

Ecological site R077DY041TX Lakebed 12-17" PZ

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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.

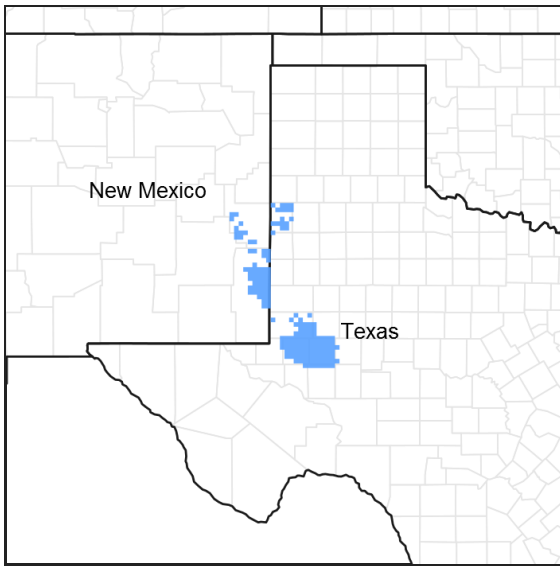


Figure 1. Mapped extent

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): 077D–Southern High Plains, Southwestern Part

This area is characterized by nearly level to gently undulating plains with scattered playa depressions. Soil temperature regime is thermic and soil moisture regime is aridic bordering on ustic. Sandy and loamy soils are generally well drained and range from shallow to deep and medium- to coarse-textured. Native vegetation is short- to mid-grasses and sandy sites support tall-grasses with sand shin oak and mesquite. Current land use is mainly rangeland, although irrigated cropland is expanding.

Classification relationships

This ecological site is correlated to soil components at the Major Land Resource Area (MLRA) level which is further described in USDA Ag Handbook 296.

Ecological site concept

These sites occur on flat, poorly drained clay loam soils in closed basin depressions. The reference vegetation consists of midgrass and shortgrass species, forbs, and almost no woody species. When these sites are inundated with water for long periods the vegetation can shift toward more hydrophytic species. Abusive grazing practices can alter the plant composition and lead to a shift in the plant community.

Associated sites

R077DY038TX	Clay Loam 12-17" PZ Lakebed sites are often an inclusion within the upland Clay Loam sites. Shortgrasses dominate. Production is higher on the Clay Loam site.
R077DY049TX	Very Shallow 12-17" PZ Lakebed sites occasionally occur as an inclusion within the upland Very Shallow sites. shortgrasses dominate. Production is higher on the Lakebed site.
R077DY040TX	High Lime 12-17" PZ Lakebed sites often occur in association with High Lime sites. Midgrasses dominate. Production is higher on the Lakebed site.

Similar sites

R077CY027TX	Playa 16-21" PZ Similar physiographic position, the MLRA 77C Playa site tends to be inundated more often than Lakebed sites. Playa lakes within the MLRA 77C Playa site support hydrophytic vegetation more frequently than Lakebed sites.
R077DY039TX	Draw 12-17" PZ Similar to the Lakebed site is the Draw site. Midgrasses dominate with a good mixture of shortgrasses on this site. Production is greater on the Draw site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Grindelia squarrosa</i>
Herbaceous	(1) <i>Bouteloua dactyloides</i> (2) <i>Panicum obtusum</i>

Physiographic features

This site occurs in playa lake basins and immediately adjacent areas. These closed basin depressions occur in a scattered pattern over the southern extent of the Southern High Plains. These ephemeral lakes may vary in size from less than one acre to several hundred acres. The dominant theory of formation of these features is that dissolution and subsidence in the underlying strata resulted in these circular closed basins at the surface during the Pleistocene period. The playa floors range from a few feet to more than 30 feet below surrounding uplands. These basins can hold water in the more rainy seasons and will dry up in dryer seasons of the year. In the event of drought, these lakebeds may be dry for several years. The frequency and duration of inundation is highly variable from basin to basin. Drainage areas are highly variable in size and in character. Storage to drainage ratios vary. The surrounding areas are generally nearly level plains with a gently sloping transitional area immediately upslope from the basins.

