USDA Natural Resources Conservation Service

Ecological site R150AY740TX
Northern Blackland

Last updated: 9/20/2019
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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 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.

Associated sites

R150AY528TX	**Claypan Prairie** Slightly lower and down-slope of Blackland.
R150AY535TX	**Southern Loamy Prairie** Adjacent to site.
R150AY537TX	**Lowland** Depressional site found within Blackland sites.

Similar sites

R150AY528TX	**Claypan Prairie** Tighter and somewhat less productive.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Schizachyrium scoparium* (2) *Andropogon gerardii*

Physiographic features

This site was formed from clayey sediments in the Beaumont Formation of Late Pleistocene age. The nearly level to very gently sloping soils of this site are on the upper Texas coastal plain. Slopes are mainly less than 1 percent but can range as high as 5 to 8 percent. Runoff is generally low for most soils in this site. Undisturbed areas exhibit gilgai micro-relief.
Elevation ranges from 10 to 100 feet.

Table 2. Representative physiographic features

Landforms	(1) Plain
Flooding frequency	None
Ponding frequency	None
Elevation	10–100 ft
Slope	0–8%
Water table depth	6–80 in
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)	233-265 days
Freeze-free period (characteristic range)	365 days
Precipitation total (characteristic range)	48-57 in
Frost-free period (actual range)	231-365 days
Freeze-free period (actual range)	264-365 days
Precipitation total (actual range)	46-60 in
Frost-free period (average)	259 days
Freeze-free period (average)	352 days
Precipitation total (average)	53 in

Climate stations used

- (1) ALVIN [USC00410204], Alvin, TX
- (2) HOUSTON CLOVER FLD [USW00012975], Pearland, TX
- (3) HOUSTON NWSO [USC00414333], Dickinson, TX
- (4) THOMPSONS 3 WSW [USC00418996], Richmond, TX
- (5) HOUSTON-PORT [USC00414326], Houston, TX
- (6) HOUSTON HOBBY AP [USW00012918], Houston, TX
- (7) SUGAR LAND [USC00418728], Sugar Land, TX
- (8) SEALY [USC00418160], Sealy, TX
- (9) HOUSTON HOOKS MEM AP [USW00053910], Tomball, TX
- (10) HOUSTON INTERCONT AP [USW00012960], Houston, TX
- (11) HOUSTON SAN JACINTO DA [USC00414328], Houston, TX
- (12) BAYTOWN [USC00410586], Crosby, TX
- (13) ANAHUAC [USC00410235], Anahuac, TX
- (14) BEAUMONT RSCH CTR [USC00410613], Beaumont, TX
- (15) BEAUMONT CITY [USC00410611], Vidor, TX
- (16) PORT ARTHUR SE TX AP [USW00012917], Port Arthur, TX
- (17) NEW GULF [USC00416286], Boling, TX
- (18) BAY CITY WTR WKS [USC00410569], Bay City, TX
- (19) DANEVANG 1 W [USC00412266], El Campo, TX
- (20) EL CAMPO [USC00412786], El Campo, TX
- (21) PIERCE 1 E [USC00417020], El Campo, TX
- (22) ANGLETON 2 W [USC00410257], Angleton, TX

Influencing water features

Water enters the soil rapidly when it is dry and cracked and very slowly when it is wet and sealed. Although ponding is not shown as a characteristic for the soils of this site, ponding may occur for brief to long periods during the growing season on micro-lows of gilgai and influence the plant community. Some soils associated with this site are hydric or have hydric inclusions and may be wetlands.

Soil features

This site consists of very deep, poorly drained to moderately well drained, very slowly permeable, very strongly acid to moderately alkaline soils. The surface color is black to very dark gray. Water enters the soil rapidly when it is dry and cracked and very slowly when it is moist. Undisturbed areas exhibit gilgai micro-relief. Disturbed areas may begin to re-form gilgai in as little as 5 years but may take 40 to 50 years to match undisturbed sites. Soils correlated to this site include: Bacliff, Beaumont, Bernard, China, Lake Charles, League, and Verland.

Table 4. Representative soil features

Surface texture	(1) Clay

Family particle size	(1) Clayey
Drainage class	Poorly drained to moderately well drained
Permeability class	Very slow
Soil depth	80 in
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	0–10%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–10
Soil reaction (1:1 water) (0-40in)	4.3–7
Subsurface fragment volume <=3" (Depth not specified)	0–2%

Ecological dynamics

The reference plant communities of the Blackland are stable tall and midgrass prairies that were in dynamic equilibrium with the ecological forces that formed them. These forces included grazing by native wild herbivores, natural and anthropogenic fire, and periodic drought and wet cycles. Bison were the primary large ungulates that grazed but companion species included antelope and whitetail deer. The typical bison grazing pattern was short but very intense, followed by total deferment until herds migrated back into the area. Long deferments allowed the tallgrasses time to recover carbohydrate reserves and produce a seed crop. A fire regime and frequency of 3 to 8 years was likely and was a more important factor in shaping this prairie than was grazing.

