

# Ecological site R083CY007TX Lakebed

Last updated: 9/19/2023  
Accessed: 09/19/2026

## 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.

## MLRA notes

Major Land Resource Area (MLRA): 083C—Central Rio Grande Plain

Major Land Resource Area (MLRA) 83C makes up about 4,275 square miles (11,075 square kilometers). The towns of Freer, George West, and Hebbronville are in this area. The town of Alice is on the east edge of the area. U.S. Highways 59 and 281 cross the area. This area is comprised of inland, dissected coastal plains.

## Classification relationships

USDA-Natural Resources Conservation Service, 2006. -Major Land Resource Area (MLRA) 83C

## Ecological site concept

Lakebeds are shallow depressions that support moist soil plant communities. They stay inundated after heavy rainfall events.

## Associated sites

|             |                    |
|-------------|--------------------|
| R083CY004TX | Shallow Sandy Loam |
| R083CY023TX | Sandy Loam         |

## Similar sites

|             |         |
|-------------|---------|
| R083AY007TX | Lakebed |
| R083DY007TX | Lakebed |
| R083EY007TX | Lakebed |

Table 1. Dominant plant species

|      |               |
|------|---------------|
| Tree | Not specified |
|------|---------------|

|            |                                                                      |
|------------|----------------------------------------------------------------------|
| Shrub      | Not specified                                                        |
| Herbaceous | (1) <i>Trichloris pluriflora</i><br>(2) <i>Paspalum hartwegianum</i> |

### Physiographic features

The sites are found in closed depressions. Ponding occurs up to 12 inches after heavy rainfall events for brief to long periods. Slope ranges from 0 to 1 percent. This area is comprised of inland, dissected coastal plains.

**Table 2. Representative physiographic features**

|                    |                                            |
|--------------------|--------------------------------------------|
| Landforms          | (1) Coastal plain > Depression             |
| Runoff class       | Negligible                                 |
| Flooding frequency | None                                       |
| Ponding duration   | Brief (2 to 7 days) to long (7 to 30 days) |
| Ponding frequency  | Occasional to frequent                     |
| Elevation          | 0 – 240 m                                  |
| Slope              | 0 %                                        |
| Water table depth  | 0 – 200 cm                                 |
| Aspect             | Aspect is not a significant factor         |

### Climatic features

MLRA 83C is subtropical, subhumid on the western boundary and subtropical humid on the eastern boundary. Winters are dry and mild, and the summers are hot and humid. Tropical maritime air masses predominate throughout spring, summer, and fall. Modified polar air masses exert considerable influence during winter, creating a continental climate characterized by large variations in temperature. Peak rainfall, because of rain showers, occurs late in spring and a secondary peak occurs early in fall. Heavy thunderstorm activities increase in April, May, and June. July is hot and dry with little weather variations. Rainfall increases again in late August and September as tropical disturbances increase and become more frequent. Tropical air masses from the Gulf of Mexico dominate during the spring, summer, and fall. Prevailing winds are southerly to southeasterly throughout the year except in December when winds are predominately northerly.

**Table 3 Representative climatic features**

|                                           |              |
|-------------------------------------------|--------------|
| Frost-free period (characteristic range)  | 260-290 days |
| Freeze-free period (characteristic range) | 370 days     |

|                                            |              |
|--------------------------------------------|--------------|
| Precipitation total (characteristic range) | 580-660 mm   |
| Frost-free period (actual range)           | 260-350 days |
| Freeze-free period (actual range)          | 370 days     |
| Precipitation total (actual range)         | 530-660 mm   |
| Frost-free period (average)                | 280 days     |
| Freeze-free period (average)               | 370 days     |
| Precipitation total (average)              | 640 mm       |

- (1) CHOKE CANYON DAM [USC00411720], Three Rivers, TX
- (2) MCCOOK [USC00415721], Edinburg, TX
- (3) FREER [USC00413341], Freer, TX
- (4) CALLIHAM [USC00411337], Calliham, TX
- (5) HEBBRONVILLE [USC00414058], Hebbronville, TX

### Influencing water features

Following rainfall events this site will pond water for varying lengths of time. Saturation occurs in the upper part of the soil and will have reduced conditions for during the wet months of the year. Water is received from runoff and seepage from adjacent sites. Each site will need to be visited individually to determine wetland criteria.

