USDA Natural Resources Conservation Service

# Ecological site R083AY007TX
# Lakebed

Last updated: 9/19/2023
Accessed: 05/13/2025

## 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.

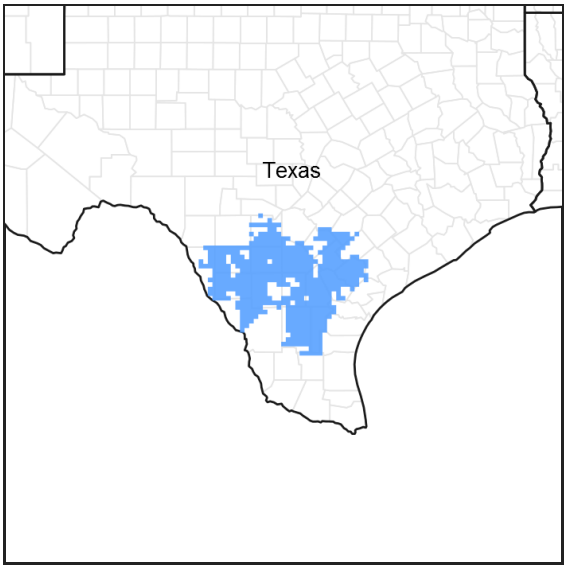



**Figure 1. Mapped extent**

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): 083A–Northern Rio Grande Plain

This area is entirely in Texas and south of San Antonio. It makes up about 11,115 square miles (28,805 square kilometers). The towns of Uvalde, Cotulla, and Hondo are in the western part of the area, and Beeville, Goliad, and Kenedy are in the eastern part. The town of Alice is just outside the southern edge of the area. Interstate Highways 35 and 37 cross this area. This area is comprised of inland, dissected coastal plains.

## Classification relationships

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

## Ecological site concept

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

## Associated sites

| | |
|---|---|
| R083AY005TX | **Shallow** |
| R083AY019TX | **Gray Sandy Loam** |
| R083AY023TX | **Sandy Loam** |

## Similar sites

| | |
|---|---|
| R083DY007TX | **Lakebed** |
| R083EY007TX | **Lakebed** |
| R083CY007TX | **Lakebed** |

**Table 1. Dominant plant species**

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

## 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 and elevation ranges from 200 to 1,000 feet. This area is comprised of inland, dissected coastal plains.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Coastal plain > Open depression |
| Runoff class | Negligible |
| Ponding duration | Very brief (4 to 48 hours)  to long (7 to 30 days) |
| Ponding frequency | Occasional to frequent |
| Elevation | 30–274 m |
| Slope | 0–1% |
| Ponding depth | 0–30 cm |
| Water table depth | 0–203 cm |
| Aspect | Aspect is not a significant factor |

## Climatic features

MLRA 83A 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. Average precipitation for MLRA 83A is 20 inches on the western boundary and 35 inches on the eastern boundary. 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) | 223-251 days |

| | |
|---|---|
| Freeze-free period (characteristic range) | 263-365 days |
| Precipitation total (characteristic range) | 635-813 mm |
| Frost-free period (actual range) | 208-263 days |
| Freeze-free period (actual range) | 254-365 days |
| Precipitation total (actual range) | 610-940 mm |
| Frost-free period (average) | 235 days |
| Freeze-free period (average) | 314 days |
| Precipitation total (average) | 737 mm |

