USDA Natural Resources Conservation Service

Ecological site R150AY535TX
Southern Loamy Prairie

Last updated: 9/22/2023
Accessed: 04/28/2024

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 150A–Gulf Coast Prairies

MLRA 150A is in the West Gulf Coastal Plain Section of the Coastal Plain Province of the Atlantic Plain in Texas (83 percent) and Louisiana (17 percent). It makes up about 16,365 square miles (42,410 square kilometers). It is characterized by nearly level plains that have low local relief and are dissected by rivers and streams that flow toward the Gulf of Mexico. Elevation ranges from sea level to about 165 feet (0 to 50 meters) along the interior margin. It includes the towns of Crowley, Eunice, and Lake Charles, Louisiana, and Beaumont, Houston, Bay City, Victoria, Corpus Christi, Robstown, and Kingsville, Texas. Interstates 10 and 45 are in the northeastern part of the area, and Interstate 37 is in the southwestern part. U.S. Highways 90 and 190 are in the eastern part, in Louisiana. U.S. Highway 77 passes through Kingsville, Texas. The Attwater Prairie Chicken National Wildlife Refuge and the Fannin Battleground State Historic Site are in the part of the area in Texas.

Classification relationships

USDA-Natural Resources Conservation Service, 2006.
-Major Land Resource Area (MLRA) 150A

Ecological site concept

The Southern Loamy Prairie is characterized by very deep loamy soils occurring on uplands. The site is located in areas with mean annual rainfall ranging from 32 to 41 inches. These areas are vegetatively productive and provide good grazing for livestock.

Associated sites

R150AY537TX	**Lowland** As named, the Lowland ecological site occurs on the lowest part of the landscape. It receives excess water from surround landforms and may stay wet for extended periods throughout the year. This site lies below the Southern Loamy Prairie and contains more wetland type plants.
R150AY526TX	**Southern Blackland** The Southern Blackland ecological site shows an intact grass community with small clumped dispersal of woody species. The soils are very deep, richly black in color, and characterized by their shrink-swell nature. The sites are widely distributed across the uplands and terraces throughout the region. This site has more clay, slower infiltration, and somewhat less production.
R150AY528TX	**Claypan Prairie** The Claypan Prairie is a grassland site that occurs on nearly level, lower lying areas. Drainage in this site varies. The soils are characterized by a thin layer of fine sandy loam topsoil underlain by deep clay and clay loam subsoils. This site has a restrictive clay layer that reduces rooting depth. It is lower producing than the Southern Loamy Prairie
R150AY532TX	**Deep Sand** The Deep Sand site is characterized by soils with sandy surfaces and subsurfaces greater than 50 inches thick. This site is not similar in soils, landscape positions or vegetation to any other sites in MLRA 150A.
R150AY542TX	**Sandy Loam** The Sandy Loam ecological site typically has a fine sandy loam or very fine sandy loam surface. Sandy clay loam subsoil horizons are generally present 15 to 18 inches below the surface.

Similar sites

R150AY741TX	**Northern Loamy Prairie** TThe Northern Loamy Prairie is characterized by very deep loamy soils occurring on uplands. The site is correlated to areas with mean annual rainfall from 48 to 57 inches. They are vegetatively productive and provide good grazing for livestock.

Table 1. Dominant plant species

Tree	(1) *Quercus virginiana*
Shrub	(1) *Forb, perennial*
Herbaceous	(1) *Schizachyrium scoparium* (2) *Sorghastrum nutans*

Physiographic features

The site is on very deep, nearly level to gently sloping relic meander scrolls and flats in the Coastal Prairie. The soils formed in alkaline clayey and loamy sediments of Pleistocene age, mainly of Beaumont and Lissie Formations. Slope gradients are less than 3 percent but range to as much as 5 percent. Elevation ranges from 20 to 250 feet.