### Wetland description

This site contains some areas of both wetland and non wetlands. An onsite investigation is needed to determine wetland criteria.

### Soil features

Soils are very deep, somewhat poorly to poorly drained, and very slowly permeable to impermeable. Soil series correlated to this site include: Edroy, Papagua, Realitos, and Tiocano.

**Table 4. Representative soil features**

|                      |                                           |
|----------------------|-------------------------------------------|
| Parent material      | (1) Alluvium – sedimentary rock           |
| Surface texture      | (1) Clay<br>(2) Fine sandy loam           |
| Family particle size | (1) Fine                                  |
| Drainage class       | Somewhat poorly drained to poorly drained |

|                                                          |                 |
|----------------------------------------------------------|-----------------|
| Permeability class                                       | Very slow       |
| Soil depth                                               | 200 cm          |
| Available water capacity<br>(0-101.6cm)                  | 12.7 – 15.24 cm |
| Calcium carbonate equivalent<br>(0-101.6cm)              | 0 – 20 %        |
| Electrical conductivity<br>(0-101.6cm)                   | Not specified   |
| Sodium adsorption ratio<br>(0-101.6cm)                   | 0 – 10          |
| Soil reaction (1:1 water)<br>(0-101.6cm)                 | 6.1 – 8.4       |
| Subsurface fragment volume <=3"<br>(Depth not specified) | Not specified   |

## Ecological dynamics

Climatic variation and topoedaphic heterogeneity interact to influence vegetation responses to disturbances such as fire and grazing. Plants of the reference plant community evolved with and are generally well adapted to grazing and fire. Prior to European settlement, fires would likely have been frequent, between 5 and 10 years. These fires would have resulted from lightning during the hot, dry summer months or were set by Native Americans. The occurrence of fire promotes grasses while making it difficult for woody plants to achieve dominance. During the Pleistocene, there were significant populations of large-bodied grazers and browsers. Most of these went extinct, so that by the Holocene (about 10,000 years ago) only bison (*Bos bison*), white-tailed deer (*Odocoileus virginianus*), and antelope (*Antilocapra americana*) remained. Archeological evidence indicates that bison occurred in the region, but there is also evidence of centuries of absence. In addition, their numbers may have varied seasonally as herds migrated. When present, bison may have grazed certain areas heavily, but then moved on. Activities of other native herbivores (termites, cutter ants, soil nematodes, kangaroo rats (*Dipodomys* spp.)) also influenced vegetation productivity and dynamics.

Accounts of earlier explorers and settlers suggest the Rio Grande Plains was likely a mosaic of grasslands, savannahs, shrublands, and woodlands. Historical photographs suggest the nature of the vegetation structure likely varied from place-to-place depending on topography, soil properties and time since the last major disturbances (such as drought or fire). However, the occurrence of extensive grasslands and grassland fauna (antelope, for example) is mentioned in numerous historical accounts. Plants likely at the time of European settlement included little bluestem (*Schizachyrium scoparium*), false Rhodes grass (*Chloris crinata*), and multiflower false Rhodes grass (*Chloris pluriflora*), Arizona cottontop (*Digitaria californica*), plains bristlegrass (*Setaria vulpiseta*), and pink pappusgrass (*Pappophorum bicolor*). The composition and productivity of grass communities would have varied with annual rainfall, soil depth and the extent of argillic horizon development. Many sites are now dominated by mesquite (*Prosopis glandulosa*), various acacias (*Acacia* spp.), granjeno (*Celtis pallida*), condalia (*Condalia obovata*), lime prickly ash, and prickly pear (*Opuntia* spp.). These woody plants are not new arrivals, but are native to the region and have increased in size and abundance within their historic ranges.

