USDA Natural Resources Conservation Service

Ecological site R150AY527TX
Clayey Bottomland

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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.

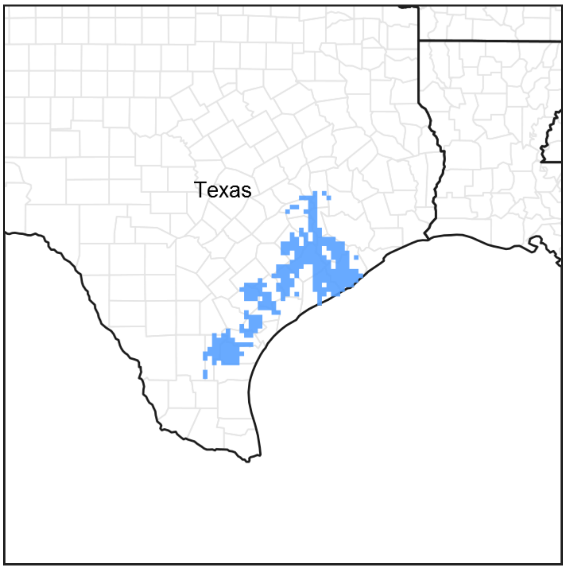


Figure 1. Mapped extent

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 Clayey Bottomland site has very deep, clayey surface textured soils that occur on flood plains. The areas can be flooded and ponded for lengthy durations throughout the year. This site is not similar in soils, landscape positions or vegetation to any other sites in MLRA 150A.

Associated sites

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 in areas with mean annual precipitation from 32 to 41 inches.
R150AY740TX	**Northern Blackland** This 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 in areas with greater than 48 inches of mean annual rainfall
R150AY541TX	**Sandy Bottomland** The ecological site has very deep, somewhat excessively drained soils that are occasionally or frequently flooded. Flooding may occur at any time during the year but the winter and spring months are the most common. Due to the position on the landscape and coarse-textured soils, these sites drain quicker and do not stay flooded as long as the loamy and clayey bottomlands sites. The drainage patterns and sandy soils create their unique plant community.
R150AY534TX	**Loamy Bottomland** Loamy Bottomland is on floodplains and is on the lowest setting on the landscape. The soils formed in loamy alluvium. The hazard of flooding occurs on these sites.

Table 1. Dominant plant species

Tree	(1) *Ulmus crassifolia* (2) *Celtis*
Shrub	Not specified
Herbaceous	(1) *Elymus virginicus* (2) *Sorghastrum nutans*

Physiographic features

The site formed in thick alkaline clayey alluvial sediments on the flood plains draining the Coastal Plain and the Coast Prairie. The bottomlands are along the lower Brazos and Colorado Rivers. Slope is dominantly less than 1 percent but ranges to 5 percent. Elevation ranges from 10 to 150 feet. The site floods rarely to occasionally for brief or long durations, except where protected. Runoff ranges from low to high.

Table 2. Representative physiographic features

Landforms	(1) River valley > Flood plain
Runoff class	High to very high
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Rare to frequent
Ponding duration	Very long (more than 30 days)
Ponding frequency	None
Elevation	3–46 m
Slope	0–3%
Ponding depth	0–61 cm
Water table depth	61–152 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)	232-264 days
Freeze-free period (characteristic range)	346-365 days
Precipitation total (characteristic range)	889-1,397 mm
Frost-free period (actual range)	217-365 days
Freeze-free period (actual range)	226-365 days
Precipitation total (actual range)	813-1,473 mm
Frost-free period (average)	259 days
Freeze-free period (average)	339 days
Precipitation total (average)	1,168 mm

