USDA Natural Resources Conservation Service

Ecological site R150BY551TX
Salty Prairie

Last updated: 9/22/2023
Accessed: 04/23/2025

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): 150B–Gulf Coast Saline Prairies

MLRA 150B is in the West Gulf Coastal Plain Section of the Coastal Plain Province of the Atlantic Plain and entirely in Texas. It makes up about 3,420 square miles. It is characterized by nearly level to gently sloping coastal lowland plains dissected by rivers and streams that flow toward the Gulf of Mexico. Barrier islands and coastal beaches are included. The lowest parts of the area are covered by high tides, and the rest are periodically covered by storm tides. Parts of the area have been worked by wind, and the sandy areas have gently undulating to irregular topography because of low mounds or dunes. Broad, shallow flood plains are along streams flowing into the bays. Elevation generally ranges from sea level to about 10 feet, but it is as much as 25 feet on some of the dunes. Local relief is mainly less than 3 feet. The towns of Groves, Texas City, Galveston, Lake Jackson, and Freeport are in the northern half of this area. The towns of South Padre Island, Loyola Beach, Corpus Christi, and Port Lavaca are in the southern half. Interstate 37 terminates in Corpus Christi, and Interstate 45 terminates in Galveston.

Classification relationships

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

Ecological site concept

Salt Prairies occur on the inland portion of the Coastal Plains with a mid/tallgrass component on slopes ranging from 0 to 5 percent.

Associated sites

R150BY652TX	**Southern Salt Marsh** This site is on a lower landform closer to the bay and is wetter.
R150BY668TX	**Salty Bottomland** This site is in a floodplain.
R150BY550TX	**Northern Salt Marsh** This site is on a lower landform closer to the bay and is wetter.
R150BY647TX	**Coastal Ridge** These areas are sandier throughout and closer to the bay.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Spartina spartinae*

Physiographic features

The site formed in eolian and marine sediments. These nearly level to gently sloping soils are found on flats of the barrier island and coastal plains adjacent to the Gulf of Mexico. Slopes are mainly less than 1 percent but range up to 5 percent near drainageways. Elevation ranges from 0.5 to 30 feet.

Table 2. Representative physiographic features

Landforms	(1) Coastal plain > Flat (2) Barrier island > Barrier flat
Runoff class	Medium to high
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to frequent
Ponding frequency	None
Elevation	5–30 ft
Slope	0–5%
Water table depth	0–36 in
Aspect	Aspect is not a significant factor

Climatic features

The climate is predominately maritime, controlled by the warm and very moist air masses from the Gulf of Mexico. The climate along the upper coast of the barrier islands is subtropical subhumid and the climate on the lower coast of Padre Island is subtropical semiarid (due to high evaporation rates that exceed precipitation). Almost constant sea breezes moderate the summer heat along the coast. Winters are generally warm and are occasionally interrupted by incursions of cool air from the north. Spring is mild and damaging wind and rain may occur during spring and summer months. Tropical cyclones or hurricanes can occur with wind speeds of greater than 74 mph and have the potential to cause flooding from torrential rainstorms. Despite the threat of tropical storms, the storms are rare. Throughout the year, the prevailing winds are from the southeast to south-southeast.

The average annual precipitation is 45 to 57 inches in the northeastern half of this area, 26 inches at the extreme

southern tip of the area, and 30 to 45 inches in the rest of the area. Precipitation is abundant in spring and fall in the southwestern part of the area and is evenly distributed throughout the year in the northeastern part. Rainfall typically occurs as moderate-intensity, tropical storms that produce large amounts of rain during the winter. The average annual temperature is 68 to 74 degrees F. The freeze-free period averages 340 days and ranges from 315 to 365 days.

