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know your grasses



TEXAS A&M
AGRILIFE
EXTENSION

know your grasses

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Cover photo: Texas prairie grasses silhouetted against a sunset reflection

Inset photos: (from left) Seedheads of eastern gamagrass, California cottontop and Texas wintergrass

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Introduction

Grasses are one of Texas' most valuable natural resources. Early explorers and naturalists found Texas to be a vast "sea of grass" that stretched from horizon to horizon. Though the landscape itself varies from forests to wetlands, from coastal prairies to mountain slopes, and from shrublands to deserts, grass is the dominant plant type in all landscapes.

While the Sunflower Family has the largest number of species in Texas, the Grass Family (Poaceae) is second, with about 560 species of native and introduced grasses. All grasses are monocotyledons (having one embryonic leaf in the seed), but they are otherwise quite varied. Some are annuals and some perennials. Some are cool-season plants and some are warm-season plants. Some form sod and some grow in bunches. And, of course, they have many different physical characteristics.

Sometimes these characteristics gave rise to the names of grasses, such as tall or short, little or

big, hairy, thin, blue or silver. Some native grasses were named after other grasses they resembled, such as seaoats, wildrye, wheatgrass, cane or barley. Some were named for the locale in which they grew, such as sand, alkali, meadow, marsh, inland or upland. Others were named for the part of the country in which they were found, such as northern or southern. Some grasses were named to honor botanists, naturalists or explorers. The name given to a grass often builds a mental vision for us of what the "namer" saw on a specific day in history.

We humans often attach our own names to the things around us in an effort to communicate clearly to others. Thus, many grasses ended up with long lists of common names. Texas panicum, a fairly common warm-season annual, has also been called sourgrass, Texas millet, Colorado grass, hoo-rah grass and Texas signalgrass. Sometimes two different grasses are called by the same common name in different parts of the state. To solve this problem, common names are

often standardized to the ones used most often in most geographical areas. But common names are sometimes changed. Sideoats grama, the state grass of Texas, was known as buffalograss in the late 1800s. Today, buffalograss is the common name of a different grass species.

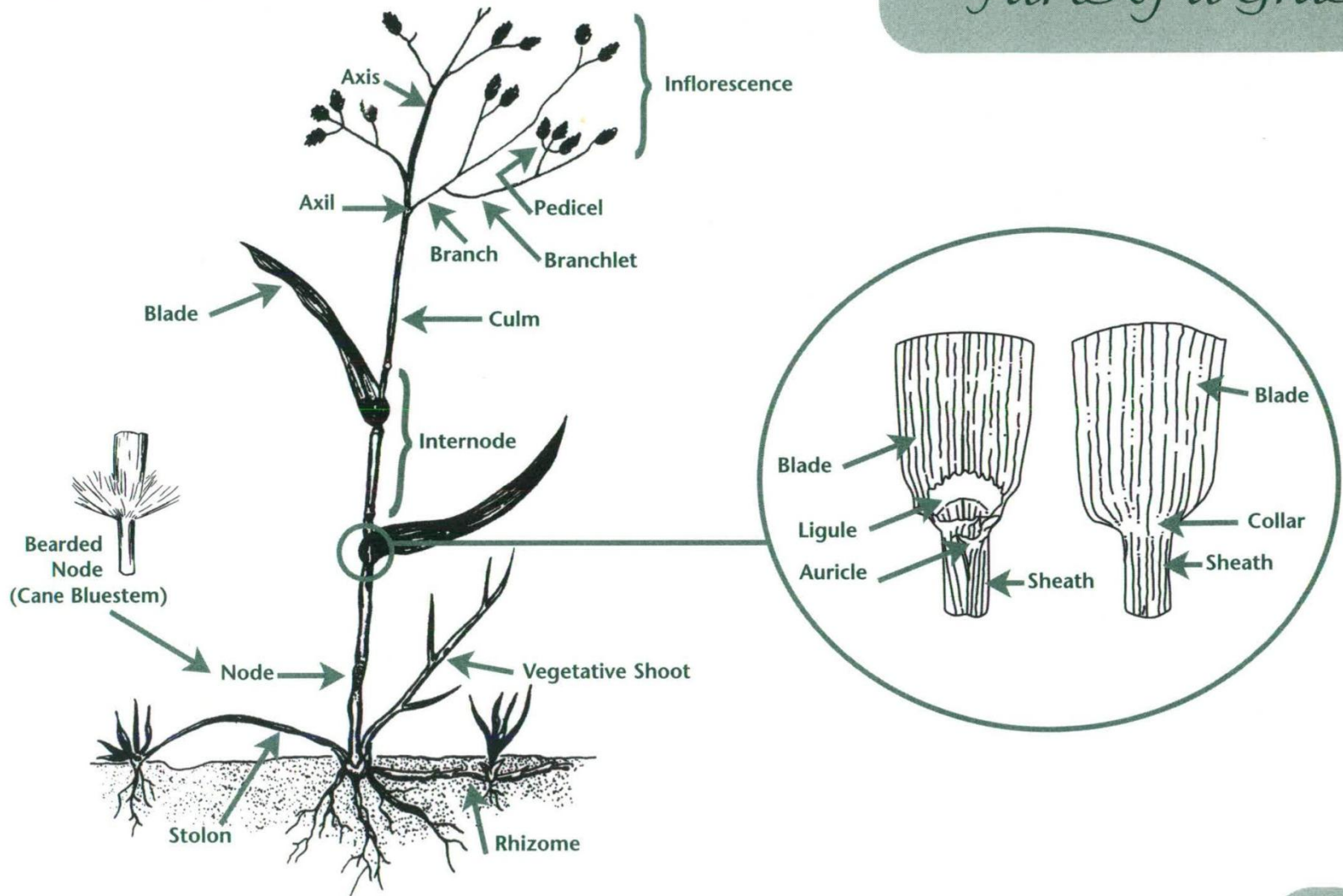
Grasses have great value to the landscape and to people. Native grasses protect the soil from erosion, discourage invasion by undesirable plants, help maintain or rebuild the natural hydrologic and nutrient cycles, and help rainfall penetrate the soil—even the tightest clays. They are also essential to many species of wildlife. Most people know grasses as the plants used to build a beautiful lawn or landscape. Some know that some grass species provide us with food, among them oats, wheat, rice, barley and corn. Others think of grass as the main food source for cattle and other livestock.

Today, we know that grasses are important indicators of environmental health. The types of grasses growing in a particular area, and their condition, tell us whether the land is deteriorat-

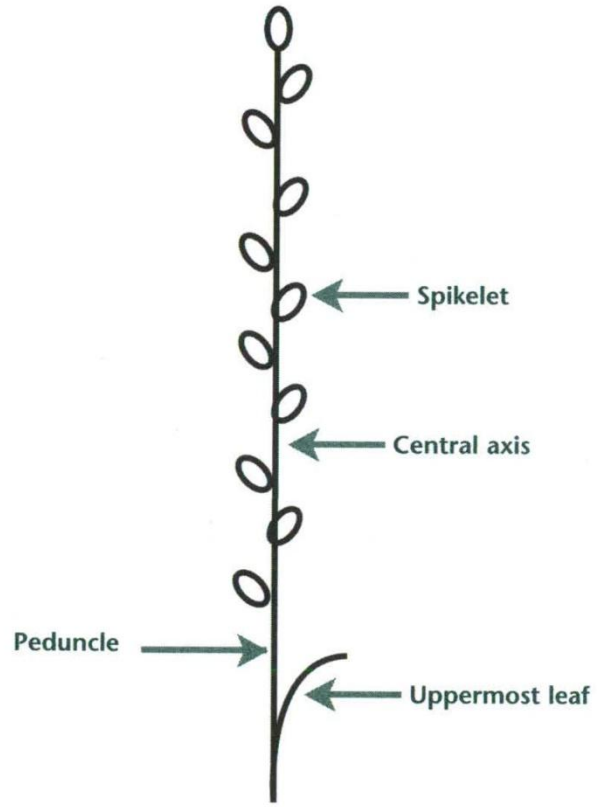
ing from its natural state or recovering from past disturbances or land use. If you know the names of the plants you see, you can interpret the health of the landscape and determine how it may be different from the natural conditions that once prevailed. The way people intend to use land causes them to label some grasses desirable and others undesirable. In reality, each grass species fills a specific niche where it has adapted to the climate, soils, water, nutrients and land use of a particular environment.

There is widespread interest today in understanding the natural world around us. This publication will introduce you to the amazing variety of grasses in Texas. Plants are arranged alphabetically by common name, with scientific names given for clarity and reference. With each illustration you will find a brief description of the plant and numbers that identify the areas of Texas in which it grows (see the map on page 7). When we can name the plants we see and know something about them, we gain even more appreciation for our environment.

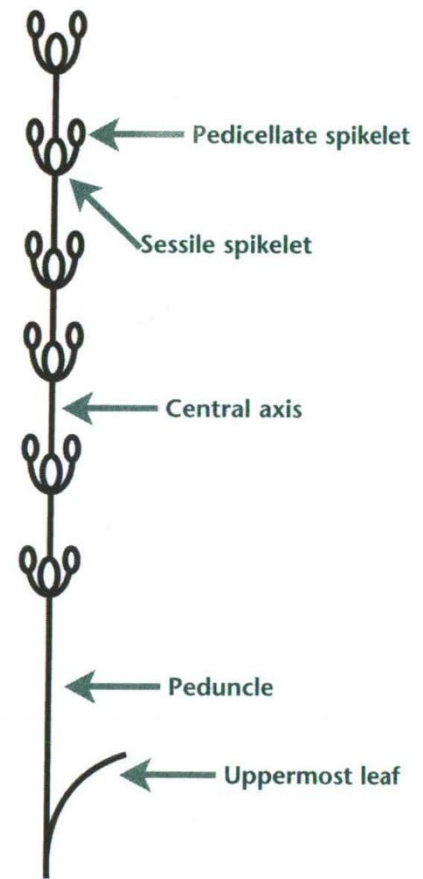
Parts of a Grass



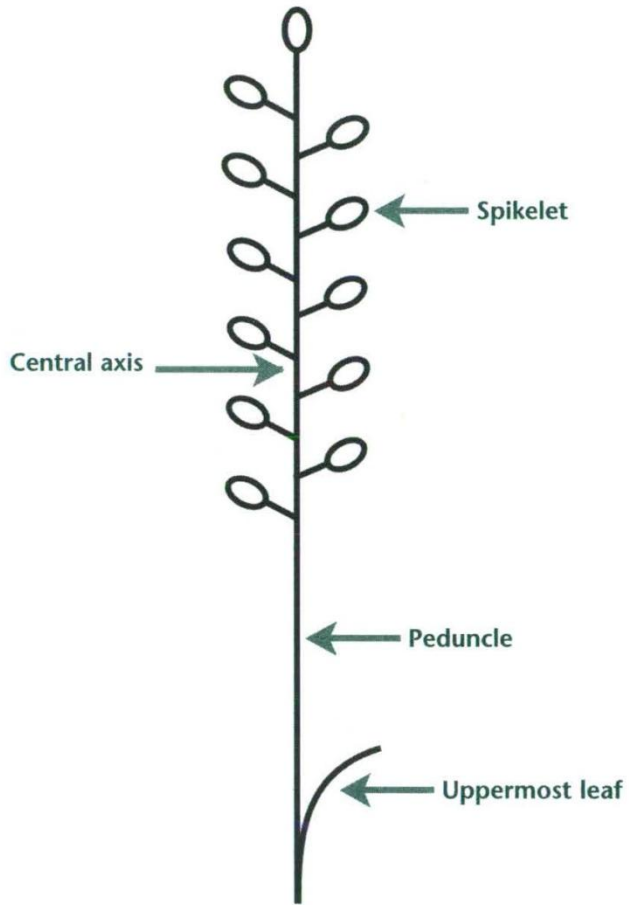
4 Types of Grass Flowering Stems



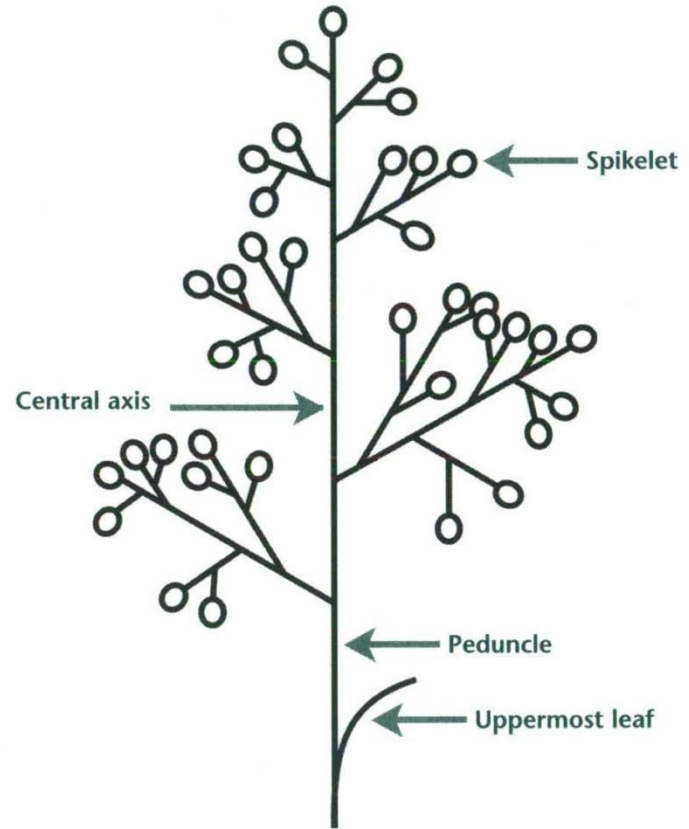
Spike



Spicate raceme



Raceme

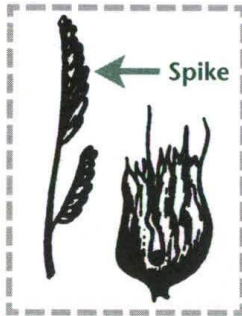


Open panicle

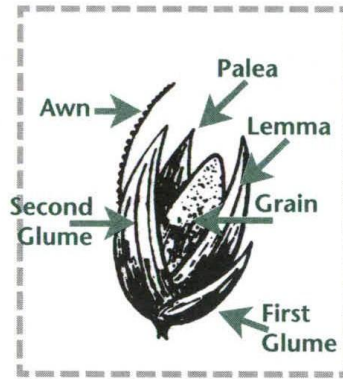
Spikelets



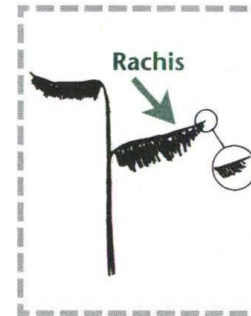
Paired Spikelets
(Bluestems)



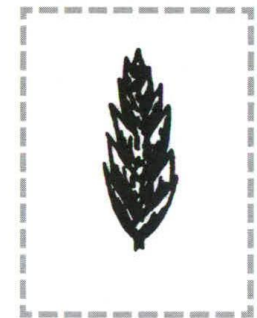
Male and Female
Spikelets
(Buffalograss)