Table 2. Representative physiographic features

Landforms	(1) Coastal plain > Meander scroll (2) Coastal plain > Ridge
Runoff class	Low to very high
Flooding frequency	None
Ponding frequency	None
Elevation	4–76 m

Slope	0–5%
Water table depth	30–51 cm
Aspect	Aspect is not a significant factor

Climatic features

The climate of MLRA 150A is humid subtropical with mild winters. The average annual precipitation in the northern two-thirds of this area is 45 to 63 inches. It is 28 inches at the extreme southern tip of the area and 30 to 45 inches in the southwestern third of the area. The precipitation is fairly evenly distributed, but it is slightly higher in late summer and midsummer in the western part of the area and slightly higher in winter in the eastern part. Rainfall typically occurs as moderate intensity, tropical storms that produce large amounts of rain during the winter. The average annual temperature is 66 to 72 degrees F. The freeze-free period averages 325 days and ranges from 290 to 365 days, increasing in length to the southwest.

Table 3. Representative climatic features

Frost-free period (characteristic range)	257-299 days
Freeze-free period (characteristic range)	365 days
Precipitation total (characteristic range)	813-1,041 mm
Frost-free period (actual range)	233-365 days
Freeze-free period (actual range)	365 days
Precipitation total (actual range)	787-1,092 mm
Frost-free period (average)	281 days
Freeze-free period (average)	365 days
Precipitation total (average)	914 mm

Climate stations used

- (1) WELDER WILDLIFE FNDN [USC00419559], Sinton, TX
- (2) KINGSVILLE NAAS [USW00012928], Kingsville, TX
- (3) BISHOP [USC00410805], Bishop, TX
- (4) C C BOTANICAL GARDENS [USC00412013], Corpus Christi, TX
- (5) CORPUS CHRISTI [USW00012924], Corpus Christi, TX
- (6) ROBSTOWN [USC00417677], Robstown, TX
- (7) SINTON [USC00418354], Sinton, TX
- (8) BEEVILLE CHASE NAAS [USW00012925], Beeville, TX
- (9) REFUGIO 3 SW [USC00417530], Refugio, TX
- (10) VICTORIA FIRE DEPT #5 [USC00419361], Victoria, TX
- (11) VICTORIA RGNL AP [USW00012912], Victoria, TX
- (12) PORT LAVACA [USC00417183], Port Lavaca, TX
- (13) POINT COMFORT [USC00417140], Port Lavaca, TX

Influencing water features

Water perches on top of the argillic horizon for periods of a few hours to several days following extended heavy rains.
Runoff is low on slopes of 0 to 1 percent, medium to high on slopes of 1 to 3 percent, and very high on slopes of 3 to 5 percent.

Wetland description

This site has non-hydric soils. Some sites have areas of hydric soils. These areas are typically depressions that pond water for long periods. Onsite investigation is necessary to determine exact local conditions.

Soil features

Sites consist of very deep, moderately well drained, very slowly permeable soils. The typical surface texture is fine sandy loam but can include very fine sandy loam. The average thickness of the surface horizon is 15 inches but can range from 8 to 20 inches over a fine argillic horizon. Soil reaction ranges from strongly acid to neutral with none to very slight salinity. Soils correlated to this site include: Faddin, Garwood, Inari, Midfield, Orelia, Telferner, Texana, and Tidehaven.

Table 4. Representative soil features

Parent material	(1) Fluviomarine deposits–igneous, metamorphic and sedimentary rock
Surface texture	(1) Fine sandy loam (2) Very fine sandy loam (3) Loam
Family particle size	(1) Fine (2) Fine-loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to very slow
Soil depth	203 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-152.4cm)	17.78–22.86 cm
Calcium carbonate equivalent (101.6-152.4cm)	0–15%
Electrical conductivity (0-152.4cm)	0–4 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–6
Soil reaction (1:1 water) (0-101.6cm)	5.1–7.3
Subsurface fragment volume <=3" (30.5-152.4cm)	0–5%
Subsurface fragment volume >3" (30.5-152.4cm)	0–2%

Ecological dynamics

The plant community is a relatively stable tallgrass prairie. Dynamics in plant growth occur from year-to-year among species primarily due to rainfall and other weather occurrences, fire, and grazing pressure. Historically, the site developed under grazing by buffalo with summer and winter wildfires. Grazing was often heavy while the buffalo were on the area, but frequent, long deferments from all grazing allowed the forage species within the plant community to fully recover and regain their vigor before the next grazing cycle.

