flowered, round, flattened, up to 1/8″ long, closely arranged on very short pedicels in two rows on one side of the rachis, or axis of the spike. Spikelets are tightly arranged on the rachis. There is only one fertile floret per spikelet. Spikelets separate below the glumes at maturity. Sloughgrass flowers from June-September, and produces an abundance of seed. Leaf sheaths are smooth, ribbed, loose and longer than the internodes. Blades are flat, rough, 3″-9″ long. Basal leaves contain cross veins that intersect the longitudinal veins at right angles to form rectangles.

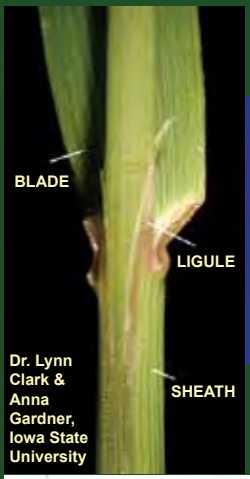
Distribution and Habitat:

American sloughgrass is found in wet meadows at elevation up to 9,000′. It is not sensitive to soil type tolerating acidic, neutral, basic and saline soil types. Associated species include spikerush, northern water plantain, sea milkwort, longroot smartweed, and hedgehyssop.

General Information:

American sloughgrass is palatable to horses and cattle throughout all stages of growth and to sheep only in the spring. It is often grown for hay. Stands of American sloughgrass tend to decline after 4-5 years due to competition from more aggressive grass species.

Name Synonyms: Slough grass, *Beckmannia erucaeformis*



Dr. Lynn Clark & Anna Gardner, Iowa State University

Right: Dr. Matt Lavin, Montana State University

Above: Steve Hurst @ USDA-NRCS PLANTS Database

Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Bluejoint Reedgrass

(Calamagrostis canadensis)

Above: Dr. Matt Lavin, Montana State Univ.

Bluejoint Reedgrass

Calamagrostis canadensis

CACA4

Description:

Bluejoint reedgrass is a rhizomatous, perennial bunchgrass with erect, stout culms growing 2′-5′ tall. The herbage is bright to dark green, leaf sheaths are smooth to slightly rough, and leaves are flat, loose, rough to the touch 5″-16″ long and ⅓″ wide. Ligules are present and may be up to ½″ long. The inflorescence is a dense to open, often nodding panicle up to 10″ long with only one floret per spikelet attached to the rachis by minute rachilla. Panicle branches are strongly ascending or spreading. Glumes are lance-shaped, 1/8″ long, and long tapered to sharp tips, rough throughout or only on the keel, and purple-tinged to purple. The lemmas are nearly as long as the glumes. Callus hairs are abundant and about as long as the ragged, tipped lemma. The awn is inconspicuous, delicate, straight, attached just below the middle of the lemma and extending to or just beyond its tip.

Distribution and Habitat:

Bluejoint reedgrass is found in wet meadows, along streams and in moist settings in prairies and mountains at elevations of 6,300′-11,000′. It is found from Alaska and Greenland to California, Arizona, New Mexico, Kansas, Missouri and to the Atlantic Coast. It does not occur in most of the South Central and Southeastern states.

General Information:

Forage is fair or poor for any class of stock, but is better suited to cattle and horses than to sheep. It is widely distributed and often very abundant, occasionally covering considerable areas to the exclusion of other grasses. It is grown for grass hay.

Name Synonyms: Canadian reedgrass, Bluejoint, Canada bluejoint, Meadow pinegrass, Marsh reedgrass, Marsh pinegrass

Gary Larson @ USDA-NRCS PLANTS Database

Below: Dr. Matt Lavin, Montana State University

Brookgrass

(Catabrosa aquatica)

Line Drawing: Hitchcock & Chase, 1950. ***Manual of the Grasses of the United States.***

Above and Below: Dr. Matt Lavin, Montana State University

Brookgrass
Catabrosa aquatica

CAAQ3

Description:

Brookgrass is a native, perennial, cool season grass. It is a creeping, aquatic plant that is slightly bent at the base. Branching and rooting occurs at the nodes of the stems. Flowering occurs during late June through September. The seedhead is an open pyramid-shaped or oblong-shaped panicle, 4-8″ tall. The branches of the panicle spread in whorls. The spikelets are small, ⅛″ long with most containing 2 distinct flowers, but 1-5 are possible. The 1st glume is blunt, shorter than the floret, nerveless and membranous. A 2nd glume exists, considerably larger than the first. The lemmas are unawned with 3 prominent nerves on the back. Leaf blades are flat, ⅜″ wide, and sheathes are closed about half their length. Ligules are membranous, ⅜″ long; and auricles are absent. Stems are 4-16″ long, often prostrate, and smooth.

Distribution and Habitat:

Brookgrass occurs in wet mountain meadows and along the edges of lakes, springs, and streams at elevations from 4,200-10,200′. It requires wet soils and may occur on the surface of water. It is associated with riparian and aquatic species including willows, water birch, watercress, alder, aspen, mannagrasses, sedges, and rushes.

General Information:

Brookgrass is grazed by cattle and horses, but very seldom by sheep. It is not important as forage due to its low stature, limited distribution and low abundance, as well as its restriction to wet soils. It functions as a pioneer plant in riparian areas by stabilizing soils with its fine root system that trap sediment and is a reliable indicator of perennial springs.

Name Synonyms: Water whorlgrass, Water hairgrass

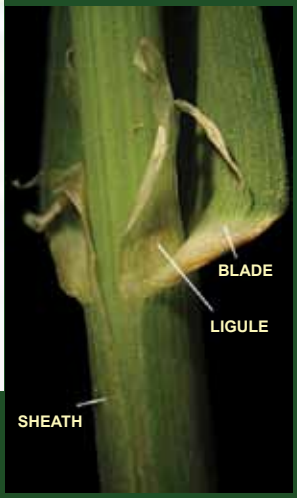
Above: Steve Dewey, Utah State University, Bugwood.org

Left: ©2003 Steve Matson

Right: Catherine Herms, The Ohio State University, Bugwood.org

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above and Right: Dr. Lynn Clark & Anna Gardner, Iowa State University



Orchardgrass

(Dactylis glomerata)

Orchardgrass

Dactylis glomerata

DAGL

Description:

Orchardgrass is an introduced, cool season, perennial bunchgrass, rarely with short rhizomes, commonly growing in clumps, and 18-42″ tall. Its shoots are conspicuously compressed. It starts growth moderately early in the spring and remains green during the growing season as long as there is adequate moisture. Its seedhead is a panicle, 2-8″ long, with spikelets grouped together in dense, one-sided clusters at the end of panicle branches. Spikelets contain 2-5 florets and lemmas are pointed to short-awned. Leaf blades are long, ≤½″ wide, and folded when immature but later flat or V-shaped at the base. Blades have a prominent white midrib on the under side and both blades and sheaths are hairless but rough when mature. Leaves are folded in the bud and ligules are ⅛-¼″ long, membranous, collar-shaped, and with split margins. Auricles are absent.

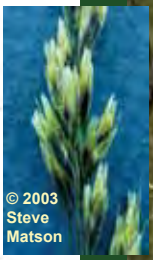
Distribution and Habitat:

Orchardgrass is one of the more useful introduced pasture grasses, especially on irrigated pasture, and non-irrigated rangeland at intermediate elevations where precipitation is ≥18″ annually. It is shade tolerant and does not tolerate extended periods of drought. Orchardgrass usually survives moderate fires, but hot burns damage the root crowns. It requires well-drained, medium textured deep to moderately deep soils that are between moderately acid and moderately alkaline. It will grow on shallow, gravelly or stony soils where precipitation is adequate or it is irrigated. It will not tolerate saturated soils throughout the growing season. Associated species include timothy, smooth brome, Gambel oak, bigtooth Maple, willow, dandelion, Kentucky bluegrass, and aspen.

General Information:

Orchardgrass cures well as hay and is sometimes mixed with alfalfa or other legumes as a hay crop. It also provides excellent pasture, remains greens, and regrows readily after being grazed or harvested. It is good to excellent forage for livestock and wildlife, and is especially preferred by deer.

Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.



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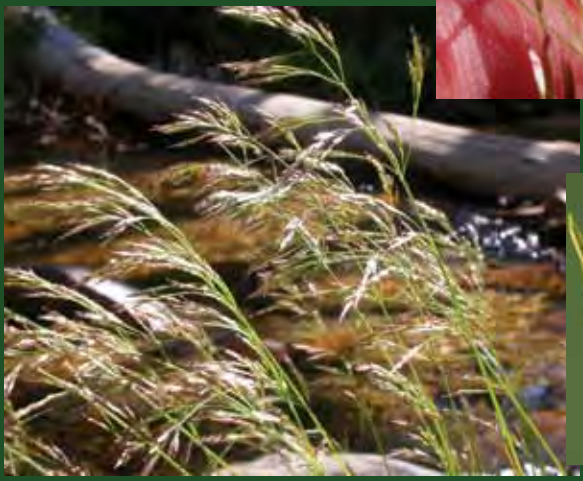
Tufted Hairgrass

(Deschampsia cespitosa)



Left, above, & below:
Dr. Matt Lavin, Montana State University

Tufted Hairgrass

Deschampsia cespitosa

DECE

Description:

Tufted hairgrass is a native, cool season, perennial, densely tufted, bunchgrass growing 2-4′ tall. It starts growth as snow recedes, flowers from July-September, and seeds mature in August-September. It reproduces from seeds and tillers. Its seedhead is an open, erect to nodding panicle, 4-8″ long with 1 to several hairlike, spreading branches per rachis node. Spikelets are about ⅛″ long and contain 2 dark brown to black florets. The glumes are awnless, as long as the entire spikelet, and lemmas have awns borne near the base and as long as the spikelet. It has abundant, smooth, mostly basal leaves with narrow blades 5-8″ long, that are flat or rolled, and with collars that are noticeably swollen. Leaves are folded in the bud. Ligules are ⅛-⅜″ long, membranous, tapering to a tip and auricles are absent.

Distribution and Habitat:

Tufted hairgrass is widely distributed at elevations from 5,000-10,000′, where there is ≥16″ of annual precipitation or supplemental run-in water. It often grows in almost pure stands in valley bottoms and along streams. It is resistant to fire, rarely being damaged by even hot intense fires. It grows in deep, moisture-saturated, poorly drained soils or well-drained, well-developed soils. It withstands soil saturation for fairly long periods of time and is somewhat tolerant of saline and alkaline conditions. Associated species include timothy, redtop, willows, aspen and various sedges.

General Information:

Tufted hairgrass is considered to be a good forage plant for cattle, horses, sheep, elk and deer. It also provides good food and cover for small mammals and birds. It tolerates high levels of toxic materials associated with mine spoils and is often used in the reclamation of mining sites. It is also used in the reclamation of subalpine, alpine and mountain meadow habitats.

Name Synonyms: Salt-and-pepper grass

Left and Below:
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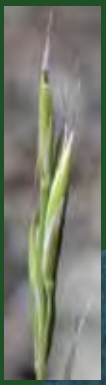
www. keiriosity.com



Dr. Roger E. Banner, USU Extension

Idaho Fescue

(Festuca idahoensis)

Below and Right:
© 2005 Steve Matson

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Right: Dr. Roger E. Banner, USU Extension

Idaho Fescue

Festuca idahoensis

FEID

Description:

Idaho fescue is a native, cool season, perennial bunchgrass growing 1-3′ tall. It is erect, densely tufted, and without rhizomes. It starts growth in early spring and seeds mature by midsummer. It reproduces from seeds and tillers. The seedhead is an open, rather narrow panicle, 4-7″ long, with rough, ascending panicle branches. Spikelets are about ¼″ long, somewhat flattened, and contain 4-7 florets. Lemmas are longer than the glumes and have an awn (<¼″) extending from the tip. Leaves are mostly basal and numerous with blades 5-10″ long, fine rolled, somewhat stiff, and erect. Leaves are folded in the bud and ligules are <⅛″ long, fringed, and collar-shaped. Auricles are small or absent.

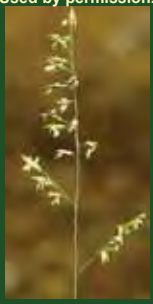
Distribution and Habitat:

Idaho fescue occurs in the northern half of Utah at elevations from 5,000-10,000′ on all exposures where there is 14-24″ of precipitation annually. It may comprise up to 30% of the plant composition on high mountain sites but less at lower sites. It grows mostly on silt loams, but is also found on fine sandy loams, clay loams, and loamy sands where there is good drainage and the soil reaction is neutral to slightly alkaline. Associated species include mountain brome, Richardson′s geranium, Columbia needlegrass, bluebunch wheatgrass, and aspen. It differs from sheep fescue by having longer leaves and awns, and occurring at lower elevations.

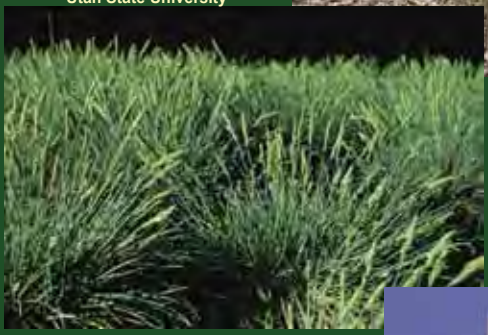
General Information:

Idaho fescue is excellent forage for livestock and wildlife, especially late in the growing season because it provides green forage longer than the associated species. It is not preferred after curing. It decreases with heavy use by grazers and is highly susceptible to fire damage. Special care should be taken not to graze it for a year following burns.

Below: Photo by Arne Anderberg. Used by permission.



Below: Dr. Mary Barkworth, Intermountain Herbarium, Utah State University



Above: © Ulf Lieden @ flora. cyberia.net. Used by permission.

Below: Steve Hurst @ USDA-NRCS PLANTS Database

Line Drawing: Britton and Brown, 1913. *Illustrated Flora of the Northern States and Canada.*

Sheep Fescue

(Festuca ovina)

Sheep Fescue
Festuca ovina

FEOV

Description:

Sheep fescue is a native, cool season, densely tufted perennial 6-40″ tall that reproduces primarily by seed but also spreads vegetatively through tillering. Growth occurs from June to September. Its roots are numerous, fibrous and fine. Its seedhead is a narrow, tightly compressed and spike-like panicle 2-4″ long. Spikelets have 3-7 florets ≤¼″ long and glumes are arrow shaped and unequal. The 1st glume is 1-veined and ≤⅛″ long and the 2nd glume is 3-nerved and ⅛-¼″ long. Lemmas are awned at tip ≤⅛″ long. Leaves are mainly basal, numerous and rolled. They are very slender, rough to the touch on margins and 2-5″ long. Basal leaves are <½ the length of the stem and stem leaves are few and very short with sheaths open and very short, membranous ligules. Auricles are absent. Leaves are blue-green-gray in color. Stems are erect and 6-24″ tall, but average <14″ in height.

Distribution and Habitat:

Sheep fescue is found at elevations from 5,000-8,000′ on mesic open hillsides, meadows, or open woodlands. It requires 16-22″ of annual precipitation. This species has many forms influenced by habitat. It is often found in dry, well-drained, sandy, gravelly, or rocky soils but also in wetter clayey soils. Associated species include rabbitbrush, sagebrush, asters, geraniums, serviceberry, mountain brome and Letterman needlegrass.

General Information:

Sheep fescue is a valuable forage grass for all livestock. It starts growth early in the spring and tends to remain green late into the season. It is resistant to drought and heavy frost but does not tolerate heavy grazing pressure well. Sheep fescue is circumboreal, that is, native to boreal regions of the northern hemisphere. Commercial varieties developed from European forms are used in lawn seed mixes, for erosion control, or as ornamentals (*Festuca ovina* var. *glauca*).

Thurber's Fescue

(Festuca thurberi)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

All Photos: Dr. Roger E. Banner, USU Extension

Thurber′s Fescue

Festuca thurberi

FETH

Description:

Thurber′s fescue is a native, cool season, perennial bunchgrass that is densely tufted and 1½ -3′ tall. It reproduces by seed and tillers and often occurs in dense stands. Its seedhead is an open, spreading to slightly drooping panicles, 4-6″ long with spikelets about ½″ long containing 3-6 florets. The lemmas are rigidly pointed but without awns. Its leaf blades are smooth with a whitish-bluish waxy surface, rolled, narrow, 3-8″ long and firmly erect. Lemmas are membranous, conspicuous, ≤¼″ long and tapered to a point. Auricles are absent.

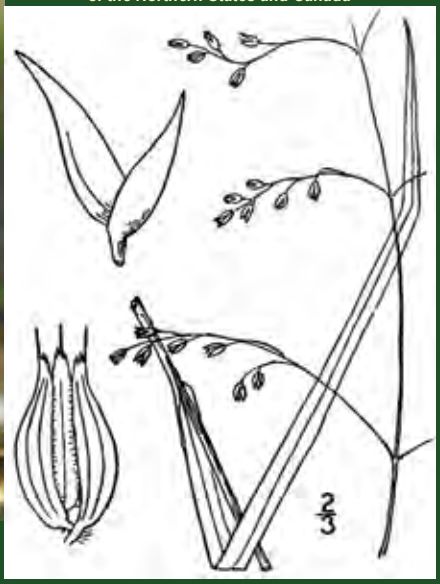
Distribution and Habitat:

Thurber′s fescue is limited in its distribution to the high mountain slopes and valley bottoms at elevations from 8,000-13,000′. It occurs on the Boulder Mountains, Henry Mountains, Tavaputs Plateau, the Book Cliffs, and other high mountain areas receiving a substantial portion of the annual precipitation of 16-36″ as summer precipitation. It is adapted to deep, well-developed, medium to fine textured soils. It does best on deep, sandy loam soils. Associated species include snowberry, big sagebrush, serviceberry, aspen, limber pine, blue wildrye, slender wheatgrass, Columbia needlegrass and mountain brome.