## Climate stations used

- (1) CHARLOTTE 5 NNW [USC00411663], Charlotte, TX
- (2) PEARSALL [USC00416879], Pearsall, TX
- (3) CARRIZO SPRINGS 3W [USC00411486], Carrizo Springs, TX
- (4) DILLEY [USC00412458], Dilley, TX
- (5) FLORESVILLE [USC00413201], Floresville, TX
- (6) KARNES CITY 2N [USC00414696], Karnes City, TX
- (7) LYTLE 3W [USC00415454], Natalia, TX
- (8) MATHIS 4 SSW [USC00415661], Mathis, TX
- (9) PLEASANTON [USC00417111], Pleasanton, TX
- (10) UVALDE 3 SW [USC00419268], Uvalde, TX
- (11) HONDO MUNI AP [USW00012962], Hondo, TX
- (12) BEEVILLE 5 NE [USC00410639], Beeville, TX
- (13) CUERO [USC00412173], Cuero, TX
- (14) GOLIAD [USC00413618], Goliad, TX
- (15) TILDEN 4 SSE [USC00419031], Tilden, TX
- (16) CHEAPSIDE [USC00411671], Gonzales, TX
- (17) CROSS [USC00412125], Tilden, TX
- (18) FOWLERTON [USC00413299], Fowlerton, TX
- (19) HONDO [USC00414254], Hondo, TX
- (20) NIXON [USC00416368], Stockdale, TX
- (21) POTEET [USC00417215], Poteet, TX
- (22) CALLIHAM [USC00411337], Calliham, 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. Soils in this site will meet the requirements for hydric soil but individual sites may not qualify for the wetland designation.

## Wetland description

Each site will need to be visited individually to determine wetland criteria. Soils in this site will meet the requirements for hydric soil but individual sites may not qualify for the wetland designation.

## Soil features

The soils are very deep, moderately well to somewhat poorly drained, very slowly permeable to impermeable that formed in clayey alluvium. Although horizons may differ in surface textures, all have nearly impermeable subsoils that pond water. Soils correlated to this site include: Papagua, Realitos, and Tiocano.

**Table 4. Representative soil features**

| | |
|---|---|
| Parent material | (1) Lacustrine deposits–sedimentary rock |
| Surface texture | (1) Fine sandy loam<br>(2) Clay<br>(3) Loamy fine sand |
| Family particle size | (1) Fine |
| Drainage class | Moderately well drained to somewhat poorly drained |
| Permeability class | Very slow |
| Soil depth | 203 cm |
| Surface fragment cover <=3" | 0% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-101.6cm) | 15.24 cm |
| Calcium carbonate equivalent (0-101.6cm) | 0–40% |
| Electrical conductivity (0-101.6cm) | 0–4 mmhos/cm |
| Sodium adsorption ratio (0-101.6cm) | 0–5 |
| Soil reaction (1:1 water) (0-101.6cm) | 6.6–8.4 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–2% |
| Subsurface fragment volume >3" (Depth not specified) | 0% |

## Ecological dynamics

The Northern Rio Grande Plain MLRA was a disturbance-maintained system. Prior to European settlement (pre-1825), fire and grazing were the two primary forms of disturbance. Grazing by large herbivores included antelope, deer, and small herds of bison. The infrequent but intense, short-duration grazing by these species suppressed woody species and invigorated herbaceous species. The herbaceous savannah species adapted to fire and grazing disturbances by maintaining belowground tissues. Wright and Bailey (1982) report that there are no reliable records of fire frequency for the Rio Grande Plains because there are no trees to carry fire scars from which to estimate fire frequency. Because savannah grassland is typically of level or rolling topography, a natural fire frequency of three to seven years seems reasonable for this site.