Grazing and fire are two factors that critically influence the relative abundance of grasses and woody plants through time. By the early 1800's cattle and sheep numbers appear to have been quite high in the Rio Grande Plains, resulting in heavy, year-round grazing. The resulting reduction in abundance of late seral grasses lead to a decline in soil organic matter, a reduction in fire frequency/intensity (due to lack of fine fuels), and a shift from midgrass domination to shortgrass, like hooded windmill grass (*Chloris cucullata*), three-awns (*Aristida* spp.) and forbs, like orange zexmenia (*Wedelia hispida*), and croton (*Croton* spp.). These changes would have favored woody plants, most of which are unpalatable to livestock, and enabled them to establish and attain dominance. This would be especially true for leguminous shrubs such as mesquite, whose seeds are widely spread by livestock.

The shift from grass to woody plant domination became the impetus for brush management practices. By the 1950's, large-scale mechanized clearing was common and by the 1970's, aerial herbicide applications were widespread. However, by the 1980's it was clear that brush management practices were often treating symptoms rather than underlying problems and having undesirable environmental consequences, including adverse effects on wildlife populations. Sites cleared of brush regenerated rapidly and often formed thickets that were denser and of lower diversity than the original stands. This realization, coupled with the fact that brush management treatments were typically short-lived, lead to the development of Integrated Brush Management Systems (IBMS). The IBMS approach takes a holistic, large-scale, long-term, whole-farm, ecosystem-based approach to brush management and recognizes multiple-use options for rangeland resources. Shrublands developing on former grasslands have other potential socioeconomic values that should be considered when contemplating brush management. These include alternate classes of livestock, lease hunting, deer and exotic game ranching, and ecotourism.

While shrublands have traditionally been viewed as degraded from a livestock production standpoint, it is important to recognize that they are not necessarily degraded from the ecological perspectives of primary productivity, nutrient cycling and biodiversity. The productivity of shrublands may be comparable to the grassland they replaced. In addition, shrubs modify soils and microclimate to increase levels of organic matter and nutrients in the upper four inches of the soil profile. This nutrient enrichment by shrubs can offset grazing-induced losses of soil nutrients and contribute to enhance grass production when shrub cover is reduced by natural or management-induced means. While the development of shrub communities may have adverse impacts on grasses and grassland fauna, other plants and animals may benefit. Thus, while ecosystem biodiversity certainly changes, it does not necessarily decrease with a shift from grass to woody plant domination.

## State and transition model

## Additional community tables

Table 5. Community 1.1 plant community composition

| Group                  | Common Name                    | Symbol | Scientific Name                | Annual Production () | Foliar Cover (%) |
|------------------------|--------------------------------|--------|--------------------------------|----------------------|------------------|
| <b>Grass/Grasslike</b> |                                |        |                                |                      |                  |
| 1                      | <b>Mid/Tallgrasses</b>         |        |                                | 532-1614             |                  |
|                        | multiflower false Rhodes grass | TRPL3  | <i>Trichloris pluriflora</i>   | 168-673              | –                |
|                        | switchgrass                    | PAVI2  | <i>Panicum virgatum</i>        | 168-673              | –                |
|                        | shore little bluestem          | SCLI11 | <i>Schizachyrium littorale</i> | 0-504                | –                |
| 2                      | <b>Midgrasses</b>              |        |                                | 852-1412             |                  |
|                        | Hartweg's paspalum             | PAHA3  | <i>Paspalum hartwegianum</i>   | 852-1412             | –                |
| 3                      | <b>Mid/Shortgrasses</b>        |        |                                | 336-605              |                  |
|                        | buffalograss                   | BODA2  | <i>Bouteloua dactyloides</i>   | 84-168               | –                |
|                        | saltgrass                      | DISP   | <i>Distichlis spicata</i>      | 84-168               | –                |
|                        | creeping lovegrass             | NERE3  | <i>Neeragrostis reptans</i>    | 84-168               | –                |
|                        | knotgrass                      | PADI6  | <i>Paspalum distichum</i>      | 84-168               | –                |
|                        | marsh bristlegrass             | SEPA10 | <i>Setaria parviflora</i>      | 84-168               | –                |
| 4                      | <b>Grasslikes</b>              |        |                                | 213-404              |                  |
|                        | sedge                          | CAREX  | <i>Carex</i>                   | 101-196              | –                |
|                        | spikerush                      | ELEOC  | <i>Eleocharis</i>              | 101-196              | –                |
| <b>Forb</b>            |                                |        |                                |                      |                  |
| 5                      | <b>Forbs</b>                   |        |                                | 112-224              |                  |
|                        | Forb, annual                   | 2FA    | <i>Forb, annual</i>            | 28-84                | –                |
|                        | woodsorrel                     | OXALI  | <i>Oxalis</i>                  | 28-84                | –                |