General Information:

Thurber′s fescue provides abundant forage for cattle, sheep, horse, bison, elk, and deer. It is most preferred during early spring growth prior to flowering. It is used as food and cover by birds and small mammals. It is considered to be somewhat sensitive to grazing but moderate grazing use maintains the plants in a healthy, productive condition. It provides moderate erosion control and is adapted for roadside seedings in areas receiving ≥20″ of annual precipitation. It promotes rapid infiltration and controlled runoff due to the abundant root growth and litter it produces.

Line Drawing: Britton & Brown. 1913. *Illustrated Flora of the Northern States and Canada*



Sweetgrass

(Hierochloe odorata)

Top left, left and below:
© 2006 Loius-M. Landry

Above: © 2005
Loius-M. Landry

Sweetgrass

Hierochloe odorata

HIOD

Description:

Sweetgrass is a native perennial with an aroma of coumarin. Culms are solitary or loosely tufted, smooth, slender, erect, 6″-24″ tall, with a reddish-purple base and growing from creeping rhizomes. Basal leaf sheaths are brownish or reddish. Ligules are ±¼″ long. Leaf blades are flat, <¼″ wide, rough and sometimes having long hairs. The leaf blades of the fruiting stems are 4″-8″ long and narrow with the upper ones 1″-2″ long. The inflorescence is an open, golden brown, pyramid-shaped panicle 1½″-4″ long. Panicle branches are slender and 1″-4″ long, usually spreading and ultimately drooping. Spikelets are compressed to somewhat egg-shaped, 3-flowered, greenish-tan or bronze at maturity, and up to ¼″ long. Lemmas are awnless. Although it produces seed, it is mostly infertile, and reproduces almost entirely through rhizomes.

Distribution and Habitat:

Sweetgrass usually inhabits moist ground on shores, meadows, and low prairies, or at the edges of woods, bogs, and marshes from 7,000-11,500′ in elevation. It is not drought tolerant, and does best when kept in a moist, but not saturated, environment. It is a circumboreal plant, occurring around the world in the northern hemisphere. Associated species include slender wheatgrass, sedges, mannagrasses, reedgrasses, and larkspurs.

General Information:

Sweetgrass produces very little forage and is therefore used little by livestock and wildlife. The agreeable odor of sweetgrass is due to the presence of coumarin, an aromatic vanilla-like alkaloid named from the ″coumarou″ or Tonka bean. In Europe, it is believed to have a tendency to induce sleep and is often hung in bunches over beds. The long leaves of the sterile shoots were used by Native Americans to make baskets and small mats. It is also commonly used as incense and fragrance.

Name Synonyms: Holygrass, Vanilla grass

Prairie Junegrass

(Koeleria macrantha)

Left, above, and below: Dave Powell, USDA Forest Service, Bugwood.org

Above: © Keir Morse, www.keiriosity.com

Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above and Below: © Keir Morse, www.keiriosity.com

Prairie Junegrass

Koeleria macrantha

KOMA

Description:

Prairie junegrass is a native, cool season, perennial bunchgrass 18-26″ tall, erect and growing in small bunches 2-6″ in diameter. It starts growth in the early spring, flowers June-July; produces seed through September, and may regrow in the fall if soil moisture is adequate. It reproduces by seed and tillers. The seedhead is a dense, narrow, spikelike panicle that is open during flowering and 1-5″ long. Seedstalks are nearly leafless, often finely pubescent just below the seedhead. Spikelets are about ⅛″ long, and contain 2-4 florets. Glumes and lemmas are smooth, and awnless or awn-pointed. Leaves are mostly basal and hairless except on lower leaves that are sometimes slightly pubescent. Leaf blades are narrow, 1½-5″ long, flat to rolled, curly when dry, and rough above from raised veins. Sheaths are prominently veined. Leaves are folded in the bud; ligules are short, membranous, collar-shaped, and finely toothed at the margin. Auricles are absent.

Distribution and Habitat:

Prairie junegrass is widely distributed from the foothills to the mountain valleys from 6,000-12,500′ elevation in the 16-24″ precipitation zone. It is not normally found in wetland areas. It occurs on deep, medium to moderately fine textured soils but can be found in moderately deep soils with coarse fragments. Associated species include a wide variety of mountain forbs, mountain brome, Letterman′s needlegrass, bluebunch wheatgrass, western wheatgrass, and Kentucky bluegrass.

General Information:

Prairie junegrass is an excellent forage plant for all classes of livestock, although forage production is low. It provides good forage for wildlife in spring and in the fall after curing. It is less palatable during seed production. It furnishes food for small mammals and birds. It is an excellent erosion control plant within the plant communities where it grows and is seldom found in pure stands.

Name Synonyms: Junegrass

Left: Dr. Roger Banner, USU Extension

Above and Left: Dr. Matt Lavin, Montana State University

Spike Fescue

(Leucopoa kingii)

Left: Dr. Matt Lavin, Montana State University

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Spike Fescue

Leucopoa kingii

LEKI2

Description:

Spike fescue is a native, cool season, perennial grass that is tufted and rhizomatous and 12-39″ tall. Male and female flowers are produced on separate plants. Its seedhead is a panicle 3-9″ long with erect or spreading branches that produce spikelets to the base. Spikelets contain 3-4 florets with male spikelets slightly larger than female spikelets. Glumes are unequal and ⅛-¼″ long with the 1st glume smaller than the 2nd. Lemmas are ≤⅓″ long, rough or hairy and sharp. Leaf blades are 5½-16″ long, erect, smooth, flat or loosely rolled and stiff. The upper leaf surface strongly ribbed and furrowed. Ligules are short and squared-off with an uneven and hairy margin. Sheaths are conspicuous and persisting, closed only at the base and smooth or with backward hairs on the lowest individuals.

Distribution and Habitat:

Spike fescue occurs in or near the mountainous areas of Utah where annual precipitation is ≥12″. It is found in habitats from dry sagebrush plains to subalpine meadows at elevations from 5,500-11,700′. It commonly grows on exposed rocky slopes and ridges with medium-fine textured, rocky soils. Associated species include big sagebrush, snowberry, slender wheatgrass, sandberg bluegrass, prairie junegrass, Idaho fescue, pinyon, juniper, rabbitbrush, Gambel oak, Utah serviceberry, aspen, ponderosa pine and limber pine.

General Information:

Spike fescue is rarely abundant enough to provide much forage for livestock and wildlife. It provides some erosion control by virtue of its rhizomatous character.

Name Synonyms: King fescue, Spikegrass

Barry Rice, Sarracenia.com, Bugwood.org

Above: Caleb Slemmons, University of Maine, Bugwood.org

Right and Left: Dr. Matt Lavin, Montana State University

Reed Canarygrass

(Phalaris arundinacea)

Below: John Cardina, Ohio State University, Bugwood.org

Left: Dr. Roger E. Banner, USU Extension

Reed Canarygrass

Phalaris arundinacea

PHAR3

Description:

Reed canarygrass is a circumboreal, perennial, warm season, rhizomatous grass. It is robust, with erect culms 2-8′ tall. Reproduction is by seed and rhizomes. It starts growth in spring and begins flowering in June. Seedheads are narrow, somewhat lobed panicles, 2¾-12″ long with branches strictly erect or spreading widely at flowering. Spikelets are pale green or tinged with pinkish purple but are ultimately straw colored at maturity. Leaf blades are flat, ½-1″ wide, rough to smooth except near the long-tapered tip. Ligules are present and ≤⅜″ long. The leaf sheaths are without auricles.

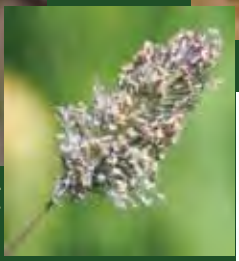
Distribution and Habitat:

Reed canarygrass is found at elevations from 4,200-9,000′ in fine to medium textured, wet, moderately saline soils along waterways and in wet meadows in most counties throughout Utah. Elsewhere in the U.S., it grows where annual precipitation ranges from35-65″ per year but in generally arid to semiarid Utah, it is essentially restricted to disturbed riparian areas and wetlands. It may grow in dense stands, has high tolerance of fire and is highly tolerant of anaerobic soil conditions allowing it to withstand flooding and sediment deposition. Associated species in Utah include Nebraska sedge, redtop, hardstem bulrush, phragmites, tall wheatgrass, foxtail barley, inland saltgrass, cattail and alkali cordgrass among others.

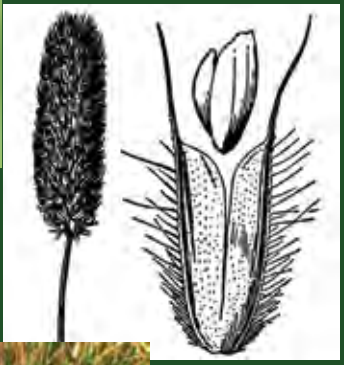
General Information:

Reed canarygrass is useful for erosion control along rivers and streams. Its foliage is coarse but it provides good forage prior to maturity. It is considered invasive by some sources and an undesirable plant in some states. It is classified as a Class C noxious weed in the State of Washington.

Right and left:
Dr. Matt Lavin,
Montana State
University



Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.



Right: Dr. Roger E.
Banner, USU Extension.

Alpine Timothy

(Phleum alpinum)

Left and above:
Dr. Matt Lavin,
Montana State University

Alpine Timothy
Phleum alpinum

PHAL2

Description:

Alpine timothy is a native, cool season, somewhat sod-forming, perennial bunchgrass, 6-24″ tall, that flowers June-August. It reproduces from seed and tillers and roots are fibrous. Its seedhead is oval to tubular in shape. Seedheads are dense panicles, with branches twisted around the rachis. Panicles are ½-2″ long and 1½-3 times as long as wide, and purplish in color. The spikelets are flattened with 1 floret; glumes are long and thin with a hairy-fringe on one side and with awns ⅛″ long. Awned heads give alpine timothy a bristle appearance. Leaf blades are flat or loosely rolled, smooth to hairy on top, commonly ≤⅛″ wide, 2½ -6″ long, and tapering to the tip,. Sheaths are open and hairless, and ligules are short, membranous, and collar shaped. Auricles are small or absent. Stems are solitary to slightly grouped, erect to somewhat bending (decumbent) at the base, hollow, smooth, and hairless. The base of the plant lacks the bulblike structure found in common timothy *(Phleum pratense)*.

Distribution and Habitat:

Alpine timothy occurs at higher elevations and higher latitudes worldwide. It is cold tolerant and found in mesic to wet alpine or subalpine meadows, marshes and along streambanks, at elevations from 7,000-12,000′. It grows on relatively well-drained to very wet soils. Associated species include aspen, bistort, sedges, rushes, willows, tufted hairgrass, and redtop. It is also found on moist silver sagebrush sites.

General Information:

Alpine timothy is preferred by all classes of livestock, elk, and deer. Its foliage remains green throughout the summer. It is used in revegetation of disturbed areas such as roads, ski slopes, and mined lands.

Name Synonyms: Mountain timothy

Dr. Lynn Clark & Anna Gardner, Iowa State University

Below: James R. Johnson @ USDA-NRCS PLANTS Database

Above: Dr. Matt Lavin, Montana State University

Timothy

(Phleum pratense)

Left: Dr. Matt Lavin, Montana State University

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Timothy
Phleum pratense

PHPR3

Description:

Timothy is an introduced, cool season, perennial bunchgrass, with a swollen or bulblike base and without rhizomes, growing 2-3½′ tall. It starts growth in early spring, flowers May-August, and reproduces from seeds and tillers. Its seedhead is a dense, cylindrical, symmetrical spike-like panicle, 2-5″ long and several times longer than wide. Its spikelets are flattened and contain a single floret. Its seed is enclosed by persistent, hairy-fringed glumes with each glume producing a short, bristle awn. Its leaves are smooth and distinctly veined on the blade and the sheath. Blades are flat to somewhat keeled, 4-8″ long, ≤⅜″ wide, tapering toward the tip and with a midrib prominent on the upper surface. Leaves are rolled in the bud. Ligules are ≤⅛″ long, membranous, rounded or bluntly pointed and with finely toothed margins. Auricles are absent.

Distribution and Habitat:

Timothy is common in nearly all Utah meadows. It occurs mostly on overflow or run-in sites, but it does well on mountain and high mountain loam sites. It is found at elevations from 5,200-10,400′ where annual precipitation or water available is >18″. It is cold tolerant, but does not tolerate drought well. It is adapted to moist, well-drained, deep, irrigated, medium textured soils. It tolerates fairly saline and alkaline conditions. Associated species include mountain brome, smooth brome and quaking aspen. In wetter areas, it is commonly associated with redtop, Kentucky bluegrass, sedges and Baltic rush.

General Information:

Timothy is preferred as forage by all classes of livestock, deer and elk. It is intolerant of heavy, season-long grazing. It is produced for hay and irrigated pasture and has the reputation of being excellent hay for horses. Timothy produces well with light, frequent irrigations. It is usually found on sites where the plant communities provide near total ground cover and high root mass, thus providing a high level of protection from erosion.

Dr. Roger E. Banner, USU Extension

Bulbous Bluegrass

(Poa bulbosa)

Above and Below: Joseph M. DiTomaso, University of California - Davis, Bugwood.org

Above: Richard J. Shaw, Intermountain Herbarium

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Bulbous Bluegrass

Poa bulbosa

POBU

Description:

Bulbous bluegrass is an introduced, cool season, short-lived perennial, viviparous grass 6-24″ tall. It begins growth early in the spring and matures in late spring. Its stems are solitary or dense tufts. Its seedhead is an egg-shaped panicle that is compact or open at flowering, 2-4″ long, and somewhat nodding after development of florets. It reproduces from bulblets which sprout from the parent plant and from basal bulbs. Spikelets contain 3-6 florets which form into true bulblets with dark purple bases. Glumes are equal, ≤⅛″ long, that extend into slender green tips ⅛-⅝″ long. Bulblets require a significant dormant period for germination. Leaves are basal, flat to loosely rolled with tips arrow-shaped, ≤⅛″ wide and 2-6″ long. Leaf sheaths are open and nodes along stems are swollen. Ligules are membranous and ⅛″ long. Auricles are absent.

Distribution and Habitat:

Bulbous bluegrass can become established on unproductive sites and is found along trails, roadsides, or other disturbed sites at elevations ranging from 3,900-9,800′. It is not an aggressive or competitive species in well developed perennial pastures and native, undisturbed areas. It is found on moderately deep soils on dry to moist sites, often on south exposures. Associated species include big sagebrush, Gambel oak, bluebunch wheatgrass, Sandberg bluegrass, cheatgrass, tapertip onion, and bitterbrush.

General Information:

Bulbous bluegrass has been used for seeding eroded areas where rapid establishment of plant cover is needed. Plants are preferred and nutritious to wildlife and livestock in early spring until plants flower. Early, heavy grazing can be applied to reduce the production and spread of individual bulblets.

Name Synonyms: Winter bluegrass

Right: ©2010 James M. Andre

© S.L. Hatch & J.E. Dawson

Above and Below: ©2006 Trent M. Draper

Muttongrass

(Poa fendleriana)

Below ©2007 Trent M. Draper

Right: Dr. Roger E. Banner, USU Extension

Muttongrass

Poa fendleriana

POFE

Description:

Muttongrass is a native, cool season, perennial, partly dioecious bunchgrass with numerous tillers. It grows 1-2′ tall, often in dense clumps with numerous seedstalks. Its flowers are dioecious and are pollinated by wind. Individual flowers are either male or female, but only one sex is found on any one plant. Both male and female plants must be grown for seed to be produced. The seedhead is a narrow, dense panicle, 1-4″ long, with 2-3 branches at a node. Spikelets are about ⅜″ long, somewhat flattened, and contain 5-7 florets. Lemmas are awnless and hairy along edges. Leaves are rough to the touch, mostly basal, with blades 2-12″ long. They are stiff, rough beneath, tightly folded, with boat-shaped tips. Leaves are folded in the bud, membranous ligules are present, but they are very short. Auricles are absent.

Distribution and Habitat:

Muttongrass, together with the other taller native bluegrasses similar to it, are important to the overall rangeland productivity in Utah. It is distributed statewide, occurring at elevations from 3,000-12,000′ in sagebrush desert to wooded areas, on mountains, on alpine areas and occasionally on dry ridges. Muttongrass is not shade tolerant. It is adapted to well-drained sandy, loamy, and clayey soils. It does well on soils high in course fragments (rock, gravel, cobbles). It is adapted to acid, neutral and basic soils. Associated species include mountain brome, slender wheatgrass, oniongrass, Kentucky bluegrass, sagebrush, bitterbrush, snowberry, Richardson geranium, and many others.

General Information:

The name, muttongrass, correctly implies that it has provided good quality forage for sheep. It is considered to be good forage for deer and elk as well. It can withstand rather heavy grazing. Because of its deep, fibrous root system, muttongrass also provides excellent erosion control.

Name Synonyms: Mutton bluegrass

Left: Richard Old, XID Services, Inc., Bugwood.org

Right: Dr. Lynn Clark & Anna Gardner, Iowa State University

Kentucky Bluegrass

(Poa pratensis)

Dr. Lynn Clark & Anna Gardner, Iowa State University

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Kentucky Bluegrass

Poa pratensis

POPR

Description:

Kentucky bluegrass is a cool season, perennial sod-forming grass with rhizomes, growing 6-36″ tall. Young shoots are slightly flattened, but seedstalks are round. Growth from aerial stems begins in early spring and continues through summer if moisture is available. The rhizomes begin growth in summer or fall. It reproduces from seeds, tillers, and rhizomes. The seedheads are open, spreading, pyramidal panicles, 2-8″ long, with panicle branches whorled in groups of 3-5. Spikelets contain 3-5 florets and lemmas are awnless but have cobweb-like hair at the base. Leaves are mostly basal, nearly smooth, and blades are V-shaped, narrow, and 1-7″ long, with boat-shaped tips. Two prominent veins are located along the center of the upper surface of the leaf which appear as miniature railroad tracks. Leaves are folded in bud. Ligules are short, membranous, and collar-shaped and auricles are absent.