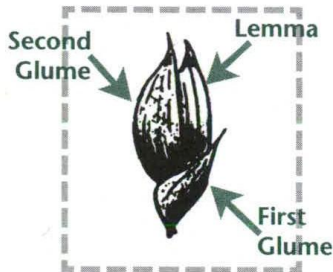
Parts
of a Complete
Spikelet



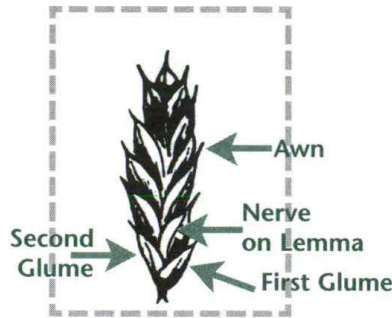
Stemless Spikelet
(Hairy grama)



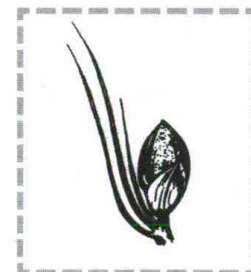
Tridens Spikelet



Single-flowered
Spikelet
(Panicum)

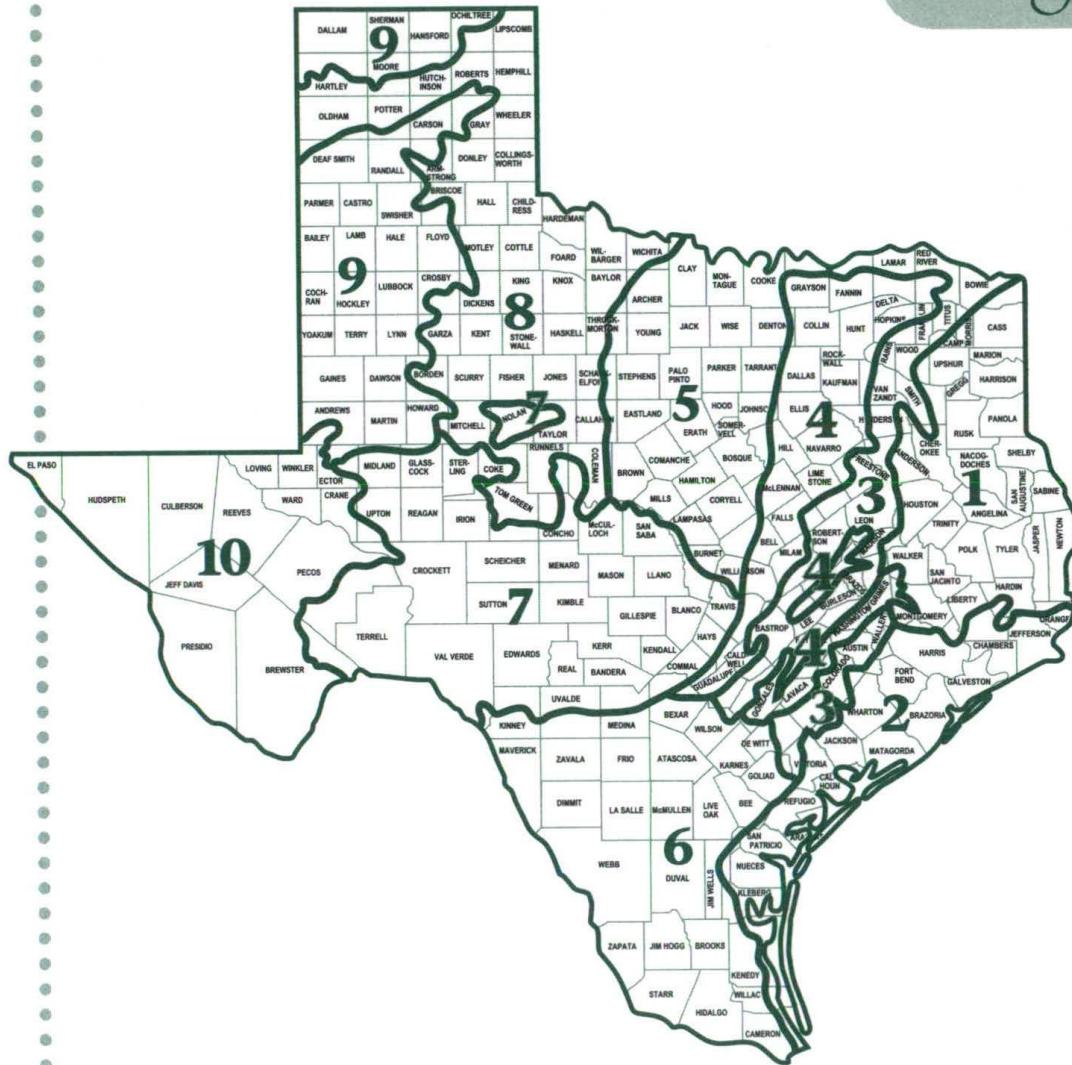


Many-flowered
Spikelet
(Rescuegrass)



Bristles
(Bristlegrass)

Vegetation Areas of Texas



- 1 – Pineywoods
- 2 – Gulf Coast Prairies and Marshes
- 3 – Post Oak Savannah
- 4 – Blackland Prairies
- 5 – Cross Timbers and Prairies
- 6 – South Texas Plains
- 7 – Edwards Plateau
- 8 – Rolling Plains
- 9 – High Plains
- 10 – Trans-Pecos

1 – Pineywoods

The Pineywoods area extends into Texas for 75 to 125 miles west of Louisiana. The area is a nearly level forested plain, with some hills. Upland soils are generally acidic sandy loams and sands with sandy loam or clay subsoils. Bottomland soils are acidic to calcareous, loamy to clayey alluvial soils.

The dominant vegetation is a mixed pine-hardwood forest on the uplands and a mixed hardwood forest on the lowlands. Native pine species are loblolly, shortleaf and longleaf. Slash pine, a native of the southeastern U.S., has been widely planted on plantations. The main hardwoods are sweetgum, oaks, water tupelo, blackgum, magnolias, elms, cottonwoods, hickories, walnuts, maples, American beech, ashes and baldcypresses. Grasses common in forested areas are blackseed needlegrass, Virginia wildrye, Canada wildrye, purpletop, broadleaf wood-oats, narrowleaf woodoats, eastern little bluestem, giant cane, carpetgrass and brownseed paspalum.

Timber production is the leading land use in the Pineywoods. There are also large areas of improved pastures for cattle production, where introduced grasses such as bermudagrass, dallisgrass and bahi-

agrass are grown. Other enterprises include the production of fruits, vegetables, forages and feed grains. White-tailed deer and other wildlife are abundant.

2 – Gulf Coast Prairies & Marshes

The Gulf Coast Marshes cover about 500,000 acres in a narrow strip of lowlands adjacent to the coast. The area stretches from Louisiana to Mexico. The Gulf Coast Prairies extend 30 to 80 miles inland from the Marshes. Soils of the area are sands, sandy loams and clays, often poorly drained. The loamy and clayey soils are often saline and sodic. Prairie soils are slightly acidic in the northeast, less so farther south. Soils of the river bottoms and deltaic plains are slightly acidic to calcareous, loamy to clayey, and alluvial.

Typical trees are honey mesquite, acacia, live oak, post oak, huisache and blackbrush. The Gulf Prairies originally were covered in tallgrass prairie and post oak savannah, with grasses such as gulf cordgrass, big bluestem, little bluestem, Indiangrass, eastern gamagrass, gulf muhly, tanglehead and many species of Panicum and Paspalum. Many other grasses and forbs have invaded over time and are now common. The Gulf Marshes support sedges,

rushes, bulrushes, cordgrasses, seashore saltgrass, common reed, marshmillet, longtom, seashore dropseed, knotroot bristlegrass and maidencane. There are also many aquatic plants.

The low, marshy areas are excellent habitat for upland game and waterfowl. The prairies are used for crops, livestock grazing, wildlife habitat and, increasingly, urban and industrial centers.

3 – Post Oak Savannah

The Post Oak Savannah lies just to the west of the Pineywoods and mixes considerably with the Blackland Prairies to the south. It is a gently rolling, moderately dissected wooded plain. Upland soils are slightly acidic sandy loams with clayey subsoils. Bottomland soils are slightly acidic to calcareous, loamy to clayey, and alluvial.

Thickets of short oak trees occur with tallgrasses. Other trees are elms, junipers, hackberries and hickories. Yaupon, American beautyberry, coralberry, greenbriar and grapes are common understory shrubs and vines. Grasses include little bluestem, Indiangrass, switchgrass, silver bluestem, Texas wintergrass, purpletop, narrowleaf woodoats, beaked

panicum, brownseed paspalum, threeawns, broomsedge bluestem, splitbeard bluestem, rosette grasses and lovegrasses.

The area is well suited to grain crops, cotton, vegetables and fruit trees. Livestock operations are also abundant. Many pasturelands have been planted to introduced species such as bermudagrass, bahiagrass, weeping lovegrass and clover. Wildlife of the region include white-tailed deer, squirrel, quail, and many small mammals and birds.

4 – Blackland Prairies

This rolling prairie is the southern extension of the true prairie that extends from Texas to Canada. It intermingles with the Post Oak Savannah in the southeast. Upland blacklands are calcareous, clayey soils. Bottomland soils are generally slightly acidic to calcareous, loamy to clayey, and alluvial. Though inherently fertile, many soils have lost productivity because of erosion and continuous cropping.

This once luxuriant tallgrass prairie was dominated by little bluestem, big bluestem, Indiangrass, tall dropseed and *Silveus* dropseed. Minor species such as sideoats grama, hairy grama, Mead's sedge,

Texas wintergrass and buffalograss have increased with grazing pressure. A wide assortment of forbs and legumes are found. Mesquite, huisache, oak, elm, cottonwood and native pecan are common.

About 98 percent of the Blackland Prairies region was cultivated during the late 19th and early 20th centuries. Now, about half of the land is in crops, with the rest used for pasture and forage production.

5 – Cross Timbers and Prairies

This region in north central Texas contains closely associated prairie and woodland sites. Sharp changes in the vegetation occur with differences in soils and topography. Upland soils of the eastern and western parts of the region are slightly acidic loamy sands and sandy loams with clayey subsoils. Bottomland soils are loamy to clayey, calcareous and alluvial. In the north central prairie region, upland soils are slightly acidic sandy loam to silt loam, with neutral to alkaline clayey subsoils. Bottomland soils are loamy and clayey, neutral to calcareous, and alluvial.

This area once contained a significant variety of prairie grasses and forbs. Past mismanagement and

cultivation have caused the uplands to be covered mostly by scrub oak, juniper and mesquite, with mid- and shortgrass understories; bottomland trees are primarily hardwoods such as pecan, oak and elm, but mesquite has invaded these areas.

Grasses include big bluestem, little bluestem, Indiangrass, switchgrass, Canada wildrye, sideoats grama, blue grama, hairy grama, Texas wintergrass, buffalograss, hairy tridens, Texas grama, red lovegrass, wild barleys, threeawns, fringed-leaf paspalum and tumble windmillgrass.

About 75 percent of the region is used as range and pasture. Major crops where the soil is sandy are peanuts, fruits, sorghum, wheat, oats, corn and forages. White-tailed deer, raccoon, squirrel, quail, hawks and other birds are found in this habitat.

6 – South Texas Plains

The South Texas Plains lie south of a line from San Antonio to Del Rio. The area is nearly level to rolling. Upland soils are clayey, loamy to sandy, or loamy. Some soils are saline and sodic.

The original vegetation was an open grassland along the coast and brushy chaparral-grassland in

the uplands. Oaks, mesquites and other brush species formed dense thickets on the ridges, and oak, pecan and ash were common along streams. Continued grazing has altered the vegetation and woody species have increased so much that it is now commonly called the Texas "Brush Country." Common grasses are seacoast bluestem, bristlegrasses, paspalums, windmillgrasses, silver bluestem, big cenchrus, tanglehead, Arizona cottontop, buffalograss, common curlymesquite, gulf cordgrass, seashore saltgrass, alkali sacaton, switchgrass and others. Introduced species such as bermudagrass, buffelgrass, kleingrass and rhodesgrass are also common in pastures.

Most of the land is used for livestock range, but there are irrigated and dryland crops such as cotton, sorghum, flax, small grains and forages. Citrus, vegetables and sugar cane are also grown. Wildlife is abundant and varied.

7 – Edwards Plateau

This area comprises some 24,000,000 acres. The Balcones Escarpment forms the distinct boundary of the Edwards Plateau on its eastern and southern borders and outlines what is known as the Texas Hill

Country. The Edwards Plateau is a region of limestone outcrops and rocky but fertile soil. The soils are shallow and range from sands to clays. Soils are calcareous.

The original vegetation was grassland or open plains with trees and brush along rocky slopes and stream bottoms. Tallgrasses such as cane bluestem, big bluestem, Indiangrass, little bluestem and switchgrass are still common along rocky outcrops and in protected areas with good soil moisture. Midgrasses and shortgrasses such as sideoats grama, buffalograss and Texas grama are now common in more arid areas. Other grass species include cane bluestem, hairy grama, common curlymesquite, fall witchgrass, tobosa and burrograss. Common woody species are live oak, sand shin oak, post oak, mesquite and juniper.

Almost all of the open area is rangeland; it is used for mixed livestock production (cattle, sheep and goats) and for wildlife habitat. Deer, turkey and numerous bird species are found here.

8 – Rolling Plains

The Rolling Plains is a level to rolling area with moderate to rapid surface drainage. Soils of the

uplands are sandy loams, clay loams and clays. Saline soils are common, as are shallow and stony soils with pockets of deep sand. Bottomlands have small areas of clayey, calcareous, alluvial soils.

The original prairie vegetation included tall- and midgrasses such as little bluestem, big bluestem, sand bluestem, sideoats grama, Indiangrass, switchgrass, hairy grama, blue grama, Canada wildrye and western wheatgrass. Now, buffalograss, common curlymesquite, tobosa, threeawns, sand dropseed and hooded windmillgrass are common on drier or overgrazed sites. Mesquite, lotebush, pricklypear, algerita and tasajillo are common invaders on all soils. Shinnery oak and sand sage invade the sandy lands, and redberry juniper has spread from rocky slopes to grassland areas.

More than 75 percent of the area is rangeland, but dryland and irrigated sorghum, small grains, cotton and forages are important crops. Wildlife includes mourning dove, quail, white-tailed deer and turkey.

9 – High Plains

The High Plains is part of the Southern Great Plains. It is separated from the Rolling Plains by the

Llano Estacado escarpment. The Canadian River runs through the northern part, creating several deep canyons. This relatively level plateau contains many shallow depressions, called playas, which collect rainwater. They may cover several acres and be several feet deep after heavy rains. Upland soils are mostly deep, neutral to calcareous clay and clay loams in the north, with sandy loams and sands in the south. Caliche is found under the soil in many areas.

The original vegetation here was made up of prairie grasses such as blue grama, buffalograss, galleta, little bluestem, western wheatgrass, sideoats grama and sand dropseed. The High Plains is mostly free of brush, but sand sage, western honey mesquite, pricklypear and yucca have invaded some areas. Various aquatic plants are found around the playas.

About 60 percent of the area is cropland—cotton, corn, sorghum, wheat, vegetables and sugar beets are major crops. The other 40 percent of the area is devoted to livestock grazing. High winds, low annual rainfall and decreasing groundwater are making crop production more difficult, so rangeland is increasing. Antelope were once common, but now

only small herds remain. Quail and mourning dove are abundant, as are mule deer, turkey and exotic aoudad sheep. Migrating waterfowl are attracted to the playa lakes.