|                   |                        |       |                                            |       |   |
|-------------------|------------------------|-------|--------------------------------------------|-------|---|
|                   | turkey tangle fogfruit | PHNO2 | <i>Phyla nodiflora</i>                     | 28-84 | – |
|                   | Cuman ragweed          | AMPS  | <i>Ambrosia psilostachya</i>               | 11-45 | – |
| <b>Shrub/Vine</b> |                        |       |                                            |       |   |
| 6                 | <b>Shrubs</b>          |       |                                            | 0-168 |   |
|                   | poisonbean             | SEDR  | <i>Sesbania drummondii</i>                 | 0-168 | – |
| <b>Tree</b>       |                        |       |                                            |       |   |
| 7                 | <b>Trees</b>           |       |                                            | 0-56  |   |
|                   | sweet acacia           | ACFA  | <i>Acacia farnesiana</i>                   | 0-56  | – |
|                   | Jerusalem thorn        | PAAC3 | <i>Parkinsonia aculeata</i>                | 0-56  | – |
|                   | honey mesquite         | PRGLG | <i>Prosopis glandulosa var. glandulosa</i> | 0-56  | – |

Table 6. Community 1.2 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

Table 7. Community 2.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

## Animal community

As a historic tall/midgrass prairie, this site was occupied by bison, antelope, deer, quail, turkey, and dove. This site was also used by many species of grassland songbirds, migratory waterfowl, and coyotes. This site now provides forage for livestock and is still used by quail, dove, migratory waterfowl, grassland birds, coyotes, and deer. Feral hogs (*Sus scrofa*) can be found on most ecological sites in Texas. Damage caused by feral hogs each year includes, crop damage by rutting up crops, destroyed fences, livestock watering areas, and predation on native wildlife, and ground-nesting birds. Feral hogs have few natural predators, thus allowing their population to grow to high numbers. Wildlife habitat is a complex of many different plant communities and ecological sites across the landscape. Most animals use the landscape differently to find food, shelter, protection, and mates. Working on a conservation plan for the whole property, with a local professional, will help managers make the decisions that allow them to realize their goals for wildlife and livestock. Grassland State (1): This state provides the maximum amount of forage for livestock such as cattle. It is also utilized by deer, quail and other birds as a source of food. When a site is in the reference plant community phase (1.1) it will also be used by some birds for nesting, if other habitat requirements like thermal and escape cover are near. Tree/Shrubland (2): This state can be maintained to meet the habitat requirements of cattle and wildlife. Land managers can find a balance that meets their goals and allows them flexibility to manage for livestock and wildlife. Forbs for deer and birds like quail will be more plentiful in this state. There will also be more trees and shrubs to provide thermal and escape cover for birds as well as cover for deer.

## Hydrological functions

This ecological site is in a water receiving position and ponded water is common after rainfall events. Because of the level terrain, water erosion is seldom a problem. Saturation occurs in the upper part and will have reducing conditions for some time during the wet months of the year. This is a moist ecological site receiving water from runoff and seepage from adjacent sites. Each site will need to be visited individually to determine wetland criteria.

## Recreational uses

Hunting and photography are common activities.

## Wood products

In the Grassland State (1), no wood products are available. In the Wooded Complex, large numbers of mesquite trees and can be cut for firewood and barbecue wood.

## Inventory data references

The data contained in this document is derived from analysis of inventories, clipping studies, and ecological interpretation from field evaluations.