Table 2. Representative physiographic features

Landforms	(1) Plateau > Playa step (2) Plateau > Playa floor
Runoff class	Negligible
Flooding frequency	None
Ponding duration	Brief (2 to 7 days)
Ponding frequency	Occasional
Elevation	762–1,402 m
Slope	0–1%
Ponding depth	0–30 cm

Water table depth	203 cm
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

Continental Steppe climate is prevalent in MLRA 77D. This climate type is typical of interiors of continents and is characterized by large variations in the magnitude of ranges in daily temperature extremes, low relative humidity, and irregularly spaced rainfall of moderate amounts. This climate regime is also known for being semi-arid with mild winters.

Droughts occur with monotonous frequency although there will be years having excessive precipitation resulting in large accumulations of water that little benefit is obtained from the rainfall events. If good rains occur in the spring and summer months, annual production will be favorable even if the remainder of the year is not favorable. Most of the annual precipitation occurs as a result from spring and early summer thunderstorms. Due to the fact that the area is mainly flat, local flooding may occur but only of short duration. There is very little precipitation and infrequent snowfall amounts in the winter.

During the late winter and early spring months, dust storms occur very frequently. The flat plains of the area contribute very little resistance to the strong winds. Dust in many of these storms remains in the air for several days after the storms have passed.

Daytime temperatures are warm in the summer but there is a large diurnal range and most nights are comfortable. In summers, the normal daily maximum temperatures are in the low to mid 90s and the normal minimum temperatures are in the upper 60s and low 70s. Even though the temperatures may be high, the low humidity and high evaporation rates create a cooling effect during the nighttime hours. Fall months exhibit extremely variable weather. Winters are mild and are characterized by frequent cold fronts accompanied by strong, gusty, northerly winds. Most of the cold fronts are dry as they pass through the area.

Table 3. Representative climatic features

Frost-free period (characteristic range)	152-168 days
Freeze-free period (characteristic range)	178-199 days
Precipitation total (characteristic range)	381-432 mm
Frost-free period (actual range)	146-189 days
Freeze-free period (actual range)	171-214 days
Precipitation total (actual range)	356-432 mm
Frost-free period (average)	162 days
Freeze-free period (average)	189 days
Precipitation total (average)	406 mm

Climate stations used

- (1) MELROSE [USC00295617], Melrose, NM
- (2) ELIDA [USC00292854], Elida, NM
- (3) CROSSROADS 2 [USC00292207], Crossroads, NM
- (4) CAPROCK [USC00291445], Caprock, NM
- (5) TATUM [USC00298713], Tatum, NM
- (6) HOBBS 13W [USC00294030], Lovington, NM
- (7) ANDREWS [USC00410248], Andrews, TX
- (8) ODESSA [USC00416502], Odessa, TX
- (9) K-BAR RCH [USC00414710], Odessa, TX

Influencing water features

This site receives runoff from surrounding areas. The Lakebed sites are generally closed basins with no outlet; therefore runoff collects and may pond for several days. Evaporation is high and infiltration slow due to the clay loam soils.

Wetland description

No wetlands are present within this site.

Soil features

The soils of this Lakebed site are very deep, well drained soils, moderately high in silicate clays. Clay content ranges from 30 to greater than 60 percent and are slightly to moderately alkaline. Due to the moderately high shrink/swell potential of the smectite clays present, unplowed basins may exhibit some gilgai microrelief. When dry cracks may develop in these soils, some of the cracks may reach 40 inches in depth.

Major Soil Taxonomic Units correlated to this site include: Lipan clay and Lovington soils.

Table 4. Representative soil features

Parent material	(1) Lacustrine deposits–igneous, metamorphic and sedimentary rock
Surface texture	(1) Clay (2) Clay loam
Family particle size	(1) Fine (2) Fine-loamy
Drainage class	Well drained
Permeability class	Very slow to moderate
Soil depth	203 cm
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	10.16–17.78 cm
Calcium carbonate equivalent (0-101.6cm)	2–35%
Electrical conductivity (0-101.6cm)	0–1 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–1
Soil reaction (1:1 water) (0-101.6cm)	7.4–9
Subsurface fragment volume <=3" (0-101.6cm)	0–3%
Subsurface fragment volume >3" (0-101.6cm)	0%