Distribution and Habitat:

New evidence suggests that there was a native population of Kentucky bluegrass prior to its introduction from Europe. It is widely distributed across the elevational gradient from irrigated valleys to high mountain areas where precipitation ranges from 14-28″ per year. It is adapted to a wide variety of soils but does best on deep to moderately deep, well-drained loams and clay loams. It is found on wet soils but is not tolerant of acid or saline-alkaline conditions. It grows in meadows, along water-courses, under aspen, and in open mountain parks. Associated species are many and include aspen, big sagebrush, Nevada bluegrass, mountain brome, slender wheatgrass, and others.

General Information:

Kentucky bluegrass provides a dense, green sod and its forage value is good for livestock and wildlife in early spring. It is not very productive and heavy use or trampling causes it to form a dense, shallow-rooted sod. It withstands continuous heavy grazing and mowing, and regrows if moisture is available. Its predominance in riparian areas is considered an indication of heavy use.

Below: © Keir Morse, www.keiriosity.com

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Sandberg Bluegrass

(Poa secunda)

Left: Gary A. Monroe @ USDA-NRCS PLANTS Database

Dr. Roger E. Banner, USU Extension

Gary A. Monroe @ USDA-NRCS PLANTS Database

Above and Right middle: © Keir Morse, www.keiriosity.com

Sandberg Bluegrass

Poa secunda

POSE

Description:

Sandberg bluegrass is a native, cool season, erect, perennial bunchgrass, growing in small tufts and commonly ≤12″ tall. It is one of the first plants to start growth in early spring. Seeds mature in early summer. It reproduces from seeds and tillers. With adequate moisture, it will remain green throughout the summer. Its seedhead is a narrow panicle, ≤4″ long, with ascending panicle branches in whorls of 2-3. Its spikelets contain 2-4 florets, often purplish before maturity with awnless lemmas and no cobweb-like hairy at the base. Its leaves are mostly basal, smooth, numerous, fine, 1-3″ long, mostly rolled, and with boat-shaped tips. Its leaves are rolled in the bud. It has prominent ligules that are membranous, ≤⅛″ long and tapering to the tip. Auricles are absent.

Distribution and Habitat:

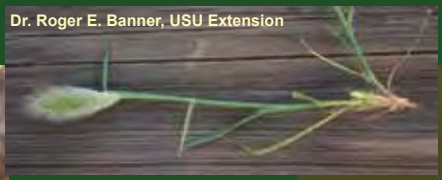
Sandberg bluegrass is one of the most widely adapted bluegrasses in Utah. It occurs mainly on semi-desert sites, but is also found on some upland and mountain sites, growing at elevations from 4,100-12,000′ and in annual precipitation zones from 6-23″. It is drought tolerant. It occurs on deep, silt loam to sandy soils, but mostly on the soils of medium texture. Associated species include big sagebrush, black sagebrush, fourwing saltbush, bluebunch wheatgrass, bottlebrush squirreltail, western wheatgrass, tapertip onion, foothill death camas, and needle-and-thread.

General Information:

It provides forage for cattle and fair for sheep, deer, and pronghorn in spring and early summer. Although the quality of the forage is good, the total yield of forage is low compared to such plants as bluebunch wheatgrass. It provides some erosion control.

Below:
© 2008 Keir Morse,
www.keiriosity.com

Dr. Roger E. Banner, USU Extension



Rabbitsfoot Grass

(Polypogon monspeliensis)

Above: © 2006 Steve Matson

Above and Below: © 2008 Steve Matson

Above:
© 2008 Keir Morse,
www.keiriosity.com

Rabbitsfoot Grass

Polypogon monspeliensis

POMO5

Description:

Rabbitsfoot grass in an introduced tufted annual with stem erect or decumbent at the base, rough below the panicle, 4″ – 3′ in height. The panicle inflorescence is dense and spikelike, 1-6″ long, ½ - 1″ wide, tawny yellow. Glumes terminate in an awn ¼ to ⅓″ long. Leaf sheaths are smooth. Leaf blades are 1½ - 6″ long and up to ⅓″ wide and rough, especially above.

Distribution and Habitat:

Rabbitsfoot grass is native to Eurasia and, in North America, it is found in fields and waste places at low elevations. It is usually growing in moist, alkaline soils.

General Information:

Rabbitsfoot grass provides good, although sparse, forage during the summer. It is preferred prior to the development of the seedhead.

Name Synonyms: Annual rabbitsfoot grass

Below: Dr. Lynn Clark & Anna Gardner, Iowa State University

Line Drawing: Britton & Brown. 1913. *Illustrated flora of the Northern States and Canada*

Weeping Alkaligrass

(Puccinellia distans)

Dr. Lynn Clark & Anna Gardner, Iowa State University

Weeping Alkaligrass

Puccinellia distans

PUDI

Description:

Weeping alkaligrass is a perennial, introduced bunchgrass with culms 4″-30″ tall. It has a vigorous, shallow, fibrous root system. Herbage is typically blue-green and smooth to slightly rough. Culms are solitary or more often tufted and sometimes mat-forming. Culms are usually decumbent-based, often geniculate (elbow-shaped) at the lower nodes. Leaf sheaths are smooth. Leaf blades are flat, smooth, narrow, and often rolled inward on the upper side. Ligules are membranous and blunt with smooth margins. The inflorescence is an open, narrowly lance-shaped to pyramid-shaped panicle 2⅓″-8″ long. Panicle branches are loosely spaced, 2-6 per node, ultimately widely spreading or often bent abruptly downward. Each spikelet contains 5-6 flowers. The nearly equal glumes are oval shaped, have tiny hairs over the surface as well as along the edge, and are shorter than the first flower. Broadly oval lemmas have a blunt, ragged tip and bear scattered hairs at the base. Florets have long, exserted stamens during flowering.

Distribution and Habitat:

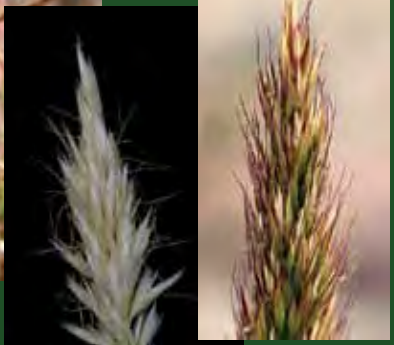
Weeping alkaligrass is found in moist sites, primarily in salt desert communities, along roadways and in pastures and meadows. It is adapted to medium to fine textured soils, and can withstand periodic flooding and shallow water tables. It is tolerant of alkaline and saline conditions, and is somewhat drought tolerant. It occurs at elevations from 3,500′-8,600′. It is known to occur in all Utah counties except Morgan, Summit, Carbon, Beaver and Iron counties.

General Information:

Weeping alkaligrass is moderately palatable for livestock and wildlife. It is excellent for establishing cover on saline soils, and has found some use as a turf grass.

Name Synonyms: European alkali grass

Left: Dr. Matt Lavin, Montana State University



Spike Trisetum

(Trisetum spicatum)

Above: © 2003;
Left: © 2002,
Steve Matson

Left and Below: Dr. Matt Lavin, Montana State University

Line Drawing: Hitchcock & Chase, 1950.
Manual of the Grasses of the United States.

Spike Trisetum

Trisetum spicatum

TRSP2

Description:

Spike trisetum is a native, cool season, perennial, densely tufted bunchgrass growing 2-20″ tall. Its stems are erect and usually smooth. It flowers from July-August. Its seedhead is a dense, spikelike panicle, 1-4″ long, that is greenish or purplish in color. Spikelets are ≤¼″ long, numerous and usually contain 2 florets. Its glumes are unequal, usually smooth and sharply pointed. Lemmas are short-hairy at the base and two-toothed at the tip. It has a bent, twisted awn about ⅜″ long arising from the back of the lemma. Leaf blades are flat or rolled at maturity, 2-6″ long and pubescent to hairy. The sheaths are hairy and ligules are membranous and ≤⅛″ long. Auricles are absent.

Distribution and Habitat:

Spike trisetum commonly occurs in open parks and near treeline in conifer and aspen woods, along streams and in alpine meadows and gentle slopes. It is found at elevations from 5,000-13,500′ where the annual precipitation is ≥18″. At lower elevations it depends as much on run-in water as it does upon natural rainfall. It is adapted to deep, well-drained, medium textured (loamy), well-developed soils. Associated species include alpine timothy, tufted hairgrass, redtop, Kentucky bluegrass and Nebraska sedge.

General Information:

Spike trisetum is a fairly early growing grass and is therefore of good forage value for livestock and wildlife for early season grazing at the lower elevations and higher elevations. It is not very abundant but is valuable as part of the grass association for stabilization of watersheds and for landscape beauty.

Name Synonyms: Narrow false-oats

Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

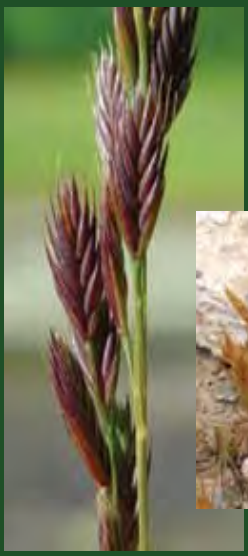
Right: ©2010 James M. Andre

Right: Dr. Lynn Clark & Anna Gardner, Iowa State University

Right: Dr. Matt Lavin, Montana State University

Sixweeks Fescue

(Vulpia octoflora)



Left: Dan Tenaglia, Missouriplants.com, Bugwood.org

Above: ©2005 Steve Matson

Sixweeks Fescue

Vulpia octoflora

VUOC

Description:

Sixweeks fescue is a native, cool season, annual grass with solitary stems or stems in small tufts generally 3-12″ tall. Under unusually wet conditions it may grow to 24″ tall. It is erect or occasionally bent upward at the lower nodes. Its seedhead is a panicle 1-4″ long with short branches compressed against the rachis. Spikelets contain 5-15 florets. Glumes are unequal with the 1st awl-shaped, sharp, and <¼″ long, and the 2nd narrow, ⅛-¼″ long and sharp or with an awn tip. Lemmas are compressed, ≤¼″ long; smooth or rough to hairy; with inrolled, slightly membranous margins; and long-tapered to a short awn. Leaf blades are narrow and boat-shaped. Sheaths are smooth or with backward hairs. Ligules are very short and auricles are absent. Sixweeks fescue is shallow rooted and easily pulled from the soil.

Distribution and Habitat:

Sixweeks fescue occurs in most of Utah but is common in Southern Utah in cottonwood-desert willow-baccharis, shadscale, greasewood, sueda, creosotebush, blackbrush, bursage, sagebrush and pinyon-juniper communities. It is found at elevations from 2,500-6,500′. It is adapted to a wide range of soils and soil textures but is most common on sterile, rocky ground and disturbed areas. Associated species include cheatgrass, red brome, creosotebush, bursage, big sagebrush and storksbill.

General Information:

Sixweeks fescue is generally so small that it provides little forage for large animals. It may be used by desert tortoise and small desert animals since it is common in their habitats. It provides little erosion control.

Right: Dr. James Bowns, Southern Utah Univeristy

Below: © 2005 Steve Matson

Left and Below: Dave Powell, USDA Forest Service, Bugwood.org

Indian Ricegrass

(Achnatherum hymenoides)

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

© 2005 Steve Matson

Right: Dr. James Bowns, Southern Utah Univeristy

Indian Ricegrass

Achnatherum hymenoides

ACHY

Description:

Indian ricegrass is a native, cool season, perennial bunchgrass, growing 1-2½′ tall. It starts growth in early spring, flowers in late spring and reproduces from seeds and tillers. Its seedhead is a loose panicle with hair-like branches which spread at distinctly wide angles. Spikelets contain one floret, solitary at ends of the panicle branches. Lemmas are hard and black and remain around the seed which is surrounded by dense white hair. Lemmas have <¼″ awns that readily break off. Seeds shatter readily, leaving glumes attached to panicle branches. Its leaves are numerous, mostly basal with slender, rolled blades that are often as long as the culms. Leaf sheaths are fringed on one margin only and leaves are rolled in the bud. Ligules are ⅜″ long, membranous, pointed, and sometimes split. Auricles are absent.

Distribution and Habitat:

Indian ricegrass is a widely adapted grass in Utah. It grows at elevations of 3,000-10,000′ where annual precipitation is ≥6″. It is found on sandy, stony, gravelly, and shallow soils but not on wet or poorly drained soils. It is adapted to soils high in lime and it tolerates moderately saline and alkaline conditions. Associated species include shadscale, big sagebrush, galleta, squirreltail, pinyon, juniper, and winterfat.

General Information:

Indian ricegrass is important on foothill and semi-desert areas and provides forage for domestic livestock and wildlife throughout the year. It is valuable for winter grazing because the plants cure well and lower plant parts often remain green. Its seed provides an excellent food source for birds and small mammals. Indian ricegrass seed was an important food source for Native Americans. It grows rapidly in the spring and tolerates grazing well if provided the opportunity to complete its lifecycle periodically. It is fire and drought tolerant. Indian ricegrass is the State Grass of Utah.

©2005 Steve Matson

Right: Dr. Roger E. Banner, USU Extension

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Dr. Roger E. Banner, USU Extension

Letterman's Needlegrass

(Achnatherum lettermanii)

©2004 Steve Matson

Above: © R.E. Rosiere, Courtesy of Range Types of North America, R.E. Rosiere. www.tarleton.edu/~range

Below: ©2005 Steve Matson

Letterman′s Needlegrass

Achnatherum lettermanii

ACLE9

Description:

Letterman′s needlegrass is a native, densely tufted, slender, cool season perennial grass which often forms large clumps. This fine-stemmed, erect grass normally grows from 12-24″ tall and reproduces primarily by seed and tillering. It flowers July-September. Seedheads are slender, loose, pale green, spikelike panicles 3-8″ long. Glumes are prominently nerved on the back and have a twice bent awn ⅝-1¾″ long. Leaves are mostly basal, very fine, tightly rolled, and 2-8″ long. Sheaths are open with no auricles and ligules are membranous.

Distribution and Habitat:

Letterman′s needlegrass occurs at elevations from 5,000-11,700′ where precipitation is ≥16″ and on sandy loam, loam, silty clay loam, or clay loam soils ≥15″ in depth. It is found in valleys, open forests/woodlands, and on rocky ridges. It is more drought tolerant than Columbia needlegrass and is susceptible to fire when burned during mid-summer. It typically occurs on dry soils, but it can be found on very fertile or severely eroded soils. Associated species include Sandberg bluegrass, aspen, locoweed, and sagebrush. It is one of the first perennials to establish naturally on eroded sites dominated by tarweed *(Madia glomerata)*.

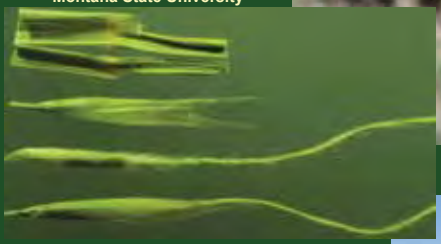
General Information:

Letterman′s needlegrass provides poor to good forage for wildlife and livestock, depending on time of year and species of animal. It remains green throughout a relatively long growing season but is rather coarse and wiry after flowering. It is grazed in the fall only if the seedheads are softened by moisture. Mature awns and calluses may become sharply pointed, causing grazing animals to avoid it. It tends to increase on traditional sheep ranges. In the absence of grazing, Letterman′s needlegrass competes poorly with species such as Kentucky bluegrass and Thurber fescue. It has been used in revegetating mine spoils in Idaho.

Name Synonyms: Letterman needlegrass

Tracey Slotta @
USDA-NRCS PLANTS
Database

Below: Dr. Matt Lavin,
Montana State University



Above and below: Sheri Hagwood @
USDA-NRCS PLANTS Database

Columbia Needlegrass

(Achnatherum nelsonii)

Right: Dr. Matt
Lavin, Montana
State University

Left: Dr. Roger E. Banner, USU Extension

Columbia Needlegrass

Achnatherum nelsonii

ACNE9

Description:

Columbia needlegrass is a native, cool season, perennial bunchgrass. It has erect, fine stems and is 1-2½′ tall, often with purple stem nodes. It starts growth in mid-spring and reproduces from seeds and tillers. It may regrow in the fall if adequate moisture is available. Its seedhead is a narrow, rather dense, often purplish panicle up to 8″ long. Spikelets contain one floret and lemmas are hairy with a twice-twisted awn which is usually ¾-1″ long and attached securely at the tip of the lemma. Leaf blades are smooth and flat when green and growing but rolled when mature. Blades are narrow, 4-8″ long and sheaths are smooth. Leaves are rolled in the bud and ligules are short, membranous, and collar shaped. Auricles are absent.

Distribution and Habitat:

Columbia needlegrass is a mountain grass that grows at elevations from 5,000-12,500′ where annual precipitation is ≥15″. It occurs primarily on mountain and high mountain sites, and can be aggressive. It does not thrive in saturated soils. It is common under aspen and grows on a wide range of soils from shallow to deep, and from sandy loams to clays. It prefers well-developed, deep loamy soils. Associated species include mountain brome, slender wheatgrass, bluebunch wheatgrass, lupine, big sagebrush, aspen, and silver sagebrush.

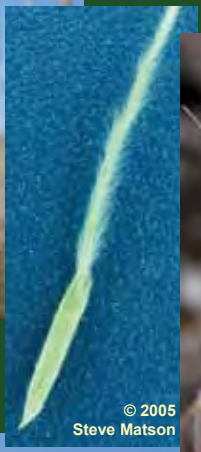
General Information:

Columbia needlegrass is a fair to good forage plant for cattle and horses and fair for sheep, deer and elk. It becomes less preferred at maturity. Its seed provides food for birds and small mammals. The sharp-pointed callus may penetrate the ears, eyes, nostrils, and mouths of grazing animals and awns may contaminate fleece. Watershed values exist more in terms of the association in which it grows than as an individual species.