Table 3. Representative climatic features

Frost-free period (characteristic range)	266-365 days
Freeze-free period (characteristic range)	365 days
Precipitation total (characteristic range)	31-45 in
Frost-free period (actual range)	253-365 days
Freeze-free period (actual range)	365 days
Precipitation total (actual range)	26-50 in
Frost-free period (average)	332 days
Freeze-free period (average)	365 days
Precipitation total (average)	38 in

Climate stations used

- (1) GALVESTON [USW00012944], Galveston, TX
- (2) GALVESTON SCHOLES FLD [USW00012923], Galveston, TX
- (3) FREEPORT 2 NW [USC00413340], Freeport, TX
- (4) MATAGORDA NO 2 [USC00415659], Matagorda, TX
- (5) PALACIOS MUNI AP [USW00012935], Palacios, TX
- (6) PORT O'CONNOR [USC00417186], Port O Connor, TX
- (7) ARANSAS WR [USC00410305], Tivoli, TX
- (8) ROCKPORT ARANSAS CO AP [USW00012972], Rockport, TX
- (9) ROCKPORT [USC00417704], Rockport, TX
- (10) CORPUS CHRISTI NAS [USW00012926], Corpus Christi, TX
- (11) PADRE IS NS [USC00416739], Padre Island Ntl Seashor, TX
- (12) PORT MANSFIELD [USC00417184], Port Mansfield, TX
- (13) PORT ISABEL CAMERON AP [USW00012957], Los Fresnos, TX
- (14) PORT ISABEL [USC00417179], Port Isabel, TX

Influencing water features

Sites occurring at lower elevations are rare to frequently flooded by high tides caused by storms but only for very brief or brief durations. Some higher elevation areas do not flood. The top of the permanent water table can be found from 0 to 36 inches below the surface in normal years. Not all sites will meet wetland criteria due to the depth of the water table. Most moderately well drained and somewhat poorly drained sites are non-hydric but may have small areas of hydric so

Wetland description

Poorly and very poorly drained sites are hydric. Most moderately well drained and somewhat poorly drained sites are non-hydric but may have small areas of hydric soils. Onsite investigation needed to determine local conditions.

Soil features

Soils are very deep, very poorly to somewhat poorly drained with very slow to moderate permeability. This site is affected by its degree of salinity and sodicity, more than the influence of the surface texture. Other features include no to very few rock fragments, 0 to 5 percent gypsum, and neutral to strongly alkaline soil reaction. Soils correlated to this site include: Livco, Livia, Matagorda, Narta, Palacios, Porfirio, Sievers, Surfside, and Topo.

Table 4. Representative soil features

Parent material	(1) Fluviomarine deposits–igneous, metamorphic and sedimentary rock (2) Eolian sands–igneous, metamorphic and sedimentary rock
Surface texture	(1) Loam (2) Silt loam (3) Clay loam
Family particle size	(1) Fine (2) Fine-loamy
Drainage class	Somewhat poorly drained to very poorly drained
Permeability class	Very slow to moderate
Soil depth	80 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-60in)	1–6 in
Calcium carbonate equivalent (0-60in)	0–8%
Electrical conductivity (0-60in)	0–16 mmhos/cm
Sodium adsorption ratio (0-25in)	2–20
Soil reaction (1:1 water) (0-60in)	6.6–9
Subsurface fragment volume <=3" (25-60in)	0–2%

Ecological dynamics

The reference plant communities were in dynamic equilibrium with ecological forces including grazing by native large herbivores, fires, and periodic drought and wet cycles. However, because of its proximity to the Gulf of Mexico, hurricanes and tropical storms periodically inundated the areas. Bison occupied the area in short, intensive graze periods followed by extended periods of total deferment. Long deferments allowed the taller, late-maturing grasses time to recover carbohydrate reserves and set seed. Fire was probably one of the most important factors in maintaining these coastal salty prairies. Field observations suggest this site will transition to woody cover if the fire frequency does not return in less than 3 years. Other forms of brush management could be used to prevent the encroachment as well.

The reference mid and tallgrass prairie community includes gulf cordgrass (*Spartina spartinae*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), alkali sacaton (*Sporobolus airoides*), Hartweg's paspalum (*Paspalum hartwegianum*), and marshhay cordgrass (*Spartina patens*). Low successional plants are present only on heavily used areas. Heavy plant production contributed to an almost solid cover of litter over the soil, resulting in good soil organic matter conditions. In post-European settlement, especially following the advent of barbed wire and the windmill in the 1880's, heavy, continuous grazing by domestic livestock caused the more palatable grasses to decrease and other less palatable species to increase. With continuing retrogression, the diversity of native grasses and forbs decreased, along with productivity. Plant communities at this southerly latitude were never rich in cool-season species; however, gulf cordgrass continues to grow throughout the year and provides winter forage for both livestock and some wildlife species.