Climate stations used

- (1) KINGSVILLE NAAS [USW00012928], Kingsville, TX
- (2) ROBSTOWN [USC00417677], Robstown, TX
- (3) C C BOTANICAL GARDENS [USC00412013], Corpus Christi, TX
- (4) BEEVILLE CHASE NAAS [USW00012925], Beeville, TX
- (5) REFUGIO 2 NW [USC00417533], Refugio, TX
- (6) VICTORIA FIRE DEPT #5 [USC00419361], Victoria, TX
- (7) PORT LAVACA [USC00417183], Port Lavaca, TX
- (8) BAY CITY WTR WKS [USC00410569], Bay City, TX
- (9) EL CAMPO [USC00412786], El Campo, TX
- (10) COLUMBUS [USC00411911], Columbus, TX
- (11) ANGLETON 2 W [USC00410257], Angleton, TX
- (12) THOMPSONS 3 WSW [USC00418996], Richmond, TX
- (13) HOUSTON HOOKS MEM AP [USW00053910], Tomball, TX
- (14) HOUSTON-PORT [USC00414326], Houston, TX
- (15) ALVIN [USC00410204], Alvin, TX
- (16) HOUSTON SAN JACINTO DA [USC00414328], Houston, TX
- (17) ANAHUAC [USC00410235], Anahuac, TX
- (18) BEAUMONT RSCH CTR [USC00410613], Beaumont, TX
- (19) PORT ARTHUR SE TX AP [USW00012917], Port Arthur, TX

Influencing water features

Clayey bottomlands are on floodplains. Flooding occurs at anytime of the year. Floodwater originates from areas upstream and from surrounding higher landforms that drain into the floodplain. Some areas may be inundated for several weeks.

Wetland description

Correlated soils are considered hydric, but onsite delineations are needed to determine if the site meets wetland criteria as outlined by the US Army Corps of Engineers.

Soil features

The soils are poorly drained to moderately well drained and very deep. Permeability is very slow. The surface texture is typically clay. Soil reaction is moderately acid to moderately alkaline. Diagnostic features and horizons include a mollic epipedon, cambic horizon, and vertic features. Soils correlated to this site include: Brazoria, Chicolete, Churnabog, Ganado, Navaca, and Pledger.

Table 4. Representative soil features

Parent material	(1) Alluvium–igneous, metamorphic and sedimentary rock
Surface texture	(1) Clay
Family particle size	(1) Fine (2) Very-fine
Drainage class	Poorly drained to moderately well drained
Permeability class	Very slow
Soil depth	203 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0–2%
Available water capacity (0-152.4cm)	17.78–25.4 cm
Calcium carbonate equivalent (0-50.8cm)	0–5%
Electrical conductivity (0-50.8cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-50.8cm)	0–4
Soil reaction (1:1 water) (0-50.8cm)	5.6–7.9
Subsurface fragment volume <=3" (50.8-152.4cm)	0–2%
Subsurface fragment volume >3" (0-152.4cm)	0%

Ecological dynamics

The plant community can vary considerably in composition and structure depending on interactions of the flooding regime, fire, grazing, and weather variations. Historically, prior to European settlement, the site would have supported either an open tallgrass savannah of scattered clumps of trees with a canopy cover of up to 20 percent, or a nearly closed canopy forest with relatively sparse understory cover. The difference between the two communities would largely have been a function of the frequency and intensity of fires. Areas that burned frequently would have been more open and is represented by the reference community. Areas protected from fires developed into a forested community. Historically, the savannah communities would have been grazed by free-roaming herds of bison. When present grazing may have been intense, but frequent long periods of rest would permit recovery and development of fuel for fires to constrain development of the woody component. Lightning alone would account for a high frequency of fire, particularly in the late summer, and as Native Americans used fire as a tool to control animal movement and vegetation dynamics.