The reference plant community is true grassland prairie. Occasional mesquite (*Prosopis glandulosa*) or hackberry (*Celtis laevigata*) might be found along low depressed areas and along the edges of this site where watercourses might be found. An occasional inconspicuous prickly pear (Opuntia lindheimeri.) plant can be found. Big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indiangrass (Sorghastrum spp.), crinkleawn (Trachypogon secundus), switchgrass (*Panicum virgatum*), Florida paspalum (*Paspalum floridanum*), brownseed paspalum (*Paspalum plicatulum*), Virginia wildrye (*Elymus virginicus*), Texas wintergrass (Nasella leucotricha), knotroot bristlegrass (*Setaria parviflora*), low growing panicums, and paspalums make up the major grass species. Eastern gamagrass (*Tripsacum dactyloides*) is found scattered throughout. Bush sunflower (*Simsia calva*), Engelmann’s daisy (*Engelmannia peristenia*), and dotted gayfeather (*Liatris punctata*) are common perennial forbs.

Annual forbs occur in relatively high numbers in some years depending upon weather patterns.

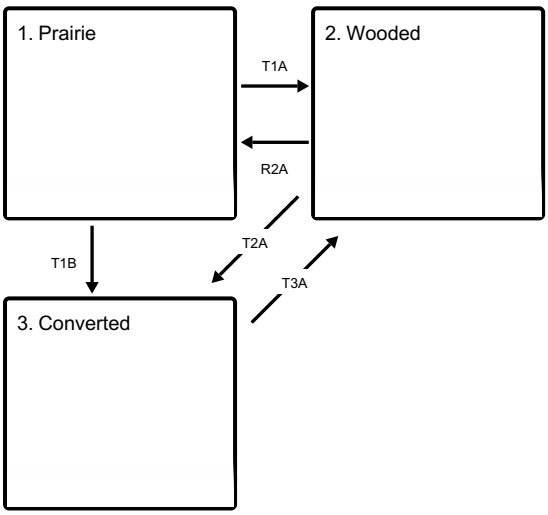
Woody plants are kept out by a combination of grass competition and fire. Productivity is very high, litter accumulation is high, and the litter covers approximately 60 to 75 percent of the ground. Crusting does not occur on the soil surface and bare ground occupies less than 10 percent of the area when in reference conditions. Native legumes occur throughout in relatively high numbers although total production by weight of the native legumes makes up only about 5 percent of the total annual production.

Historically, domestic livestock grazing with excessive numbers has reduced the more desirable tallgrass species such as eastern gamagrass, big bluestem, Indiangrass and little bluestem on most of this coastal prairie site. Brownseed paspalum was the major benefactor from the reduction of the tallgrass species. As change occurs, brownseed paspalum dramatically increases to approximately 50 percent of the grass competition. Other less desirable midgrass species such as longspike tridens (*Tridens strictus*), Gulf muhly (*Muhlenbergia filipes*), Pan American Balsamscale (*Elionurus tripsacoides*), and many sedges (Carex spp.) also increase with continued change.

With continued overgrazing and lack of fire, brush species proliferate. As the threshold of brush canopy is surpassed, mesquite and huisache dramatically increase. McCartney rose (*Rosa bracteata*) also increases and becomes a major problem. If brush is not controlled, canopy cover will become 100 percent with several canopy layers of brush. If the woody plants are not chemically controlled, the canopy cover continues to increase until woody plants dominate the site. Some areas have been converted to try and increase agricultural production. Tame grasses and some native plants are seeded into pasture. The introduced grass that is usually planted is hybrid bermudagrass or Old World bluestem. Fertilizer is usually applied to maximize growth, but when applications are ceased, woody species will invade and reduce overall production.