Name Synonyms: Nelson′s needlegrass

Thurber's Needlegrass

(Achnatherum thurberianum)



Above and below:
Sheri Hagwood @ USDA-NRCS
PLANTS Database

Above and below: Dr. Matt Lavin,
Montana State University

Thurber′s Needlegrass

Achnatherum thurberianum

ACTH7

Description:

Thurber′s needlegrass is a native, perennial bunchgrass with culms that are slender; that have fine, short hairs at the nodes; and that are 6″-24″ tall. Leaf sheaths are smooth or occasionally rough to minutely hairy below and smooth at the summit. Ligules are membranous, sharp to rounded, and teethed. Leaf blades are usually rough or softly hairy, sinuous, threadlike, and with margins rolled inward on the top. The panicle inflorescence is 2″-6″ long, narrow to somewhat open, and the branches are erect and relatively few flowered. Glumes are greenish or purple-tinged, membranous, equal or subequal, ⅓″-⅔″ long, 3-nerved, long-tapered to a sharp point. Lemmas are a little more than ½ as long as the glumes, hairy, terminating in an obscurely twice-bent, often purplish awn about 1½″ long, and somewhat feathery to the 2nd bend with short hairs.

Distribution and Habitat:

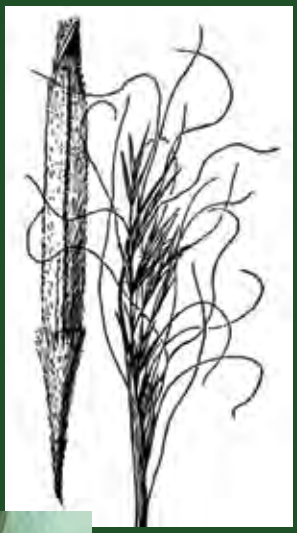
Thurber′s needlegrass is found in sagebrush, pinyon-juniper, and Gambel oak communities at elevations of 5,400′- 6,500′. It is most abundant in dry, coarse-textured soils. In Utah, it is found in the uplands and mountain ranges along the Utah-Nevada border in Juab and Box Elder counties.

General Information:

Thurber′s needlegrass is an important range forage plant in northern Nevada and southeastern Oregon where it is often abundant. It is of limited importance as a forage grass in Utah due to limited distribution and abundance.

Needle-and-Thread

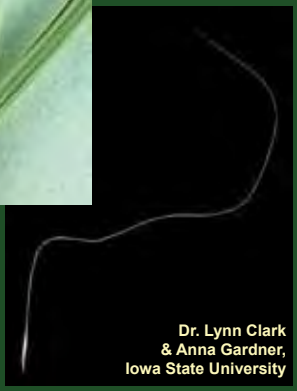
(Hesperostipa comata)



Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above: ©2008 Steve Matson

Left: Richard Old, XID Services, Inc., Bugwood.org



Dr. Lynn Clark & Anna Gardner, Iowa State University

Needle-and-Thread

Hesperostipa comata

HECO26

Description:

Needle-and-Thread is a native, cool season, perennial, erect to ascending bunchgrass, growing in small tufts with stems 1-3′ tall. It starts growth in early spring or when moisture is available. Seeds mature in early summer. It reproduces from seeds and tillers. Its seedhead is a loosely spreading panicle, 4-8″ long. The lowermost spikelets are enclosed or partly enclosed in the upper leaf sheath. It has one floret per spikelet and glumes ¾-1″ long that are papery and remain attached to plant when seeds fall. Seeds have a hard seed coat formed by the lemma and palea. It has a twisted, wavy awn on the lemma that is 4-5″ long and hygroscopic (winds up and unwinds as it becomes wet then dry). The seed has a sharp attachment point (callus) with beards near the point. Leaves are hairless and prominently veined, blades are narrow and usually inrolled, 3-12″ long, rough above, and tapering to a point. Stem leaves are shorter and wider with conspicuous ligules ⅛″ long and notched. Auricles are absent.

Distribution and Habitat:

Needle-and-thread is common in Utah, the West, and the Great Plains. It is found at elevation from 4,000-7,500′ on alluvial fans, sandy benches, and gravelly foothills. It occurs in the 10-18″ precipitation zone. It is very drought tolerant. It is well adapted to excessively drained, sandy or gravelly soils, sandy loams, fine sandy loams, or clays that are shallow to deep, with stones and rock fragments. Associated species include Sandberg bluegrass, junegrass, Indian ricegrass, winterfat, and sagebrush.

General Information:

Needle-and-thread is grazed during the spring before seeds develop and again during the fall after seeds have dropped. It is used by livestock and wildlife in fall, winter, and spring. If grazed when seeds are ripe and still on the plant, the sharp pointed callus and long awns may cause injury to the eyes, mouth, and ears. Awns may contaminate the fleece and penetrate the skin in sheep. It is a very desirable plant, on sandy areas prone to wind erosion.

Left and below: Steve Dewey, Utah State University, Bugwood.org

Jointed Goatgrass

(Aegilops cylindrica)

Left, above, and below: Dr. Matt Lavin, Montana State University

Jointed Goatgrass

Aegilops cylindrica

AECY

Description:

Jointed goatgrass is an introduced winter annual growing up to 4′ tall, but normally 1′-3′ tall, with many erect stems. The inflorescence is a slender, cylindrical spike that has the appearance of a series of joints stacked on top of each other. Each joint is a spikelet containing 2-4 flowers. The uppermost spikelets are tipped by straight awns. The glumes are several-ribbed with a keel on one side extending into a single awn or beard. At maturity, seedheads break into individual segments. Leaves are alternately arranged, and up to ½″ wide. There are evenly spaced hairs along the leaf margins and down the sheath opening. The ligule is short and membranous. Auricles are short and hairy. As the seeds mature, the change from green to a reddish or tan color.

Distribution and Habitat:

Jointed goatgrass is native to the Mediterranean region and central Asia. In North America it is found in disturbed areas and is common in cultivated fields. It can also invade rangelands, ditchbanks, roadsides, and fencerows where disturbance occurs. It is found in all major U.S. winter wheat production regions – from Texas to South Dakota, and west to the coast – and is considered a serious weed in many wheat-growing areas.

General Information:

Jointed goatgrass and wheat are genetically related. This makes it difficult to distinguish jointed goatgrass in wheat during the early vegetative growth stages. They can also cross pollinate to produce a hybrid plants. It is classified as a noxious weed in Utah. It is difficult to control in areas where winter wheat is grown due to the similarities in both look and environment.

Below: Cassondra Skinner @ USDA-NRCS PLANTS DATABASE

Below: Richard Old, XID Services, Inc., Bugwood.org

Crested Wheatgrass

(Agropyron cristatum)

Dr. Roger E Banner, USU Extension

Left: Dr. Lynn Clark & Anna Gardner, Iowa State University

Above right: Dr. Matt Lavin, Montana State University

Crested Wheatgrass

Agropyron cristatum

AGCR

Description:

Crested wheatgrass is an introduced, cool season, perennial bunchgrass that grows to a height of 1½ -2 ½′. It starts growth in early spring and flowers in late spring. It reproduces from seeds and tillers and may regrow in the fall if moisture is adequate. Its seedheads are dense spikes, with conspicuously flattened heads, 1½-3″ long, tapering toward the tip. The spikelets are numerous, overlapping, and placed flat-wise on the rachis. Spikelets contain 4-8 florets with glumes about half the length of the spikelet. Both the glumes and lemmas usually taper to a point or a short awn. Leaf blades are flat, vary in fineness with the vigor of the plant, and are usually smooth. Leaf sheaths are smooth or pubescent on the lower leaves, and leaves are rolled in the bud. Ligules are short and membranous and auricles are short and clasp the stem.

Distribution and Habitat:

Various forms of crested wheatgrass were introduced from Eurasia in the 1930′s and were developed into varieties. They are adapted at elevations ranging from 4,000-8,000′ in Utah. It is resistant to fire, drought, cold temperatures and heavy grazing. It grows on a wide range of soils, particularly well-drained, loamy soils where precipitations is ≥8″ annually. It is moderately salt tolerant. It is not tolerant of saturated soils, especially in the winter. Crested wheatgrass varieties have been seeded more extensively than any other grass in Utah and the Intermountain West. Associated species include big sagebrush, rubber rabbitbrush, juniper, pinyon and other mid-elevation species.

General Information:

Crested wheatgrass provides good forage for all classes of livestock, bison, deer, and elk. It cures well for use as winter forage and provides a good source of energy. Mature plants are low in protein. It is most valuable for early spring forage for livestock and wildlife. It is excellent for soil protection and is used for fast and reliable rehabilitation of watersheds. It is very competitive and can often be used to suppress cheatgrass. It is weakened by annual heavy grazing during stem elongation.

Right and Below:
Cassondra Skinner @
USDA-NRCS PLANTS
Database

Squirreltail

(Elymus elymoides)

Right:
Dr. Matt Lavin,
Montana State
University

Above, Below, and Below Left: © Keir Morse,
www.keiriosity.com

Squirreltail

Elymus elymoides

ELEL5

Description:

Squirreltail is a native, cool season, short-lived perennial bunchgrass, 6-18″ tall. It starts growth in early spring and flowers in late spring. It may regrow and flower again with favorable moisture. It reproduces from seeds and tillers. The seedhead is a dense, bristly spike, 1-3″ long, often partly enclosed by the upper leaf sheath. There are two fertile spikelets per rachis node and spikelets contain 2+ florets. Glumes and lemmas taper into harsh awns, 1½ -3″ long and divergent at maturely. Mature seedheads twist, giving it a bottlebrush or squirreltail appearance. Seedheads may disarticulate at joints along the rachis at maturity. Leaves are smooth to hairy; blades are rolled or flat, rather narrow, with raised veins above and a conspicuous midrib below. Leaves are rolled in the bud; ligules are short, membranous, and collar-shaped; auricles are variable and often absent.

Distribution and Habitat:

Squirreltail has a wide topographic range in Utah, from desert flats to steep mountain slopes. It is drought tolerant and found in the 8-20″ precipitation zone at elevations from 3,500-9,500′. It tolerates high salt, alkali, and lime; and grows well in deep to shallow, sandy to clayey soils. Associated species include big sagebrush, shadscale, western wheatgrass, pinyon pine, and juniper.

General Information:

Squirreltail is considered fair forage for cattle, horses, and sheep. Preference is highest prior to flowering yet it may be grazed in late summer and early fall after inflorescences have separated and fallen. The sharp pointed callus and awns may cause injury to soft tissue and awns may contaminate fleece. It rarely grows in dense stands but generally contributes well to cover. It is considered to be only fair for watershed protection but effective for wind erosion control. It shows potential for revegetation of cheatgrass dominated sites in the Great Basin.

Name Synonyms: Bottlebrush squirreltail

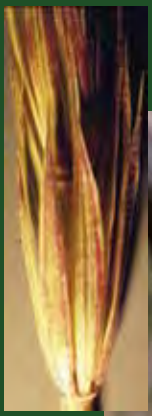
Right: Dr. Matt Lavin, Montana State University

Right and left: © Keir Morse, www.keiriosity.com

Blue Wildrye

(Elymus glaucus)

Right: © 2005 Steve Matson



Below: © Keir Morse, www.keiriosity.com

Above: Dr. Matt Lavin, Montana State University

Above: Intermountain Herbarium, Utah State University

Blue Wildrye
Elymus glaucus

ELGL

Description:

Blue wildrye is a native, cool season, perennial bunchgrass. It is short lived and drought tolerant. It commonly grows in small tufts of only a few stems. Stems range from 2-6′ in length and form small, mostly loose tufts. Its fibrous root system is well branched and penetrates deeply and it may produce stolons or short rhizomes. It reproduces primarily vegetatively. The seedhead is a dense, erect, narrow spike approximately 2-6½″ long. Spikelets are 2-3 per node or solitary at the upper and lower nodes, and 2-4 flowered. Flowering occurs June-August. Seeds have awns that are up to ¾″ long. Leaves grow up to 12″ long along the stem and have a rough texture.

Distribution and Habitat:

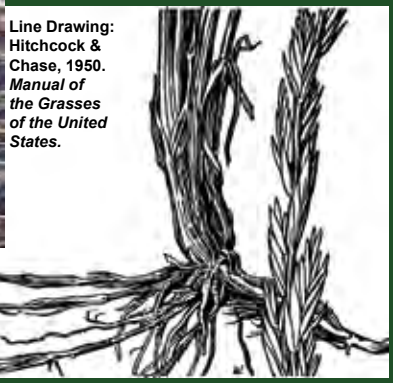
Blue Wildrye occurs in open forests, woodlands, shrublands, and grasslands on moist or dry hillsides. It tolerates moderate shading and is a common component in aspen and mountain brush communities. It is frequently associated with riparian areas. It normally occurs in areas where annual precipitation >15″, and is found at elevations from 4,300-10,500′. It responds readily to disturbances such as burning and logging. It grows best on deep, well-drained, infertile, neutral to moderately acid clay loam to sandy loam soils. Plants are moderately sensitive to saline soils. Associated species include alder, maple, sagebrush, mountain brome, bluegrasses, cinquefoil, strawberry, yarrow, and aspen.

General Information:

Blue wildrye is rated as only fair forage for domestic and wild animals because of its coarseness. Although plants are grazed into the summer, most use occurs in the early growth stages. It is not tolerant of continuous heavy use but recovers rapidly under good management. Blue wildrye is compatible with tree regeneration and is recommended for revegetation on aspen and mountain brush sites in Utah.

Thickspike Wheatgrass

(Elymus lanceolatus)



Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

All photos: Dr. Matt Lavin, Montana State University

Thickspike Wheatgrass

Elymus lanceolatus

ELLA3

Description:

Thickspike wheatgrass is a native, cool season, perennial sod-forming grass that reproduces from rhizomes and by seed. Its stems are erect, smooth and 12-50″ tall. It flowers from June-August. Its seedhead is a terminal, narrow, spike 1-9″ long. The spikelets are closely overlapped except near the base of the spike. Spikelets are ⅜-⅝″ long and have 4-8 florets that are solitary at each node or occasionally in pairs. The glumes are lancelike, multi-veined, often sharp to awn-tipped and smooth to slightly hairy. Lemmas are hairy and awnless or awn-pointed. Leaf blades are narrow, ≤⅛″ wide, 2-10″ long and generally flat or rolled. The ligule is short, collar-shaped and membranous. The auricles are small and slender.

Distribution and Habitat:

Thickspike wheatgrass is found at elevations from 4,000-11,000′ where annual precipitation is 8-20″. It is found on dry hillsides, exposed flat ridges, well-drained meadows, along roadsides and on other disturbed sites. It can withstand moderate flooding, but not prolonged inundation or poorly drained soils. It is drought, grazing, fire and cold tolerant but is not shade tolerant. It is found in dry, medium-coarse textured, soils in open areas. It tolerates high pH conditions. Associated species include big sagebrush, rabbitbrush, western wheatgrass, blue grama, globemallow and Sandberg bluegrass.

General Information:

Thickspike wheatgrass is preferred by livestock, elk and deer from mid-spring to early summer. It provides excellent erosion control and promotes water infiltration. It is commonly used in revegetation of oil and gas well sites, pipeline construction areas, roadsides and other sites that will receive little or no maintenance. It forms dense sod under dry conditions, has good seedling vigor and performs well on eroded or low fertility sites.

Name Synonyms: Streambank wheatgrass, Northern wheatgrass

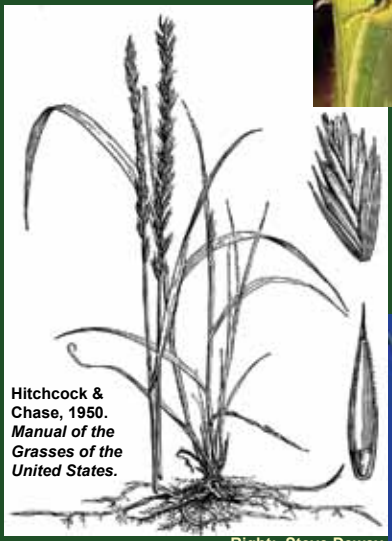
Right, left, and right center: Dr. Matt Lavin, Montana State University

Right: Dr. Lynn Clark & Anna Gardner, Iowa State University

Quackgrass

(Elymus repens)

Above: Weed Science Society of America



Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Right: Steve Dewey, Utah State University, Bugwood.org

Quackgrass
Elymus repens

ELRE4

Description:

Quackgrass is an introduced, cool season, perennial sod-forming grass that aggressively spreads from yellowish-white rhizomes and by seed. It is 1-3′ tall, has erect stems, and flowers June-August. The seedheads are spikes 1½ -7½″ long with one spikelet per node. Spikelets have 3-5 florets, ½-⅝″ long with sharply tipped glumes ¼-⅝″ long. The 1st glume is slightly shorter than the 2nd glume and both are 3-7 nerved and ½ as long as the spikelet. Spikelets are either unawned or have awns up to ⅛″ long. Lemmas may be awn-tipped with awns up to ¼″ long. The rachis of the spikelet is hairless. Leaves are flat, smooth to finely hairy on the upper surface, dark green, 3-12″ long by 2-3½″ wide and often constricted near the leaf tips. Sheaths are often hairy. Ligules are absent and auricles are clasping.

Distribution and Habitat:

Quackgrass is a rapidly invading grass on many agricultural lands, along ditches, and water courses; and is common in semi-wet meadows. It is found at elevations from 4,000-9,000′ on irrigated land or where annual precipitation averages 10-22″. Quackgrass occurs on sandy to clay loam soils and is not salt tolerant. Associated species include Kentucky bluegrass, smooth brome, orchardgrass, sagebrush, and timothy.