10 – Trans-Pecos

The Trans-Pecos area in far west Texas is traversed by the eastern chain of the Rocky Mountains. The Guadalupe Mountains are in the northern part of the region. The Chisos Mountains and Davis Mountains are in the southern part. Upland soils are clay loams, clays and sands over loamy to clayey, calcareous, gypsic or saline subsoils. There are areas of deep sands, as well as rocklands with very shallow soils.

Juniper, pinyon pine and Mexican pinyon are found at mid elevations; ponderosa pine is found on higher slopes. Mountain basins contain creosotebush, tarbush, catclaw acacia, catclaw mimosa, whitethorn, yucca, juniper and tobosa. Alkali sacaton and saltbush occur on saline soils. Plateaus and canyons contain chino grama, leatherstem, ocotillo, candelilla, lechuguilla and sotols.

Grasses on higher slopes include Arizona fescue, mountain muhly, little bluestem, Texas bluestem,

sideoats and blue grama, pinyon ricegrass, wolftail and several species of Stipa. The original vegetation of the lower elevations included desert shrubs and grasses such as black grama and tobosa. These have mostly been replaced by burrograss and fluffgrass. Where the land has been overgrazed, perennial grasses have given way to desert shrub and annual forbs and grasses. Creosotebush and tarbush now cover millions of acres of former desert grassland. Without the cover of perennial grasses, the soils erode easily from intense summer thunderstorms.

More than 95 percent of the area is rangeland. Irrigated crops are grown to a limited extent along the Rio Grande and other small drainages. Wildlife is varied and abundant and includes mule deer, antelope, and many bird species.

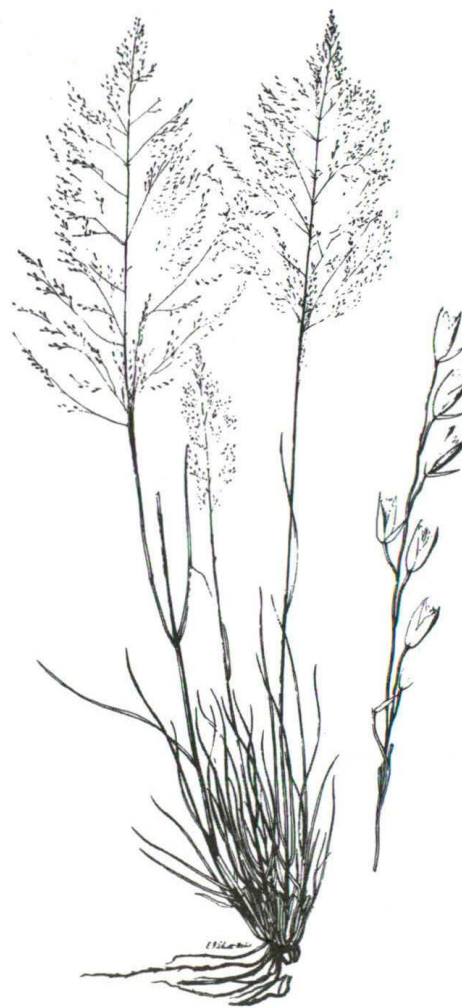
Alkalí sacaton

Sporobolus airoides

Perennial, warm-season, native – 12 to 36 inches tall.

Coarse-stemmed bunchgrass that grows in tough clumps with no rhizomes. The long, slender blades are hairy at the throat. The panicle is pyramid shaped and loosely flowered. One-flowered spikelets are on short pedicels. Blades are involute. The plant has a bleached, large, woody base and large roots the size of a wooden pencil lead. Grows in meadows and valleys and on dry, sandy or gravelly slopes, especially in alkaline and saline soils. A desirable grass to seed in salted-out sites. Fair grazing for livestock. Poor grazing for most wildlife, but jackrabbits love it.

Areas 2, 6, 7, 8, 9, 10



Bahíagrass



Paspalum notatum

Perennial, warm-season, introduced – 6 to 24 inches tall.

This bunchgrass has erect stems that grow from thick, scaly, horizontal rhizomes that grow on the soil surface. Leaves are mostly basal and stiff, flat or folded, and usually hairless. The seed head usually has two spike-like branches (it can have up to seven), 1½ to 4½ inches long, paired at the tip of the stem, one slightly below the other. Spikelets are smooth and shiny. An important hay and pasture grass in southeast Texas. Because it has excellent seed production and spreading rhizomes, it can easily invade natural and disturbed sites. Native to Mexico and Central and South America. Fair grazing for livestock. Poor grazing for wildlife.

Areas 1, 2, 3, 4, 5, 7

Barnyardgrass

Echinochloa crusgalli var. *crusgalli*

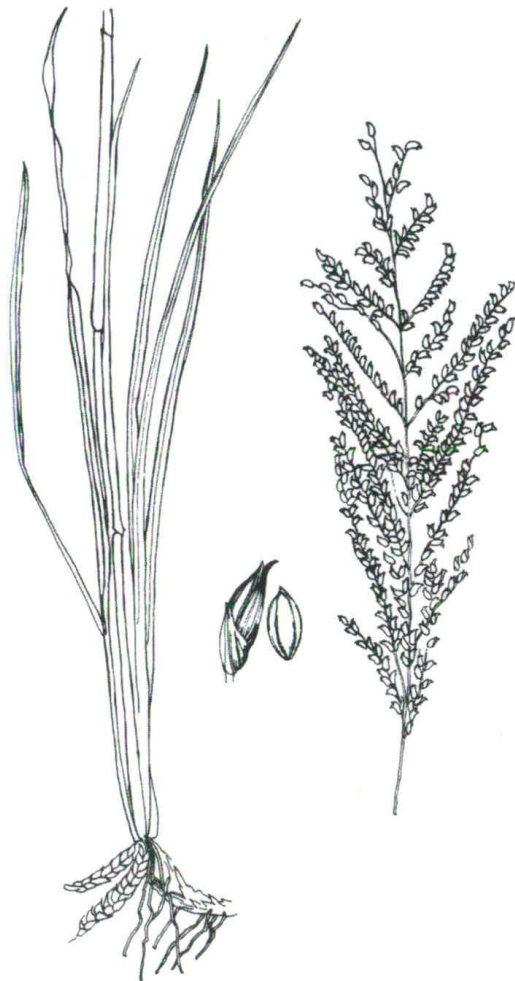
Annual, warm-season, introduced – 12 to 48 inches tall.

Stout stems grow from a somewhat decumbent base. Leaf sheaths are glabrous and smooth with long, flat blades. The 2- to 5-inch-long panicle is usually erect but can be nodding. Racemes usually spread with maturity. The spikelets may have long awns; each floret is covered with short spines. Grows mostly as a weed in moist, poorly drained and disturbed areas. Native to Eastern hemisphere. Poor grazing for livestock or wildlife, though the seeds furnish food for some ground birds.

Areas 1, 2, 3, 4, 5, 6, 8, 9, 10



Beaked panicum



Panicum anceps

Perennial, warm-season, native – 18 to 48 inches tall.

Stems grow from numerous stout, scaly rhizomes. Sheaths are slightly hairy. The long leaves are hairy on the upper part near the base. The panicle is long and spreading, with slightly curved spikelets. The second glume and lemma of the lower floret are rather widely spread at maturity, often resembling a bird beak. Grows mostly on low, moist, sandy soils in forests or in shaded, grassy pasturelands. This very palatable grass decreases with heavy grazing. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4

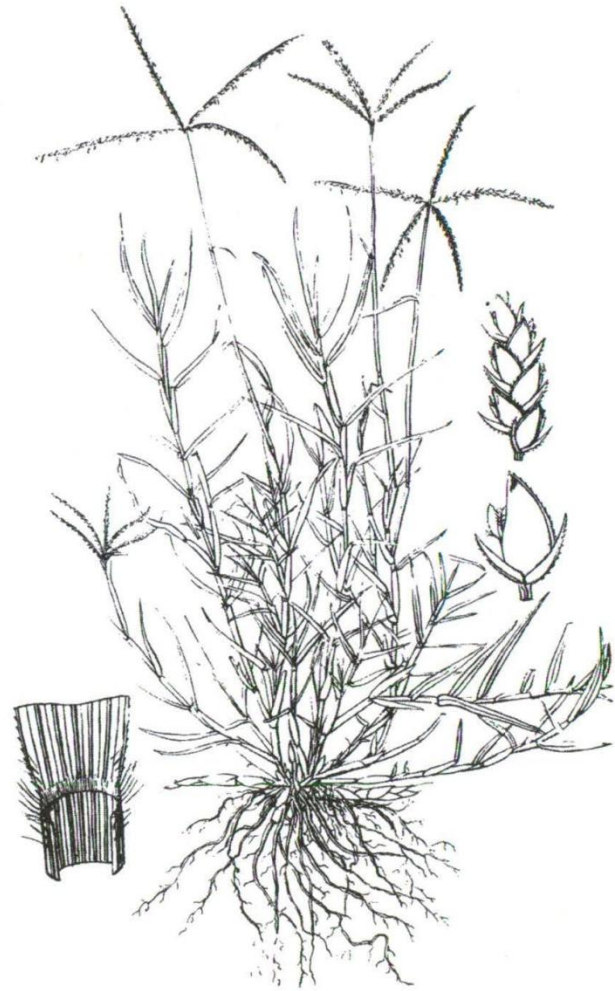
Bermudagrass

Cynodon dactylon

Perennial, warm-season, introduced – 4 to 12 inches tall.

Sod grass with both rhizomes and stolons that take root at the nodes. Nodes on the stolons are generally no more than 1 inch apart. This bluish-green grass has flattened internodes. The ligule is a conspicuous ring of white hairs. The inflorescence has three to six purple spikes that resemble a bird's foot. Spikelets are in two rows on one side of the rachis. There is one floret per spikelet. This common lawn and pasture grass can easily increase on and dominate disturbed areas. Native to tropical and subtropical Africa. Good grazing for livestock. Poor grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Big bluestem



Andropogon gerardii

Perennial, warm-season, native – 36 to 76 inches tall.

Slender stems grow from short rootstocks. Produces tall, slim culms. The lower sheaths and leaves are usually fuzzy and very hairy. The seed heads usually come out in three branches, resembling a turkey foot. Seed matures in the fall. The ligule extends across the leaf collar, which is square. Cattle prefer this grass, so it decreases with heavy grazing. It's usually found growing on sandy or loamy soils. Good grazing for livestock. Poor grazing for wildlife.

Areas 1, 2, 3, 4, 5, 7, 8, 9, 10

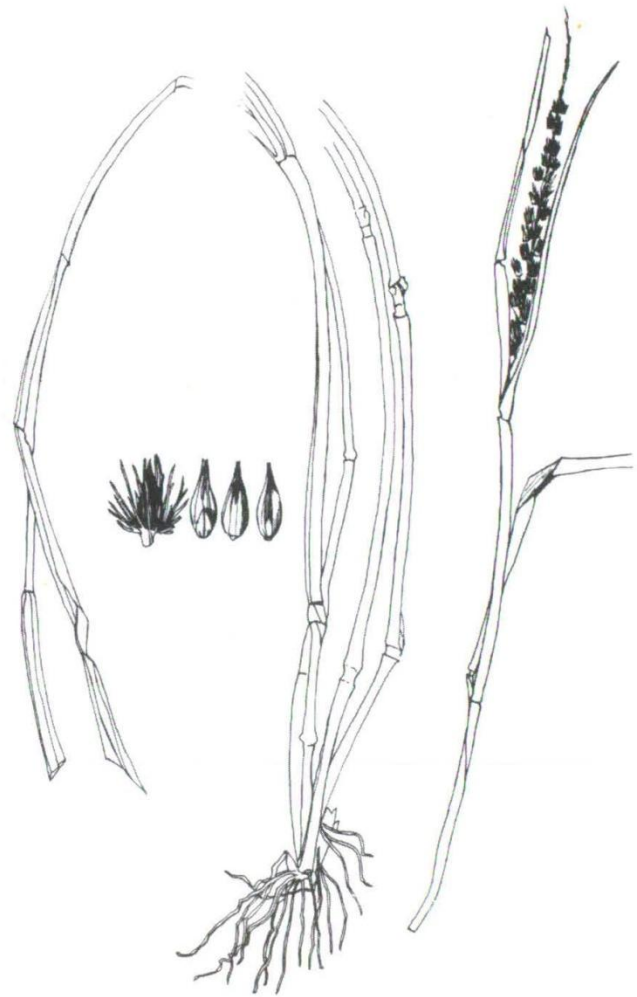
Big cenchrus

Cenchrus myosuroides

Perennial, warm-season, native – 36 to 70 inches tall.

This bunchgrass has smooth, stout stems that grow from a decumbent base. The inflorescence is 2½ to 12 inches long; each spikelet is a one-flowered bur with the bristles united at the base. Inner bristles are as long as the spikelet; outer bristles are shorter. Grows on a variety of soils from sands to clays. A good grass for seeding old fields and denuded rangelands where only cattle are to be grazed. The spiny spikelets will cling to wool and mohair. Decreases with heavy grazing. Usually found growing in brushy ravines and ditches and along streams. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 6, 7, 10



Black grama



Bouteloua eriopoda

Perennial, warm-season, native – 12 to 24 inches tall.

The weak, crooked, slender, woolly stems often take root at the swollen, fuzzy joints. The internodes are usually green during winter. The seed head has three to eight widely spaced, narrow spikes. Grows on gravelly uplands, dry slopes and plains. A good source of vitamin A during winter. Decreases with heavy grazing. Good grazing for both livestock and wildlife.

Areas 7, 8, 9, 10

Blue grama

Bouteloua gracilis

Perennial, warm-season, native – 12 to 24 inches tall.

Grows in tufts with erect stems and often has short, stout rhizomes. Sometimes forms sod. The inflorescence has two spikes that look like rooster combs and curve downward when mature. The inflorescence has one to four branches. Leaves have few hairs at the junction of blade and sheath. The rachis does not project beyond the spikelets. Grows on open, grassy plains and hills and decreases with heavy grazing. Good grazing for both livestock and wildlife.

Areas 5, 7, 8, 9, 10



Blue panicum



Panicum antidotale

Perennial, warm-season, introduced – 48 to 84 inches tall.

Coarse stems grow from a dense crown of thick, short, bulbous rhizomes. Lower stems have large nodes and internodes with branches coming from the nodes. Leaves are 7 to 12 inches long, abundant, and flat with a heavy midrib on the underside. Terminal panicles are long, loose, open, and usually erect, but droop slightly at maturity. The spikelets are greenish yellow, very slick and shiny, and are borne on the tip of rather long seed branches. Grows on clay loam soils. Produces abundant forage when managed as a pasture plant. Can cause prussic acid poisoning in livestock at certain stages of growth. The use of this grass for range reseeding has declined. Native to India. Good grazing for both livestock and wildlife.