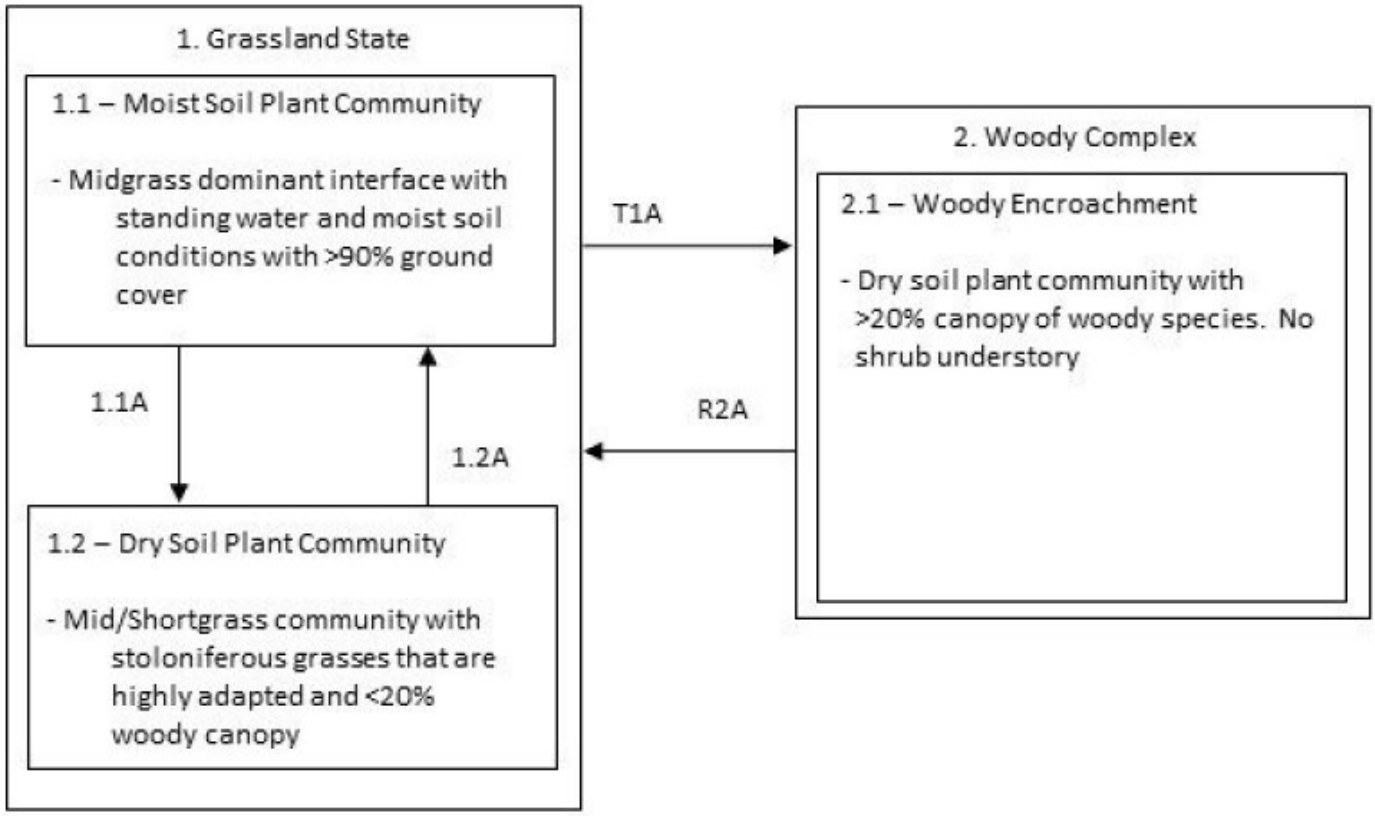
Precipitation patterns are highly variable. Long-term droughts, occurring three to four times per century, cause shifts in species composition by causing die-off of seedlings, less drought-tolerant species, and some woody species. Droughts also reduce biomass production and create open space, which is colonized by opportunistic species when precipitation increases. Wet periods allow midgrasses to increase in dominance.

Historical accounts prior to 1800 identify grazing by herds of wild horses, followed by heavy grazing by sheep and cattle as settlement progressed. Grazing on early ranches changed natural graze-rest cycles to continuous grazing and stocking rates exceeded the carrying capacity. These shifts in grazing intensity and the removal of rest from the system reduced plant vigor for the most palatable species, which on this site were mid-grasses and palatable forbs. Shortgrasses and less palatable forbs began to dominate the site. This shift resulted in lower fuel loads, which reduced fire frequency and intensity. The reduction in fires resulted in an increase in size and density of woody species.