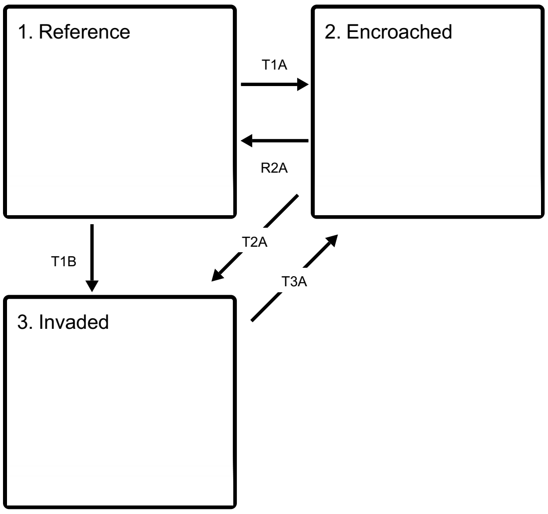
Flooding exerts a major influence on the plant communities. Flooding is a natural process and creates an active geomorphic surface. High peak flows of flood waters can periodically cause trees to be knocked down and carried downstream which reduces woody canopy cover. Also, floods can deposit sediments on the herbaceous vegetation and cause disturbance to large patches of the plant community. The longterm flooding and meandering of the river across the floodplain contributes to variation in topography and soil texture. In some places, this causes considerable heterogeneity, while in other locations the floodplain may be very level and homogeneous. The flood regime of many river floodplains that contain this site has been greatly altered in many places by placement of dams on the river and construction of levee systems to retard flooding. Conversely, many areas receive more runoff due to adjacent upland land use and hence may have higher peak flows than under natural conditions.

The reference tallgrass savannah state on has about a 20 percent canopy cover of hackberry (*Celtis laevigata*), live oak (*Quercus virginiana*), pecan (*Carya illinoinensis*), cedar elm (*Ulmus crassifolia*), and other tree species in the floodplain overstory. Along streambanks and areas where lighted can penetrate, black willow (*Salix nigra*), cottonwood (*Populus deltoides*), and sycamore (*Platanus occidentalis*) occur. A minimal shrub layer exists, and the herbaceous layer consists of a nearly 100 percent cover of tallgrasses including Indiangrass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and eastern gamagrass (*Tripsacum dactyloides*). A variety of perennial forbs occur as interstitial plants within the grass matrix. In disturbance openings annual forbs are abundant. With disturbance, particularly continuous heavy grazing, the tallgrasses would decrease in abundance and be replaced by less productive midgrasses including bushy bluestem (*Andropogon glomeratus*), rustyseed paspalum (Panicum langei), Texas wintergrass (Stipa leucotricha), longspike tridens (*Tridens strictus*), sedges (Carex spp.), and beaked panicum (*Panicum anceps*). A shift in perennial forbs will occur to western ragweed (*Ambrosia psilostachya*), rock sneezeweed (*Helenium amarum*), and others. With reduced cover and biomass of the herbaceous layer, fires will be less intense, if they occur at all, and this would favor increases of shrub, vine, and tree seedlings and saplings. This sequence of changes can be reversed by applying proper grazing management and prescribed fire. Continued reduction of the tall and midgrasses would result in increases of shortgrasses such as carpetgrass (Axonopus affinis), common bermudagrass (*Cynodon dactylon*), and buffalograss (Buchloe dactyloides).

With continued overgrazing, a threshold will be crossed that shifts the community into a forest trajectory which has a high percentage canopy cover of trees and a midstory of shrubs, vines, and a relatively sparse herbaceous layer. To return across this threshold would require chemical and mechanical woody plant treatments along with prescribed fire and prescribed grazing. In some instances, with overgrazing and lack of fire, savannah state can be invaded by weedy shrubs, forbs, and tree seedlings. This tree/weed/shrub state would have huisache (Acacia smallii), mesquite (*Prosopis glandulosa*), coffee bean (*Sesbania drummondii*), devil weed (Leucosyris spinosa), blood ragweed (*Ambrosia trifida*), and many other species of broad-leaved forbs. Reversal back to the savannah once this threshold is crossed requires brush management, pest management, prescribed fire, and perhaps reseeding if the change has proceeded to the point of loss of most of the original grasses and forbs are lost. Alternatively, the savannah community may be invaded by exotic grasses, such as bermudagrass, smutgrass (*Sporobolus indicus*), and Bahiagrass (*Paspalum notatum*) to produce an invaded grassland state. Brush and pest management and reseeding may be necessary to return to the savannah state.