Areas 2, 3, 4, 6, 7, 8, 9

Broomsedge bluestem

Andropogon virginicus

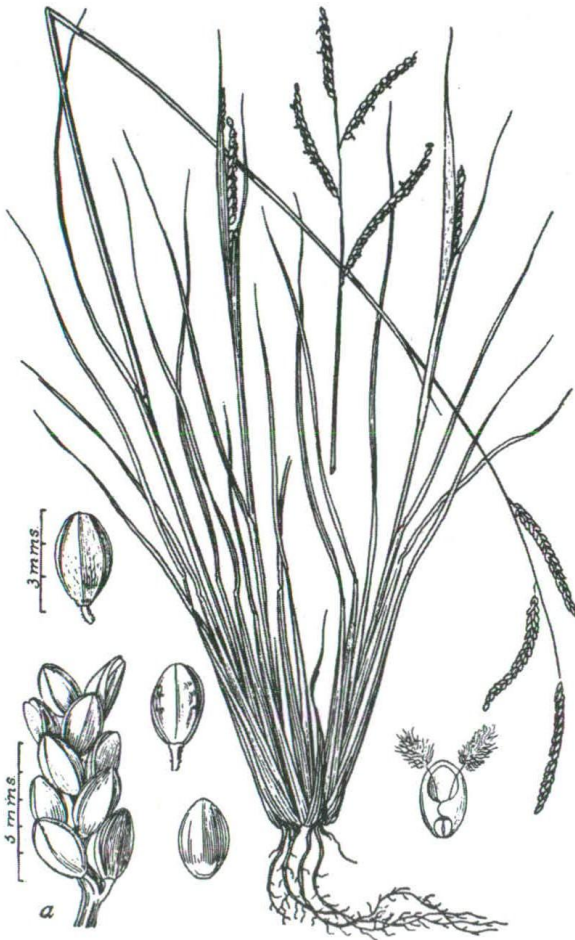
Perennial, warm-season, native – 24 to 48 inches tall.

This bunchgrass grows in small tufts. The flat base is usually yellow. The overlapping, flattened sheaths are hairy along the margin of the upper blade surface toward the base. The upper two-thirds of the plant is freely branching. Leaves turn straw yellow when mature. Stems grow stiffly erect. Ligules are ciliate. The seed heads are partly enclosed in a sheath (spathe). Grows mostly on loose, sandy, moist soils in uplands and woodlands and invades overgrazed ranges and turn-back farmlands. Poor grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7



Brownseed paspalum



Paspalum plicatum

Perennial, warm-season, native – 18 to 36 inches tall.

This grass has purplish, compressed culms and sheaths. It resembles dallisgrass, but the blades are much narrower, the racemes shorter, and the fruit is not covered with silky hairs. The spikelets are gray-green, having a shiny dark brown or gold ring when ripe. Grows in savannahs in moist sandy, sandy loam or clay soil. Can be a co-dominant grass with little bluestem. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 6, 7

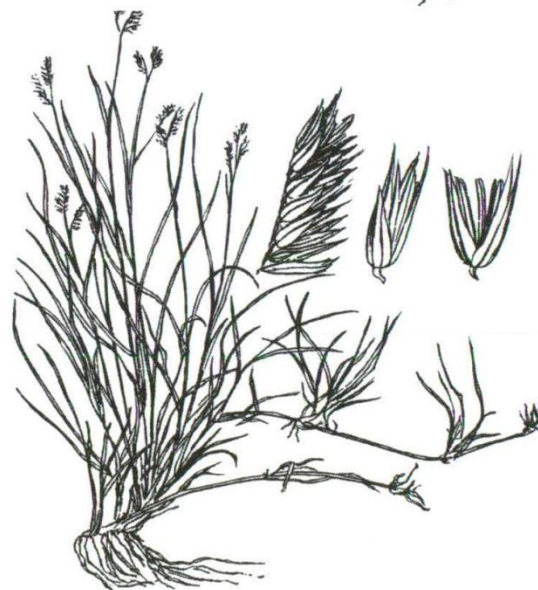
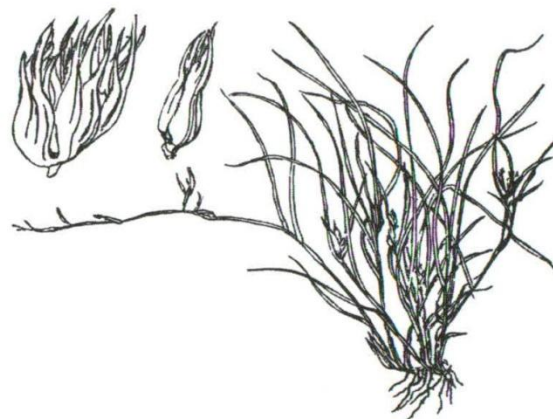
Buffalograss

Buchloe dactyloides

Perennial, warm-season, native – 4 to 12 inches tall.

Buffalograss forms sod with creeping stolons that take root at the leafy nodes. Nodes are smooth and the 2- to 2½-inch long internodes are flattened and shorter than in common curlymesquite. Foliage turns reddish brown after frost. The ligule is a short, ciliate membrane. Male and female plants grow in separate colonies. Female plants bear seeds in bur-like clusters among the leaves (top drawing). Male plants have flag-like seed heads with two or three spikes (bottom drawing). Grows on plains, prairies and mowed roadsides. Increases on heavily grazed tall-grass regions. Produces seed throughout the year. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Buffelgrass



Cenchrus ciliaris

Perennial, warm-season, introduced – 20 to 40 inches tall.

This tufted bunchgrass has erect or spreading stems. Panicles are dense, cylindrical, and 2 to 4 inches long. Bristles of the burs are purplish (white when immature) and fused together at the base. In South Texas it is often seeded after mechanical brush control and also grows as a weed in pastures. Prefers sandy soils and disturbed sites. Native to India and Africa. Good grazing for livestock. Poor grazing for wildlife.

Areas 2, 3, 6, 7, 10

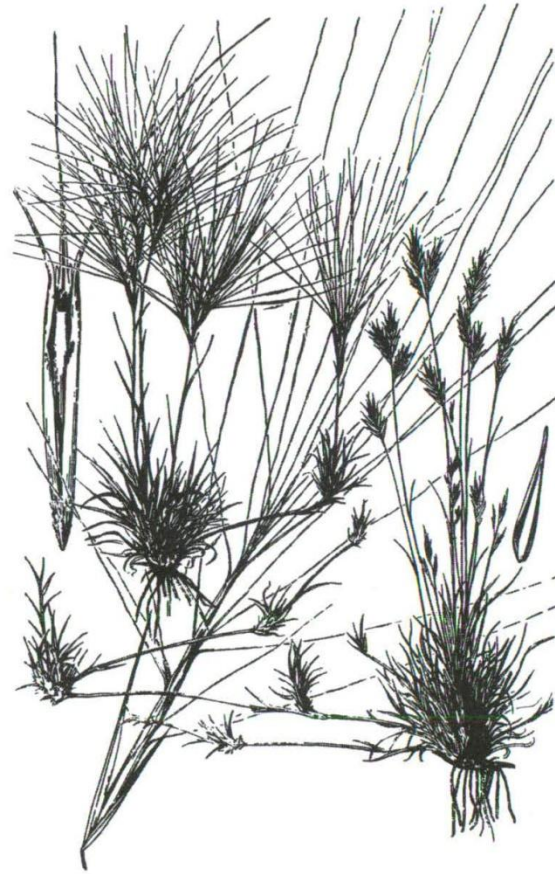
Burrograss

Scleropogon brevifolius

Perennial, warm-season, native – 6 to 12 inches tall.

Stems grow from fuzzy, scaly rhizomes, but also has wiry stolons that creep and take root at the nodes. Leaves are basal, flat, sharp pointed, and twisted. Ligule is a minute fringe of hairs. Male and female plants grow in separate colonies. The female resembles a threeawn and varies from pale green to reddish purple. The male has pale, overlapping, awnless spikelets. Grows in semi-arid plains, dry flats and valleys. Has low palatability and increases on overgrazed ranges and sterile soil. Poor grazing for livestock and wildlife.

Areas 7, 8, 9, 10





Muhlenbergia porteri

Perennial, warm-season, native – 6 to 24 inches tall.

Bush muhly forms large bunches of wiry, tangled stems and leaves that may resemble a bird's nest. Blades and stems are short and fine. Blades fall from the sheath at maturity. The inflorescence is 2 to 4 inches long, purplish to white, with single, short-awned florets borne on short pedicels. Grows on hills, mesas and plains, often under the protection of brushy or thorny plants. Decreases with heavy grazing. Has also been called "mesquitegrass" and "bush-grass." Good grazing for livestock. Poor grazing for wildlife.

Areas 6, 7, 9, 10

california cottontop

Digitaria californica

Perennial, warm-season, native – 12 to 48 inches tall.

This bunchgrass has hard, stiffly erect, round stems growing from a knotty, swollen, hairy base. Leaves are 3 to 5 inches long, flat, and do not clasp the stem firmly. The panicle is 2 to 5 inches long with white to purplish hairs that are longer than the spikelets. This gives the seed head a cottony appearance. Grows in open, well drained areas on a wide variety of soils. It is palatable throughout the year and is frequently overgrazed, but responds well to grazing deferment. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10





Elymus canadensis

Perennial, cool-season, native – 24 to 48 inches tall.

Leaf blades of this bunchgrass are wide and are held to the stem by auricles. The spiked seed head resembles wheat or barley and droops or nods when mature. Spikelets are in groups of three or four and are slightly spreading. Glumes are narrow and straight at the base. Awns are more than twice as long as the lemma. Grows in bottomlands, along ravines, in shaded areas, along fence rows, and in other moist sites. Has disappeared from rangeland pastures as the water cycle (infiltration and water-holding capacity of the soil) has changed. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

cane bluestem

Bothriochloa barbinodis var. *barbinodis*

Perennial, warm-season, native – 24 to 48 inches tall.

Cane bluestem is a bunchgrass with stems that are erect or bent at the base. Stem nodes are bearded. Panicles are dense, often partly included in the upper sheath, and have a straight main axis and numerous primary branches $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long. Lemma awns are $\frac{3}{4}$ to $1\frac{1}{4}$ inch long. Because primary branching is limited to about half the length of the inflorescence, the mature inflorescence resembles a fan. This grass has also been called "cane beardgrass." It occurs mostly on loose limestone soils. Fair grazing for livestock. Poor grazing for wildlife.

Areas 2, 5, 6, 7, 8, 9, 10



Common carpetgrass

Axonopus affinis

Perennial, warm-season, native – 12 to 30 inches tall.

Has flat stems and stolons that resemble St. Augustine grass. Takes root at nodes. Blades are flat, short and rounded. The minute ligule is ciliate. The inflorescence has two to three racemes on a long, slender stem. The spikelets are fuzzy and not more than $\frac{1}{10}$ inch long. The seed branches look like braided leather whips. Grows best on bottomland soils and when managed as a pasture plant. Occurs in moist, sandy soils and along the borders of streams. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3



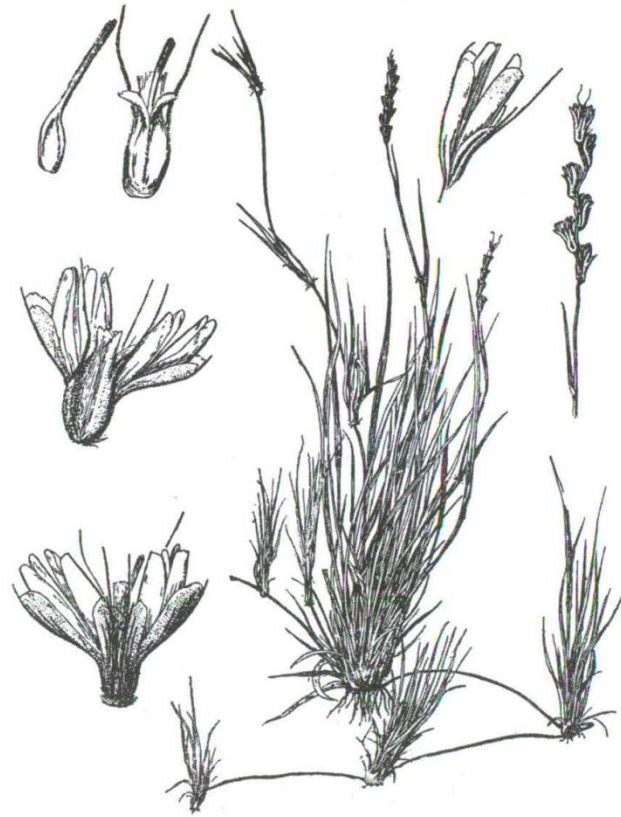
common curlymesquite

Hilaria belangeri

Perennial, warm-season, native – 4 to 10 inches tall.

Forms sod with slender, creeping stolons that take root at the leafy nodes. Stems are pale green. The blades are densely tufted and curly. Internodes are alternatively curved. The foliage turns yellow after frost. Stolons are long, wiry, rough, and have hair at the nodes. (Resembles buffalograss, except that buffalograss is smooth.) The single spike-like seed head shows a zig-zag stem when the florets fall. Grows on plains, prairies and dry hillsides and withstands heavy grazing but is not drought resistant. Fair grazing for livestock. Poor grazing for wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10





Trachypogon secundus

Perennial, warm-season, native – 24 to 42 inches tall.

Tall, slender, erect stems have few branches and bearded nodes. Ligules in lower and middle leaves are membranous. Ligules in upper leaves are short and fringed. The racemes are erect or nodding and bear pairs of spikelets. One of the spikelets has a long, plume-like, bent or loosely twisted awn; the other spikelet has no awn. Grows on rocky slopes and loose, sandy soil. Decreases with heavy grazing. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 6, 10

Dallisgrass

Paspalum dilatatum

Perennial, warm-season, introduced – 12 to 48 inches tall.

Erect or widely spreading stems grow from a decumbent base with short, knotted, black or brown rhizomes. The culms are knee-like at the base, usually with dark, swollen nodes. The blades are more than ½ inch wide. The long, extended, nodding panicles have three to five racemes, with long hairs at the axils. The spikelets are solitary in four rows on one side of the rachis. Seed are covered with fine, silky hairs (they resemble tomato seeds). Grows most abundantly in bottomland pastures that are properly managed. Easily increases on lawns, parks and managed pastures. Seedheads can become covered with a sticky “honey dew” that can cause ergot poisoning in cattle. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Eastern gamagrass



Tripsacum dactyloides

Perennial, warm-season, native – 36 to 72 inches tall.

Robust stems, which are flattened at the purplish base, grow from thick, scaly rhizomes (resembling white grubs). The leaf blades are $\frac{1}{3}$ to 1 inch wide with rough, sharp margins and may grow to 82 inches long. Ligule is a short, ciliate or lacerate membrane. The inflorescence, with one to three spikes, is sometimes 12 inches long with male spikelets above and female spikelets below. Male spikelets are in pairs fitting into the hollows of the seed stem. Female spikelets are oval and hard, breaking into bony joints. This grass is kin to corn, but has both male and female parts in the same spike. Grows in fertile bottomlands and swamps, little disturbed grassland sites, and along roadsides and stream banks. Can be a productive, managed pasture grass. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Fall witchgrass

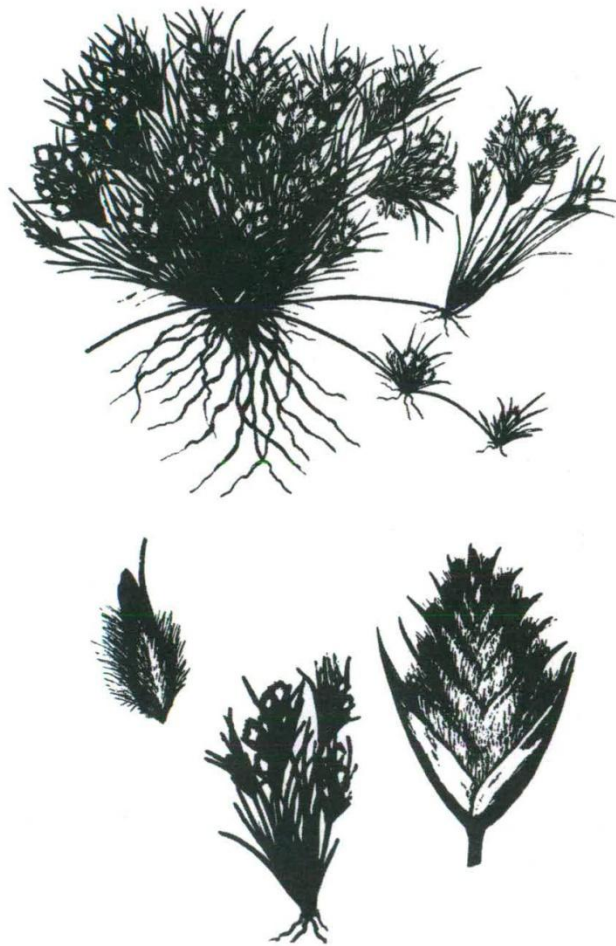
Leptoloma cognatum

Perennial, warm-season, native – 12 to 30 inches tall.