Today, primarily beef cattle graze rangeland and pastureland. However, horse numbers are increasing rapidly on small acreage properties in the region. There are some areas where dairy cattle, poultry, goats, and sheep are locally important. Whitetail deer, wild turkey, bobwhite quail, and dove are the major wildlife species, and hunting

leases are a major source of income for many landowners in this area. Introduced pasture has been established on many acres of old cropland and in areas with deeper soils. Buffelgrass is the most common introduced plant on the site and to a lesser extent bermudagrass, guineagrass (*Urochloa maxima*), and kleingrass, which are more commonly used for hay. Cropland is found in the valleys, bottomlands, and deeper upland soils. Wheat (Triticum spp.), oats Avena spp.), forage and grain sorghum (Sorghum spp.), cotton (Gossypium spp.), and corn (*Zea mays*) are major crops in the region.

## State and transition model




| Code | Practice |
|---|---|
| T1A | Lack of water and germination by woody species |
| R2A | Brush management or natural restoration through inundation |
| 1.1A | Depressions drying and increased grazing pressure |
| 1.2A | Inundation returns and wet-adapted species return |

## State 1
## Grassland

### Dominant plant species

- Hartweg's paspalum (*Paspalum hartwegianum*), grass

## Community 1.1
## Moist Soil

Because of a lack of reference communities, the interpretive information for this plant community is derived from previously developed range site descriptions and professional consensus of range trained field staff. This grassland community develops when soils in the shallow depressions of the Sandsheet Prairie maintain a degree of wetness because of periodic rainfall events. Mid/tallgrasses thrive on this ecological site and will follow the waterline as water evaporates out of the ponded areas. Hartweg's paspalum (*Paspalum hartwegianum*) represents a significant proportion of the plant. The forb community will vary based on rainfall and fluctuations in the ponded status of the

depression, but commonly include Texas frog fruit (*Phyla nodiflora*) and wood sorrel (Oxalis spp.). Areas of bare ground that are exposed by water evaporation during the fall and winter will typically have more forbs than if the bare ground is exposed during the spring and summer, which will favor grass species. Rattlebush (*Sesbania drummondii*) is a common shrub that will make up a trace amount of the plant composition. The duration of time this ecological site has standing water is highly variable and driven by local weather patterns.

**Table 5. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 2130 | 3082 | 4035 |
| Forb | 112 | 168 | 224 |
| Shrub/Vine | – | 84 | 168 |
| Tree | – | 28 | 56 |
| **Total** | **2242** | **3362** | **4483** |

**Table 6. Ground cover**

| | |
|---|---|
| Tree foliar cover | 0-5% |
| Shrub/vine/liana foliar cover | 0-10% |
| Grass/grasslike foliar cover | 85-95% |
| Forb foliar cover | 5-10% |
| Non-vascular plants | 0% |
| Biological crusts | 0% |
| Litter | 10-25% |
| Surface fragments >0.25" and <=3" | 0% |
| Surface fragments >3" | 0% |
| Bedrock | 0% |
| Water | 25-90% |
| Bare ground | 0-10% |

**Table 7. Canopy structure (% cover)**

| Height Above Ground (M) | Tree | Shrub/Vine | Grass/ Grasslike | Forb |
|---|---|---|---|---|
| <0.15 | 0% | 0-5% | 85-95% | 5-10% |
| >0.15 <= 0.3 | 0% | 0-5% | 85-95% | 5-10% |
| >0.3 <= 0.6 | 0% | 0-5% | 85-95% | 5-10% |
| >0.6 <= 1.4 | 0-5% | 0-10% | 75-85% | 5-10% |
| >1.4 <= 4 | – | – | – | – |
| >4 <= 12 | – | – | – | – |
| >12 <= 24 | – | – | – | – |
| >24 <= 37 | – | – | – | – |
| >37 | – | – | – | – |