Under the influences mentioned above, this prairie site was dominated by tall and midgrasses. Major tallgrass species include little bluestem (*Schizachyrium scoparium*), yellow Indiangrass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), eastern gamagrass (*Tripsacum dactyloides*), and plume grasses (Sacchrum sp.). Dominant midgrass species include Florida paspalum (*Paspalum floridanum*), brownseed paspalum (*Paspalum plicatulum*), bushy bluestem (*Andropogon glomeratus*), longspike tridens (*Tridens strictus*), and meadow dropseed (*Sporobolus compositus*). Perennial forbs important to the site include herbaceous mimosa (*Mimosa strigillosa*), bundleflower (Desmanthus spp.), button snakeroot (*Eryngium yuccifolium*), and gayfeather (Liatris spp.). The micro-highs and lows (gilgai micro-relief) on this site contribute to the diverse plant community; the micro-highs are slightly drier and the micro-lows slightly wetter. Elevation differences between highs and lows range from 6 to 15 inches. Vegetation tolerant of moist soil grows on the lower elevations of the gilgai while less water-tolerant vegetation grows on the higher elevations.

Excessive grazing by domestic livestock contributes to the reduction or elimination of eastern gamagrass, big bluestem, yellow Indiangrass, switchgrass, and little bluestem. As the site transitions, species such as brownseed paspalum, bushy bluestem, knotroot bristlegrass (*Setaria parviflora*), longspike tridens and carpetgrass (Axonopus sp.) increase. Nonnatives such as Dallisgrass (*Paspalum dilatatum*), smutgrass (*Sporobolus indicus*), and Bermudagrass (*Cynodon dactylon*) increase. In addition to site degradation due to excessive grazing, farming has had a significant influence on the site. The site was not only changed through the loss of native plant communities from cultivation, but also through the change in soils, hydrology, and topography by land leveling, ditching, and leveeing.

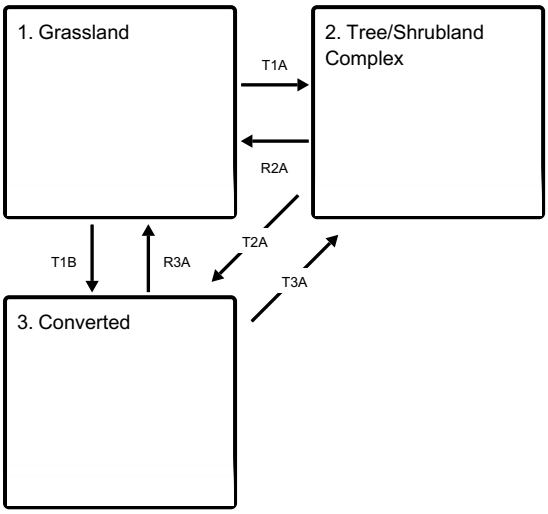
Continued overuse of the site by livestock, lack of fire, or abandonment of cropping allows woody plants to invade. These woody pioneers include huisache (*Acacia farnesiana*), yaupon (*Ilex vomitoria*), eastern baccharis (Baccharis halamifolia), hackberry (Celtis sp.), cedar elm (*Ulmus crassifolia*), and ash (Fraxinus sp.). Nonnative invaders include McCartney Rose (*Rosa bracteata*) and Chinese tallow (*Triadica sebifera*). As the plant community transitions from Tallgrass Prairie (1.1) to Tall/Midgrass Prairie (1.2) to Mid/Shortgrass Prairie (1.3) to Shrub/Tree Complex state (2), changes occur in plant composition, biomass production, litter accumulation, and water infiltration and storage. These changes influence most treatment alternatives including the ability to use fire as a

management tool. The result has been the transition of from a true prairie to wooded grassland to woodland.

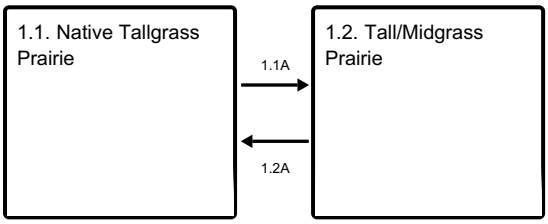
The resulting increase in woody cover signifies that thresholds have been crossed. Once these thresholds are crossed, restoration back to the reference plant community becomes more difficult and expensive. Even though the reference community may be restored using a combination of practices, such as mechanical and herbicidal brush management, planned grazing, and fire, this community cannot be maintained without the use of these tools on a frequent basis.