State and transition model

Ecosystem states



T1A - Absence of disturbance and natural regeneration over time

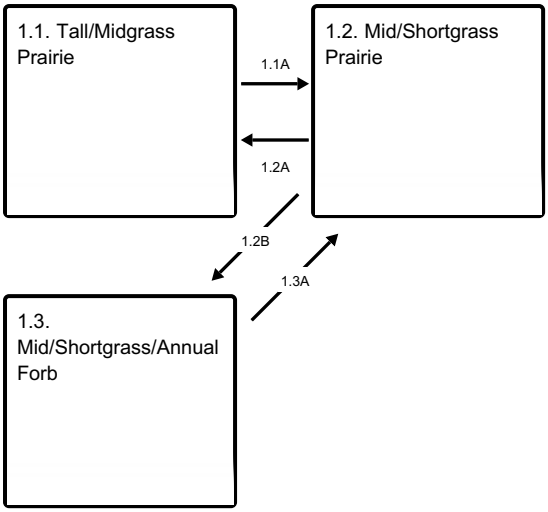
T1B - Extensive soil disturbance and introduction of non-native species

R2A - Reintroduction of fire and regular disturbance return intervals

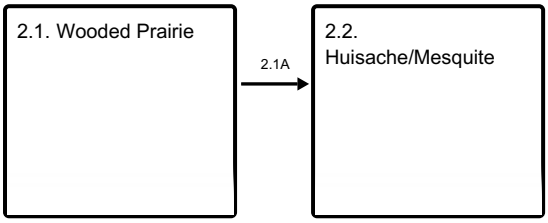
T2A - Extensive soil disturbance and introduction of non-native species

T3A - Absence of disturbance and natural regeneration over time

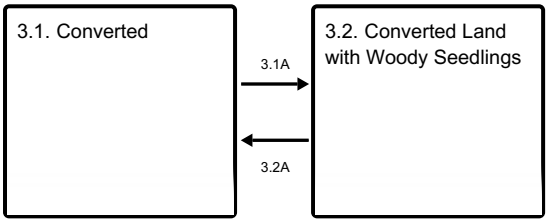
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Prairie

Dominant plant species

- big bluestem (*Andropogon gerardii*), grass
- little bluestem (*Schizachyrium scoparium*), grass

Community 1.1
Tall/Midgrass Prairie

This reference plant community is a fire-dependent prairie composed primarily of tall and midgrasses that make up 65 percent of the composition. Midgrasses make up about 30 percent and forbs make up 5 percent of the composition. Historically, grazing by bison was intermittent and fires, both summer and winter, likely occurred on a 4 to 5-year basis. Annual forbs occur in cycles based primarily on when rainfall occurs or a combination of rainfall and drought. As the bison were replaced by cattle, grazing became much more constant and concentrated. This heavy grazing reduced the grass fuel load and reduced the occurrence of wildfires. As continuous heavy grazing continued, midgrasses, shortgrasses, and annual forbs replaced the more palatable tallgrasses. Seedlings of mesquite and huisache can slowly become established on the site with the reduction of tallgrass competition and the loss of fire. As the mesquite and/or huisache seedlings become established, there is about a 10-year window when management can be applied to the area to restore the tall and midgrasses. This involves the use of grazing management with frequent deferment from all livestock grazing. Prescribed burning is imperative, and chemical brush and weed control may be necessary. Even if there are no livestock, prescribed burning, with chemical brush and weed control may still be needed.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	5856	8518	9583
Forb	308	448	504
Shrub/Vine	–	–	6
Tree	–	–	6
Total	**6164**	**8966**	**10099**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	15-20%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	60-75%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	5-10%

Figure 9. Plant community growth curve (percent production by month). TX7606, Tall/Midgrass Prairie Community. Prairie Community composed of warm-season tall and midgrasses..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2	4	12	24	23	8	5	12	4	3	2

Community 1.2
Mid/Shortgrass Prairie

This community emerges as heavy grazing removes the tallgrass component of the reference plant community. As tallgrasses decrease, midgrass and shortgrass species such as little bluestem, brownseed paspalum, longspike tridens, and sideoats grama correspondingly increase. Reduced fine fuel loads result in reduced fire frequency and intensity. This site can return to the reference community with the use of prescribed grazing and prescribed burning.