**Figure 9. Plant community growth curve (percent production by month). TX8501, Midgrass Grassland Community.**

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

## Community 1.2
## Dry Soil

In this phase of the Grassland State (1) species from the surrounding landscape begin to increase in abundance because the shallow depression has dried out and seeds that were carried onto the site by overland water flow and animals will germinate. Perennial forbs that are common on the Sandy and Loamy Sand ecological sites will become a larger part of the plant composition but will be highly variable from location to location. Over time the tall/midgrasses will lose dominance as the ecological site becomes extremely dry and plants like buffalograss (*Bouteloua dactyloides*) and creeping lovegrass (Neeagrostis reptans) will increase and can become the most abundant species. In modern times, this phase of the plant community has become susceptible to the invasion of Bermudagrass (*Cynodon dactylon*) and Kleberg bluestem (*Dichanthium annulatum*), which are aggressive grass species that can be introduced into the plant composition and will quickly dominate the plant community.

**Table 8. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 897 | 1569 | 2242 |
| Forb | 560 | 673 | 785 |
| Shrub/Vine | 112 | 280 | 448 |
| Tree | – | 112 | 224 |
| **Total** | **1569** | **2634** | **3699** |

**Figure 11. Plant community growth curve (percent production by month). TX8504, Shortgrass Dominant Community.**

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

## Pathway 1.1A
## Community 1.1 to 1.2

This pathway represents the shallow depressions becoming dry and a reduction in Hartweg's paspalum, the most dominant grass of the reference plant community (1.1). Drought and grazing pressure are the main drivers for this transition. During dry weather this ecological site can become the focus of grazing pressure which will contribute to the reduction of plant species that are not as tolerant of moderate-to-heavy grazing pressure.

## Pathway 1.2A
## Community 1.2 to 1.1

This transition is driven by water returning to the system. Plants that proliferate in moist soils like Hartweg's paspalum, knotroot bristlegrass (*Setaria parviflora*), and knotgrass (*Paspalum distichum*) will increase in abundance. Taller grasses like switchgrass (*Panicum virgatum*), seacoast bluestem (*Schizachyrium littorale*), and multi-flowered false Rhodesgrass (*Trichloris pluriflora*) will increase along the edges of the ecological site. Other plants that were recruited from adjoining ecological sites during dry periods will decrease because they are not adapted to survive in moist soil conditions or standing water. Many different species of sedges and rushes will also fill in the plant composition.

## State 2
## Woody Complex

### Dominant plant species

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

## Community 2.1
## Woody Encroachment

This plant community is typified by the encroachment of woody species on the ecological site. Seed can be introduced by large rainfall events and/or by grazing animals. Mesquite (*Prosopis glandulosa*), huisache (*Acacia farnesiana*), and retama (Parkinsonia aculeate) are the most common species found on this ecological site because of their ability to survive in moist soils. These plants will establish where seed was deposited and continue to expand in numbers as long as growing conditions are conducive. An understory of shrubs does not form under the tree canopy on this ecological site. Grass species and composition will mimic the Grassland State (1). Bermudagrass and Kleberg bluestem are common invasive grasses in this phase and in some cases, may be the most abundant grasses in the plant community.

**Table 9. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 897 | 1569 | 2242 |
| Tree | 112 | 560 | 1009 |
| Forb | 560 | 673 | 785 |
| Shrub/Vine | 112 | 280 | 448 |
| **Total** | **1681** | **3082** | **4484** |

**Figure 13. Plant community growth curve (percent production by month). TX8503, Wooded Grassland Community.**

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

## Transition T1A
## State 1 to 2

The transition from the Grassland State (1) to the Woody Complex (2) is driven by the lack of water in the shallow depressions. If conditions are right, woody species can germinate and grow simultaneously within the extent of the ecological site and create mottes of trees that grow with, but do not greatly affect, the herbaceous plant community.