A striking difference exhibited by this community as compared to most prairie communities is the relative unpalatability of gulf cordgrass. Community degradation occurs initially in the interspaces between the gulf cordgrass plants where the more palatable little bluestem grows. Because gulf cordgrass can occupy more than half the ground cover in the reference community, the more palatable plants become overgrazed more rapidly. However,

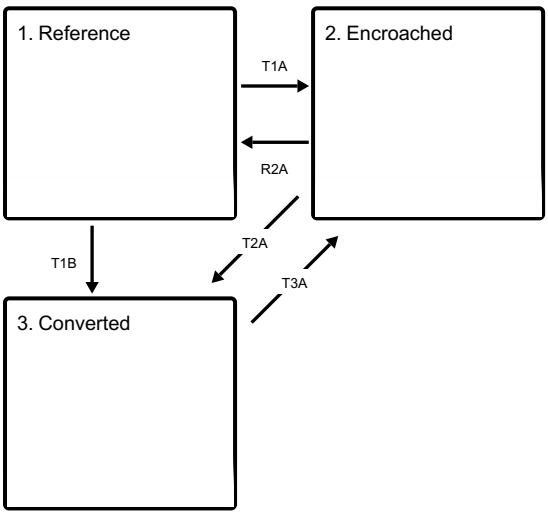
if prescribed fire is added as a management tool, gulf cordgrass becomes highly palatable and is an excellent source of high-protein. For this reason, landowners may prefer to maintain the community in a mid-successional state dominated by gulf cordgrass. Little bluestem and other reference species can be brought back with prescribed fire and proper grazing management. One overriding factor exists in this community, the periodic inundations by either fresh or saltwater. These inundations can completely remove the reference species, excluding gulf cordgrass, by severely limiting growth or drowning the plants out. Partial and/or temporary inundation is essential for maintenance of gulf cordgrass.

Gulf cordgrass is a perennial, long-lived, warm-season bunchgrass resistant to grazing because of its tough, spiny leaves and high fiber content. Unless burned and grazed it will persist indefinitely. However, under a regime of heavy use following burning, the species can be eliminated from the community. The post-cordgrass community will consist of weedy forbs and grasses. Without fire, woody species invade the site, including honey mesquite (*Prosopis glandulosa*), huisache (Acacia smallii), and the nonnative Chinese tallow (*Triadica sebifera*), particularly on the slightly elevated spots in the micro-relief where salinity is slightly lower. Mesquite is more prevalent in the southern portions while Chinese tallow is more prevalent in the northern reaches.

Under continued heavy grazing, lack of fire, and the elimination of gulf cordgrass woody species like mesquite, Chinese tallow, or huisache may increase to dominate the cover. Although these species do not attain solid overstory because of the salinity, eastern baccharis (*Baccharis halimifolia*) may finally invade and form nearly solid cover. Eastern baccharis can become so thick it eliminates almost all other herbaceous growth. At this point, the only solution to restoration may be the use of herbicides to remove the woody cover and range seeding to adaptive plants.

State and transition model

Ecosystem states



T1A - Absence of disturbance and natural regeneration over time

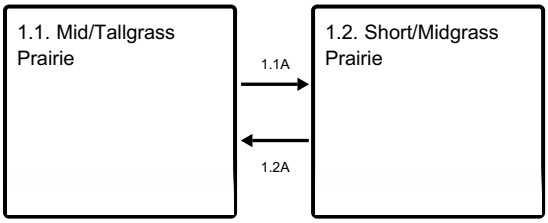
T1B - Clearing of native vegetation, followed by planting of improved forage species