Community 1.3
Mid/Shortgrass/Annual Forb

Continued heavy grazing pressure, causes the more palatable midgrasses to be replaced by non-palatable mid and shortgrasses with an increase in annual forbs. This community is dominated by species such as longspike tridens, Pan American Balsamscale, knotroot bristlegrass, low panicums, paspalums, and smutgrass. Due to biomass and litter production being greatly reduced, fire frequency is also greatly reduced. However, this community can still be transitioned back to the reference plant community using prescribed grazing and prescribed burning. Once seedlings of either introduced grasses or woody plants establish, this signals a transition towards a different state.

Pathway 1.1A
Community 1.1 to 1.2

Heavy continuous grazing and lack of fire will transition the site to Community 1.2.

Pathway 1.2A
Community 1.2 to 1.1

Prescribed grazing with correct stocking rates and a return of fire will transition Community 1.2 back to the reference community.

Pathway 1.2B
Community 1.2 to 1.3

Further continued heavy grazing and lack of fire will further transition the site to Community 1.3.

Pathway 1.3A
Community 1.3 to 1.2

Prescribed grazing, prescribed fire, and possibly brush management are necessary to transition to Community 1.2.

State 2
Wooded

Dominant plant species

- sweet acacia (*Acacia farnesiana*), tree
- honey mesquite (*Prosopis glandulosa*), tree

Community 2.1
Wooded Prairie

This community is a result of long-term continuous overstocking and the removal of fire. Shortgrasses and annual forbs become very prevalent. Brownseed paspalum and Pan American Balsamscale are the dominant grass species. Shortgrasses such as low-growing panicums and paspalums combine with sumpweed (Iva xanthifolia), broomweed (Amphiachyris spp.), and Texas croton (*Croton texensis*) to give the appearance of a weedy field. Mesquite and huisache seedlings invade and, in some locations, McCartney rose. This depends upon the proximity to other stands of McCartney rose. Grazing management, consisting of rest and proper stocking rates, can be combined with prescribed burning to restore the tallgrass prairie. Burning and brush management will be needed to suppress the increasing woody plant invasion. When the canopy cover exceeds 20 percent, a major effort is required to remove the brush and return to the prairie. When the brush encroachment begins, there is a period of about 10 years when the woody plants are short and rather inconspicuous. After this point, is takes a substantial economic investment to restore the reference state.

Community 2.2
Huisache/Mesquite

This state occurs when the (2.1) Wooded Prairie Community continues to be overgrazed and/or when fire is not allowed to naturally keep the woody plant invasion in check. However, once the woody seedlings reach a certain age, woody canopy increases will occur regardless of grazing management. Mesquite and huisache are prolific seed producers and McCartney rose can be a common invader. Once populations become established, they will produce enough seed to continue reseeding for many years. These brush species can even establish new seedlings during times of drought. During drought periods, grasses offer much less competition to the establishment of new seedlings. To restore the Prairie State (1) requires extensive brush management, grazing management, and prescribed fire. Since huisache, mesquite and McCartney Rose all require different types of brush management, several chemical treatments may be needed. Combinations of treatments with prescribed fire offer the most likely scenario for grassland restoration success.

Pathway 2.1A
Community 2.1 to 2.2

Heavy grazing and lack of fire will cause an increase in brush density. The transition occurs when brush canopy cover is over 20 percent.

State 3
Converted

Dominant plant species

- Bermudagrass (*Cynodon dactylon*), grass

Community 3.1
Converted

The Converted Land Community is the result of land clearing, plowing, and planting to either a native rangeland mixture, introduced pasture, or farmed as cropland. Any of the plant communities can be converted, but different degrees of expense, energy, and difficulty are required. Traditional introduced species include bermudagrass, kleingrass and many of Old World bluestems. The amount of production is dependent upon the chosen yield goal and subsequent fertility. Converted land will require continued maintenance will be needed to keep invading brush species and weedy plants from establishing. Prescribed grazing will be needed along with the integration of brush management, pest management, and probably prescribed fire. Once any of these maintenance practices are relaxed, an invasion of shrubs will begin.