Stems are freely branching with hairs below. The short, rigid, flat blades have white edges. One edge is often crinkled, resembling bacon cooking in a frying pan. The inflorescence resembles a lovegrass, but single, fuzzy seed are borne at the ends of short branches. Seed heads break off at maturity, forming tumbleweeds. Grows on dry, rocky or sandy soil. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10





Dasyochloa pulchella

Perennial, warm-season, native – 2 to 6 inches tall.

This low, tufted grass has slender, rough stems. Each stem consists of one long internode that bears narrow leaves and takes root to produce a separate plant. The leaves are short, rough and sharp pointed. The panicle usually does not exceed the length of the leaves and contains one to five large, woolly spikelets attached directly to the panicle. The glumes are awned. Grows on arid range sites of West Texas, including dry, rocky slopes and desert flats. Poor grazing for livestock and wildlife.

Areas 7, 8, 9, 10

Hilaria jamesii

Perennial, warm-season, native – 8 to 25 inches tall.

Stems branch at the base and grow from rough, scaly rhizomes. Each spikelet has long hairs at the base. The large, papery glumes narrow at the tip and have awns 4 to 5 mm long. Resembles overgrown tobosa but has glumes of lateral spikelets that are not fan shaped. Grows on dry, rocky ledges; rolling slopes; valley flats; hills and plains. Fair grazing for both livestock and wildlife.

Areas 8, 9, 10



Green sprangletop



Leptochloa dubia

Perennial, warm-season, native – 12 to 36 inches tall.

Stems are wiry with flat bases and flat sheaths. Leaves are slightly rough. Ligule is a fringed membrane. The large, green sprangled panicle has five to twelve spikes and droops and turns pale after maturity. The spikelets are overlapping on short pedicels and have four to eight flowers. Grows on rocky hills and in canyons. A good grass to include in a native grass mixture for seeding overused or damaged ranges. Because of its use in roadside seeding, this grass is common on roadsides throughout much of Texas. Highly palatable. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10

Gulf cordgrass

Spartina spartinae

Perennial, warm-season, native – 36 to 72 inches tall.

Stout, coarse stems grow from a crown of dense tufts. Leaf blades are narrow and the edges roll inward, making them look like a heavy cord. The inflorescence is short, compact and cylindrical. The florets fit close together on opposite sides of the axis. The glumes have short, bristly hairs on the margin. Grows abundantly in saline soils. This grass has also been called “beargrass” and “coastal sacahuista.” Fair grazing for livestock. Poor grazing for wildlife.

Areas 2, 3, 6, 7



Hairy grama



Bouteloua hirsuta

Perennial, warm-season, native – 6 to 30 inches tall.

Erect stems grow from a tufted base. The hairy glumes have black awns. The leaf blades are hairy on the margins, especially at the base. The ligule is a short, ciliate membrane. There are two to four spikes that resemble rooster combs. Grows on rocky hills and plains. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Hairy tridens

Erioneuron pilosum

Perennial, warm-season, native – 4 to 12 inches tall.

This low, tufted grass has erect, slender stems, usually with only one node above the basal cluster of leaves. The blades are narrow, often folded at the mid-vein, fuzzy, grayish green with white margins, and pointed at the tip. The ligule is a fringe of hairs. The short, dense, club-shaped panicles are purple to white. Lemmas and paleas have distinct fuzzy, soft, white hair. Grows on dry, gravelly, shallow soil and invades overgrazed areas. Poor grazing for livestock and wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10



Hall panicum



Panicum hallii var. *hallii*

Perennial, warm-season, native – 12 to 24 inches tall.

Stems grow in small, erect tufts. Blades are flat and slick. Basal blades curl when dry, resembling wood shavings. Ligule is a ciliate membrane. Panicles ascend above the leaves. The single-seeded spikelets are borne on very short pedicels. The seeds turn dark brown and shiny when ripe. Grows on dry prairies, rocky and gravelly hills, and bottomlands. Increases on overgrazed ranges. Fair grazing for livestock and wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10

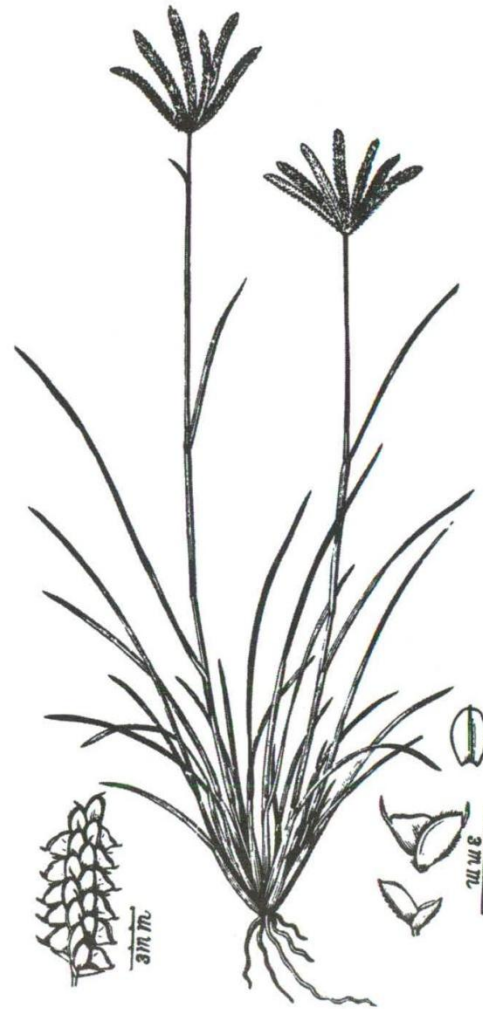
Hooded windmillgrass

Chloris cucullata

Perennial, warm-season, native – 12 to 24 inches tall.

This tufted, erect bunchgrass sometimes has short stolons. Stems and sheaths are flat and bluish green. Leaves have blunt tips and are folded. The inflorescence has seven to eighteen stout, purplish terminal spikes that turn straw yellow or black when ripe. There are short awns on the triangular spikelets. Grows on upland sandy soils. Increases on overgrazed ranges following grazing deferment. Fair grazing for livestock and wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10



Inland saltgrass



Distichlis spicata var. *stricta*

Perennial, warm-season, native – 6 to 24 inches tall.

Erect, coarse stems grow from creeping, scaly rootstocks. Leaves are alternate with sheaths closely overlapping. Blades are short, rigid, tightly curled and pointed. Ligule is a minute, membranous collar. Male and female spikelets are borne separately. The male spikelet is shown at left, and the female spikelet at right. The edge of the lemma is yellow and coarse. Grows well on moist alkaline or saline sites. Fair grazing for livestock. Poor grazing for wildlife.

Areas 7, 8, 9, 10

Japanese brome

Bromus japonicus

Annual, cool-season, introduced – 12 to 30 inches tall.

Stems are tall, erect or spreading, and bent at the base. Stems have swollen, brown nodes and fuzzy sheaths. The panicle is nodding, has two to six branches in whorls, and bears several flat spikelets at the end. Spikelets are often hairy or fuzzy with a distinct awn $\frac{1}{4}$ to $\frac{3}{4}$ inch long. Grows in waste places and fields and is a common weed along roadsides. Native to central and southeast Europe and central Russia. Poor grazing for both livestock and wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10



Johnsongrass



Sorghum halepense

Perennial, warm-season, introduced – 36 to 72 inches tall.

Stems grow from extensively creeping scaly rhizomes. The blades are flat, blue-green often spotted with purple, and have prominent midveins. The panicles are large and open with branchlets occurring mostly in whorls of four. The awns soon fall, leaving shiny, fuzzy fruit. Grows in fields and waste places. A serious weed pest on cropland and along roadsides. It is apparently native to southern Europe. Good grazing for livestock, but under certain conditions it produces prussic acid, which is poisonous to livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

King Ranch bluestem

Bothriochloa ischaemum var. *songarica*

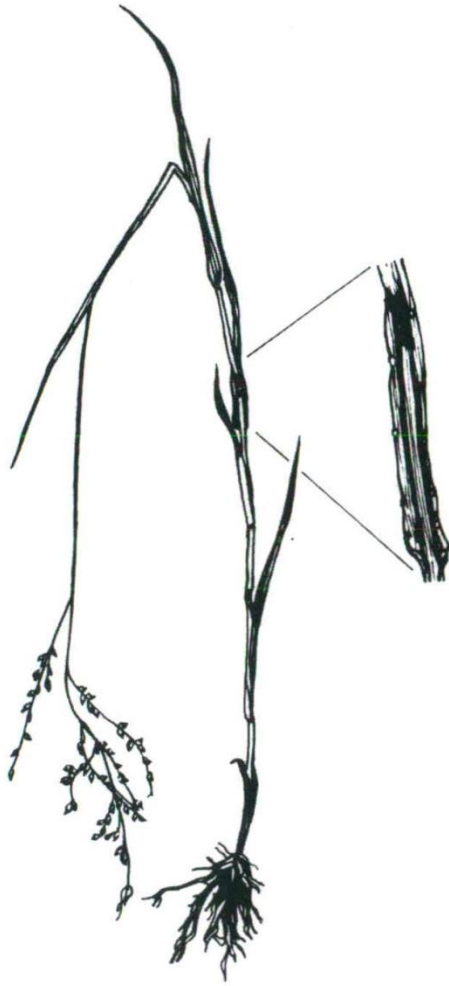
Perennial, warm-season, introduced – 18 to 48 inches tall.

Bunchgrass with stems arising from an almost flat crown. The light green stems turn up and branch freely. Stems turn a straw color when mature. Leaves are thicker near the collar and the upper surface is covered with long, silky hairs. The stems are naked at the top. Each stem produces a loose, terminal seed head that is usually purplish. Both the sterile and fertile spikelets have slender, twisted, bent awns, and the branches have fine, silky hairs. This grass was often seeded on degraded rangelands for soil and water conservation, and is now common along roadsides throughout Texas. Native to southern and central Europe and Asia. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Kleingrass



Panicum coloratum

Perennial, warm-season, introduced – 24 to 60 inches tall.

Leafy, erect stems have smooth, often dark, nodes. Stems grow from often knotty bases. Sheaths may have stiff hairs with swollen bases. Nodes are hairless. The inflorescence is an open panicle. Good grazing for livestock, but may cause photosensitization (liver damage and death) in horses, sheep and goats. Hay will cause the same problems. Native to Africa. Fair grazing for wildlife; produces seed for birds.

Areas 3, 4, 5, 6, 7, 8

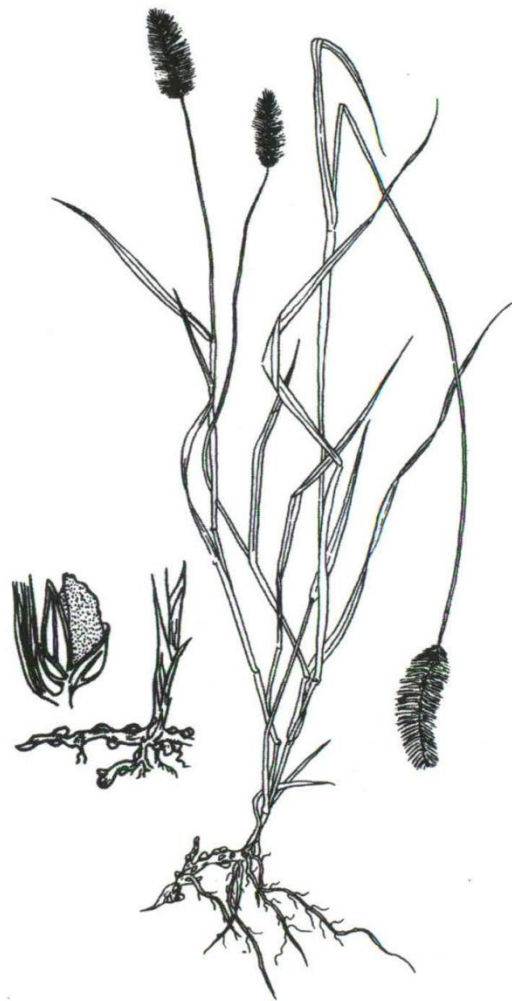
Knotroot bristlegrass

Setaria geniculata

Perennial, warm-season, native – 12 to 36 inches tall.

Erect or spreading stems grow from a bent, knee-like base. The underground rootstock is short and knotty. Blades and stems often have a purplish tinge. The blades are straight, flat and not twisted. They are long and pointed at the tip, tapering toward the base. The seed head is erect, 1 to 3 inches long, $\frac{1}{4}$ inch wide, rounded at the top, and greenish yellow or purple in color. There are five or more bristles below each egg-shaped spikelet. Yellow bristlegrass has the same general appearance except that it is an annual with twisted leaves and no rootstock knots.) Grows on open ground in cultivated soil and moist places, especially in pastures and along roadsides. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Little barley



Hordeum pusillum

Annual, cool-season, native – 5 to 15 inches tall.

Stems grow from small tufts. Leaf blades are quite flat and grow erect and straight until near maturity. There are no auricles at the junction of the leaf blade and the sheath as in other species of *Hordeum*. The inflorescence is a dense, bristly spike $\frac{3}{4}$ to 2 inches long that is usually yellowish and has three spikelets at each node. This plant rapidly increases on rangeland when grasses are grazed short. The abundance of this grass is directly related to close grazing, bare ground, and moisture during fall and early winter. Poor grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Little bluestem

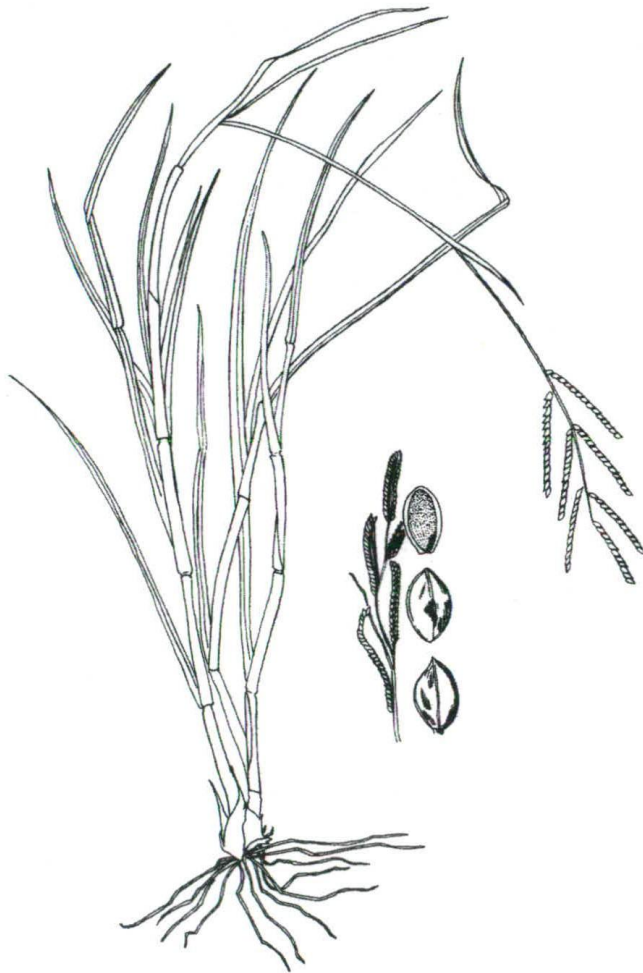
Schizachyrium scoparium var. *frequens*

Perennial, warm-season, native – 24 to 48 inches tall.