## Restoration pathway R2A
## State 2 to 1

Land managers may want to restore this ecological site to the Grassland State (1). Once in the Woody Complex (2) mechanical or chemical brush control is usually necessary to remove the trees from the plant community. The Lakebed ecological site naturally controls woody species; if the ecological site has standing water for a long period of time the subsoil is totally saturated and tree mortality will occur because of the anaerobic conditions in the root zone.

## Additional community tables

**Table 10. Community 1.1 plant community composition**

| Group | Common Name | Symbol | Scientific Name | Annual Production (Kg/Hectare) | Foliar Cover (%) |
|---|---|---|---|---|---|
| **Grass/Grasslike** | | | | | |
| 1 | **Mid/Tallgrasses** | | | 532–1614 | |
| | multiflower false Rhodes grass | TRPL3 | *Trichloris pluriflora* | 168–673 | – |
| | switchgrass | PAVI2 | *Panicum virgatum* | 168–673 | – |
| | shore little bluestem | SCLI11 | *Schizachyrium littorale* | 0–504 | – |
| 2 | **Midgrasses** | | | 852–1412 | |
| | Hartweg's paspalum | PAHA3 | *Paspalum hartwegianum* | 852–1412 | – |
| 3 | **Mid/Shortgrasses** | | | 336–605 | |
| | buffalograss | BODA2 | *Bouteloua dactyloides* | 84–168 | – |
| | saltgrass | DISP | *Distichlis spicata* | 84–168 | – |
| | creeping lovegrass | NERE3 | *Neeragrostis reptans* | 84–168 | – |
| | knotgrass | PADI6 | *Paspalum distichum* | 84–168 | – |
| | marsh bristlegrass | SEPA10 | *Setaria parviflora* | 84–168 | – |
| 4 | **Grasslikes** | | | 213–404 | |
| | sedge | CAREX | *Carex* | 101–196 | – |
| | spikerush | ELEOC | *Eleocharis* | 101–196 | – |
| **Forb** | | | | | |
| 5 | **Forbs** | | | 112–224 | |
| | Forb, annual | 2FA | *Forb, annual* | 28–84 | – |
| | woodsorrel | OXALI | *Oxalis* | 28–84 | – |
| | turkey tangle fogfruit | PHNO2 | *Phyla nodiflora* | 28–84 | – |
| | Cuman ragweed | AMPS | *Ambrosia psilostachya* | 11–45 | – |
| **Shrub/Vine** | | | | | |
| 6 | **Shrubs** | | | 0–168 | |
| | poisonbean | SEDR | *Sesbania drummondii* | 0–168 | – |
| **Tree** | | | | | |
| 7 | **Trees** | | | 0–56 | |
| | sweet acacia | ACFA | *Acacia farnesiana* | 0–56 | – |
| | Jerusalem thorn | PAAC3 | *Parkinsonia aculeata* | 0–56 | – |
| | honey mesquite | PRGLG | *Prosopis glandulosa var. glandulosa* | 0–56 | – |

## 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 Complex (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.

This rating system provides general guidance as to animal preference for plant species. It also indicates possible competition between kinds of herbivores for various plants. Grazing preference changes from time to time, especially between seasons, and between animal kinds and classes. Grazing preference does not necessarily reflect the ecological status of the plant within the plant community. For wildlife, plant preferences for food and plant suitability for cover are rated. Refer to habitat guides for a more complete description of a species habitat needs.

## 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

The area is often used for hunting and photography.

## 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

Information presented was derived from the revised Range Site, literature, limited NRCS clipping data (417s), field observations, and personal contacts with range-trained personnel.

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## Approval

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Clark Harshbarger, MSSL, NRCS, Robstown, Texas
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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 | Bryan Christensen |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

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

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2. **Presence of water flow patterns:** None.

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3. **Number and height of erosional pedestals or terracettes:** None.

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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; abrubt 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 perrenial bunchgrasses during extreme drought.

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):** 2,000 to 4,000 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:** Mesquite, huisache, Bermudagrass and Kleberg bluestem are common invaders.

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

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