Community 3.2
Converted Land with Woody Seedlings

This plant community emerges when there is no brush management, pest management, or when the land is abandoned to recover on its own. In most cases, there will be a sufficient supply of woody plant seeds in the soil. If the land has been cropped or planted to introduced species, there is little or no seed source of native grasses left to establish within a reasonable amount of time. Moreover, it will be difficult for the native plants to establish because of the aggressive nature of the introduced forage plants. If the shrubs are small and there is a remnant of desired plants left, selective brush management or chemical brush management can change the community to a point where appropriate management can restore the desired plants. However, if the shrubs are mature, then the use of heavy equipment for land clearing and replanting is necessary. Again, if aggressive introduced plants exist, more than likely, they will be the dominant species to recover.

Pathway 3.1A
Community 3.1 to 3.2

With heavy grazing and no brush control, woody species will encroach the site.

Pathway 3.2A
Community 3.2 to 3.1

Seedling brush control, prescribed grazing, and possibly prescribed fire will transition the community back to 3.1.

Transition T1A
State 1 to 2

Heavy grazing, lack of fire, and brush invasion over 20 percent canopy signal the transition to State 2.

Transition T1B
State 1 to 3

Conversion signals this transition by preparing a seedbed and planting to pasture.

Restoration pathway R2A

State 2 to 1

Restoration occurs when brush management reduces the canopy cover below 20 percent, prescribed grazing restores correct stocking rates, and once grasses have created enough biomass, prescribed fire returns.

Transition T2A
State 2 to 3

Conversion signals this transition by clearing brush, preparing a seedbed, and planting to pasture.

Transition T3A
State 3 to 2

Without brush control to manage encroaching woody seedlings, the site will transition to State 2.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Tall/Midgrasses**			3923–6389	
	big bluestem	ANGE	*Andropogon gerardii*	2948–3699	–
	Indiangrass	SONU2	*Sorghastrum nutans*	2948–3699	–
	little bluestem	SCSC	*Schizachyrium scoparium*	2825–3564	–
	switchgrass	PAVI2	*Panicum virgatum*	1771–2376	–
	eastern gamagrass	TRDA3	*Tripsacum dactyloides*	1771–2376	–
	spiked crinkleawn	TRSP12	*Trachypogon spicatus*	1244–1782	–
	Florida paspalum	PAFL4	*Paspalum floridanum*	829–1188	–
	brownseed paspalum	PAPL3	*Paspalum plicatulum*	829–1188	–
2	**Mid/Shortgrasses**			897–1457	
	sideoats grama	BOCU	*Bouteloua curtipendula*	639–863	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	308–476	–
	marsh bristlegrass	SEPA10	*Setaria parviflora*	308–476	–
	panicgrass	PANIC	*Panicum*	202–359	–
	watercrown grass	PASPA	*Paspalidium*	202–359	–
3	**Cool-Season Grasses**			392–616	
	sedge	CAREX	*Carex*	202–247	–
	Virginia wildrye	ELVI3	*Elymus virginicus*	202–247	–
	Texas wintergrass	NALE3	*Nassella leucotricha*	202–247	–
4	**Mid/Shortgrasses**			504–841	
	fall witchgrass	DICO6	*Digitaria cognata*	196–308	–
	Pan American balsamscale	ELTR4	*Elionurus tripsacoides*	196–308	–
	plains lovegrass	ERIN	*Eragrostis intermedia*	196–308	–
	thin paspalum	PASE5	*Paspalum setaceum*	196–308	–
5	**Shortgrasses**			140–280	
	gulfhairawn muhly	MUFI3	*Muhlenbergia filipes*	56–247	–
	longtom	PADE24	*Paspalum denticulatum*	56–247	