State and transition model

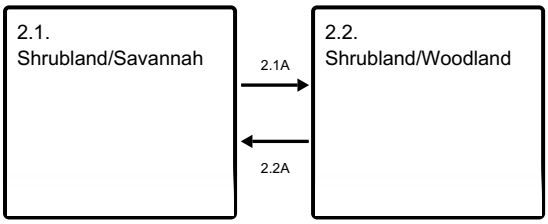
Ecosystem states



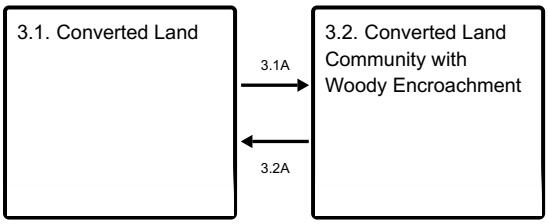
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Grassland

Community 1.1
Native Tallgrass Prairie

The reference plant community is a grassland composed of tall and midgrasses. Tallgrasses make up over 60

percent, midgrasses approximately 30 percent, and other associated grasses, forbs, and shrubs make up the remainder of the plant community. Annual forbs occur in differing amounts in response to disturbance from grazing, fire, and/or drought. Chronic overgrazing results in a reduction of biomass, reduced litter accumulation, loss of reference grasses, and less ability to use fire effectively for management. Some mid and shortgrasses increase because of this overgrazing. Prescribed grazing, prescribed burning, application of herbicides, or mowing is necessary to keep invading woody species such as huisache, Macartney rose, or Chinese tallow in check.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	5850	7200	8550
Shrub/Vine	325	400	475
Forb	325	400	475
Tree	0	0	0
Total	**6500**	**8000**	**9500**

Figure 9. Plant community growth curve (percent production by month). TX6550, Tallgrass Prairie Community. Warm-season tallgrass dominates the community along with forbs and less than 10% woody canopy..

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

Community 1.2
Tall/Midgrass Prairie

This community develops as heavy grazing or over haying removes the tallgrass component of the reference community. As tallgrasses decrease, midgrasses such as meadow dropseed, brownseed paspalum, and longspike tridens increase. Vaseygrass (*Paspalum urvillei*) is an introduced plant that commonly invades. As reduced fuel loads occur, the incidence of accidental or intentional fires decreases. Annual and perennial forbs, sedges, flat sedges, and other grass-likes often increase. Continued heavy grazing contributes to further degradation and loss of more palatable midgrasses. Invasion of woody species begins. Prescribed grazing along with prescribed burning or weed control is necessary to move back towards the tallgrass plant community. Where haying occurs, less frequent cutting (once per year) and timing of cutting (prior to July 1st) may improve species composition and vigor.

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.

State 2
Tree/Shrubland Complex

Community 2.1
Shrubland/Savannah

This community occurs because of continuous heavy grazing, loss of fire as a tool, greatly altered water and energy cycles, and invasion of woody plants. A threshold has been crossed between Community 1.2 and Community 2.1. If prescribed grazing is implemented, fire re-introduced, and seedling woody plants controlled, this community can be quite productive for cattle and wildlife. To do so will require judicious grazing, periodic fire, and frequent applications

of herbicide or mechanical treatments on an individual plant basis. This state offers different resources to a different wildlife community than the reference state because of the increased amount of woody cover and the increased production of both perennial and annual forbs.

Community 2.2
Shrubland/Woodland

Over time, with continued heavy grazing, lack of fire, and/or no brush management, the site will transition into a huisache, hackberry, and elm woodland with canopies more than 90 percent. Chinese tallow is a common introduced invader. The community may be a monoculture of one woody species or a combination of many. The herbaceous community will be greatly reduced and comprised of Texas wintergrass, gaping panicum, winter bentgrass, sedges, and flat sedges. Major inputs, both chemical and mechanical, are required to restore this community to a grassland or savannah. A common practice is the use of aerially-applied herbicides to reduce the canopy followed by prescribed fire or mechanical treatments to remove the woody vegetation and maintain semi-open wooded grassland for several years following treatment. Although these practices kill some of the woody vegetation, much of it remains and re-sprouts from the crown. Often with this community, mechanical treatments such as rootplowing, treedozing, and raking are employed and the land is converted to cropland or pasture.