Ecological dynamics

The Reference Plant Community of this site can be somewhat variable. The variability in the plant community was influenced primarily by the size of the site, available runoff, inundation periods, and the moisture regime. However, the overall climate, herbivory and natural fire did have some influence on the plant community. Grazing and natural fire affected the composition and development of the various plant communities during and after inundation periods. The site has been alternately dominated by short/midgrass species, and hydrophytes such as sedges, rushes and spikerushes, depending on wet and dry cycles and extended droughts. It is important to note that most Lakebed sites in the southwestern portion of the high plains are not inundated as frequently as Lakebed sites in the

southeastern Texas Panhandle. Droughts occur with monotonous frequency, although there will be some years of excessive precipitation resulting in large accumulations of water with little benefit obtained from the rainfall events. The majority of the Lakebed sites are surrounded by native rangeland on the uplands, with very little production agriculture nearby. The fact that the adjoining watershed is grass covered accounts for minimal runoff and few if any noxious weed species invading the site. The Lakebed sites in the southwestern high plains is typically characterized by more grass/forb vegetation than hydrophytes.

Lakebed sites that are infrequently inundated, generally support a (1.1) Short/Midgrass Plant Community devoid of hydrophytes except during wet periods. The typical plant community during extended dry periods was dominated by buffalograss (*Bouteloua dactyloides*) and vine mesquite (*Panicum obtusum*), with lesser amounts of blue grama (*Bouteloua gracilis*), cane bluestem (*Bothriochloa barbinodis*), western wheatgrass (*Pascopyrum smithii*), and white tridens (*Tridens albescens*). These grasses made up approximately 70% of the total site production. More commonly found forbs were curlycup gumweed (*Grindelia squarrosa*), western ragweed (*Ambrosia psilostachya*), plains coreopsis (*Coreopsis tinctoria*), snow-on-the-mountain (*Euphorbia marginata*), silverleaf nightshade (*Solanum elaeagnifolium*), and numerous annuals accounting for approximately 30% of the site production. Woody plants were not common on this site. Annual yields vary widely from year to year, dependent on available runoff water. Approximate total annual production would range from 500 pounds per acre in dry years to as much as 3,500 pounds per acre, depending on inundation and ideal moisture for forage production.

In the event of prolonged inundation, the grasses will be replaced with sedges, rushes and emergent hydrophytic vegetation. This site will transition into the (1.2) Grasslikes/Forbs/Annuals Community, generally devoid of drier phase grasses. Grasslike species of this community were predominantly sedges (*Carex* spp.), creeping spikerush (*Eleocharis macrostachya*), and knotgrass (*Paspalum distichum*). Emergent hydrophytic forbs were typically smartweed (*Polygonum pensylvanicum*), arrowhead (*Sagittaria lancifolia*), curly dock (*Rumex crispus*), and frogfruit (*Phyla nodiflora*). Vine mesquite may occur on higher terrain in the outer edges of the inundated lakebed. As inundation decreases, the short and midgrass species will become dominant again during subsequent normal or dry cycles.

It is certainly possible to graze so heavily as to adversely affect the vegetation, especially grass vegetation on the dryer phase lakes. Due to the fact this is a preferred grazing location by livestock, the general effect of abusive grazing over several years seems to decrease the number of perennials and increase the number of annual species. Along with this comes a decrease in overall plant diversity. If long term abusive grazing does occur on the dryer phase lakebeds this site tends to move towards the (2.1) Shortgrass/Annuals Plant Community. Bottlebrush squirreltail (*Elymus elymoides*) and annual grass species such as little barley (*Hordeum pusillum*) and barnyardgrass (*Echinochloa crusgalli*), can invade the site and increase dramatically along with numerous annual forbs. Buffalograss and other shortgrass species will be in low vigor with few midgrass species remaining. Bare ground can exceed 40% with annuals filling the void. The diversity and productivity will be much less than the reference community. This phase can be reversed with prescribed grazing (rest periods during the growing season), pest management and timely, effective rainfall.

Further degradation of the dryer phase Lakebed site, caused by continued overgrazing and prolonged drought will move this site towards the (3.1) Degraded Shortgrass/Annuals Community. Annual forbs and grasses will dominate with small colonies of low vigor buffalograss scattered throughout the site. No midgrass species remaining with large areas of bare ground covering >50% of the site. Once this site reaches this level of degradation, a major threshold has been crossed. It may not be feasible or practical to re-seed these small to moderate size Lakebeds in an attempt to return them to the reference community. At best, prescribed grazing with repeated deferment periods (5–7 years) during the growing season along with some pest management will help in the recovery process.