	longtom	PADE24	*Paspalum denticulatum*	56–247	–
	longspike tridens	TRST2	*Tridens strictus*	56–247	–
Forb					
6	**Forbs**			308–504	
	Cuman ragweed	AMPS	*Ambrosia psilostachya*	78–123	–
	partridge pea	CHFA2	*Chamaecrista fasciculata*	78–123	–
	purple dalea	DALA4	*Dalea lasiathera*	78–123	–
	bundleflower	DESMA	*Desmanthus*	78–123	–
	Engelmann's daisy	ENPE4	*Engelmannia peristenia*	78–123	–
	button eryngo	ERYU	*Eryngium yuccifolium*	78–123	–
	snow on the prairie	EUBI2	*Euphorbia bicolor*	78–123	–
	dotted blazing star	LIPU	*Liatris punctata*	78–123	–
	Nuttall's sensitive-briar	MINU6	*Mimosa nuttallii*	78–123	–
	yellow puff	NELU2	*Neptunia lutea*	78–123	–
	upright prairie coneflower	RACO3	*Ratibida columnifera*	78–123	–
	snoutbean	RHYNC2	*Rhynchosia*	78–123	–
	awnless bushsunflower	SICA7	*Simsia calva*	78–123	–
Shrub/Vine					
7	**Shrubs/Vines**			0–6	
	pricklypear	OPUNT	*Opuntia*	0–6	–
	blackberry	RUBUS	*Rubus*	0–6	–
Tree					
8	**Trees**			0–6	
	hackberry	CELTI	*Celtis*	0–6	–
	mesquite	PROSO	*Prosopis*	0–6	–
	live oak	QUVI	*Quercus virginiana*	0–6	–
	gum bully	SILAL3	*Sideroxylon lanuginosum ssp. lanuginosum*	0–6	–

Animal community

The Coastal Prairie communities support a wide array of animals. Cattle and many species of wildlife make extensive use of the site. White-tailed deer may be found scattered across the prairie and are found in heavier concentrations where woody cover exists. Feral hogs are present and at times abundant. Coyotes are abundant and fill the mammalian predator niche. Rodent populations rise during drier periods and fall during periods of inundation. Attwater’s pocket gophers are abundant and have an important impact on the ecology of the site. The badger is present but not abundant in locations at the southern extent of the site. Locally unique species alligators and bullfrogs.

The region is a major flyway for waterfowl and migrating birds. Hundreds of thousands of ducks, geese, and sandhill cranes abound during winter. Two important endangered species occur in the area, the whooping crane and Attwater’s prairie chicken. Many other species of avian predators including northern harriers, ferruginous hawks, red-tailed hawks, white-tailed kites, kestrels, and, occasionally, swallow-tailed kites utilize the vast grasslands. Many species of grassland birds use the site, including blue grosbeaks, dickcissels, eastern meadowlarks, several sparrows, including, vesper sparrow, lark sparrow, savannah sparrow, grasshopper sparrow, and Le Conte’s sparrow.

Inventory data references

Existing NRCS Range site descriptions and SCS-417 data were used to obtain vegetative information for this site. Thirteen SCS-417's were available from three different counties for this site. Existing plant communities were ascertained through fieldwork on private ranches.

Other references

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	Mike Stellbauer, Zone RMS, NRCS, Bryan, TX
Contact for lead author	
Date	06/08/2004
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None.

2. **Presence of water flow patterns:** Uncommon.

3. **Number and height of erosional pedestals or terracettes:** Should not occur under reference conditions.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Less than 20 percent bare ground randomly distributed throughout.

5. **Number of gullies and erosion associated with gullies:** None.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None.

7. **Amount of litter movement (describe size and distance expected to travel):** Small to medium-sized litter may move short distances during intense storms.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface is resistant to erosion. Soil stability class range is expected to be 4 to 6.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The soil surface structure is 14 to 35 inches thick with colors from light brownish gray to grayish brown and a weak fine subangular blocky structure. SOM is less than 2 percent.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This true tallgrass prairie site with adequate litter and little bare ground provides for maximum infiltration and little runoff under normal rainfall events.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction in A horizon. The clay layer at about 30 inches causes a perched water table during the winter months.

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant: Warm-season tallgrasses

    Sub-dominant: Warm-season midgrasses Forbs

    Other: Annual grasses Annual Forbs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Little apparently mortality or decadence for any functional groups.

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 5,000 pounds per acre for below average moisture years to 8,500 pounds per acre for above average moisture years.

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Potential invasive species include Chinese tallow, huisache, mesquite, common bermudagrass, bahiagrass, yaupon, and Macartney rose.

17. **Perennial plant reproductive capability:** All perennial plants should be capable of reproducing except for periods of prolonged drought conditions, heavy natural herbivory, and intense wildfires.