R2A - Reintroduction of fire and regular disturbance return intervals

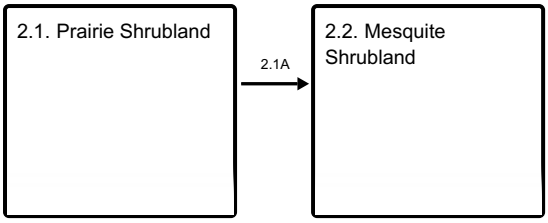
T2A - Clearing of vegetation, followed by planting improved forage species

T3A - Absence of disturbance and natural regeneration over time

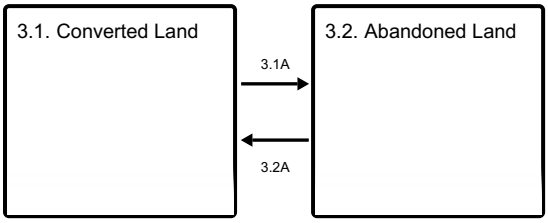
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Reference

The reference state is considered to representative of the range of variation in pre-Euro settlement conditions. Historically, this state was characterized by a tallgrass prairie with salt tolerant species. Community phase changes are primarily driven by wildfire, grazing by native large herbivores, and periodic drought and wet cycles (including hurricanes and tropical storms).

Dominant plant species

- gulf cordgrass (*Spartina spartinae*), grass
- little bluestem (*Schizachyrium scoparium*), grass
- alkali sacaton (*Sporobolus airoides*), grass

Community 1.1
Mid/Tallgrass Prairie

Figure 8. 1.1 Mid/Tallgrass Prairie

The reference plant community is an open grassland with gulf cordgrass, little bluestem, seacoast bluestem, switchgrass, Hartweg's paspalum, seashore saltgrass (*Distichlis spicata*), marshhay cordgrass, and traces of bushy sea oxeye (*Borrichia frutescens*). Variations in salinity and soil moisture cause local variations in the plant community, particularly along streams. Studies have shown that length and amount of inundation, and fresh or saltwater runoff have a controlling influence on the post-inundation plant community. Heavy grazing pressure will quickly depress little/seacoast bluestem and lead to a dominance of gulf cordgrass. Inundation with salt water may also cause little/seacoast bluestem to disappear for 2 to 3 years post-inundation. A lengthy inundation with fresh or brackish water may cause the post-inundation community to be dominated by gulf cordgrass.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	5330	6650	7980
Shrub/Vine	168	210	252
Forb	112	140	168
Tree	0	0	0
Total	**5610**	**7000**	**8400**

Figure 10. Plant community growth curve (percent production by month). TX7751, Midgrass Prairie Community. Open grassland plain composed of mid-grasses with seacoast bluestem and gulfdune paspalum dominate the site..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	15	20	15	10	10	15	6	4	0

Community 1.2
Short/Midgrass Prairie

Heavy abusive grazing causes the more palatable tall and midgrasses to disappear, and the stand becomes dominated by gulf cordgrass. Gulf cordgrass is an excellent emergency forage for cattle if managed through prescribed fire and prescribed grazing. In addition to gulf cordgrass, subdominants include vine mesquite (*Panicum obtusum*), buffalograss (*Bouteloua dactyloides*), silver bluestem (*Bothriochloa laguroides*), white tridens (*Tridens albescens*), knotroot bristlegrass (Setaria geniculata), and annual grasses. The Short/Midgrass Prairie (1.2) can be returned to reference conditions through proper stocking and prescribed burning. Seedling mesquite or Chinese tallow may begin to appear in the grassland.

Pathway 1.1A
Community 1.1 to 1.2

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

Pathway 1.2A
Community 1.2 to 1.1

Through prescribed grazing and return of fire, the site will transition back to Community 1.1.

State 2
Encroached

The Encroached State is characterized by an increase of long-lived wood species, including non-native species. Woody vegetation has increased to the point where it is controlling site processes including energy transfer, nutrient cycling, and hydrologic cycling. Non-natives species may be present and are stable to increasing.