Overgrazing is very detrimental to the host of wildlife that utilize the Lakebed sites for habitat. All species of plains wildlife benefit from these sites. From the predators to small mammals to grassland birds to waterfowl, these sites provide a diversity of habitat that the upland shortgrass sites cannot. They are an extremely important part of the shortgrass plains ecosystem. The Lakebed site, being small in area compared to surrounding upland sites and occasionally receiving extra runoff water, was likely a concentration area for herbivores and other wildlife before European settlement. Most Lakebed sites today are generally in a deteriorated condition unless good grazing management has been practiced over the years. It is probable that the value for native wildlife exceeds the value for grazing. Therefore, more intensive management is warranted.

NOTE: Rangeland Health Reference Worksheets have been posted for this site on the Texas NRCS website

(www.tx.nrcs.usda.gov) in Section II of the eFOTG under (F) Ecological Site Descriptions.

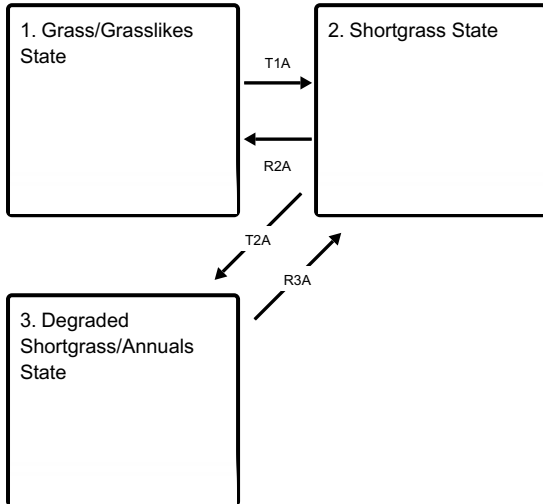
STATE AND TRANSITIONAL PATHWAYS : (DIAGRAM)

Narrative:

The following diagram suggests some pathways that the vegetation on this site might take. There may be other states not shown on the diagram. This information is intended to show what might happen in a given set of circumstances; it does not mean that this would happen the same way in every instance. Local professional guidance should always be sought before pursuing a treatment scenario.

State and transition model

Ecosystem states



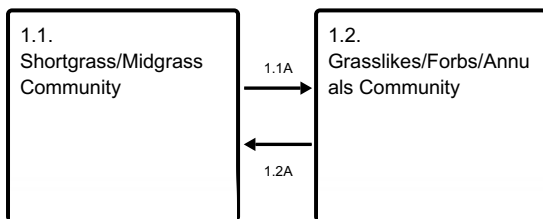
T1A - Prolonged excessive grazing pressure and drought conditions

R2A - Adequate rest from defoliation and release from drought conditions

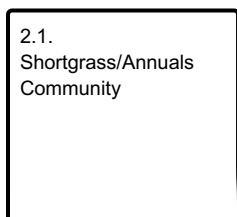
T2A - Prolonged excessive grazing pressure and extreme drought conditions

R3A - Adequate rest from defoliation and release from drought conditions

State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities

3.1. Degraded
Shortgrass/Annuals
Community

State 1 Grass/Grasslikes State

The (1.1) Shortgrass/Midgrass Community is the interpretive or "reference" plant community for the dryer phase of the Lakebed site. The typically plant community during normal to extended dry periods was dominated by buffalograss and vine mesquite, with lesser amounts of blue grama, cane bluestem, western wheatgrass, and white tridens. These grasses made up approximately 70% of the total site production. More commonly found forbs were curlycup gumweed, western ragweed, plains coreopsis, snow-on-the-mountain, silverleaf nightshade, and numerous annuals accounting for approximately 30% of the site production. Woody plants were not common on this site. With moderately frequent and prolonged inundation, the warm season short/midgrass species will be replaced with sedges, rushes and emergent hydrophytic vegetation. This site will transition into the (1.2) Grasslikes/Forbs/Annuals Community – wetter phase), generally devoid of drier phase grasses. Grasslike species of this community are predominantly sedges, creeping spikerush, and knotgrass. Emergent hydrophytic forbs are typically smartweed, arrowhead, curly dock, and frogfruit.