This bunchgrass has flattened sheaths, blades and stems. The plant is purplish to bluish green in summer and turns orangish red in winter. The leaf sheath has a ligule. The inflorescence has small, fuzzy seeds with a twisted awn; they are partially enclosed in a leaf sheath. Seeds mature in the fall. Grows on upland and bottomland sites and is a dominant grass on tallgrass prairies. Decreases with heavy grazing. Good grazing for livestock. Poor grazing for wildlife, but may provide nesting sites for ground-nesting birds.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10





Paspalum lividum

Perennial, warm-season, native – 20 to 40 inches tall.

Smooth stems grow from a creeping base. The leaf blades are about 3 inches long and up to $\frac{1}{4}$ inch wide. Ligule is a short membrane. The inflorescence has four to seven loosely attached racemes that grow parallel and close to the axis. Seeds are borne in straight rows along the side of each seed branch. Grows abundantly on poorly drained soils of ditches, swales, pastures and muddy coastal flats. Fair grazing for both livestock and wildlife.

Areas 1, 2, 6

Maidencane

Panicum hemitomon

Perennial, warm-season, native – 18 to 48 inches tall.

Slender, hard stems grow from creeping rhizomes. Sterile shoots have smooth sheaths, while the fertile stems have hairy sheaths. Lower leaf sheaths are overlapping. The blades are 4 to 7 inches long and up to $\frac{1}{4}$ inch wide with rough upper surfaces and smooth lower surfaces. Grows in moist soil along river and lake banks, ditches and swales. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3



Marshhay cordgrass



Spartina patens

Perennial, warm-season, native – 12 to 50 inches tall.

Slender stems grow from creeping or non-rhizomatous bases. The stems are discolored at the base. The leaf blades usually roll inward. The inflorescence has two or more spikes that are spread along the axis. Spikelets are smooth and awnless. This plant decreases with heavy grazing. Common on beaches, sandy flats, low dunes, muddy bayous and marshlands. Good grazing for livestock. Poor grazing for wildlife.

Area 2

Meadow dropseed

Sporobolus drummondii

Perennial, warm-season, native – 25 to 50 inches tall.

This stemmed bunchgrass is less robust than tall dropseed. The leaf blades are normally flat, but tend to roll inward with maturity, making them appear round. Blades taper to a fine point at the tip. The panicle is slender, somewhat compressed, with the base usually enclosed in the upper leaf sheath. There is one floret per spikelet. Grows best on heavy soil that usually receives abundant moisture. Fair grazing for livestock. Poor grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8



oldfield threeawn



Aristida oligantha

Annual, warm-season, native – 12 to 24 inches tall.

Grows in tufts and is branched at the base and nodes (freely branched above the base with age). The base is woolly. Leaf sheaths are smooth and rounded on the back. The open panicle has long, spreading awns of about equal length (2 to 3½ inches). The lemma is also long. First and second glume persist after seed disperses. Grows in upland areas and increases on disturbed and overgrazed areas. Plant density is controlled by the amount of bare ground and by the amount of rainfall in spring and early summer. Poor grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Pink pappusgrass

Pappophorum bicolor

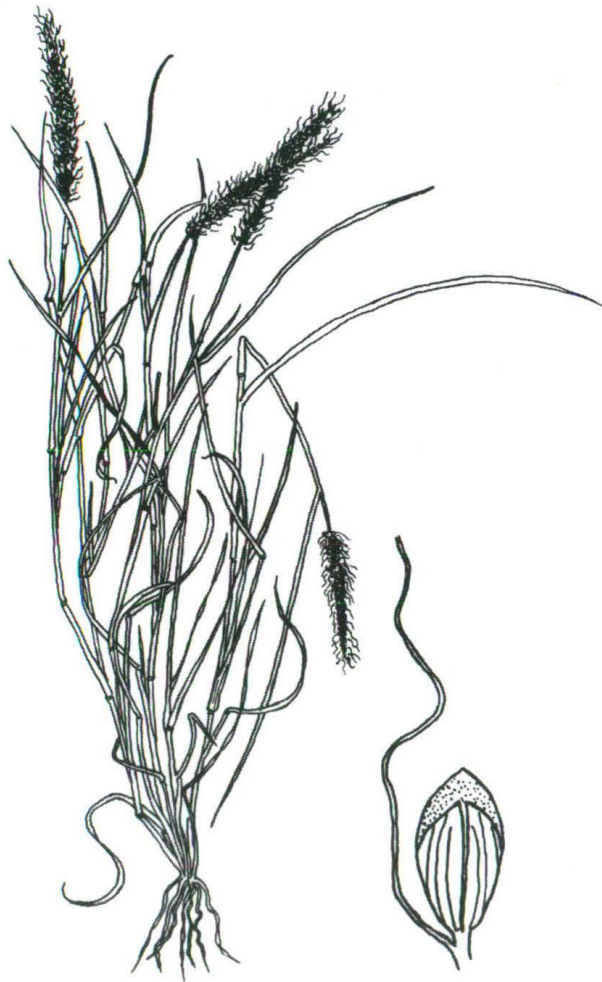
Perennial, warm-season, native – 18 to 36 inches tall.

This is an erect bunchgrass with dark nodes and heavily veined leaves. Ligule is a ring of short hairs. The pinkish, narrow, loose panicle is 5 to 10 inches long. Each spikelet is borne on a pedicel and contains three to five pineapple-like florets, each with about twelve unequal awns. Grows on sandy or gravelly soil, grassy plains, moist road right-of-ways, and open valleys. Fair grazing for livestock. Poor grazing for wildlife.

Areas 2, 6, 7, 8, 10



Plains bristlegrass



Setaria leucopila

Perennial, warm-season, native – 12 to 48 inches tall.

This plant is pale green. Culms are flattened, often knee-like, branching at the base and lower joints. The blades are $\frac{1}{8}$ to $\frac{2}{5}$ inch wide, often folded, and rough on the back. The panicle is slim, bristly, and narrowed at the top, often looking like an old, worn bottle brush. There is usually one bristle attached below each spikelet. Grows in open, dry ground and under the protection of brush in overgrazed areas. Often seeded on rangeland after mechanical brush control. Good grazing for livestock. Fair grazing for wildlife. Seeds are excellent food for birds.

Areas 2, 5, 6, 7, 8, 9, 10

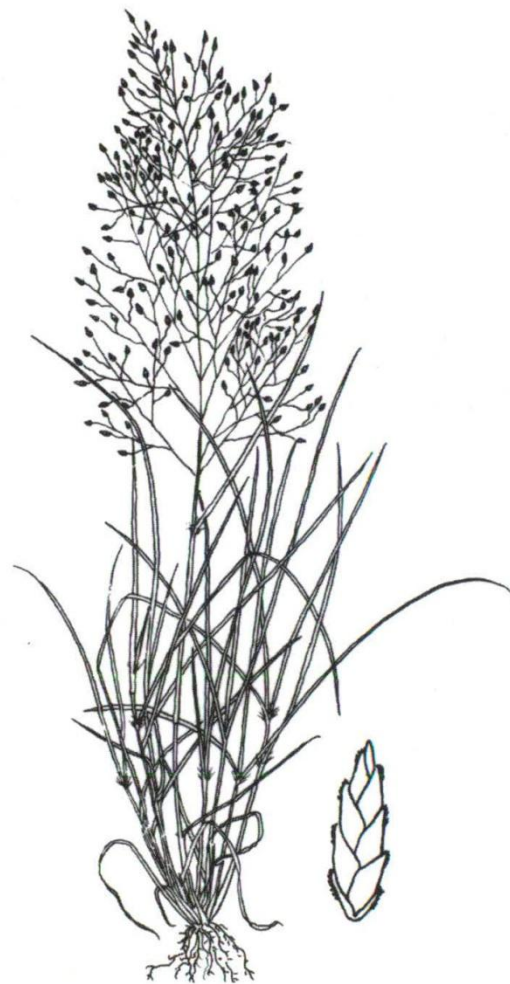
Plains lovegrass

Eragrostis intermedia

Perennial, warm-season, native – 15 to 36 inches tall.

Grows from a tufted base and is an erect bunchgrass. The sheaths are conspicuously hairy at the throat and across the collar. The panicle is large, open, erect, pyramid shaped, and grayish or brownish green. Each panicle has three to eight flowered spikelets, each borne on individual branchlets. A ring of hairs is on the axils of the branches along the panicle axis. Grows best on rich soils on rocky, gravelly or sandy land. Decreases with overgrazing. Good grazing for livestock. Poor grazing for wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 10



Purple threeawn



Aristida purpurea

Perennial, warm-season, native – 12 to 30 inches tall.

This densely tufted bunchgrass has leaves up to 5 inches long that roll inward. The seed head is narrow, nodding, loose and purplish, with many three-awned spikelets. The second glume is twice as long as the first. The awns are widely spreading, nearly equal in length, and 1 to 2 inches long. Grows on rocky hills and sandy plains and increases on overgrazed ranges. It is grazed only in the spring when plants are green and leaves are young. Has also been called “needlegrass.” Poor grazing for both livestock and wildlife.

Areas 2, 4, 5, 6, 7, 8, 9, 10

Purpletop

Tridens flavus

Perennial, warm-season, native – 36 to 60 inches tall.

Stems are erect, but droop when mature. The sheaths are flattened and overlapping at the base, giving a mirror image on left and right. The panicle is open, spreading and pyramid shaped. The branchlets of the panicle give off a sticky juice that causes dirt to cling to it. Spikelets have five to seven flowers and are green to pale purple when ripe. At a glance, purpletop resembles johnsongrass in winter. Prefers shady, woody spots and sandy soil. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 7, 8, 9



Rattail smutgrass



Sporobolus indicus

Perennial, warm-season, introduced – 18 to 42 inches tall.

The slender, erect stems have seedheads that look like rattails. The seed head is sometimes partly included in the sheath. The panicle is often infested with a black fungus, hence the name. The seed are reddish. Grows in pastures, meadows, waste places and under trees. It is probably distributed by birds. Can be an invasive grass. The leaves toughen with age and become hard to mow. Native to tropical Asia. Poor grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 7

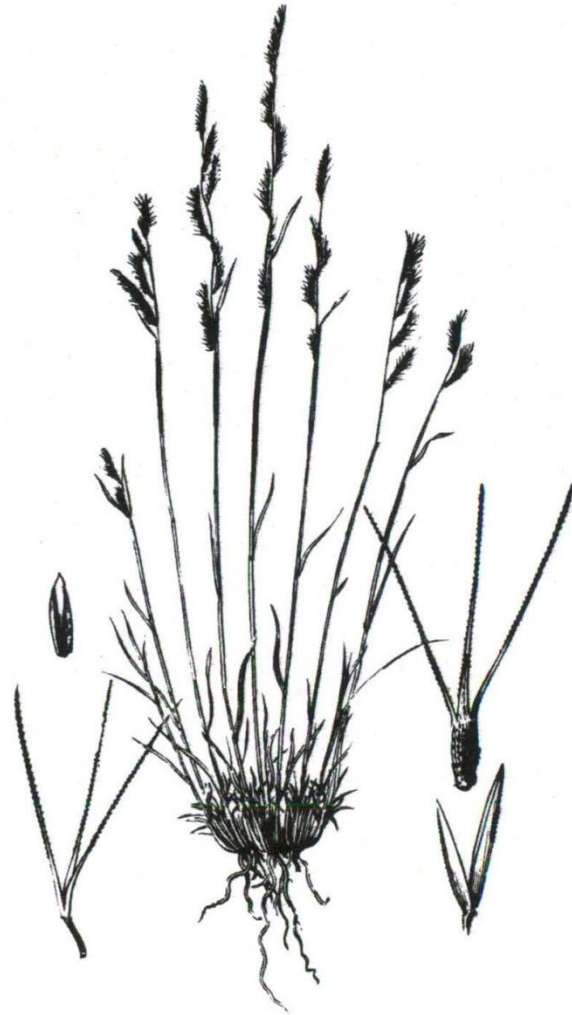
Red grama

Bouteloua trifida

Perennial, warm-season, native – 5 to 10 inches tall.

This grass is tufted with erect or prostrate stems growing from short rootstocks. The blades are short and narrow. The stems have three to seven spikes that are red or purplish to pale. The spikelets have three short, rough awns. Grows on upland hills and ridges on shallow soils. Increases on overgrazed ranges. Poor grazing for both livestock and wildlife.

Areas 2, 3, 5, 6, 7, 8, 9, 10



Red lovegrass



Eragrostis secundiflora

Perennial, warm-season, native – 18 to 30 inches tall.

Stems are tufted, branching and spindly. The blades are 8 to 12 inches long. The panicle is about 8 to 18 inches long and green to purplish, becoming straw yellow when mature. The spikelets are flat and crowded in clusters with lemmas about $\frac{1}{8}$ inch long. Grows on upland sandy soil and increases on overgrazed sites. Poor grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9

Rescuegrass

Bromus unioloides

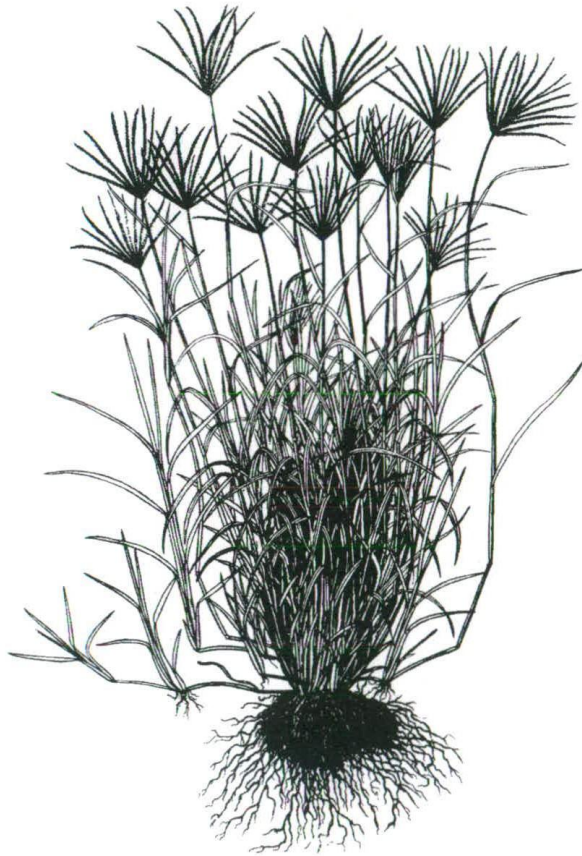
Annual, cool-season, introduced – 18 to 36 inches tall.