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 25 percent.

Pathway 2.2A
Community 2.2 to 2.1

To return to Community 2.1, brush density needs to be removed below 25 percent. Return of fire and prescribed grazing also help in this transition.

State 3
Converted

Community 3.1
Converted Land

This is the most common community and occurs when other communities are manipulated through practices such as mechanical brush control, land leveling, cultivation, and pasture planting. If not converted to crops such as rice, corn, cotton, or soybeans, introduced grasses are planted for livestock forage. Some cropland acres have been converted into pastureland situations. Introduced grasses adapted to the site include Bermudagrass, Dallisgrass, bahiagrass, kleingrass, and yellow bluestems. Cultural practices such as weed control, brush control, and fertility maintenance must be applied to keep this state in a cropable condition or as grassland. Invasion by woody species, sedges, and flatsedges is a continuous threat. Not only is there a long-lived seed source of Chinese tallow, huisache, elm, and other woody species, additional seed are brought in by grazing animals, wildlife and domestic livestock. Macartney rose seed and canes, where present, are also left behind following mechanical control and will re-establish quickly.

Community 3.2
Converted Land Community with Woody Encroachment

The transition from community 3.1 to 3.2 requires only time and the absence of woody seedling control. Due to the seed bank present in the soil and the constant addition of new seed from grazing/browsing animals and seed-eating birds, re-infestation of woody seedlings happens in a relatively short time period of 3 to 5 years. If woody seedlings are controlled on a semi-regular basis, this state can be maintained indefinitely, and the state can switch back and forth from 3.2 to 3.1. If this site has been planted to introduced species such as Bermudagrass, yellow bluestems, or kleingrass, and fertilization and weed control are stopped, pioneer native grasses and forbs will begin to establish and over long periods of time this state will begin to move back towards State 1.3. Some degree of woody plant

control would be required for this to occur. If no woody plant management is practiced, then State 3.2 will revert to State 2.2 with a dominance of huisache, Chinese tallow, hackberry, and baccharis species.

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 10 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 10 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.

Restoration pathway R3A
State 3 to 1

Conversion of the site back to reference community grasses is required for restoration. Eliminating all introduced species from the site is difficult, and if enough degradation has occurred to the soils, full restoration may not be attainable.

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 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Tallgrasses**			3200–4700	
	big bluestem	ANGE	*Andropogon gerardii*	3200–4700	–
	switchgrass	PAVI2	*Panicum virgatum*	3200–4700	–
	shortbeard plumegrass	SABR18	*Saccharum brevibarbe*	3200–4700	–

	[illegible]	[illegible]	[illegible]	[illegible]	
	little bluestem	SCSC	*Schizachyrium scoparium*	3200–4700	–
	Indiangrass	SONU2	*Sorghastrum nutans*	3200–4700	–
	eastern gamagrass	TRDA3	*Tripsacum dactyloides*	3200–4700	–
2	**Midgrasses**			1200–1650	
	gulfhairawn muhly	MUFI3	*Muhlenbergia filipes*	1200–1650	–
	Florida paspalum	PAFL4	*Paspalum floridanum*	1200–1650	–
	brownseed paspalum	PAPL3	*Paspalum plicatulum*	1200–1650	–
	composite dropseed	SPCO16	*Sporobolus compositus*	1200–1650	–
3	**Midgrasses**			600–950	
	buffalograss	BODA2	*Bouteloua dactyloides*	600–950	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	600–950	–
	longtom	PADE24	*Paspalum denticulatum*	600–950	–
	marsh bristlegrass	SEPA10	*Setaria parviflora*	600–950	–
	saltmeadow cordgrass	SPPA	*Spartina patens*	600–950	–
	gulf cordgrass	SPSP	*Spartina spartinae*	600–950	–
	white tridens	TRAL2	*Tridens albescens*	600–950	–
	longspike tridens	TRST2	*Tridens strictus*	600–950	–
4	**Cool-season grasses**			500–750	
	sedge	CAREX	*Carex*	500–750	–
	flatsedge	CYPER	*Cyperus*	500–750	–
	Virginia wildrye	ELVI3	*Elymus virginicus*	500–750	–
	gaping grass	STHI3	*Steinchisma hians*	500–750	–
5	**Shortgrasses**			350–500	
	winter bentgrass	AGHY	*Agrostis hyemalis*	350–500	–
	fall witchgrass	DICO6	*Digitaria cognata*	350–500	–
	Scribner's rosette grass	DIOLS	*Dichanthelium oligosanthes var. scribnerianum*	350–500	–
	panicgrass	PANIC	*Panicum*	350–500	–
	crowngrass	PASPA2	*Paspalum*	350–500	–
Forb					
6	**Forbs**			250–325	
	Cuman ragweed	AMPS	*Ambrosia psilostachya*	250–325	–
	whitemouth dayflower	COER	*Commelina erecta*	250–325	–
	wedgeleaf prairie clover	DAEM2	*Dalea emarginata*	250–325	–
	Illinois bundleflower	DEIL	*Desmanthus illinoensis*	250–325	–
	velvet bundleflower	DEVE2	*Desmanthus velutinus*	250–325	–
	blacksamson echinacea	ECAN2	*Echinacea angustifolia*	250–325	–
	Engelmann's daisy	ENPE4	*Engelmannia peristenia*	250–325	–
	button eryngo	ERYU	*Eryngium yuccifolium*	250–325	–
	beeblossom	GAURA	*Gaura*	250–325	–
	coastal indigo	INMI	*Indigofera miniata*	250–325	–
	lespedeza	LESPE	*Lespedeza*	250–325	–
	prairie blazing star	LIPY	*Liatris pycnostachya*	250–325	–
	littleleaf sensitive-briar	MIMI22	*Mimosa microphylla*	250–325	–