State and transition model

Ecosystem states



T1A - Absence of disturbance and natural regeneration over time

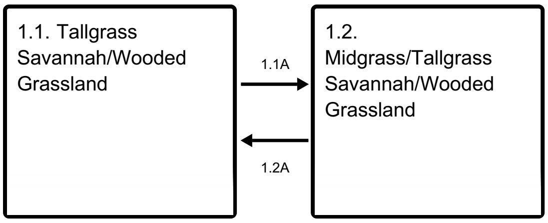
T1B - Introduction of non-native species coupled with prolonged, excessive grazing

R2A - Reintroduction of fire and regular disturbance return intervals

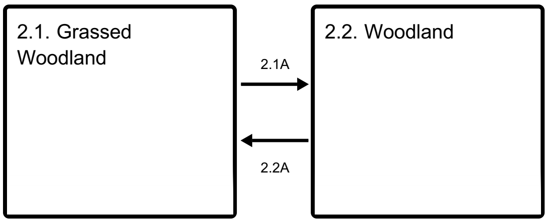
T2A - Introduction of non-native species coupled with prolonged, excessive grazing

T3A - Absence of disturbance that reduces woody species and natural regeneration over time

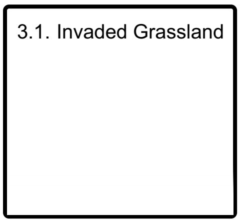
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Reference

The Reference state is considered to be representative of pre-Euro settlement conditions. Historically this state would have supported an open tallgrass savannah with scattered clumps of trees. Wildfire, climate fluctuations, and flooding were important disturbances in the reference state.

Dominant plant species

- sugarberry (*Celtis laevigata*), shrub
- Indiangrass (*Sorghastrum nutans*), grass
- big bluestem (*Andropogon gerardii*), grass
- little bluestem (*Schizachyrium scoparium*), grass

Community 1.1
Tallgrass Savannah/Wooded Grassland

The reference plant community for this site is a fire-influenced bottomland savannah. Composition of this community includes a 25 to 40 percent canopy of individual trees or clumps of trees. The major tree species are live oak, hackberry, pecan, cedar elm, and black willow. Dominant grasses are Indiangrass, little bluestem, big bluestem, switchgrass, eastern gamagrass, and Florida paspalum (*Paspalum floridanum*). Cool-season species are present in lesser amounts in the more open areas. The major cool-season species present include Canada wildrye (*Elymus canadensis*), Virginia wildrye (*Elymus virginicus*), Texas wintergrass, and sedges. Historically, areas of this community were also dominated by giant cane (*Arundo donax*). Giant cane most likely increased and decreased depending upon grazing and fire events and eventually disappeared under the influence of European settlement. The bottomland community is very productive and has a high diversity of grass, forb, and woody species. Removal of fire tends to promote the increase of woody species, while continuous, heavy overgrazing by livestock leads to the reduction of the tall and midgrasses and increases in shorter grasses as well as unpalatable perennial and annual forbs. These changes in the herbaceous portion of the community reduce the potential for fires to be effective in woody plant control and woody species tend to increase. There is considerable north-south variation in the composition of this community as well as in the associated communities that can occur on this site. For instance, in the reference tree/tallgrass savannah at the southern end of this MLRA favors species such as four flower trichloris and southwestern bristlegrass (*Setaria scheelei*). The more northern communities will contain water oak (*Quercus nigra*). Mesquite can occur on bottomland sites but is not typically seen throughout the entire region.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	3363	5884	7566
Tree	673	1177	1513
Forb	224	392	504
Shrub/Vine	224	392	504
Total	**4484**	**7845**	**10087**

Table 6. Ground cover

Tree foliar cover	7-10%
Shrub/vine/liana foliar cover	7-10%
Grass/grasslike foliar cover	15-20%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	10-20%

Figure 9. Plant community growth curve (percent production by month). TX7618, Tallgrass Savannah/Wooded Grassland Community . Primarily warm-season perennial tallgrasses and forbs along with some woody production and limited amounts of perennial forbs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2	5	10	20	20	3	6	15	10	6	2

Community 1.2
Midgrass/Tallgrass Savannah/Wooded Grassland

Abusive grazing will result in the tallgrasses being reduced in abundance and replaced by midgrasses and weedy forbs. Along with reduced fire frequency and intensity, woody tree, shrub, and vine seedlings establish and increase. This community would be dominated by little bluestem, purpletop (*Tridens flavus*), Virginia wildrye (*Elymus virginicus*), beaked panicum, rustyseed paspalum (*Paspalum langei*), knotroot bristlegrass (Setaria geniculata), Texas wintergrass, and sedges. The overall canopy of the large overstory trees is approximately 20 to 30 percent. Uncontrolled grazing causes this shift in species composition and production. The cool-season component usually increases somewhat in this community. Seedlings and saplings of tree, shrub, and vine species would be apparent and weedy forbs, including western ragweed and bitter sneezeweed, increase in abundance.