General Information:

Quackgrass provides fairly good spring forage, spreads rapidly, and quickly stabilizes moist, erodible soils. It is designated as a noxious weed in the State of Utah, however, and is not recommended for planting. Because of the ability of broken rhizomes segments to grow and produce new plants, it is extremely difficult to control mechanically. The scaly rootstocks contain sugar and triticin, a carbohydrate similar to insulin, valuable for treatment of kidney disorders. A poisonous fungus called smut or ergot that replaces the seeds with black or purple club-shaped bodies is often found in both western wheatgrass and quackgrass. Livestock loss has resulted from ingestion of grasses with ergot from pasture, in hay, or in grain or grain screenings.

Name Synonyms: Couch grass

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Left: Dr. Matt Lavin, Montana State University

Slender Wheatgrass

(Elymus trachycaulus)

Right and Above: Dr. Matt Lavin, Montana St. University

Slender Wheatgrass

Elymus trachycaulus

ELTR7

Description:

Slender wheatgrass is a native, cool season, perennial bunchgrass that grows 1-2½′ tall. It starts growth in mid-spring and seeds mature by August-September. It reproduces from seeds and tillers. Its seedhead is a green to violet-tinged spike, varying from thick and dense to slender. Spikelets overlap or barely overlap and contain 3-7 florets. Glumes and lemmas may or may not have awns, and glumes are nearly as long as the spikelet. Leaf blades are flat to rolled, of medium width and taper to the tips. Lower sheaths are smooth or occasionally pubescent. Leaves are rolled in the bud and ligules are short and collar-shaped. Auricles are small or absent.

Distribution and Habitat:

Slender wheatgrass is common in a number of plant communities. It is found at elevations from 6,000-13,500′ on gentle to steep mountain slopes, valley bottoms, and rolling hills where annual precipitation ≥16″. Slender wheatgrass occurs on most mountain and high mountain ecological sites, but only on a few upland sites. It is moderately drought tolerant, as well as resistant to long wet periods. It usually survives moderately intense fires and recovers rapidly from high intensity fires. It is adapted to deep, well-drained, medium-fine textured soils that are well developed. It is not tolerant of saline or alkaline conditions. Associated species include mountain brome, yarrow, prairie junegrass, aspen, cottonwood, and big sagebrush.

General Information:

Slender wheatgrass provides forage for livestock, elk and deer but preference for it diminishes as it matures. It is considered to be valuable as cover and forage for many small mammals and birds. It is rather sensitive to grazing and may serve as an indicator of trend in ecological condition. It provides excellent erosion control largely because it will quickly establish from seed. It is occasionally used for hay and in irrigated pastures.

Above: Dr. Matt Lavin,
Montana State University

Above: Jose Hernandez @ USDA-NRCS PLANTS Database

Above, right, and below:
Dr. Matt Lavin,
Montana State University

Below: Dr. Roger E. Banner, USU Extension

Annual Wheatgrass

(Eremopyrum triticeum)

Annual Wheatgrass

Eremopyrum triticeum

ERTR13

Description:

Annual wheatgrass is an introduced, cool season, annual grass with stems, growing alone or in small tufts, 5-16″ tall. Stems are erect or bend at a node near the base. It starts growth in late fall or early spring, depending on moisture availability, and flowers in late spring much like the growth habit of cheatgrass. Stems have dense, fine hair at the base of the seedhead. Its seedheads closely resemble small crested wheatgrass seedheads and are compact spikes ≤1″ long by ⅝″ wide. Spikelets are ¼-⅜″ long including awn tips and protrude from the rachis outward. Its glumes are thick, ⅛-¼″ long, compressed from the sides, bag-shaped, and awn-tipped. Lemmas are slightly longer than the glumes, less thick, and awn-tipped. Seedheads break loose at the base of the rachis at maturity with the spike falling to the ground intact. Leaf blades are soft, flat, and ≤⅛″ wide. The sheaths of stem leaves are open about ⅔ their length and smooth to finely hairy. Leaves have small ligules and can have small auricles.

Distribution and Habitat:

Annual wheatgrass occurs in salt desert shrub, sagebrush, and juniper communities at elevations below 5,500′ where annual precipitation is ≤10″. It grows well on desert flats and lake bottoms, depressions, and drainages where runoff accumulates periodically and soils are clayey and saline. Associated species in Utah include mat saltbush, halogeton, cheatgrass, greasewood, Russian thistle, and globemallow among others.

General Information:

Annual wheatgrass is common in low areas of the Colorado Plateau and the Great Basin. It provides nutritious seasonal forage for cattle, sheep, pronghorn, small mammals, and other wildlife (much like cheatgrass), but loses its appeal as it matures. Plant residue may accumulate and become a source of fine fuel and increase the risk of summer fire.

Name Synonyms: Annual crested wheatgrass

Foxtail Barley

(Hordeum jubatum)

Above:
Barry Rice,
Sarracenia.com,
Bugwood.org

Left and below:
Dr. Matt Lavin,
Montana State
University

Above: Dave Powell, USDA Forest Service,
Bugwood.org

Dr. Roger E. Banner,
USU Extension

Left: Steve Dewey, Utah State University,
Bugwood.org

Foxtail Barley

Hordeum jubatum

HOJU

Description:

Foxtail barley is a native, cool season, perennial bunchgrass growing 1-2′ tall. It starts growth in late April and matures June-August. It reproduces from seeds and tillers. The seedhead is a nodding, bristly spike up to 4″ long that readily breaks apart when mature. The seedhead contains 3 spikelets per rachis node and the central spikelet has a single, fertile floret. The outside spikelets are small, empty, and pedicelled. The glumes and lemmas have rough awns up to 2″ long giving it the bristly appearance. Leaves blades are smooth, flat and ⅜″ wide by 5″ long with raised veins on the upper surface. Leaves are rolled in the bud. The lower leaf sheaths are sometimes hairy. Ligules are short, membranous and collar-shaped. Auricles are absent.

Distribution and Habitat:

Foxtail barley occurs at low to mid-elevations, but occasionally in the subalpine zone. It is native on saline and alkaline meadows. It is often found as a dense band of vegetation in disturbed areas where ephemeral water accumulates, such as near stock water, in irrigated fields with poor drainage, borrow-pits, or in reservoir drawdown areas. It is usually found on sites that are moist or flooded in spring where the water table remains in the upper 3′ of the soil profile. It grows on a variety of soil types, but is most abundant on poorly drained salty or alkaline soils, where textures vary from sandy loams to silty clay loams. Associated species include baltic rush, redtop, Kentucky bluegrass, arrowgrass, saltgrass, and Great Basin wildrye.

General Information:

Foxtail barley is highly palatable to cattle, mule deer, and elk, and moderately palatable to sheep from initiation of growth until the seedhead forms. The mature, dry, stiff seedheads break apart at the nodes, forming sharp pointed joints with long sharp awns often causing ″lump jaw″ in cattle and becoming embedded in the fleece of sheep. Control of foxtail requires efficient irrigation management and grazing management that keeps preferred species strongly competitive.

Dan Tenaglia, Missouriplants.com, Bugwood.org

Right:
Dr. Matt Lavin, Montana State University

Below:
John D. Byrd, Mississippi State University, Bugwood.org

Little Barley

(Hordeum pusillum)

Steve Hurst
@ USDA-NRCS PLANTS Database

Right: Dr. Matt Lavin, Montana State University

Little Barley

Hordeum pusillum

HOPU

Description:

Little barley is a native annual grass with loosely tufted, slender, rather rigid, erect, culms growing 4″-24″ tall. Leaf sheaths may be smooth or with soft hairs. Ligules are very short with irregularly toothed margin. Leaf blades are flat, around 4″ long, and <¼″ wide, rough to the touch or slightly rough with stiff hairs, and without auricles. The spike inflorescence is erect, 1″-4″ long, and narrow (<¼″). Spikes are pale green and often partially enclosed at maturity. Spikelets occur in sets of three per rachis node. Central spikelets are attached directly to the disarticulating rachis and lateral spikelets are borne on curved pedicels and are usually sterile. The outermost glumes of the three spikelet sets are awnlike. Glumes are very rough and the lemmas of the central spikelets are smooth to hairy with awns up to ⅓″ long.

Distribution and Habitat:

Little barley is found in arid habitats at low or medium elevations. It often occurs along roadsides, in salt desert shrub, desert shrub, and pinyon juniper plant communities and in alkaline soils. It also grows in open grasslands, pastures, and the borders of marshes. In Utah it is found in Salt Lake, Uintah, Grand, San Juan, Garfield and Washington counties.

General Information:

Little barley has fair forage value for all classes of stock when young. After seed maturity it is seldom utilized.

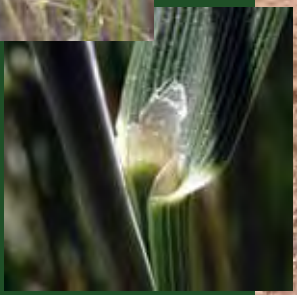
Great Basin Wildrye

(Leymus cinereus)

Dr. Roger E. Banner, USU Extension

Left: Cassondra Skinner @ USDA-NRCS PLANTS Database

Left and Below: Dr. James Bowns, Southern Utah University



Above: ©2000 Larry Blakely

Great Basin Wildrye

Leymus cinereus

LECI4

Description:

Great Basin wildrye is a native, cool season, perennial bunchgrass usually without rhizomes but with thick tillers. The robust bunches are 1-3″ in diameter and 2-5′ tall. It starts growth in early spring and seeds mature by August. It reproduces from seeds and tillers. The seedheads are numerous, erect, dense, compact and awnless spikes up to 10″ long containing 2-4 spikelets at each rachis joint. Spikelets contain 3-6 florets and glumes are needle-like. Leaf blades are course, mostly flat and up to ¾″ wide by 1½′ long. Leaf sheaths are smooth and leaves are rolled in the bud. Ligules are membranous, collar shaped, and up to ¼″ long. Clasping auricles are prominent.

Distribution and Habitat:

Great Basin wildrye grows on riverbanks, on floodplains, in ravines, on moist or dry slopes, and on plains at elevations from 4,500-10,000′. It is adapted to areas with 15-25″ of annual precipitation and is usually found on sites where extra moisture is available, such as valleys, ephemeral ponds, swales, and playas. It is quite fire tolerant and recovers well following fire, especially if associated shrubs have been killed. It is adapted to a wide range of soils from clayey and silty soils to coarse textured, gravelly, and stony soils. It does well in moderately saline soils. Associated species include big sagebrush, western wheatgrass, and bitterbrush.

General Information:

Great Basin wildrye is intolerant of heavy grazing as its growing points are 4-6″ above the soil. With appropriate management, it provides abundant forage during the early spring months, particularly for cattle, elk, and deer. It is less preferred in summer, but is especially useful for winter forage for cattle and elk due to its height. It also provides habitat and food for birds and small mammals. It is excellent for soil erosion control and stabilization and can be a valuable restoration species wherever moisture is adequate. It can be difficult to establish due to low seed viability.

Name Synonyms: Basin wildrye, Giant wildrye

Salina Wildrye

(Leymus salinus)

All Photos: Dr. Roger E. Banner, USU Extension

Salina Wildrye

Leymus salinus

LESA

Description:

Salina wildrye is a native, cool season, perennial, erect bunchgrass, with short rhizomes and numerous slender seedstalks growing 1½-3′ tall. It reproduces primarily by seed. It begins growth in early spring and flowers April-June. Its seedheads are slender, erect spikes, 2-4½″ long with mostly one spikelet per node that are solitary to slightly overlapping, and that contain 5-9 florets. Its glumes are needlelike, tapering to awn tips, ⅛-¼″ long. The lemmas are smooth and awnless to awn-tipped. Its leaves are mostly basal. Leaf blades are rolled, firm, rough or rarely hairy at the base, and 4-6″ long. The sheaths are rough and ligules are short and membranous. Auricles may be present.

Distribution and Habitat:

Salina wildrye is found mainly in the central Utah uplands. It occurs on upland ecological sites and on a few semi-desert and mountain sites in Carbon and Emery Counties, and to a lesser extent, in counties to the southwest and southeast of these two counties. It is adapted to areas from 5,000-7,500′ in elevation where average annual precipitation is 8-16″. It is found mostly on fine textured soils of shale parent material. Soils where it grows vary from shallow to deep and from loams to silty clay loam, often with coarse fragments-cobble, gravel, and stones. It is common on slopes in canyons. Associated species include big sagebrush, shadscale, winterfat, phlox, four-wing saltbush, galleta, pinyon, and juniper.

General Information:

Salina wildrye is fair to poor forage for sheep and deer, being most useful during the early spring. Cattle and elk show higher preference for it. It is used to a limited extent by birds and small mammals. It provides moderate erosion control in pure stands because of spacing and its bunchgrass character. The foliage is tough to the touch. Salina wildrye is quite resistant to grazing.

Name Synonyms: Bullgrass, Saline wildrye

Below: Dave Powell, USDA Forest Service, Bugwood.org

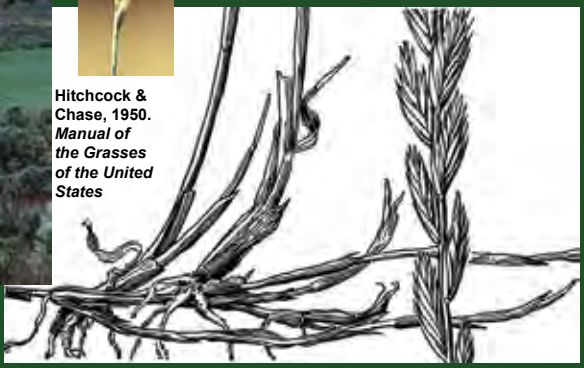
Left and below: Dr. Matt Lavin, Montana State Universith

Western Wheatgrass

(Pascopyrum smithii)

Right: © Keir Morse, www.keirosity.com

Above: Dr. James Bowns, Southern Utah University



Hitchcock & Chase, 1950. *Manual of the Grasses of the United States*

Western Wheatgrass

Pascopyrum smithii

PASM

Description:

Western wheatgrass is a native, cool season, perennial, erect, rather coarse grass, 1-2½′ tall, with numerous rhizomes. It starts growth in early spring. In the absence of summer moisture, it is dormant, but begins growth in the fall if soil moisture is adequate. It reproduces from seeds and rhizomes. Its seedhead is a dense, narrow spike, 2-6″ long with spikelets overlapping and ⅜-¾″ long, containing 6-10 florets. The seedhead has 1 or 2 spikelets per rachis node with smooth, rigid, linear-lancelike glumes gradually tapering from the base into short awns. The lemmas are mostly hairless and awn-tipped. Leaf blades are hairless with a white to bluish waxy coat; flat, but rolled when dry; ⅛-¼″ wide; 4-10″ long; rather stiff; pointed at the tips and ridged and rough on upper surface. Leaves are rolled in the bud. Ligules are very short, membranous and collar-like. Auricles are conspicuous and clasp the stem.

Distribution and Habitat:

Western wheatgrass occurs on semidesert sites up to mountain sites and a few high mountain sites. It is found at elevations from 4,000-7,000′ on dry, open areas; in salt desert; sagebrush; mountain brush and pinyon-juniper communities. It occurs on many soil types from sands to clays that are deep to shallow. It is adapted to various soil moisture conditions and is moderately tolerant of alkalinity and salinity. Associated species include sagebrushes, sandberg bluegrass and bluebunch wheatgrass.

General Information:

Western wheatgrass is highly preferred by livestock, elk, deer and pronghorn when immature. It tolerates heavy grazing but produces more forage with moderate use. The seeds provide food for birds and small mammals. It provides good erosion control due to its extensive fibrous roots and rhizomes.

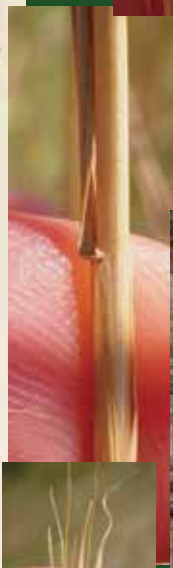
Russian Wildrye

(Psathyrostachys juncea)

Right: Dr. Matt Lavin, Montana State University

Left: © S.L. Hatch & J.E. Dawson

Right: Dr. Roger E. Banner, USU Extension



Right and Below: Dr. Matt Lavin, Montana State University

Right: Dr. Roger E. Banner, USU Extension

Russian Wildrye

Psathyrostachys juncea

PSJU3

Description:

Russian wildrye is an introduced, cool season, perennial, densely tufted bunchgrass 16-44″ tall. It begins growth in early spring and flowers April-June. It has stems that are erect or decumbent at the base. The seedhead is a spike 1-6″ long with 3 spikelets per node that break off both above and below the glumes and are strongly overlapping. The glumes are ≤⅜″ long, rough or hairy, and pointed or awn-tipped. Lemmas are longer than the glumes, rough to densely hairy, round-backed, and sharply pointed to awn-tipped. Leaves are predominantly basal. Leaf blades are flat to boat-shaped, ≤¼″ wide with short ligules. Sheaths are smooth with well-developed auricles.

Distribution and Habitat:

Russian wildrye has been planted throughout Utah in salt desert shrub, sagebrush, pinyon-juniper, mountain brush, aspen, and ponderosa pine communities at elevations from 4,000-9,300′ where annual precipitation is ≥8″. It is salt and drought tolerant and is adapted to shallow to deep soils ranging in texture from sandy loam to clay loam. Associated species depends on the community where Russian wildrye is planted and may include saltbushes, greasewood, big sagebrush, rubber rabbitbrush, crested wheatgrass, Indian ricegrass, needle-and-thread, winterfat, bitterbrush, and Sandberg bluegrass, among others.

General Information:

Russian wildrye provides green forage for livestock and elk, deer, and small mammals beginning in spring and continuing through July. Grazing animals show high preference for its basal leaves. It is grazing tolerant and a common component of revegetation efforts where harsh conditions exist and erosion control is desired. It is very hardy but not shade tolerant. It has low seedling vigor and does not produce much seed.