A bunchgrass with often fuzzy lower sheaths and blades. The inflorescence is erect or drooping, flat and green, turning yellow when ripe and dry. The spikelets overlap, forming Vs, and have short or no awns. The leaf collar has a papery ligule that is split on top. Grows from seed in winter and provides early forage. Grows on bottomlands and can be managed as a cool-season pasture plant. Matures seed in early spring. Increases on overgrazed and heavily disturbed sites and is a common yard weed. Native to South America. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Rhodesgrass



Chloris gayana

Perennial, warm-season, introduced – 24 to 48 inches tall.

Stems grow from a leafy base. This is an erect bunchgrass, but it often has long stolons that root at the leafy nodes. The culms are somewhat wiry and flattened with dark nodes. The inflorescence has ten or more terminal spikes. Grows on loamy bottomlands and is managed as a cultivated forage grass. Has escaped along many roadsides. Native to tropic and temperate regions worldwide, but may have originally come from tropical East Africa. Fair grazing for both livestock and wildlife.

Areas 2, 3, 6

Ryegrass

Lolium perenne

Annual or short-lived perennial, cool-season, introduced – 24 to 36 inches tall.

The erect stems are dark green with dark, swollen joints. Spikelets are set edgewise and fit into the concave rachis. There are prominent auricles at the leaf collar. Lemmas are awned. Grown as a lawn, meadow and improved pasture grass. Increases on all disturbed sites. Native to Europe. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 7, 8, 9, 10



Sand dropseed



Sporobolus cryptandrus

Perennial, warm-season, native – 18 to 42 inches tall.

Erect or spreading stems have open panicles that are partly enclosed in the flowering sheath. The sheath has a distinct tuft of hair at the throat. The panicle is lead-gray to purplish with small, one-flowered spikelets borne on short pedicels. Blades are flat. The blade beneath the panicle grows at a right angle to the culm. Increases on sandy soil in overgrazed and eroded areas. Fair grazing for livestock. Poor grazing for wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10

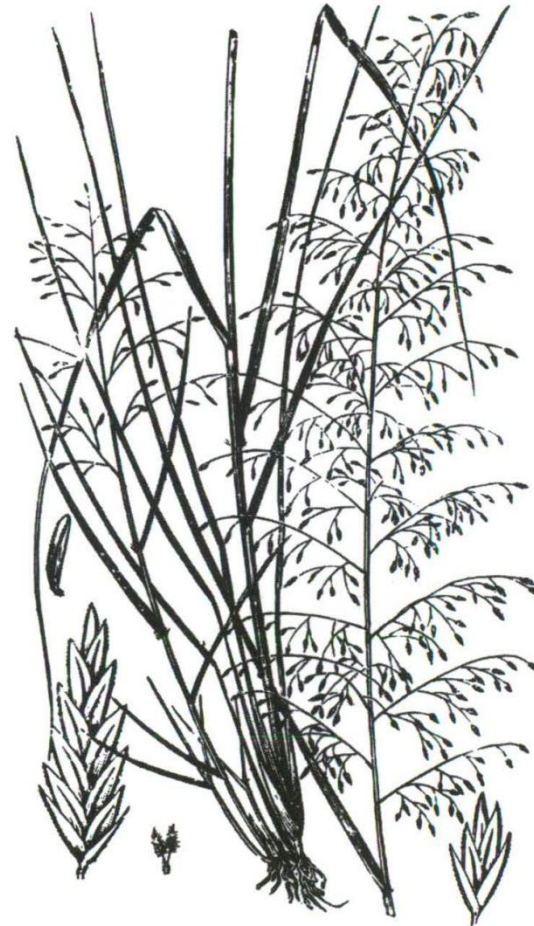
sand lovegrass

Eragrostis trichodes

Perennial, warm-season, native – 24 to 60 inches tall.

A tufted, erect bunchgrass. Sheaths are hairy at the throat. The panicle is 1 to 2 feet long, oblong and open, with purplish to pale spikelets bearing six to ten flowers. The spikelets are in clusters at the tip of the seed branches. Grows on upland sandy soil of prairies and open woodlands. A good grass for livestock grazing when managed as a pure stand. Poor grazing for wildlife.

Areas 1, 3, 4, 5, 6, 7, 8, 9



Scribner dichanthelium

Dichanthelium oligosanthos var. *scribnerianum*

Perennial, cool-season, native – 10 to 25 inches tall.

The stems of this small bunchgrass are usually smooth but can be slightly hairy. If so, the hairs grow parallel to the stem. The base is flat, showing a rosette of wide but short basal leaves in winter. Leaf blades are erect, 2 to 5 inches long and nearly as wide. They are spear shaped with fine, short hairs on the underside. The sheath has distinct parallel veins and is covered with fine, stiff hairs growing from small bulbs or papilla. The seed head is open, irregularly shaped, with spikelets on the ends of the seed branches and sub-branches. The seed coat is lined and may have a few scattered hairs. This grass is also often called rosettegrass. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Sideoats grama

Bouteloua curtipendula var. *curtipendula*

Perennial, warm-season, native – 12 to 42 inches tall.

Stems grow from strong, scaly rhizomes. Hairs grow out of small, bulb-like spots on the edges of leaf blades. The inflorescence has a zig-zag rachis with many (20 to 50) spikelets twisting around on one side when ripe. Seeds resemble oats. Grows on a variety of sites. Matures seed in spring and fall. Decreases with heavy grazing. In 1971 sideoats grama was named the State Grass of Texas. Good grazing for both livestock and wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10



Silver bluestem



Bothriochloa laguroides spp. *torreyana*

Perennial, warm-season, native – 18 to 42 inches tall.

Usually grows from an inclined base with no rhizomes. The leafy, bent stems are smooth with white margins. The fuzzy, white terminal panicle is oblong and has numerous branches shorter than the main axis. Spikelets have short awns. Grows on prairies and rocky slopes and occurs on old, released farmlands in just a few years. It is grazed most heavily during early fall. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Switchgrass

Panicum virgatum

Perennial, warm-season, native – 36 to 72 inches tall.

The hollow stems of this bunchgrass grow in clumps from many scaly, creeping rhizomes. These large, robust plants have bluish grass blades up to 2 feet long. The ligule is a dense ring or cup of hairs on the upper leaf surface at the collar. The panicles are pyramid shaped with many purplish spikelets. The first glume is three-fourths as long as the spikelet and encircles the base of the second glume. In winter the seed head resembles branches of a weeping willow tree. Found mostly along creeks and streams and in protected areas. Decreases with heavy grazing. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Tall dropseed

Sporobolus asper var. *asper*

Perennial, warm-season, native – 18 to 48 inches tall.

Stems are stout and erect. Panicles are spike-like and more or less included in the puffed up sheath. Spikelets have one flower and are longer ($\frac{1}{4}$ inch) than on most of the other dropseeds. Tips of the lemma and palea are smooth and boat-shaped. Grows on plains or hills, grasslands, borders of woods, road right-of-ways, and in sandy soils. Fair grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8



Tall fescue

Festuca arundinacea

Perennial, warm-season, introduced – 18 to 48 inches tall.

Slender stems are produced from large crowns. The leaves have ridges that make their upper surfaces rough. The panicle is erect but nodding at maturity. Grows mostly on bottomlands. A native of Europe. Good grazing for livestock, but can cause fescue foot toxicity in cattle. Fair grazing for wildlife.

Areas 1, 2, 4, 5, 7, 8, 9, 10



Tanglehead



Heteropogon contortus

Perennial, warm-season, native – 12 to 42 inches tall.

This bunchgrass grows in erect tufts. The round reproductive shoot emerges from a flattened base. Sheaths are flat and overlapping. Florets are 2 to 4 inches long, brown, fuzzy, twisted, and have a single awn. Awns are tangled and bent. At maturity the foliage turns reddish brown with straw yellow stems and tastes like molasses. Grows on rocky hills and ridges and along railroad right-of-ways. Good grazing for livestock. Poor grazing for wildlife.

Areas 2, 6, 7, 10

Texas bluegrass

Poa arachnifera

Perennial, cool-season, native – 12 to 36 inches tall.

Upright stems arise from slender, creeping rootstocks. The base is flat and long with overlapping sheaths that are whitish to purplish in color. The blades are long, heavily veined and boat shaped at the tip. The seed head is oblong and dense to open. The male and female flowers grow on different plants, often at widely separated locations. The male heads are smooth, while those of the female appear fuzzy. Grows on prairies and open woodlands in protected sites, often under trees and along roadsides. Decreases with heavy grazing. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 7, 8



Texas cupgrass



Eriochloa sericea

Perennial, warm-season, native – 12 to 48 inches tall.

Stems grow in large tufts. Bases of stems feel like lead pencils. The blades are soft and lax. The ligule is a dense ring of straight hairs. The pale seed head has rows of fuzzy seeds borne on very short, hairy stems. Seeds are set in cups with ring-like bases. Grows best on hills and ridges, mostly in protected, moist areas. Decreases with heavy grazing but will increase with proper use. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 4 5, 6, 7, 8

Texas grama

Bouteloua regidiseta

Perennial, warm-season, native – 5 to 12 inches tall.

Tufts have just a few stems. Stems are erect with smooth, dark nodes. The leaves are short, crowded at the base, and often wavy or curling. There are six to eight spikes attached to each seed stem. Spikes have woolly bases and are bell shaped. (The old name for this plant was bell grama.) Each spike holds three to five seeds. Grows on dry plains and rocky hills. Increases on overgrazed rangeland. Poor grazing for livestock and wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10



Texas wintergrass



Stipa leucotricha

Perennial, cool-season, native – 18 to 42 inches tall.

Stems are usually erect but sometimes prostrate, and have short, hairy nodes. The dark green blades have short, bristly, white hairs and are rough on both sides. The light brown seed has a single, twisted awn that is 2½ to 4 inches long with a barb at the base. Hence, it is sometimes called speargrass. In late spring after the seeds have fallen, the white glumes resemble oats. A spikelet at the base of the stem is self-fertilizing. This is the most abundant native, cool-season grass in Texas. Prefers bottomland soil and mesquite flats. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Thin paspalum

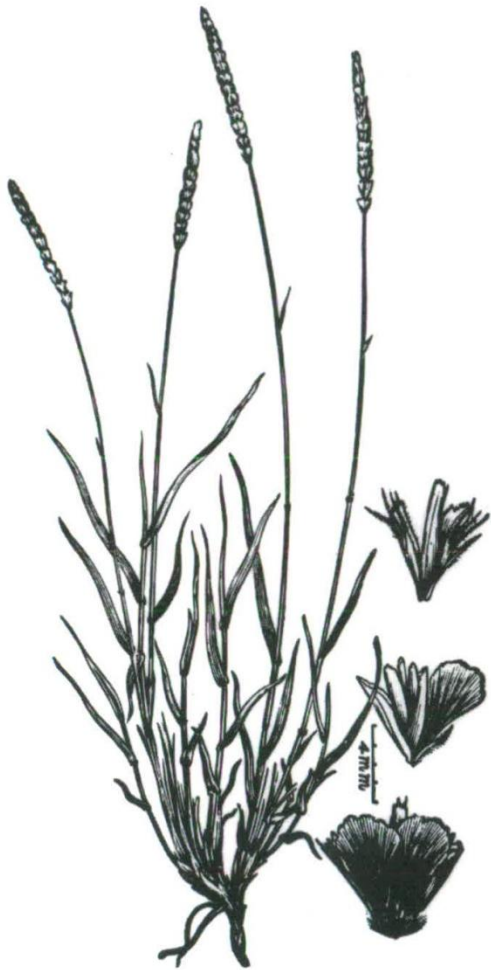
Paspalum setaceum var. *setaceum*

Perennial, warm-season, native – 15 to 40 inches tall.

Spreading stems grow from a small base. The sheaths are usually smooth but the lower ones can be hairy. Leaves are 5 to 15 inches long and $\frac{1}{8}$ to $\frac{1}{2}$ inch wide with many hairs along the margin. The inflorescence usually has two racemes. The seeds grow in pairs and are flat and round with slightly pointed tips. Seeds are covered with sparse, short hairs. Grows on a variety of soils. Fair grazing for livestock and wildlife.

Areas 1, 2, 3, 7





Hilaria mutica

Perennial, warm-season, native – 12 to 24 inches tall

Stems grow from coarse, woody, scaly rootstocks. Tobosa greens up readily after rain and turns ashy gray during drought. The spikes are bearded at the base and purplish to pale when ripe. The glumes are wedge shaped, broad, and hairy at the top. Grows in bunches on flats and in heavy soils. Fair grazing for livestock. Poor grazing for wildlife.

Areas 6, 7, 8, 9, 10

Tumblegrass

Schedonnardus paniculatus

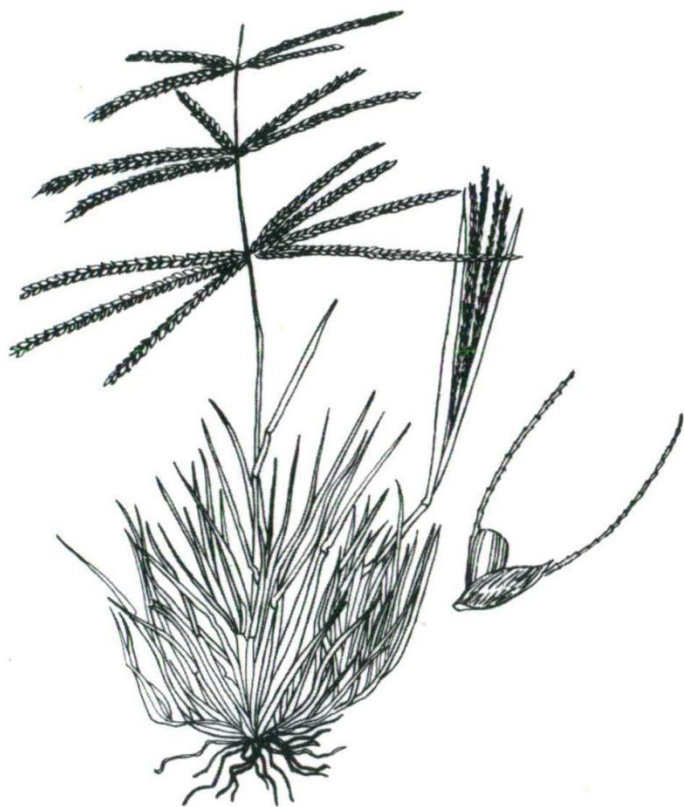
Perennial, warm-season, native – 8 to 25 inches tall.

This low, tufted bunchgrass has scythe-shaped culms that turn downward. Sheaths are overlapping and flattened. The spirally, twisting blades have white margins. The panicle is pale green to purple with one to five spikes. When mature it breaks off and tumbles in the wind. The spikelets have one flower, are embedded in the rachis, and grow in two rows on one side of the slender seed stem. Grows on sandy soil and increases on overgrazed and mismanaged areas. Poor grazing for both livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Tumble windmillgrass



Chloris verticillata

Perennial, warm-season, native – 6 to 20 inches tall.