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 and prescribed burning will transition the site back to Community 1.1.

State 2
Encroached

The Encroached state is characterized by an increase in long-lived woody plants. Widening of the disturbance return interval has allowed woody plants do dominate the visual aspect of the community, as well as ecological processes. Increasing runoff, reducing infiltration, and changing rates of litter accumulation, nutrient cycling and biomass production.

Dominant plant species

- green ash (*Fraxinus pennsylvanica*), tree
- live oak (*Quercus virginiana*), tree
- hackberry (*Celtis*), shrub
- Indian woodoats (*Chasmanthium latifolium*), shrub

Community 2.1
Grassed Woodland

In the absence of fire, any of the savannah communities (1.1 and 1.2) may develop into a nearly closed canopy woodland with live oak, hackberry, cedar elm, pecan, water oak, and green ash (*Fraxinus pennsylvanica*) overstory. A variety of shrubs and vines will occupy the midstory with a fairly open herbaceous layer dominated by shade-tolerant sedges and grasses such as broadleaf uniola (*Chasmanthium latifolium*). Forbs such as white crownbeard (*Verbesina virginica*) would be scattered in the understory. At this point, the canopy is causing light deprivation for the understory and is the controlling factor for understory composition.

Community 2.2
Woodland

This site under abusive grazing and absence of fire is heavily wooded with both overstory canopies ranging from 50 to 90 percent. Trees and vines include sugar hackberry, cedar elm, green ash, pecan, and honey locust while vines present include mustang grape, poison ivy, and Virginia creeper. This site may also be invaded by a complex of shrubs and broad-leaved forbs such as huisache, senna bean, yaupon (*Ilex vomitoria*), seacoast sumpweed (*Iva annua*), devil weed, and blood ragweed along with tree seedlings and saplings, particularly hackberry. Devil weed may form large, dense stands in this community. This complex forms a dense thicket that prevents forest development and maintains the site in this weed/shrub/tree sapling community for extended periods of time. There is often a total lack of herbaceous vegetation with only scattered sedges and rushes and the forest floor covered with decaying leaves and rotting woody debris.

Pathway 2.1A
Community 2.1 to 2.2

Abusive grazing, lack of fire, and lack of brush management will cause more unabated growth by trees. The shift is evident when the canopy cover is greater than 50 percent.

Pathway 2.2A
Community 2.2 to 2.1

Prescribed grazing, prescribed burning, and brush management will transition this community back to 2.1.

State 3
Invaded

This state this characterized by the dominance of non-native species and/or undesirable, grazing tolerant, natives and is the result of many years of excessive grazing pressure. These grasses are long-lived and persistent in the plant community, contributing to the stability of the site.

Dominant plant species

- Bermudagrass (*Cynodon dactylon*), other herbaceous
- beardgrass (*Bothriochloa*), other herbaceous
- Johnsongrass (*Sorghum halepense*), other herbaceous

Community 3.1
Invaded Grassland

When savannah communities have been overgrazed for long periods of time the site may be invaded by exotic or native weedy grasses. Common bermudagrass, King Ranch (Bothriochloa ishaemum), Gordo and Kleberg bluestems (*Dichanthium annulatum*), smutgrass, Johnsongrass (*Sorghum halepense*), and carpetgrass are primary invaders. Once they gain dominance, and if heavy grazing is continued, the site will remain in this community almost indefinitely. If grazing pressure is reduced woody species will eventually invade and the community will shift to the tree/weed/shrub state with the invasive grasses in the understory. The site may also be converted to tame grass pastureland by removal of the woody species, plowing and pasture planting. In the pastureland community, continued application of agronomic practices such as prescribed grazing, nutrient management, pest management, and brush control will be needed to maintain it. Native plants, especially switchgrass and eastern gamagrass, can be established and managed as tame pasture or hayland.