Right: Dave PowerII, USDA Forest Service, Bugwood.org

Right: © 2011 Steve Matson

Dr. Roger E. Banner, USU Extension

Below and middle right: Dr. Matt Lavin, Montana State University

Dr. Roger E. Banner, USU Extension

Above: Richard J. Shaw, Intermountain Herbarium, Utah State University

Bluebunch Wheatgrass

(Pseudoroegneria spicata)

Bluebunch Wheatgrass

Pseudoroegneria spicata

PSSP6

Description:

Bluebunch wheatgrass is a native, cool season perennial bunchgrass, 1-2 ½ ′ tall. It may have short rhizomes and begins growth in April, staying green well into the summer. Regrowth occurs following fall rains. It reproduces from seeds, tillers, and rarely by rhizomes. The seedhead is a slender spike up to 6″ long. Spikelets overlap slightly if at all and contain 4-8 florets. Glumes have straight sides and taper to a point. Lemmas generally have awns ⅜- ¾″ long that are divergent at maturity but it can also be awnless. It has numerous leaves, rolled in bud, with blades flat or loosely rolled and smooth or hairy on top. Leaves are commonly <⅛″ wide and taper to the tip. Sheaths are smooth and ligules are short, collar shaped, and membranous with small auricles.

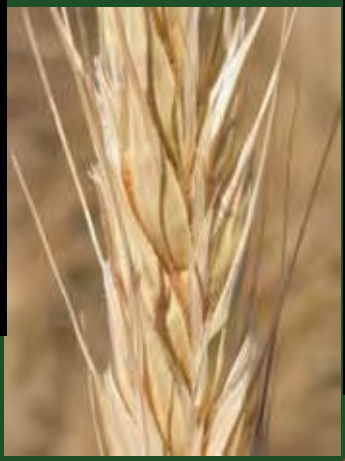
Distribution and Habitat:

Bluebunch wheatgrass is adapted to elevations between 4,000-9,000′. It is found on all aspects on mountain slopes, foothills, benches, basins, or alluvial fans, and in valley bottoms. It is one of the more widely distributed and useful grasses in Utah. It is adapted to a wide range of soils, but is found mostly in well-drained, medium to coarse textured soils which vary in depth from shallow to very deep. It will tolerate moist soils, but is most abundant on dry soils. Associated species include big sagebrush, Nevada bluegrass, Idaho fescue, Sandberg bluegrass, and rabbitbrush.

General Information:

Bluebunch wheatgrass is considered excellent forage for cattle and horses and good forage for sheep, elk, and deer. It cures well and makes good standing winter forage. It is not tolerant of season-long, continuous grazing and does not persist under such use. It can withstand early heavy use if it is grazed in a rotational system that allows it to regrow. An abundance of bluebunch wheatgrass is an indicator of well-managed rangelands.

Right and left: Joseph M. DiTomaso, University of California-Davis, Bugwood.or



Left and below: Dr. Matt Lavin, Montana State University

Below: Dr. Roger E. Banner, USU Extension

Cereal Rye

(Secale cereale)

Left: Howard F. Shwartz, Colorado State University, Bugwood.org

Cereal Rye
Secale cereale

SECE

Description:

Cereal rye is an introduced, erect annual or biennial grass, growing 2′-6′ tall, sometimes blue in color. Leaf blades are flat, rough above, and up to ½″ wide. Leaf sheaths are open, and may be hairy or smooth. Ligule is membranous, short and teethed. Auricles are well-developed. The inflorescence is a dense spike, 2-6 inches long, slightly flattened, and often nodding when mature. Each large spike consists of many 2-flowered spikelets with long awns. Glumes have rough keels which terminate into awns. Lemmas are smooth, long and narrow, and tapering into an awn. The seed is relatively large, typically around ½″ long.

Distribution and Habitat:

Cereal rye is found in and around grain fields, roadsides, ditchbanks, and other areas where soil is disturbed. It thrives on infertile and marginal areas where other grains will not grow. It is well adapted to many environments, able to thrive in areas with as little as 8″ precipitation, and on a variety of soil types, including sand.

General Information:

Cereal rye was introduced as a cereal grain and forage crop and, in Canada, it is cultivated for whiskey. It readily escaped cultivation and became weedy, often invading the field of other cereal grain crops such as wheat. It is susceptible to ergot, which is poisonous to grazing animals. There is evidence of cereal rye dating to 6,000 B.C. in Turkey. Cereal rye has been designated a noxious weed in the state of Washington.

Left, above, & below: Steve Dewey, Utah State University, Bugwood.org

Left: Steve Hurst @ USDA-NRCS PLANTS Database

Left: © 2008 Keir Morse, www.keiriosity.com

Right: © 2011 Steve Matson

Medusahead

(Taeniatherum caput-medusae)

Medusahead

Taeniatherum caput-medusae

TACA8

Description:

Medusahead is an introduced, cool season annual grass, with tufted culms ascending from a decumbent base. Tillers are ½′-2′ tall with very few leaves. The leaf sheaths are smooth. Leaf blades are rolled inward from the sometimes ciliate margins, <⅛″ wide, and smooth or with fine, short hairs and slender auricles. The ligule is very short and inconspicuous. The inflorescence is a dense, short spike <1½″ long (excluding awns) that is nearly as wide as it is long. Spikelets occur in twos with one perfect floret and the second much reduced and likely sometimes nonfunctional. The glumes are long but shorter than the awns of the lemmas. The lemmas are about half as long as the glumes, narrow lance-shaped, and prolonged into a long, flat, spreading awn 1″-3″ long, stiff, and minutely barbed. They become twisted as the seed matures, in a manner reminiscent of the snake-covered head of the mythic Medusa. The inflorescence does not break apart completely once the seeds mature, unlike squirreltail or foxtail barley. Each spikelet produces an average of 7 seeds.

Distribution and Habitat:

Medusahead grows in areas that have relatively wet, mild to cold winters and hot, dry summers (annual precipitation of 10″-40″). Infestations primarily occur in former sagebrush-grass or bunchgrass communities. It often dominates disturbed areas on clay soils with high moisture-holding capacities and slow percolation rates. It is a fire-adapted species producing the hazard for wildfires. It often occurs with Russian thistle, tumblemustard and cheatgrass.

General Information:

Medusahead is a very competitive grass, completely displacing other desirable grass species. It is spread by seed which is commonly carried by wind, animals, clothing, and vehicles. Medusahead has caused serious management concern because of its rapid migration, vigorous competitive nature, and low forage value.

Name Synonyms: Medusahead rye

Right: Jose Hernandez @ USDA-NRCS PLANTS Database

Below: Dr. Lynn Clark & Anna Gardner, Iowa State University

Intermediate Wheatgrass

(Thinopyrum intermedium)

RIght: Dr. Matt Lavin, Montana State University

Below: © 2004 Steve Matson

Right: Dr. Roger E. Banner, USU Extension

Intermediate Wheatgrass

Thinopyrum intermedium

THIN6

Description:

Intermediate wheatgrass is an introduced, cool season, perennial sod-forming grass with abundant rhizomes, growing 2½-4′ tall. It starts growth in mid-spring and matures from June-August. It may be bluish, blue-green or dark green in color. Growth is minimal during summer, even with adequate moisture. It reproduces from seeds, tillers, and rhizomes. Its seedheads are erect spikes, 4-8″ long with spikelets slightly overlapping, set close to the rachis, and containing 4-8 florets. Its glumes are slightly shorter than the lowest floret when mature and blunt. Its lemmas are awnless. Leaves are smooth or somewhat pubescent on blades and sheaths and leaf blades are flat, veined, ≤⅜″ wide and 2-6″ long. Leaves are rolled in the bud. Ligules are short and membranous, and auricles are well developed and clasping.

Distribution and Habitat:

Intermediate wheatgrass is a productive grass on upland and mountain sites. It is seeded in both dryland and irrigated pastures, as well as in hay meadows. It is adapted to areas receiving ≥14″ of annual precipitation. It grows at elevations from 4,000-10,000′ and is adapted to well-drained, loamy to fine textured soils that are not more than mildly alkaline. Associated species include crested wheatgrass, orchardgrass, smooth brome and western wheatgrass.

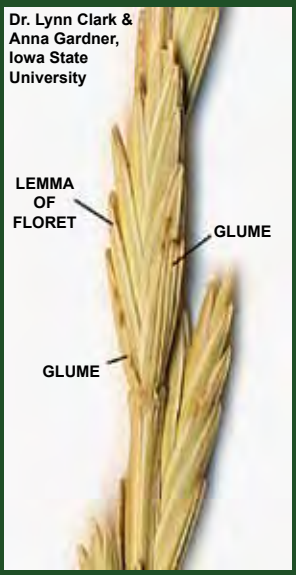
General Information:

Intermediate wheatgrass remains green longer than most introduced species and is relatively drought tolerant. It provides fair to excellent forage for all classes of livestock and wildlife depending on its phenological stage. It provides excellent cover for upland birds. It responds well to nitrogen fertilization and produces good to excellent quality hay if cut early. Intermediate wheatgrass provides excellent erosion control because of its high seedling vigor and rapid establishment characteristics as well as its dense, rhizomatous root system.

Tall Wheatgrass

(Thinopyrum ponticum)

Above, Top Right, and Right:
Dr. Roger E. Banner, USU Extension



Tall Wheatgrass

Thinopyrum ponticum

THPO7

Description:

Tall wheatgrass is an introduced, cool season, perennial bunchgrass 20-80″ tall and clumps may reach 6′ wide. It flowers in late July and ripens seed in September. The seedhead is an erect spike 3-16″ long, with solitary spikelets at each node of the rachis ½-1⅓″ long. Spikelets have 5-18 florets that may be smooth or hairy. The glumes are thickened and hardened, oblong, conspicuously 5-7 nerved and blunt or occasionally sharp-tipped. Lemmas are thickened and hardened, oblong to lance-shaped, 5-nerved and typically smooth. Leaf blades are flat to inrolled and typically rough or hairy. Ligules are short and hairlike. Sheaths are hairy on the lower margins.

Distribution and Habitat:

Tall wheatgrass is highly tolerant of saline and alkaline soils. It is adapted to irrigated or subirrigated areas and can survive weeks of flooding in the spring. It has been established on soils with pH as high as 10.1 and will grow at elevations of 500-6,000′. It will grow and persist in areas receiving <10″ and >16″ of precipitation annually. It is winter hardy with good spring recovery. Associated species include foxtail barley, Great Basin wildrye, Russian wildrye, sueda, and greasewood.

General Information:

Tall wheatgrass has been used extensively for seeding saline and alkaline sites in the Intermountain Region. It is useful for both hay and pasture. When not grazed or mowed, it will remain erect until after the following year′s growth reaches maturity. It affords excellent cover for birds and other wildlife and is sometimes used by ranchers for protection during calving or lambing. The period of most rapid growth is in June, and hay is cut in the flower stage in late July. It produces high yields of hay, which is suitable for sheep and cattle if cut before or shortly after heading. It does not exhibit temperature dormancy like many native wheatgrasses, and makes good recovery after cutting.

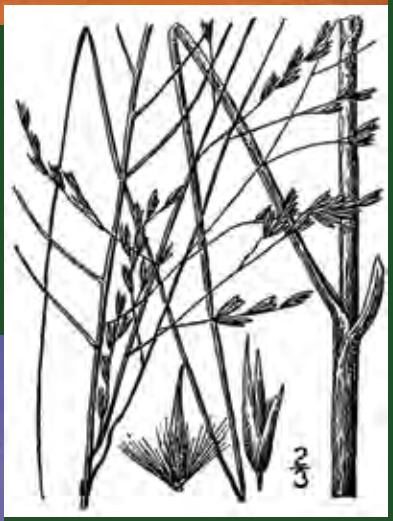
Right: Dr. James Bowns, Southern Utah University

Left & inset above: © S.L. Hatch & J. E. Dawson, used by permission: http://botany.csdl.tamu.edu/FLORA/

Giant Sandreed

(Calamovilfa gigantea)

Above: Jose Hernandez @ USDA-NRCS PLANTS Database



Line Drawing: Britton & Brown, 1913. *Illustrated Flora of the United States and Canada, Vol. 1*

Left: Dr. James Bowns, Southern Utah University

Giant Sandreed

Calamovilfa gigantea

CAGI3

Description:

Giant sandreed is a native, warm-season, robust, rhizomatous perennial, growing 4′-8′ tall. The culms are erect, thick and solid or hollow near the base. The leaf sheath is mostly basal, overlapping, smooth, and with a small ring of hairs for a ligule. The leaf blade is ¼″ - ½″ wide at the base and rolls inward tapering to a long tip. The leaf blade is smooth or sometimes pubescent in the vicinity of the ligule. The panicle inflorescence is open and 1′-2′ long. Panicle branches are up to 2′ long, mostly solitary at each node and rather distantly spaced, rigidly upright to widely spreading and naked at the base. Spikelets are on short pedicels, are narrowly lance-shaped, and about ⅓″ long. The glumes are usually firm, unequal, 1-nerved, and pointed at the tip. The second glume is usually shorter than or slightly longer than the lemma. The lemma is narrowly lance-shaped, 1-nerved, pointed, and hairy on the back above the base. The extension at the base of the lemma has a dense tuft of silky hairs.

Distribution and Habitat:

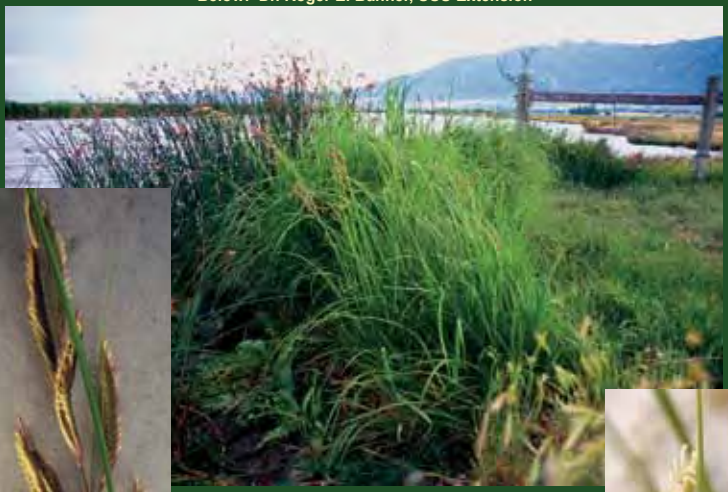
Giant sandreed occurs on sand dunes, prairies, river banks, and flood plains in sandy soil. In Utah, it is found in Tooele, San Juan, Kane and Washington counties below 5,900′. It occurs in big sagebrush, pinyon-juniper, and ponderosa pine communities.

General Information:

Giant sandreed is valuable for controlling erosion on deep sands subject to severe wind erosion. It is very coarse and it provides limited use as winter forage for livestock.

Name Synonyms: Big sandreed, Big sandreedgrass

Below: Dr. Roger E. Banner, USU Extension



Alkali Cordgrass

(Spartina gracilis)

Above and Below: Dr. Roger E. Banner, USU Extension

Above: © 2005 Steve Matson

Left: Dr. Roger E. Banner, USU Extension

Alkali Cordgrass

Spartina gracilis

SPGR

Description:

Alkali cordgrass is a native, perennial, warm season, strongly rhizomatous grass. It is robust, with erect culms ½-3′ tall. Reproduction is by seed and by rhizomes. It starts growth in late-spring and begins flowering in July. Seedheads are panicles 2-10″ long with 2-10 spikelike branches ⅝-2⅜″ long with spikelets bearing to the base and appressed to the main axis. Spikelets are essentially flat and strongly overlapping, 10-30 per branch and 1-flowered. Leaf blades are rather narrow (<¼″ wide), long (≤12″), flat or with edges rolled upward and in on drying, rather rough and coarse, and gradually tapered to more or less finely pointed tips. The leaf sheaths are smooth and ligules are present and composed of rings of short hairs.

Distribution and Habitat:

Alkali cordgrass is found at elevations from 4,000-6,500′ in fine to medium textured, moist to wet, often saline soils along waterways, in meadows and in hanging gardens in most counties throughout Utah. It is found where annual precipitation is from 12-30″ but is not particularly sensitive to precipitation zones since it grows along watercourses, in wetlands or in wet meadows. It withstands periodic flooding and soil deposition. Associated species in Utah include Nebraska sedge, redtop, hardstem bulrush, common reed, tall wheatgrass, foxtail barley, inland saltgrass, cattail and reed canarygrass, among others.

General Information:

Alkali cordgrass is an excellent grass for erosion control along rivers and streams. Its foliage is coarse but readily grazed by cattle and horses. It was a major constituent to native meadow hay historically but does not withstand close harvest and has been replaced with tall wheatgrass in many meadow areas. It regrows slowly. Alkali cordgrass is fire tolerant and dense stands may have burned periodically.

Right and left:
© 2009
Steve Matson

Alkali Sacaton

(Sporobolus airodes)

Left: Dr. Matt Lavin,
Montana State University

Above: Dr. Roger E. Banner, USU Extension

Alkali Sacaton

Sporobolus airoides

SPAI

Description:

Alkali sacaton is a native, perennial, warm season bunchgrass. It is robust, forming large tough clumps 1½-3′ tall, with coarse, glossy roots and often with decumbent stems at the base that appear to be solid. Reproduction is by seed and by tillers. It starts growth in mid-spring and flowers from June until frost. Seedheads are spreading, pyramid-shaped, panicles 4-16″ long; spikelets are very small, containing one floret (seed) that is black and that shatters free of the lemma and palea. Leaf blades are long, drooping, and stiff, especially when dry, and are tapered to a long, often rolled point. The leaf midrib is prominent and the sheath is often fringed on the margins and hairy inside and near margin outside of collar. The ligules are fringes of short hairs. Auricles are absent.

Distribution and Habitat:

Alkali sacaton is found at elevations from 4,200-6,200′ in the lowlands and floodplains in dry areas on alkaline or saline soils that are generally sandy or gravelly sediments. It flourishes in areas with 12-18″ of annual precipitation or in drier areas with the equivalent in growing season run-in water. It withstands flooding and soil deposition, and may occur in nearly pure stands. Associated species include western wheatgrass, squirreltail, rabbitbrush, saltbushes, saltgrass, pickleweed, seepweed and greasewood.