## Other references

- Archer, S. 1995. Herbivore mediation of grass-woody plant interactions. *Tropical Grasslands*, 29:218-235.
- Archer, S. 1995. Tree-grass dynamics in a *Prosopis*-thornscrub savanna parkland: reconstructing the past and predicting the future. *Ecoscience*, 2:83-99.
- Archer, S. 1994. Woody plant encroachment into southwestern grasslands and savannas: rates, patterns and proximate causes. *Ecological implications of livestock herbivory in the West*, 13-68.
- Archer, S., C. Scifres, C. R. Bassham, and R. Maggio. 1988. Autogenic succession in a subtropical savanna: conversion of grassland to thorn woodland. *Ecological Monographs* 58(2):110-127.
- Archer, S. 1990. Development and stability of grass/woody mosaics in a subtropical savanna parkland, Texas, USA. *Journal of Biogeography* 17: 453-462.
- Bond, W. J. What Limits Trees in C4 Grasslands and Savannas? *Annual Review of Ecology, Evolution, and Systematics*. 39:641-659.
- De Leon, A. 2003. Itineraries of the De León Expeditions of 1689 and 1690. In *Spanish Exploration in the Southwest, 1542-1706*. Edited by H. E. Bolton. Charles Scribner's Sons, New York, NY.
- Dillehay T. 1974. Late quaternary bison population changes on the Southern Plains. *Plains Anthropologist*, 19:180-96.
- Duaine, C. L. 1971. *Caverns of Oblivion*. Packrat Press, Oak Harbor, WA.
- Everitt, J. H., D. L. Drawe, and R. I. Leonard. 2002. *Trees, Shrubs, and Cacti of South Texas*. Texas Tech University Press, Lubbock, TX.
- Everitt, J. H., D. L. Drawe, and R. I. Leonard. 1999. *Field Guide to the Broad-Leaved Herbaceous Plants of South Texas*. Texas Tech University Press. Lubbock, TX.
- Ford, J. S. 2010. *Rip Ford's Texas*. University of Texas Press. Austin, TX.
- Fulbright, T. E. and S. L. Beasom. 1987. Long-term effects of mechanical treatment on white-tailed deer browse. *Wildlife Society Bulletin*, 15:560-564.
- Fulbright, T. E. and F. C. Bryant. 2003. The Wild Horse Desert: climate and ecology. *The Ranch Management*, 35-58.
- Gilbert, L. E. 1982. An ecosystem perspective on the role of woody vegetation, especially mesquite, in the Tamaulipan biotic region of South Texas. *Proceeding Symposium of the Tamaulipan Biotic Province*, Corpus Christi, TX.
- Hanselka, C. W., D. L. Drawe, and D. C. Ruthven, III. 2004. Management of South Texas Shrublands with prescribed fire. In *Proceedings: Shrubland dynamics -- fire and water*, 57-61.
- Heitschmidt R. K., Stuth J. W., eds. 1991. *Grazing management: an ecological perspective*. Timberline Press, Portland, OR.
- Inglis, J. M. 1964. A history of vegetation of the Rio Grande Plains. *Texas Parks and Wildlife Department Bulletin No. 45*, Austin, TX.
- Jurena, P.N., and S. Archer. 2003. Woody Plant Establishment and Spatial Heterogeneity in Grasslands Ecology, 84(4):907-919.
- Le Houerou, H. N. and J. Norwine. 1988. The ecoclimatology of South Texas. In *Arid lands: today and tomorrow*. Edited by E. E. Whitehead, C. F. Hutchinson, B. N. Timmesman, and R. G. Varady, 417-444. Westview Press, Boulder, CO.
- Lehman, V. W. 1969. *Forgotten legions: sheep in the Rio Grande Plains of Texas*. Texas Western Press, University of Texas at El Paso, El Paso, TX.
- McGinty, A. and D. N. Ueckert. 2001. The Brush Busters success story. *Rangelands Archives*, 23(6):3-8.
- McLendon T. 1991. Preliminary description of the vegetation of South Texas exclusive of coastal saline zones. *Texas Journal of Science*, 43: 13-32
- Neilson, R. P. 1987. Biotic regionalization and climatic controls in western North America. *Vegetatio*, 70(3): 135-147.
- Norwine, J. 1978. Twentieth-century semiarid climates and climatic fluctuations in Texas and northeastern Mexico. *Journal of Arid Environments*, 1:313-325.
- Norwine, J. and R. Bingham. 1986. Frequency and severity of droughts in South Texas: 1900-1983, 1-17. In *Livestock and wildlife management during drought*. Edited by R. D. Brown. Caesar Kleberg Wildlife Research Institute, Kingsville, TX.