Dominant plant species

- honey mesquite (*Prosopis glandulosa*), shrub
- Chinese tallow (*Triadica*), shrub
- baccharis (*Baccharis*), shrub

Community 2.1
Prairie Shrubland

Under heavy abusive livestock pressure and the absence of fire, mesquite and pricklypear (Opuntia lindheimeri) invade. Chinese tallow is a nonnative invader that can invade and is usually seen on the upper coast, roughly north of Port O'Connor. However, the stature of the mesquite remains low as a result of high salinity and poorly drained

soils. Pricklypear cactus never reaches the stature it would in a drier environment and cycles in and out of the community in relation to inundation. Gulf cordgrass remains dominant in the community because of its relative unpalatability although at this stage cattle are forced to graze the species. Herbaceous increasers on the site include whorled dropseed (*Sporobolus pyramidatus*), knotroot bristlegrass, wild buckwheat (*Eriogonum multiflorum*), sumpweed (*Iva annua*), and other annual forbs. The Prairie Shrubland Community (2.1) can be returned to reference conditions through prescribed grazing and prescribed burning. Brush management may be used to reduce woody plants.

Community 2.2
Mesquite Shrubland

Under heavy abusive livestock grazing and lack of fire, the community crosses a threshold to a mesquite shrubland. Again, mesquite dominates in the southern portion of the site while tallow dominates in the northern portion. Although the woody composition is simple, consisting of mesquite, huisache, Chinese tallow, bushy sea oxeye, and pricklypear cactus, woody cover may exceed 20 percent. With continued abuse, baccharis begins to increase and the canopy cover increases to greater than 50 percent. Baccharis can easily be suppressed with proper grazing management and fire if the infestation is attacked early enough. However, after the plant begins to aggressively spread, it becomes unpalatable. Gulf cordgrass still persists at this stage. The community may be returned to the grassland state through prescribed grazing, prescribed fire, and herbicide application to suppress the woody cover.

Pathway 2.1A
Community 2.1 to 2.2

Continued heavy grazing, lack of fire, and lack of brush management will continue the transition to Community 2.2.

State 3
Converted

This state is characterized by the dominance of improved forage species and frequent disturbance. Severe soil disturbance has occurred and this state is planted with introduced forage species.

Dominant plant species

- alkali sacaton (*Sporobolus airoides*), grass

Community 3.1
Converted Land

Although not practiced extensively on the Salty Prairie, sometimes the site is converted to other uses by plowing and seeding to introduced plants (3.1). Salt-tolerant species such as alkali sacaton must be used. Coastal bermudagrass has shown promise because it is vegetatively propagated. Under heavy grazing with no fertility, the seeded community will deteriorate into a mesquite/tallow/baccharis shrubland. Aggressive fertility management, brush management, and prescribed grazing will be needed to maintain the introduced plant community. If the seeded community is abandoned, it will transition to a woody species mixed brush, forb, and shortgrass community (3.2). However, under prescribed grazing and prescribed fire with no cultural management, the site can eventually return to a near-native grassland. This community is so strongly influenced by salinity and periods of inundation that any management practice can be overridden by these natural factors.

Community 3.2
Abandoned Land

This community occurs when the Converted Land Community that has been seeded into alkali sacaton and bermudagrass has been abandoned and under heavy grazing pressure. When this transition occurs, this community will revert back to a mesquite/tallow shrubland type community composed of woody species, mixed-brush, forbs, and shortgrasses. However, under prescribed grazing, brush management, and prescribed fire with no cultural management, the site may eventually return to a native grassland if there is a sufficient seed source.

Pathway 3.1A
Community 3.1 to 3.2

Heavy grazing, lack of brush management, and lack of pest management will transition the site to Community 3.2.

Pathway 3.2A
Community 3.2 to 3.1

Brush management, prescribed grazing, and pest management will transition the site back to Community 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.