General Information:

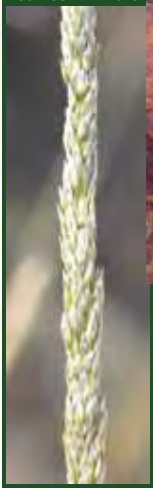
Alkali sacaton is an excellent grass for erosion control. It provides poor forage for sheep and wildlife and fair to good forage for cattle and horses while actively growing. It is a poor forage source for all animals when dry. It makes fair hay when cut during or before flowering. Dense stands may be burned periodically to increase forage value but it is susceptible to frequent burning (at <3-yr intervals).

Above: Tracey Slotta @ USDA-NRCS PLANTS Database

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Above and Right: Dr. Roger E. Banner, USU Extension

Below: © 2005 James M. Andre



Left: © S.L. Hatch & J.E. Dawson

Spike Dropseed

(Sporobolus contract

Spike Dropseed

Sporobolus contractus

SPCO4

Description:

Spike dropseed is a native, warm season, perennial grass with solitary or densely tufted, erect stems growing up to 35″ tall. It begins growth with summer moisture and matures in October. It reproduces by seed and tillers. Its seedhead is a spikelike panicle 6-14″ long and <½″ wide. The seedhead typically remains partly within the sheath. Spikelets contain 1 floret and are small. The glumes are rough, thin, sharp and unequal in length. The 1st glume is half as long as the 2nd glume which is slightly shorter to barely longer than the lemma. Lemmas are ≤⅛″. Leaf blades are smooth, flat or V-shaped on drying, ≤⅓″ wide and around 14″ long. Ligules are a dense ring of very short hairs. Leaf sheaths are hairy along the margin.

Distribution and Habitat:

Spike dropseed occurs primarily in Southern Utah in desert shrub-grass and pinyon-juniper communities below 6,400′ elevation where annual precipitation is 7-12″ annually and a substantial portion is received as summer rain. It is adapted to dry, mostly sandy soils that are periodically moist. It is somewhat tolerant of salinity. Associated species include Indian ricegrass, giant dropseed, sand dropseed, mesa dropseed, Mormon tea, indigobush, purple sage, rough mulesears, blackbrush, sand sagebrush, pinyon, and juniper.

General Information:

Spike dropseed is effective at dune stabilization in low rainfall areas. It provides forage for cattle and horses on desert areas primarily used as winter range. Its mature foliage is rather coarse.

Below: Sheri Hagwood @ USDA-NRCS PLANTS Database

Sand Dropseed

(Sporobolus cryptandrus)

Dr. Roger E. Banner, USU Extension

Top three, Right center, and Left photos:
Dr. Matt Lavin, Montana State University

Sand Dropseed

Sporobolus cryptandrus

SPCR

Description:

Sand dropseed is a native, warm season, short-lived, perennial bunchgrass, growing in small tufts 1-2½′ tall. It is erect to spreading or decumbent at the base. It starts growth in the spring, and seeds mature June-August. It produces an abundance of seed and reproduces readily from seeds and tillers. Its seedheads are open panicles, ≤10″ long, often reddish or lead-colored at flowering and often partly or entirely enclosed in the uppermost leaf sheath. Spikelets are very small, contain 1 floret, and the seed shatters from lemma and palea, hence the name ″dropseed.″ Leaf blades are smooth, 4-8″ long, flat, and moderately wide at the base but rolled toward the pointed tips. They become frayed or ″flagged″ at maturity by the wind. Sheaths are fringed on the margins and otherwise smooth. It has a conspicuous tuft of stiff, white hairs around the collar and ligules are comprised of a fringe of short hairs. Auricles are absent.

Distribution and Habitat:

Sand dropseed occurs on many lower elevation areas. It occurs on several upland and semi-desert sites, where precipitation is from 5-15″ annually. It commonly grows on sandy soils but is adapted to medium textured soils as well. It is also found, but to a lesser extent, on gravelly, stony, and cobbly sandy loams. Sand dropseed is not tolerant of wet soils. Associated species include big sagebrush, black sagebrush, shadscale, fourwinged saltbush, winterfat, rabbitbrushes, galleta, western wheatgrass, Indian ricegrass, and sand sagebrush.

General Information:

Being a warm-season grass, sand dropseed is better suited for summer grazing than for spring forage. It provides fair to good forage for cattle, sheep and horses. It is also used to some extent by antelope, deer, small mammals and birds. The forage value declines rapidly with maturity. Sand dropseed tolerates grazing well but is susceptible to severe drought. Sand dropseed is an important grass for wind erosion control on sandy sites.

Left:
Intermountain Herbarium, Utah State University

Line Drawing: Hitchcock & Chase, 1950. *Manual of the Grasses of the United States.*

Mesa Dropseed

(Sporobolus flexuosus)

Left and Below:
Dr. Roger E. Banner, USU Extension

Left: Steve Hurst @ USDA-NRCS PLANTS Database

Mesa Dropseed

Sporobolus flexuosus

SPFL2

Description:

Mesa dropseed is a native, warm season, short-lived (4-5 years) perennial bunchgrass which is 12-40″ tall, coarse-rooted, and can sometimes grow as an annual. It reproduces from seeds that can be wind blown. It develops quickly during periods of adequate moisture, especially when soil water becomes available below 4″, and night temperatures are warm. New stems originate from basal buds below ground level, or occasionally from an axillary bud at an elevated node. Growth begins in mid-spring and flowering starts 4-5 days after seedhead elongation begins. Mesa dropseed blooms from September to November. Its seedhead is an open, oblong panicle 4-12″ long. It has one floret producing one small seed per spikelet. The seeds have a hard seed coat that must be punctured before good germination can occur. Its leaf blades are flat or folded becoming V-shaped toward the long-tapered tips and are <⅛″ wide by 8″ long. Leaf sheaths are densely long-hairy at the top and often have a fringe of hair along the margins. The ligules are a dense ring of short hairs.

Distribution and Habitat:

Mesa dropseed occurs in desert shrub, sagebrush and pinyon-juniper communities in Southern Utah. It is found mainly in dry areas with mean annual precipitation of ≤12″ and it can survive in areas with as little as 6-7″. It greens up during the spring and again in late fall if moisture is adequate. It occurs on well-drained sand, sandy loam, loamy sand and gravelly soils. Associated species include mormon tea, frosted mint, Indian ricegrass, soaptree yucca, spike dropseed, fourwing saltbush, sand sagebrush, indigo-bush, rough mulesears, and blackbrush.

General Information:

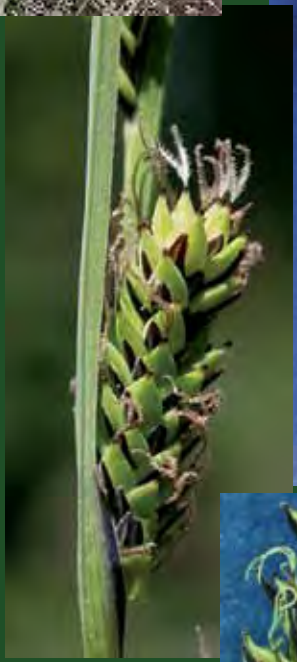
Mesa dropseed provides valuable forage for cattle throughout the year. Use is heaviest during the late spring and summer when the plant is actively growing and foliage is highly digestible. Black-tailed jackrabbits and pronghorns also forage on it. It is valuable for stabilizing loose, sandy soils.

Below: © 2010 Keir Morse, www.keiriosity.com

Below: Hurd, Shaw, Mastroguiseppe, & Goodrich. 1998. Field Guide to Intermountain Sedges. Gen. Tech. Ref. RMS-GTR-10

Water Sedge

(Carex aquatilis)



Left & Above: © 2010 Keir Morse, www.keiriosity.com

Right: © 2003 Steve Matson

Water Sedge
Carex aquatilis

CAAQ

Description:

Water sedge is a native, cool season, water-obligate, perennial sedge that grows 6-38″ tall. It reproduces primarily from thick, long rhizomes that are coarse, scaly, and brown. Sexual reproduction and tillering rates are low. It begins growth in late spring and flowers May-August, depending on elevation. Its seedhead has 1-3 terminal male spikes and 2-3 lateral female spikes. Female spikes have reddish-brown to purplish black scales with a paler midrib that is often white-tipped. It has 8-15, erect, long-tapering, flat, light green to bluish-green leaves as long as the stems. Sheaths are membranous and white when young and reddish or brownish when mature. Stems are erect, slender, sharply angled, and reddish tinged at the base.

Distribution and Habitat:

The presence of water sedge indicates the presence of water for most if not all of the year. It is found in riparian or wetland habitats at elevations from 8,000-11,000′ with shallow water, such as in swamps or wet meadows, or immediately adjacent to deeper water in ponds or along lake shores. Where water sedge does occur it is usually the dominant or codominant species. Water sedge is a strong competitor and invades disturbed sites. It is adapted to sandy loam to clay textured mineral and organic soils. Associated species include willows, other sedges, tufted hairgrass, alpine timothy and baltic rush.

General Information:

Water sedge is grazed by large ungulates, but is not a major component of their diet. It shows good preference by horses, cattle and sheep and good to fair preference by wildlife depending on the season. The seeds are utilized by waterfowl and it is an important plant for soil stabilization near streambanks. Overhanging sod formed by water sedge on streambanks provides shade and cover for fish.

Left and Above: Hurd, Shaw, Mastrogiuseppe, Smithman, and Goodrich. 1998. *Field Guide to Intermountain Sedges*. Gen. Tech Ref. RMS-GTR-10

Elk Sedge

(Carex geyeri)

Right and Below: Dave Powell, USDA Forest Service, Bugwood.org

Above: Dr. Matt Lavin, Montana State University

Elk Sedge
Carex geyeri

CAGE2

Description:

Elk sedge is a native, cool season, more or less bunch-like perennial sedge with rhizomes and growing 6-12″ tall. It reproduces primarily by rhizomes. It flowers June-August. Stems are triangular and pithy. Leaves are basal and stem-based, 3-ranked, erect, thick and rough on the edges. Lower leaves are often reduced to bladeless sheaths. Blades are narrow, ≤⅛″ wide. The seedheads are born at the end of short stems and are solitary, erect spikes with the staminate part (≤⅛″ long) above the pistillate part with 1-2 perigynia. Fruits (achenes) are triangular.

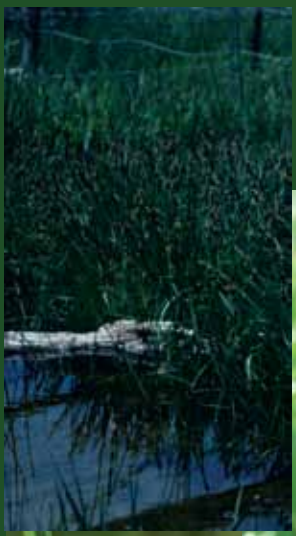
Distribution and Habitat:

Elk sedge is a widely distributed dryland sedge occurring on a variety of ecological sites at elevations from 6,000-11,000′ where average annual precipitation is 12-20″. It grows well in well-drained sandy, gravely or rocky soils. It is often prominent on exposed hillsides, but it also grows well in open grasslands and open Ponderosa and lodgepole pine stands as well as more densely forested areas. Associated species in Utah include pinegrass, aspen, Ponderosa pine, lodgepole pine, mountain brush species and Douglas fir among others.

General Information:

Wild and domestic animal preference for elk sedge varies seasonally but is generally low. Early growth is more preferred but it becomes less preferred as plants mature. It withstands grazing exceptionally well and is very drought tolerant.

Name Synonyms: Geyer sedge, Geyer′s sedge



Left: Mary Barkworth, Intermountain Herbarium, Utah State University

Below: © 2007 Trent M. Draper

© 2003 Steve Matson

Below: Hurd, Shaw, Mastogiuseppe, Smithman, Goodrich. 1998. *Field Guide to Intermountain Sedges*. Gen Tech Ref. RMS-GTR-10

Above: © 2010 James M. Andre

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Nebraska Sedge

(Carex nebrascensis)

Nebraska Sedge

Carex nebrascensis

CANE2

Description:

Nebraska sedge is a native, cool season, deep-rooted perennial sedge that is 8-47″ tall and loosely to densely tufted with numerous rhizomes. Its rhizomes are stout, brown or straw-colored, and scaly. Its stems are triangular and solid. It reproduces from seed and rhizomes. It has terminal spikes that are male and relatively narrow and lateral spikes that are female, ⅓-1½″ long, with purple to brownish-black scales. There is a leafy bract below the lowest spike that is ≥ the length of the inflorescence. Leaves are alternate and may be shorter or longer than the stem which is up to ½″ wide. Leaves are smooth or sometimes roughened along the edges and often bluish colored with yellow-brown sheaths.

Distribution and Habitat:

Nebraska sedge is effective in improving water infiltration. It occurs on clay loam soils in riparian areas, on floodplains with adequate moisture, and in wetlands. It is moderately tolerant of alkaline conditions. Associated species are water tolerant and include Baltic rush, tufted hairgrass, timothy, willows, and other native sedges.

General Information:

Nebraska sedge is a valuable forage species that is preferred by cattle, horses and elk, and less preferred by sheep and mule deer. It is a common riparian species and an important indicator of the effects of grazing in riparian areas. Although it is grazing tolerant; heavy, repeated summer-fall grazing, or season-long grazing, often results in Nebraska sedge being replaced by more grazing resistant, shallow-rooted species such as Kentucky bluegrass and redtop. Nebraska sedge forms a dense, deep root system which provides excellent resistance to soil compaction and erosion. It stabilizes overhanging banks along streams, providing fish habitat. Native Americans used the fibers for mats and bedding and used the rootstocks for food.

Right: Intermountain Herbarium, Utah State University

Below: Utah BLM @ USDA-NRCS PLANTS Database

Beaked Sedge

(Carex rostrata)

Below: Steve Hurst @ USDA-NRCS PLANTS Database

Right: Robert H. Mohlenbrock @ USDA-NRCS PLANTS Database

Beaked Sedge

Carex rostrata

CARO6

Description:

Beaked sedge is a native, cool season, sod-forming perennial sedge. Its stems may be solitary or grouped and 12-48″ tall. It reproduces by seed and stout, whitish rhizomes 1-9′ long. It flowers from June-July. The spike seedhead is yellowish-green in color, turning to reddish-purple. It has 2-4 terminal, male spikes which are ⅜-3″ long and ≤⅛″ wide. There are 2-5 female spikes that are larger, cylindrical, and oblong, ¾-3 ½″ long and narrow, lower on the seedhead. The scale on the female spikes is 3-nerved with somewhat translucent margins. The bract enclosing the seed is oval to egg-shaped. It is bladdery, shiny and yellowish-green to straw-colored or reddish at maturity. The beak of the seed has two short teeth. It has 4-10 flat, waxy leaves ≤½″ wide and 8-24″ long. Basal leaves have horizontal striations and are about as long as the stems. Its stems are bluntly triangular below the spikes, spongy, and smooth.

Distribution and Habitat:

Beaked sedge occurs in riparian and wetland habitats from valleys to subalpine (5,700-10,500′), usually as the dominant or codominant plant. It grows in areas with standing water or wet soils. It is characteristic of early seral, aquatic habitats and is adapted to a variety of mineral and organic soils. Soil pH tolerance ranges from 3.0-7.9. It is not tolerant of alkaline or saline conditions. Associated species include other sedges, tufted hairgrass, willows and timothy.

General Information:

Animal preference for beaked sedge varies seasonally. It is preferred in the spring but becomes tough later. It stays green into fall because of its moist habitat but turns brown before winter. It withstands moderate grazing. Beaked sedge sod is resistant to trampling by large animals and provides valuable breeding and feeding grounds for waterfowl.

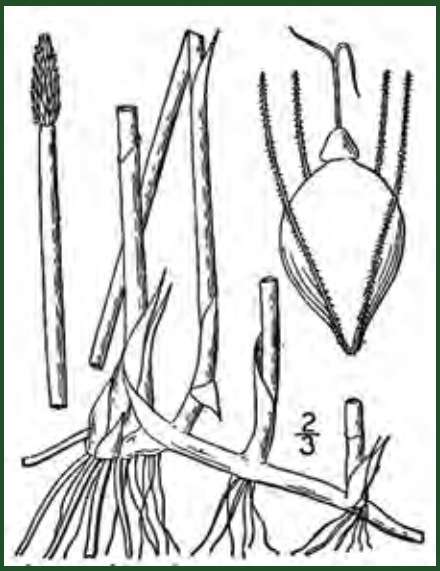
Name Synonyms: Bladder sedge, Blue sedge, Beaded sedge

Right: Max Licher, www.madrean.org

Left: Dr. Matt Lavin, Montana State University

Common Spikerush

(Eleocharis palustris)



Line Drawing: Britton & Brown. 1913. *Illustrated Flora of the Northern States and Canada.*

Dr. Matt Lavin, Montana State University

Common Spikerush

Eleocharis palustris

ELPA3

Description:

Common spikerush is a native, perennial, strongly rhizomatous wetland plant with upright stems that are round and typically 4″-27″ tall, but can reach heights of 5′. Stems are topped with a terminal spikelet bearing numerous flowers. The fruit is a yellow to brown, lens-shaped achene about 0.05″-0.1″ long. Achenes are tipped with a tuber-like swelling and subtended by up to 8 bristles. Leaves are basal and reduced to sheaths, giving the appearance that the plant is leafless. It reproduces primarily through rhizomes. Rapid growth of rhizomes occurs in mid to late-summer in aquatic locations.

Distribution and Habitat:

Common spikerush is an obligate wetland species that occurs in wet meadows, seep springs, lake margins, and other wetland environments that are permanently or seasonally flooded throughout most elevations in Utah. The plants can grow and thrive in permanent water up to 3′ deep, and can also survive in areas where the water table drops to 12″ below the surface late in the growing season. It is commonly found in areas that are totally inundated for up to 4 months. Plants grow in saturated, fine textured soils in neutral to alkaline or saline conditions. It is intolerant of shade.