- Parvin, R. W. 2003. Rio Bravo Resource Conservation and Development. Llanos Mestenos South Texas Heritage Trail. Zapata, TX.
- Rappole, J. H. and G. W. Blacklock. 1994. A field guide: Birds of Texas. Texas A&M University Press, College Station, TX.
- Schmidley, D. J. 1983. Texas mammals east of the Balcones Fault zone. Texas A&M University Press. College Station, TX.
- Scifres, C. J. and W. T. Hamilton. 1993. Prescribed burning for brushland management: the South Texas example. Texas A&M Press, College Station, TX.
- Scifres C. J., W. T. Hamilton, J. R. Conner, J. M. Inglis, and G. A. Rasmussen. 1985. Integrated Brush Management Systems for South Texas: Development and Implementation. Texas Agricultural Experiment Station, College Station, TX.
- Scifres, C. J., J.W. McAtee, and D. L. Drawe. 1980. Botanical, Edaphic, and Water Relationships of Gulf Cordgrass (*Spartina spartinae* [Trin.] Hitchc.) and Associated Communities The Southwestern Naturalist 25(3):397-409.
- Texas Parks and Wildlife Department. 2007. List of White-tailed Deer Browse and Ratings. District 8.
- Vavra, M., W. A. Laycock, R. D. Pieper. 1994. Ecological Implications of livestock herbivory in the West. Society for Range Management. Denver, CO.
- Weltz, M. A. and W. H. Blackburn. 1995. Water budget for south Texas rangelands. Journal of Range Management, 48:45-52.
- Whittaker, R. H., L. E. Gilbert, and J. H. Connell. 1979. Analysis of a two-phase pattern in a mesquite grassland, Texas. Journal of Ecology, 67:935-52.
- Wright, B. D., R. K. Lyons, J. C. Cathey, and S. Cooper. 2002. White-tailed deer browse preferences for South Texas and the Edwards Plateau. Texas Cooperative Extension Bulletin B-6130.

## Contributors

Gary Harris, MSSL, NRCS, Robstown, Texas.

## Approval

Bryan Christensen, 9/19/2023

## Acknowledgments

Technical reviewers and contributors include: Clark Harshbarger, MSSL, NRCS, Robstown, Texas Vivian Garcia, RMS, NRCS, Corpus Christi, Texas Shanna Dunn, RSS, NRCS, Corpus Christi, Texas Jason Hohlt, RMS, NRCS, Kingsville, Texas Tyson Hart, RMS, NRCS, Nacogdoches, Texas

## 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) | David Hinojosa, RMS, NRCS, Robstown, Texas |
| Contact for lead author  | 361-241-0609                               |
| Date                     | 09/23/2013                                 |
| Approved by              |                                            |

|                                             |                   |
|---------------------------------------------|-------------------|
| 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: None.

---

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 five percent bare ground.

---

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

---

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

---

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

---

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

---

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Soil surface horizons are 0 to 12 inches thick; light brownish gray (10YR 6/2) loamy fine sand or fine sandy loam; weak, fine subangular blocky structure; abrupt smooth boundary; SOM is less than three percent.

---

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: A high canopy cover of bunch, rhizomatous, and stoloniferous grasses will help minimize runoff and maximize infiltration. Grasses should comprise approximately 90 percent of total annual production by weight. Shrubs will comprise about 0 to 5 percent by weight.

---

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: Midgrasses >>

Sub-dominant: Mid/Tallgrasses > Mid/Shortgrasses >> Grasslikes > Forbs > Shrubs/Vines >> Trees

Other:

Additional:

---

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Potential for 5 to 15 percent plant mortality of perennial bunchgrasses during extreme drought.
- 

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

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production): 2,000 to 4,000 pounds per acre.
- 

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: Mesquite, huisache, bermudagrass and Kleberg bluestem are common invaders.
- 

17. Perennial plant reproductive capability: All species should be capable of reproducing, except during periods of prolonged drought conditions.
-