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**			3920–5880	
	shore little bluestem	SCLI11	*Schizachyrium littorale*	2500–5000	–
	little bluestem	SCSCS	*Schizachyrium scoparium var. scoparium*	2500–5000	–
	gulf cordgrass	SPSP	*Spartina spartinae*	500–2940	–
2	**Tallgrasses**			280–420	
	alkali sacaton	SPAI	*Sporobolus airoides*	100–350	–
	switchgrass	PAVI2	*Panicum virgatum*	100–300	–
3	**Midgrasses**			280–420	
	saltmeadow cordgrass	SPPA	*Spartina patens*	150–350	–
	saltgrass	DISP	*Distichlis spicata*	100–300	–
4	**Tallgrass**			280–420	
	Hartweg's paspalum	PAHA3	*Paspalum hartwegianum*	280–420	–
5	**Mid/Shortgrasses**			280–420	
	buffalograss	BODA2	*Bouteloua dactyloides*	140–300	–
	vine mesquite	PAOB	*Panicum obtusum*	140–300	–
6	**Midgrasses**			280–420	
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	140–300	–
	white tridens	TRAL2	*Tridens albescens*	140–300	–
7	**Shortgrasses/Annuals**			0–10	
	Grass, annual	2GA	*Grass, annual*	0–10	–
	shoregrass	MOLI	*Monanthochloe littoralis*	0–10	–
	marsh bristlegrass	SEPA10	*Setaria parviflora*	0–10	–
Forb					
8	**Forbs**			112–168	
	prairie acacia	ACAN	*Acacia angustissima*	50–100	–
	narrowleaf yerba santa	ERAN2	*Eriodictyon angustifolium*	50–100	–
	sea lavender	LIMON	*Limonium*	50–100	–
	pickleweed	SALIC	*Salicornia*	50–100	–
	southern annual saltmarsh aster	SYDI2	*Symphyotrichum divaricatum*	50–100	–
	Texas varilla	VATE2	*Varilla texana*	50–100	–
	Forb, annual	2FA	*Forb, annual*	0–50	–
Shrub/Vine					
9	**Shrubs/Vines**			168–252	
	eastern baccharis	BAHA	*Baccharis halimifolia*	50–100	–
	bushy seaside tansy	BOFR	*Borrichia frutescens*	50–100	–
	spiny chloracantha	CHSP11	*Chloracantha spinosa*	50–100	–
	pricklypear	OPUNT	*Opuntia*	50–100	–
	Virginia glasswort	SADE10	*Salicornia depressa*	50–100	–

Animal community

The animal communities of the Coastal Prairie communities are influenced by fresh and salt water inundations. 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 become abundant. Coyotes are abundant and fill the mammalian predator niche. Rodent populations rise during drier periods and fall during periods of inundation. Alligators are locally abundant and make frequent use of the marshes depending on salt concentrations in the marshes.

The region is a major flyway for waterfowl and migrating birds. Hundreds of thousands of ducks, geese, and sandhill cranes abound during winter. Whooping cranes are an important endangered species that occur in the area, especially near Aransas National Wildlife Refuge. Northern harriers are common predatory birds seen patrolling marshes. Curlews, plovers, sandpipers, and willets are shorebirds that make use of the tidal areas. Seagulls and terns are plentiful throughout the year trolling the shores as well. Further inland, rails, gallinules, and moorhens make use of the brackish marshes.

Hydrological functions

Infiltration into the sandy soils of this site is rapid. However, because of the level terrain and proximity to the Gulf of Mexico, this site may be inundated periodically. Runoff and erosion from water are seldom a problem.

Inventory data references

The information presented in this document is based on limited empirical data from research. Most of the data is professional opinion from range-trained professionals working in the field for many years.

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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.

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Date	01/21/2009
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:** None.

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 litter can be expected to 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 is expected to be 3 to 5.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface is 0 to 16 inches of dark grayish brown dry loamy fine sand; weak fine granular structure; slightly hard, very friable, many fine roots, 3 percent by volume of rounded siliceous pebbles; common wormcasts; slightly acidic; clear smooth boundary.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This 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):** None.

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: Warm-season mid/tallgrasses Warm-season shortgrasses

    Other: Forbs Shrubs/Vines Trees

    Additional:

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

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14. **Average percent litter cover (%) and depth (in):** Litter is primarily herbaceous.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 5,600 to 8,400 pounds per acre.

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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:** Huisache, Chinese tallow, eastern baccharis, mesquite, or common bermudagrass are common invaders.

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17. **Perennial plant reproductive capability:** Perennial plants should be capable of reproduction, except during periods of prolonged drought conditions, heavy continuous herbivory, and fires.