General Information:

Common spikerush is suitable for erosion control, constructed wetland system applications, wetland restoration and creations, and improvement of plant diversity in wetland and riparian communities. Plants spread rapidly by rhizomes and will develop a thick root mass that is resistant to compaction and erosion. The rhizomes also form a matrix of many beneficial bacteria making this plant an excellent choice for wastewater management applications. It is of minimal importance to livestock, and has low palatability. It is an important source of food for waterfowl and small mammals.

Name Synonyms: Pale spikerush, Creeping spikerush

Right: Richard J. Shaw
Intermountain
Herbarium,
Utah State University

Below: © 2003,
Keir Morse,
www.keiriosity.com

Above:
Dr. Roger E.
Banner,
USU Extension

Left:
© 2004,
Steve
Matson

Right and Below: © 2003,
George W. Hartwell

Hardstem Bulrush

(Schoenoplectus acutus)

Hardstem Bulrush

Schoenoplectus acutus

SCAC3

Description:

Hardstem bulrush is a native, robustly rhizomatous, perennial, obligate wetland plant. Its stems are round (¼-¾″ in diameter), simple, erect and 3-10′ tall. It reproduces by seed and thick rhizomes. It flowers in mid-summer. The flowering parts are compact and umbel-like with a greenish bract extended, simulating a continuation of the stem (culm). Spikelets are usually numerous, grayish or gray-brown, ¼-⅝″ long and solitary or 2 to several.

Distribution and Habitat:

Hardstem bulrush occurs in seeps, springs, canyon bottoms and margins of ponds and lakes in all Utah counties except Beaver, Morgan and Summit at elevations from 2,800-8,800′. It is adapted to coarse-fine textured, anaerobic soils and has a high tolerance for salinity. Associated species in Utah include sedges, rushes and bulrushes, inland saltgrass, cattails, alkali cordgrass and common reed, among other species.

General Information:

Hardstem bulrush is an important aquatic or semiaquatic species. It provides cover for numerous birds and mammals. It regrows well after removal and is tolerant of fire. It spreads rapidly vegetatively. It is considered a problem species in some circles because it can be an aggressively invasive plant that closes in bare shorelines and open water in marshes important for production of some waterfowl and shorebirds.

Name Synonyms: Tule

Above: Gary Larson @ USDA-NRCS PLANTS Database

Line Drawing: Britton & Brown. 1913. *Illustrated Flora of the Northern States and Canada.*

Alkali Bulrush

(Schoenoplectus maritimus)

Above and right: © 2006 Luigi Rignanese

Alkali Bulrush

Schoenoplectus maritimus

SCMA8

Description:

Alkali bulrush is a native perennial, heavily rhizomatous, obligate, wetland plant that may reach 60″ tall and forms dense stands. It spreads by seed and rhizomes. The stems are upright and triangular, often with concave sides. It has several well developed leaves, either flat or folded, 5-20″ long and up to ½″ wide. They are found along the lower two thirds of the plant. The flowers are borne in sessile spikelets, densely clustered at the tip of the stem, and nestled in 3 or more leafy bracts, the longest bract usually much exceeding the others and up to 14″ long. There can be 3-25 spikelets per flower, and spikelets are ½″-1″ long, all sessile in a compact cluster. Each seed is a very small brown achene with a firm midrib exserted as a sharp, pointed awn.

Distribution and Habitat:

Alkali bulrush is found in marshes, lakes and ponds, ditches, streams and rivers, mud flats, seeps, and alkaline meadows from 2700′-6800′ in elevation. It thrives in alkaline and saline conditions, and can handle a pH of up to 9.0. It will grow on soils from fine clay to slit loam to sand. It can survive periods of total inundation of up to 3′ deep. It tends to spread and reproduce when the water table is within 5″ of the surface. It can occur in freshwater sites, but is usually a pioneering species that will be replaced over time with more permanent species. It is found throughout Utah and is associated with common cattail.

General Information:

Alkali bulrush is fairly resistant to fire, which will increase its production and protein content.

Name Synonyms: Cosmopolitan bulrush

Baltic Rush

(Juncus arcticus)

Above: Dr. Matt Lavin, Montana State University

Below: © 2008, Keir Morse, www.keiriosity.com

Above: Steve Hurst @ USDA-NRCS PLANTS Database

Below: Robert H. Mohlenbrock @ USDA-NRCS PLANTS Database

Right: © Chuck Kozak, Native Plants of Montara, MT. plants.montara.com

Baltic Rush

Juncus arcticus

JUAR2

Description:

Baltic rush is a native, perennial, cool season rush that grows up to 3′ tall and has numerous rhizomes. Stems are tough, round to oval, smooth, dark green and pithy inside. Rhizomes are dark brown to black, tough and woody, and are often deeply anchored. Baltic rush reproduces by rhizomes and seed. The seedhead is a clustered panicle up to 2½″ long with small (<¼″) dark brown flowers. Flowers are found on the side of the stem, not at the terminal end. Leaves are basal. Bladeless sheaths give rise to the name wiregrass.

Distribution and Habitat:

Baltic rush is the most common of the rushes found in the Intermountain West. It occurs abundantly at low to mid elevations, but can occasionally be found in the subalpine spruce-fir zone. It grows in irrigated pastures, in wet depressions and swales, in wet meadows, around springs and as a band along the banks of streams, sloughs, lakes and reservoirs. It can be found on a variety of soils, ranging from silt and clay loams to coarser sandy substrates. Growth is most vigorous on neutral or slightly acidic soils but large expanses can also be found in saline and alkaline meadows and flats. Associated species include riparian and wetland plants like Nebraska sedge, reed canarygrass and red top.

General Information:

Baltic rush is a fair to poor forage for all grazing animals. Its stems are so tough that they pull free from the rootstocks when grazed by cattle. When young, palatability is usually good for cattle and fairly good for sheep and wild herbivores. Its strong rhizomes and fibrous roots make it an excellent plant for erosion control where soils are inundated periodically. Although often harvested for hay, quality is low. Blackfoot Indians used the roots for making a brown dye, and other tribes used its stems to make baskets and mats.

Name Synonyms: Wiregrass

Below: William & Wilma Folette
@ USDA-NRCS PLANTS Database

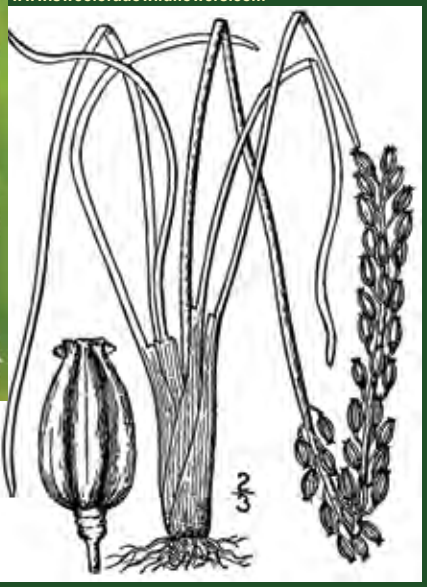
Arrowgrass

(Triglochin maritima)

Left & above: © 2008 Steve Matson

Below: Ulf Lieden @
Flora.cyberia.net

Left: © Al Schneider,
www.swcoloradowildflowers.com



Line Drawing:
Britton & Brown,
1913. *Illustrated Flora of the United States and Canada, Vol. 1*

Arrowgrass
Triglochin maritima

TRMA20

Description:

Arrowgrass is a native (circumboreal), wandlike perennial. It is an herbaceous, obligate wetland plant 12-40″ tall with rhizomes. Stems are closely tufted on a proliferating rhizome. Reproduction is from rhizomes and seed. Growth starts in early spring and flowering occurs June-August. Rather inconspicuous flowers on short pedicels are green and may be several to many, spaced along a spikelike raceme. Fruits are almost cylindrical, ≤¼″ long and fall from the plant at maturity. Leaves are linear, 3-8″ long, narrow and flattened or channeled. Short (≤¼″), membranous, entire or slightly bilobed ligules are present at the sheathing base.

Distribution and Habitat:

Arrowgrass is widely distributed in Utah and is found in wet alkaline lowlands, meadows and swamps at elevations from 4,200-8,800′. It is tolerant of saline and alkaline conditions. It tolerates anaerobic conditions common in wet mineral and organic soils. Associated species in Utah include wet meadow and wetland plants like Baltic rush, Nebraska sedge and red top.

General Information:

Arrowgrass is occasionally confused with rushes because it is rather inconspicuous and occurs in the habitats often dominated by them. It contains hydrocyanic acid, especially when drought- or frost-stressed, which makes it highly toxic to livestock, even when relatively small amounts are ingested (≤¼ pound). It is a common component of wet meadows that are cut for hay. Arrowgrass in cured hay has been reported to cause poisoning in young animals.

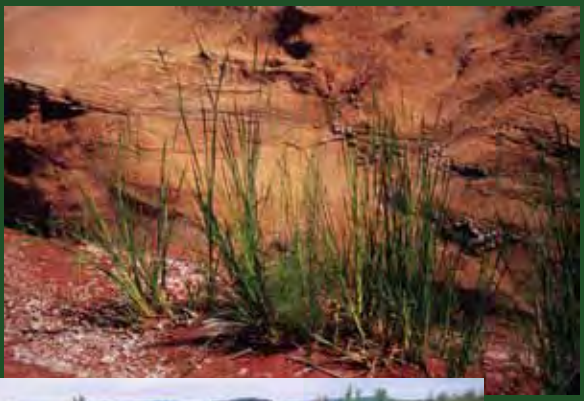
Name Synonyms: Seaside arrowgrass

Left: Dr. Roger E. Banner, USU Extension

Right: Larry Allain @ USDA-NRCS PLANTS Database

Southern Cattail

(Typha domingensis)



Below and Right: Dr. Roger E. Banner, USU Extension

Southern Cattail

Typha domingensis

TYDO

Description:

Southern cattail is a native, rhizomatous, perennial, obligate wetland plant. Its stems are pithy, simple, erect and 5-13′ tall. It reproduces by seed and thick rhizomes. It flowers in late spring and summer. The flowers are densely crowded in terminal, cylindrical, spike-like inflorescences and are unisexual. Pistillate spikes are 3-13¼″ long, ¼-1⅛″ in diameter and dark brown in color. Staminate and pistillate spikes are typically separated by a sterile portion ½-1″ long. There are 6-9 leaves per stem, equaling the spikes, ≤⅝″ wide, flat on one side and convex on the other and pale yellow-green. Leaves are alternate, long, linear, flat and sheathing.

Distribution and Habitat:

Southern cattail occurs in seeps, springs, canyon bottoms and wet meadows at elevations from 2,800-6,000′. It occurs in most counties in Utah. It grows in semiaquatic or riparian areas. It is adapted to coarse-fine textured, anaerobic soils and has a high tolerance for salinity. Associated species in Utah include sedges, rushes and bulrushes, inland saltgrass, Fremont cottonwood and willows, among other species.

General Information:

Southern cattail is an important riparian species and is effective in erosion control. It provides limited forage for large domestic and wild ungulates but is important for muskrats and other small animals. Roots and pollen were used for food by Native American peoples. It regrows well after harvest and is tolerant of fire. It spreads rapidly vegetatively.

Above: © 2002 Steve Baskauf

Below: Dr. Matt Lavin, Montana State University

Broadleaf Cattail

(Typha latifolia)

Right: © 2003 Steve Baskauf

Dr. Roger E. Banner, USU Extension

Larry Allain @ USDA-NRCS PLANTS Database

Broadleaf Cattail

Typha latifolia

TYLA

Description:

Broadleaf cattail is a native, strongly rhizomatous, perennial, obligate wetland plant. Its stems are pithy, simple, erect and 3-10′ tall. It reproduces by seed and stout rhizomes. It flowers in late spring and summer. The flowers are densely crowded in terminal, cylindrical, spike-like inflorescences and are monoecious. Pistillate spikes are 2⅜-7¼″ long, ¾-1½″ wide and are dark brown in color. There are 12-16 leaves per stem ⅜-⅝″ wide. Leaves are alternate, long, linear, flat and sheathing. Leaf sheaths are open, cylindrical and without auricles.

Distribution and Habitat:

Broadleaf cattail occurs in marsh and wetland habitats at elevations from 4,200-6,900′, usually in dense patches. It grows in semiaquatic areas or aquatic areas with slow moving or standing water. It is adapted to coarse-fine textured, anaerobic soils but has a low tolerance for salinity. Associated species in Utah include sedges, hardstem bulrush, common reed, tall wheatgrass, inland saltgrass and alkali cordgrass.

General Information:

Broadleaf cattail is not rated highly as forage. While large native ungulates may have utilized it significantly in the past, particularly after fire had burned an area, it receives little use as forage currently except by muskrats and other small animals. Native American peoples used the roots and pollen as food sources. It regrows fairly well after harvest and is highly tolerant of fire. It spreads rapidly vegetatively and is considered a problem on some waterfowl production areas where open water or bare areas are desirable for nesting and brood rearing of some waterfowl and shorebirds.

Name Synonyms: Common cattail

Glossary of Terms

Articulate - Jointed, proved with nodes; separating clearly at maturity.
Ascending - Growing obliquely upward, usually curved.
Auricle - A small, ear-shaped appendage often found where the leaf sheath connects with the blade.
Awn - A narrow, bristlelike appendage on the floral bracts of grasses.
Awned - Possessing an awn.
Axil - The upper angle at the junction of a branch with the main stem, especially of a leaf or leaf-stalk with the plant stem.
Axillary - Occurring in an axil.
Bristle - A stiff, slender appendage.
Caespitose - Tufted, several or many stems in a close tuft, such as bunchgrasses.
Ciliate - Fringed with hairs on the margin.
Collar - The area on the outside of a grass leaf at the juncture of the blade and the sheath.
Compressed - Flattened laterally.
Constricted - Drawn together; appearing to be tightly held.
Contracted - Inflorescences that are narrow or dense, frequently spike-like.
Culm - A hollow or pith stalk or stem, as in the grasses, sedges, and rushes.
Decumbent - Reclining on the ground, as a stem, but with the tip ascending.
Diffuse - Widely or loosely and irregularly spreading.
Disarticulating - Separating at maturity at a node or joint.
Elliptical - Shaped like and ellipse, or a narrow oval; broadest at the middle and narrower at the two equal ends.
Erect - Upright; not reclining or leaning.
Exserted - Thrust out or protruding from, as stamens exserted from a flower or a panicle exserted from a leaf-sheath.
Fertile - Capable of producing fruit; does not refer to stamen presence or absence.
Floret - An individual flower within a dense cluster, such as a grass flower in a spikelet.
Geniculate - Bent abruptly, like a knee.
Glabrous - Without hairs.

Glaucous - Covered with a waxy coating that gives a blue-green color; possessing a waxy surface that easily rubs off.
Glume - One of the paired bracts at the base of a grass spikelet.
Inflorescence - The flowering part of a plant, and especially the mode of its arrangement.
Internode - The portion of a stem between two nodes
Keel - a projecting ridge on a surface, like the keel of a boat, as the keel of a glume.
Keeled - Ridged, like the keel of a boat.
Lanceolate - Lance-shaped. Much longer than wide, with the widest point below the middle.
Lateral - Belonging to or borne on the side.
Lemma - The lower of the two bracts (lemma and palea) which subtend a grass floret, often partially surrounding the palea.
Ligule - The membranous appendage arising from the inner surface of the leaf at the junction with the leaf sheath in many grasses and some sedges.
Linear - Long and narrow with more or less parallel sides, such as the leaf blades of many grasses.
Membranous - Thin, soft, flexible, and more or less translucent, like a membrane.
Nerve - A name for ribs or veins, when unbranched and approximately parallel. Applied especially in the case of grass leaves, as well as the glumes, lemmas, and paleas of grass flowers.
Nerved - Provided with nerves, such as a 1-nerved glume.
Node - The so-called ″joints″ of stems from which leaves arise. They are enlarged and often dark-colored.
Obovate - Inversely ovate, with the attachment at the narrower end.
Ovate - Shaped like and egg with the broadest portion towards the base.
Palea - The chaffy bract opposite the lemma and, with it, enclosing the stamens and pistils and, later, the grain.
Panicle - A form of compound inflorescence in which the lower branches are typically longer and blossom earlier than the upper branches.
Pedicel - The stalk of a single flower in an inflorescence, or of a grass spikelet.
Persistent - Remaining attached after similar parts are normally dropped, after the function has been completed.
Pistillate - Female, bearing pistils or seed-producing organs
Pubescent - Covered with fine and soft hairs.

Raceme - An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upwards.
Rachilla - The axis of a grass or sedge spikelet.
Rachis - The main axis of a structure, such as a compound leaf or an inflorescence.
Reflexed - Bent or turned downward abruptly.
Rhizomatous - Having rhizomes.
Rhizome - A horizontal underground stem.
Scabrous - Rough to the touch; with short, angled hairs requiring magnification for observation.
Serrate - Saw-toothed margins; with teeth pointing forward.
Sessile - Attached directly, without a supporting stalk.
Sheath - The base of the leaf which surrounds the stem.
Spike - An unbranched, elongated inflorescence with sessile or subsessile flowers or spikelets maturing from the bottom upwards.
Sod-forming - Creating a dense mat with interwoven root systems.
Spike - An unbranched inflorescence in which the spikelets are sessile on a rachis.
Spikelet - A name applied to each of the main components of a grass flower cluster. A spikelet usually consists of two glumes and one or more florets.
Staminate - Male, bearing stamens of pollen-producing organs only.
Stolon - An elongated, horizontal stem creeping along the ground and rooting at the nodes or at the tip and giving rise to a new plant.
Stoloniferous - Bearing stolons.
Tiller - A shoot from an adventitious bud at the base of a plant.
Whorl - A cluster of several branches, flowers, or leaves around the axis arising from a common node.

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