Transition T1A
State 1 to 2

Continued heavy overgrazing, lack of fire, and lack of brush management will transition the site to State 2.

Transition T1B
State 1 to 3

When savannah communities have been overgrazed for long periods of time the site may be invaded by exotic or native weedy grasses.

Restoration pathway R2A
State 2 to 1

Prescribed grazing, prescribed fire, and brush management will restore the site to State 1. Overstory canopies need to be below 40 percent to reestablish the reference community.

Transition T2A
State 2 to 3

Invasion of the site by exotic plant species causes the site to transition to State 3.

Transition T3A
State 3 to 2

Controlling exotic grasses by use of chemical, mechanical, or biological means will transition the site back to State 2. Removing exotic species is very difficult with full elimination almost impossible.

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**			2242–5044	
	switchgrass	PAVI2	*Panicum virgatum*	1121–3363	–
	eastern gamagrass	TRDA3	*Tripsacum dactyloides*	1121–3363	–
	redtop panicgrass	PARI4	*Panicum rigidulum*	1121–2242	–
	little bluestem	SCSC	*Schizachyrium scoparium*	1121–2242	–
	Indiangrass	SONU2	*Sorghastrum nutans*	1121–2242	–
	big bluestem	ANGE	*Andropogon gerardii*	1121–2242	–
	Florida paspalum	PAFL4	*Paspalum floridanum*	1121–2242	–
	vine mesquite	PAOB	*Panicum obtusum*	560–1121	–
2	**Tall/Midgrasses**			673–1513	
	sedge	CAREX	*Carex*	224–897	–
	Virginia wildrye	ELVI3	*Elymus virginicus*	224–673	–
	beaked panicgrass	PAAN	*Panicum anceps*	224–673	–
	rustyseed paspalum	PALA11	*Paspalum langei*	112–560	–
	southwestern bristlegrass	SESC2	*Setaria scheelei*	112–560	–
	big sandbur	CEMY	*Cenchrus myosuroides*	112–560	–
	multiflower false Rhodes grass	TRPL3	*Trichloris pluriflora*	112–560	–
	Indian woodoats	CHLA5	*Chasmanthium latifolium*	112–224	–
	purpletop tridens	TRFL2	*Tridens flavus*	112–224	–
3	**Midgrasses**			448–1009	
	bushy bluestem	ANGLH	*Andropogon glomeratus var. hirsutior*	224–336	–
	buffalograss	BODA2	*Bouteloua dactyloides*	224–336	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	224–336	–
	Texas wintergrass	NALE3	*Nassella leucotricha*	224–336	–
	marsh bristlegrass	SEPA10	*Setaria parviflora*	224–336	–
	white tridens	TRAL2	*Tridens albescens*	224–336	–
	longspike tridens	TRST2	*Tridens strictus*	224–336	–
4	**Mid/Shortgrasses**			0–56	
	broomsedge bluestem	ANVI2	*Andropogon virginicus*	0–56	–
	longleaf woodoats	CHSE2	*Chasmanthium sessiliflorum*	0–56	–
	jointtail grass	COELO	*Coelorachis*	0–56	–
	twoflower melicgrass	MEMU	*Melica mutica*	0–56	–
	nimblewill	MUSC	*Muhlenbergia schreberi*	0–56	–
	longtom	PADE24	*Paspalum denticulatum*	0–56	–
	panicgrass	PANIC	*Panicum*	0–56	–
	brownseed paspalum	PAPL3	*Paspalum plicatulum*	0–56	–
	big sacaton	SPWR2	*Sporobolus wrightii*	0–56	–
Forb					
5	**Forbs**			224–504	
	wild petunia	RUELL	*Ruellia*	56–112	