This bunchgrass grows in small tufts and has erect, flat stems that are usually branched and crowded at the base. Leaf blades are 2½ to 7 inches long and about ⅛ inch wide at the base. Blades are rough and usually folded. The seed head has eight to fifteen seed branches 2 to 6 inches long arising from nodes regularly spaced along the axis. The spikelets are alternate along these branches and have short awns. Occurs in heavy, sandy or gravelly soils of disturbed areas, roadsides, lawns and parks. Poor grazing for livestock and wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

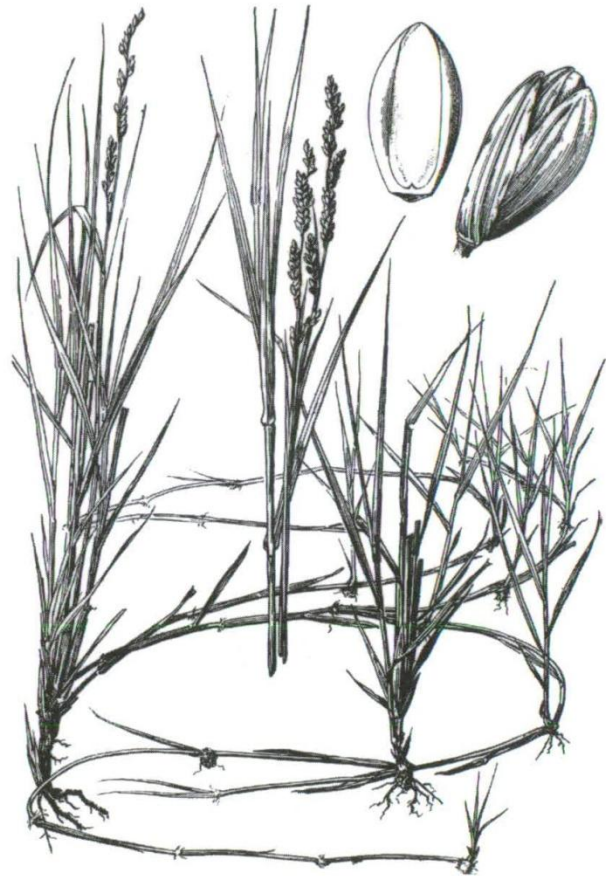
Vínemesquite

Panicum obtusum

Perennial, warm-season, native – 12 to 30 inches tall.

Produces by long, tough stolons that take root at the woolly nodes. The erect, flattened stem joints are slick. The top leaf blade clings closely to the narrow seed head. Seeds turn from green to brown with maturity. Grows along banks of streams or ditches, on bottomlands, and in depressions of highly productive soils. Good grazing for livestock. Fair grazing for wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10



virginia wildrye



Elymus virginicus

Perennial, cool-season, native – 24 to 48 inches tall.

Stems grow in small clusters. Leaves are usually hairless. The inflorescence is a stiffly erect, bristly spike 2 to 6 inches long and often partly included in the upper sheath. Glumes are yellowish, hard, and bowed out at the base. Lemma awns usually are no more than 1 inch long. A grass of open rangeland if moisture is adequate. Grows on shaded banks, fence rows and open woodlands. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 6, 7, 8

Weeping lovegrass

Eragrostis curvula

Perennial, warm-season, introduced – 24 to 48 inches tall.

Stems are erect and blades are narrow, drooping and rough on the bottom and top surfaces. The inflorescence is a loose, open panicle with grayish-green spikelets containing many seeds. There are numerous florets per spikelet. The panicle resembles lace when mature. The basal sheath is hairy. Prefers sandy soil. Native of South Africa. Fair grazing for livestock. Poor grazing for wildlife.

Areas 1, 3, 6, 8, 9, 10



Western wheatgrass



Agropyron smithii

Perennial, cool-season, native – 12 to 24 inches tall.

Stems grow from gray, slender, creeping rhizomes. Stems and leaves are blue-green. Leaves are straight, broad, rough, and roll inward at maturity. The flat seed head is usually awnless. Glumes are asymmetrical. Most abundant in bottomland. Good grazing for livestock. Fair grazing for wildlife.

Areas 5, 7, 8, 9, 10

white tridens

Tridens albescens

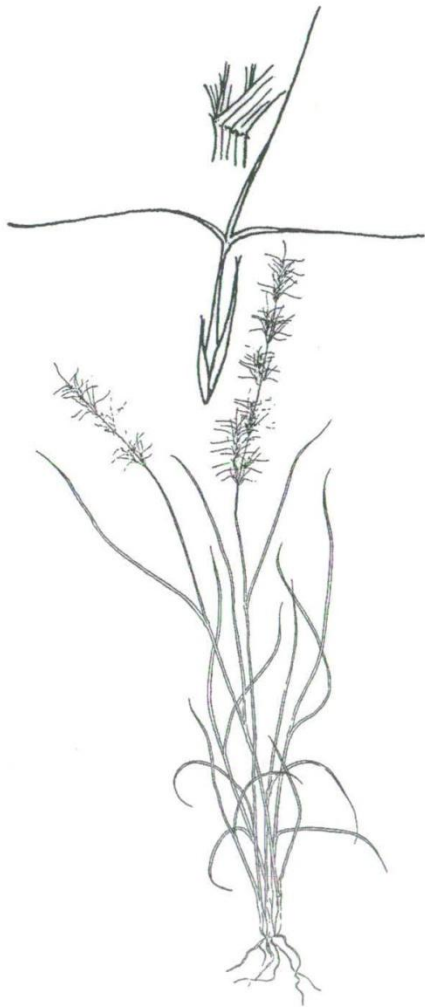
Perennial, warm-season, native – 12 to 36 inches tall.

Erect stems grow from a whitish to purplish base. The panicle is dense, narrow, and has eight to twelve spikelets. The color of the panicle varies from green to purple to white. The glumes are nearly equal in length—about $\frac{5}{32}$ inch. The plant often has a sour odor. Grows on prairies, especially along ditches and roadsides. Fair grazing for both livestock and wildlife.

Areas 2, 3, 4, 5, 6, 7, 8, 9, 10



wright threeawn



Aristida purpurea var. *wrightii*

Perennial, warm-season, native – 12 to 30 inches tall.

This is an erect, densely tufted bunchgrass that does not branch at the nodes and has more basal leaves than oldfield threeawn. The leaf collar is hairy. The seed head is purplish at first, turning yellow to gray when dry. The spikelet has three spreading awns up to 1 inch long, with two bending horizontally about the midpoint. Spikelets are in clusters of two to four along the main stem. Glumes are unequal in length. Grows on upland hills and plains. Fair grazing for livestock. Poor grazing for wildlife.

Areas 4, 5, 6, 7, 8, 9, 10

Yellow Indiangrass

Sorghastrum nutans

Perennial, warm-season, native – 36 to 96 inches tall.

Stems grow from short, scaly rhizomes. The nodes are fuzzy. The leaf blades are wide and long with a long ligule that resembles rabbit ears when dry. The panicle is 8 to 12 inches long and bronze to yellow in color. The awns are about $\frac{1}{2}$ inch long with a bend in the middle. They are closely twisted before the bend. Grows on bottomland and in protected places and is a premier grass of the tallgrass prairie. Good grazing for livestock. Fair grazing for wildlife.

Areas 1, 2, 3, 4, 5, 7, 8, 9, 10



Alternate – on one side, then the other.

Annual – a plant that lives only 1 year or season and sprouts from seed each year.

Auricle – earlike lobes at the junction of the blade and sheath.

Awn – bristle-like growth, especially on parts of a seed.

Axil – the juncture of the stem and branch.

Blade – expanded part of the leaf above the sheath.

Bract – scale, may be a glume or lemma.

Bulbous – bulb-like in shape or structure.

Climax – primary native plants of an area.

Collar – where sheath and grass blade join.

Cool-season – a plant that grows mostly in late fall, winter or early spring.

Culm – the jointed stem or stalk of a grass.

Decrease – to become less abundant.

Decumbent – growing in an inclined position but with an erect seedhead.

Floret – the small, individual grass flower, consisting of lemma, palea and seed.

Fruit – the ripe grain or seed.

Glumes – the lowest bracts of a grass spikelet.

Grazing value – a plant's worth as livestock or wildlife food, based on its palatability, nutritive quality, volume of production, longevity and distribution.

Included – enclosed in an organ, such as a seedhead included in the upper sheath.

Increase – to become more abundant.

Inflorescence – flowering part or seedhead of a grass plant.

Internode – the part of the stem between the nodes.

Introduced – brought in from outside North America; not part of the original vegetation of an area.

Invading – the movement of plants into an area as the native plants are reduced.

Involute – rolled inward from the edges.

Lacerate – irregularly cleft or torn.

Lemma – bract or scale above the glumes and enclosing the seed.

Ligule – tongue-like extension of the inside of the sheath between the leaf blade and stem.

Native – native to North America.

Node – joint or knot on a grass stem, sometimes enlarged or darkened.

Palea – bract above and opposite the lemma, enclosing the seed.

Panicle – open, rebranching type of seed head with lower branches that bear pediceled spikelets.

Pastureland – land where grasses are managed for grazing.

Pedicel – stem of an individual flower or spikelet.

Perennial – a plant that lives for 3 or more years, growing back each year from root stalks, crown buds or branches.

Prostrate – stems lying on the ground.

Pubescent – having hairs.

Raceme – seedhead type with pediceled spikelets from the main axis.

Rachis – main axis of the spikelet from which the lemma, palea and glumes grow.

Rangeland – uncultivated land used for grazing.

Rhizome – underground stem.

Sheath – lower part of leaf that fits around the stem below the collar.

Spathe – a modified leaf sheath that often encloses some of the inflorescence; a large bract enclosing an inflorescence

Spike – seedhead type with spikelets arising directly from the main axis without pedicels.

Spikelet – unit of grass flowers that includes two glumes, lemmas, paleas and seeds or pistils.

Stolon – aboveground runners that may take root at the nodes.

Tufted – growing in clumps from the base, usually without runners.

Warm-season – a plant that grows during spring and summer.

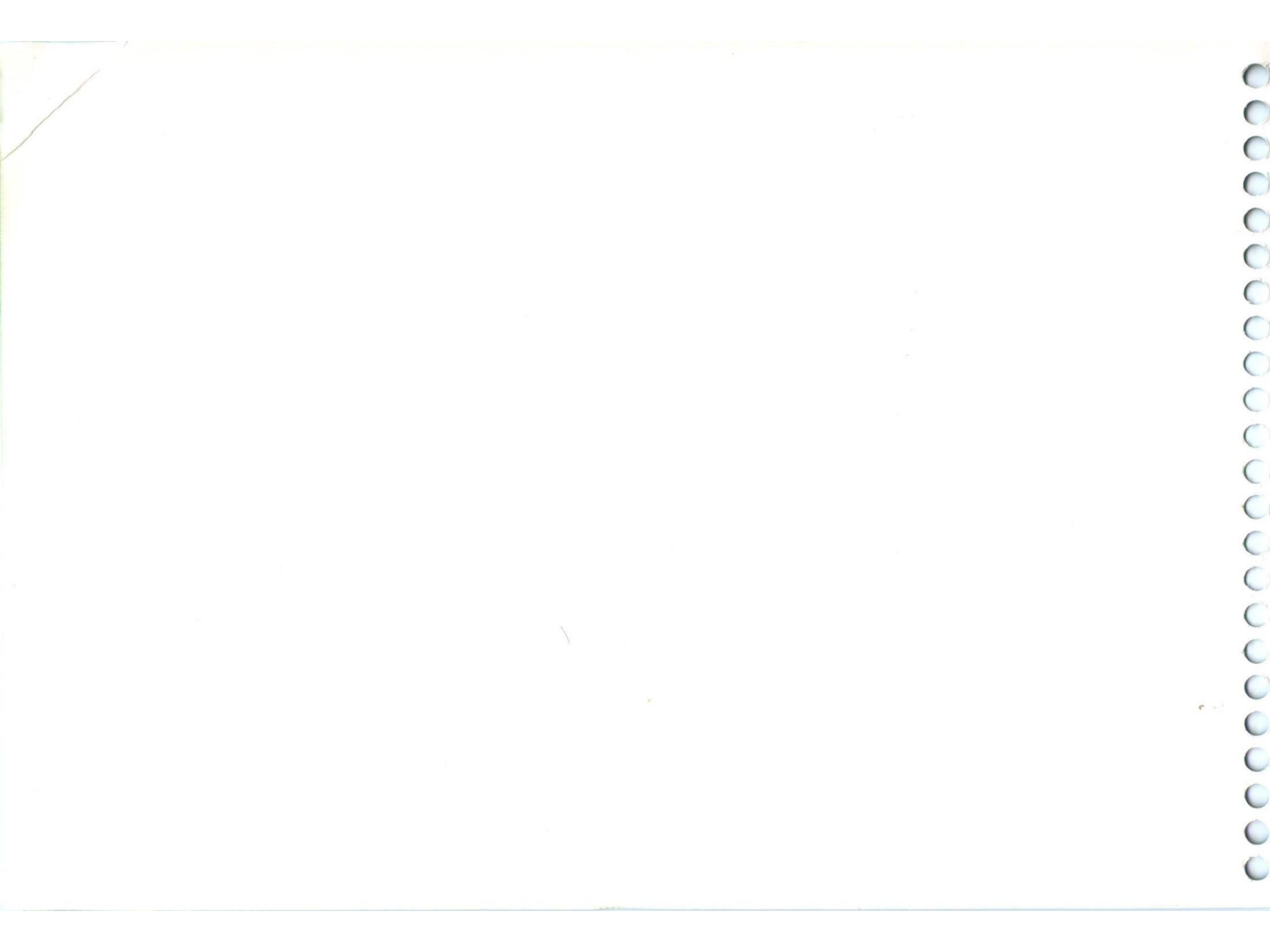
Whorl – cluster or circle of leaves, bristles or branches at a joint.

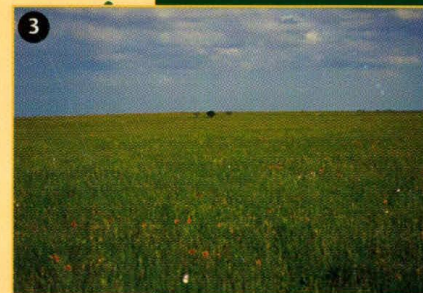
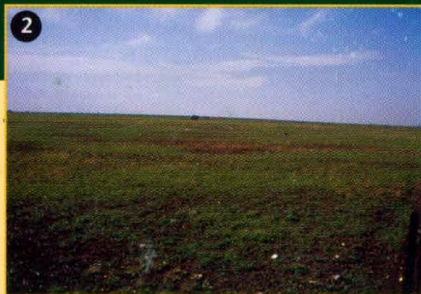
Previous revisions of this publication were by former Extension Range Specialists J. Daniel Rodgers, B. J. Ragsdale, Tommy Welch and G. O. Hoffman. The original publication was prepared by A. H. Walker, former Extension Range Specialist.

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- USDA-SCS Agriculture Handbook No. 389, 100 Native Forage Grasses in 11 Southern States.
- Gould, F. W. 1978. Common Texas Grasses, An Illustrated Guide. Texas A&M University Press, College Station.







Nature's Miracle of Renewal

The original prairies were adapted to the frequent fires that renewed the vigor and dominance of climax grasses.

Photo (1) was taken immediately after an August 1993 wildfire. By November 1993, fall rains had brought the perennial native grasses back (2). By May 1994, vegetation covered most of the ground (3). Photos (4), (5) and (6) — taken in June, July and August 1994, respectively — show the complete rejuvenation of this grassland within a year's time.