	[illegible] sensitive brier	MIMI22	*Mimosa microphylla*	[illegible]	
	powderpuff	MIST2	*Mimosa strigillosa*	250–325	–
	yellow puff	NELU2	*Neptunia lutea*	250–325	–
	fogfruit	PHYLA	*Phyla*	250–325	–
	white milkwort	POAL4	*Polygala alba*	250–325	–
	upright prairie coneflower	RACO3	*Ratibida columnifera*	250–325	–
	violet wild petunia	RUNU	*Ruellia nudiflora*	250–325	–
	green feathershank	SCDR	*Schoenocaulon drummondii*	250–325	–
	Baldwin's ironweed	VEBA	*Vernonia baldwinii*	250–325	–
7	**Forbs**			60–90	
	spiny chloracantha	CHSP11	*Chloracantha spinosa*	60–90	–
	eastern annual saltmarsh aster	SYSU5	*Symphyotrichum subulatum*	60–90	–
8	**Forbs**			15–60	
	great ragweed	AMTR	*Ambrosia trifida*	15–60	–
	partridge pea	CHFAF	*Chamaecrista fasciculata var. fasciculata*	15–60	–
	Dakota mock vervain	GLBIB	*Glandularia bipinnatifida var. bipinnatifida*	15–60	–
	annual marsh elder	IVAN2	*Iva annua*	15–60	–
	bagpod	SEVE	*Sesbania vesicaria*	15–60	–
	herb of the cross	VEOF	*Verbena officinalis*	15–60	–
Shrub/Vine					
9	**Shrubs/Vines**			325–475	
	eastern baccharis	BAHA	*Baccharis halimifolia*	325–475	–
	sorrelvine	CITR2	*Cissus trifoliata*	325–475	–
	southern dewberry	RUTR	*Rubus trivialis*	325–475	–
	greenbrier	SMILA2	*Smilax*	325–475	–

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.

Hydrological functions

Peak rainfall periods occur in May and June from thunderstorms and in September and October from tropical systems. Rainfall events may be high (3 to 5 inches per event) and intense. Because of the flat topography of this

site, erosion is minimal; however, on more sloping aspects (greater than 3 percent), erosion may be very significant. This site provides little water for aquifer recharge because when wet, infiltration is very slow.

Recreational uses

The site may be used for hunting, camping, hiking, horseback riding, or off-road vehicle use.

Wood products

In the prairie state, no wood products are available. Most species of woody vegetation found on this site have no commercial use although yaupon may be harvested for landscape plantings.

Other products

Fruit from dewberries may be harvested.

Inventory data references

Vegetative data for this site was obtained from existing Range Site Descriptions and SCS-417 data. SCS-417's were available for this site in ten different counties. Extensive field work was done on-site to catalog the plant community. Several range-trained personnel with state and federal agencies and in private enterprise were consulted on the plant communities as well. Personal contact with ranchers and foreman was utilized to ascertain the use of plants by both cattle and wildlife.

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)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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

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3. **Number and height of erosional pedestals or terracettes:**

---

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

---

5. **Number of gullies and erosion associated with gullies:**

---

6. **Extent of wind scoured, blowouts and/or depositional areas:**

---

7. **Amount of litter movement (describe size and distance expected to travel):**

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

---

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:

    Sub-dominant:

    Other:

    Additional:

---

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

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):**

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:**

17. **Perennial plant reproductive capability:**