	wild petunia	RUELL	*Ruellia*	56–112	–
	hoe nightshade	SOPH	*Solanum physalifolium*	56–112	–
	amberique-bean	STHE9	*Strophostyles helvola*	56–112	–
	Baldwin's ironweed	VEBA	*Vernonia baldwinii*	56–112	–
	white crownbeard	VEVI3	*Verbesina virginica*	56–112	–
	big yellow velvetleaf	WIAM	*Wissadula amplissima*	56–112	–
	Forb, annual	2FA	*Forb, annual*	56–112	–
	Cuman ragweed	AMPS	*Ambrosia psilostachya*	56–112	–
	jimsonweed	DAST	*Datura stramonium*	56–112	–
	velvet bundleflower	DEVE2	*Desmanthus velutinus*	56–112	–
	Engelmann's daisy	ENPE4	*Engelmannia peristenia*	56–112	–
	swamp sunflower	HEAN2	*Helianthus angustifolius*	56–112	–
	lespedeza	LESPE	*Lespedeza*	56–112	–
	dotted blazing star	LIPU	*Liatris punctata*	56–112	–
	littleleaf sensitive-briar	MIMI22	*Mimosa microphylla*	56–112	–
	yellow puff	NELU2	*Neptunia lutea*	56–112	–
	swamp smartweed	POHY2	*Polygonum hydropiperoides*	56–112	–
	least snoutbean	RHMI4	*Rhynchosia minima*	56–112	–
	snoutbean	RHYNC2	*Rhynchosia*	11–25	–
Shrub/Vine					
6	**Shrubs/Vines**			224–504	
	Alabama supplejack	BESC	*Berchemia scandens*	56–140	–
	trumpet creeper	CARA2	*Campsis radicans*	56–140	–
	spiny hackberry	CEEH	*Celtis ehrenbergiana*	56–140	–
	Texas hawthorn	CRTE2	*Crataegus texana*	56–140	–
	possumhaw	ILDE	*Ilex decidua*	56–140	–
	yaupon	ILVO	*Ilex vomitoria*	56–140	–
	western white honeysuckle	LOAL	*Lonicera albiflora*	56–140	–
	honey mesquite	PRGL2	*Prosopis glandulosa*	56–140	–
	southern dewberry	RUTR	*Rubus trivialis*	56–140	–
	saw greenbrier	SMBO2	*Smilax bona-nox*	56–140	–
	coralberry	SYOR	*Symphoricarpos orbiculatus*	56–140	–
	eastern poison ivy	TORA2	*Toxicodendron radicans*	56–140	–
	muscadine	VIRO3	*Vitis rotundifolia*	56–140	–
	grape	VITIS	*Vitis*	56–140	–
Tree					
7	**Trees**			673–1513	
	pecan	CAIL2	*Carya illinoinensis*	112–841	–
	American sycamore	PLOC	*Platanus occidentalis*	112–841	–
	eastern cottonwood	PODED	*Populus deltoides ssp. deltoides*	112–841	–
	live oak	QUVI	*Quercus virginiana*	112–841	–
	black willow	SANI	*Salix nigra*	112–841	–
	western soapberry	SASAD	*Sapindus saponaria var. drummondii*	112–841	–
	American elm	ULAM	*Ulmus americana*	112–841	

	American elm	ULAM	*Ulmus americana*	112–841	–
	cedar elm	ULCR	*Ulmus crassifolia*	112–841	–
	water oak	QUNI	*Quercus nigra*	56–280	–
	netleaf hackberry	CELAR	*Celtis laevigata var. reticulata*	56–280	–
	knockaway	EHAN	*Ehretia anacua*	56–280	–
	green ash	FRPE	*Fraxinus pennsylvanica*	56–280	–
	honeylocust	GLTR	*Gleditsia triacanthos*	56–280	–
	planertree	PLAQ	*Planera aquatica*	56–280	–

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. Extended periods (45 to 60 days) of little to no rainfall during the growing season are common. Because of the flat topography and bottomland landform of this site, erosion is minimal; however, on more sloping aspects (greater than 3 percent), erosion may be very significant.

Inventory data references

Vegetative data for this site was obtained from existing Range Site Descriptions and SCS-417 data. Extensive field work was done onsite 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 managers was utilized to ascertain the use of plants by both cattle and wildlife.

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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	12/08/2023
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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

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:**