Dominant plant species

- buffalograss (*Bouteloua dactyloides*), grass
- vine mesquite (*Panicum obtusum*), grass

Community 1.1 Shortgrass/Midgrass Community



Figure 8. 1.1 Shortgrass/Midgrass Community

The (1.1) Shortgrass/Midgrass Community is the interpretive or "reference" plant community for the dryer phase of the Lakebed site. The typical plant community during normal to extended dry periods was dominated by buffalograss and vine mesquite, with lesser amounts of blue grama, cane bluestem, western wheatgrass, and white tridens. These grasses made up approximately 70% of the total site production. More commonly found forbs were curlycup gumweed, western ragweed, plains coreopsis, snow-on-the-mountain, silverleaf nightshade, and numerous annuals accounting for approximately 30% of the site production. Woody plants were not common on this site. The majority of the Lakebed sites in the southwestern high plains are typically characterized by more grass/forb vegetation than hydrophytes due to minimal rainfall events. Annual yields vary widely from year to year, dependent on available runoff water. Approximate total annual production would range from 500 pounds per acre in dry years to as much as 3,500 pounds per acre, depending on inundation and ideal moisture for forage production. Lakebed sites are typically surrounded by native rangeland on the uplands, with very little production agriculture nearby. The grass covered uplands accounts for minimal runoff, infrequent inundation and few if any agricultural noxious weed

species invading the site. These sites are a preferred grazing and loafing location by livestock and wildlife, the general effect of abusive grazing over several years seems to decrease the number of perennials and increase the number of annual species. This will bring about a structural change in vegetation, resulting in a transition to the (2.1) Shortgrass/ Annuals Community. With prescribed grazing, and occasional short-term, light flooding, this site can return to state 1.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	392	1569	2746
Forb	168	673	1177
Microbiotic Crusts	–	–	–
Tree	–	–	–
Shrub/Vine	–	–	–
Total	560	2242	3923

Figure 10. Plant community growth curve (percent production by month). TX1259, Short/Midgrasses with Forbs Community. Short and midgrasses and forbs in a lakebed setting..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	10	20	22	13	8	4	8	6	6	0

Community 1.2 Grasslikes/Forbs/Annuals Community

With moderately frequent and prolonged inundation, the warm season short/midgrass species will be replaced with sedges, rushes and emergent hydrophytic vegetation. This site will transition into the (1.2) Grasslikes/Forbs/Annuals Community – wetter phase), generally devoid of drier phase grasses. Grasslike species of this community are predominantly sedges, creeping spikerush, and knotgrass. Emergent hydrophytic forbs are typically smartweed, arrowhead, curly dock, and frogfruit. Vine mesquite may occur on higher terrain in the outer edges of the inundated Lakebed. Annual yields vary widely from year to year and are dependent on runoff from adjacent upland sites. Total annual herbage yields range from 900 pounds to 4,500 pounds under good moisture conditions. In this vegetation phase most of the production is by hydrophytic plants. As inundation decreases, the short and midgrass species will once again become dominant during subsequent normal or dry cycles. In the event this site has received abusive grazing over a long period of time, the plant community will return to the (2.1) Shortgrass/Annuals Community as dryer conditions prevail. Bare ground will be >40% with annuals filling the voids. With continued heavy grazing this site will fluctuate between the (2.1) Shortgrass/Annuals community during dryer periods and the (1.2) Grasslikes/Forbs/Annuals community during wetter periods. This cycle can be broken with prescribed grazing (rest periods during the growing season), pest management and timely, effective rainfall can return the plant community to near the reference community.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	560	1961	3363
Forb	448	1065	1681
Microbiotic Crusts	–	–	–
Tree	–	–	–
Shrub/Vine	–	–	–
Total	1008	3026	5044

Figure 12. Plant community growth curve (percent production by month). TX1260, Grasslikes/Forbs/Annuals Community. Spring/summer growth of

rushes, sedges and emergent hydrophytic plants. .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	3	8	12	24	28	8	10	4	2	0

Pathway 1.1A Community 1.1 to 1.2

If the site is inundated with water for long periods of time, the plant community may shift towards community phase 1.2.

Pathway 1.2A Community 1.2 to 1.1

With less frequent inundation, and dryer conditions the plant community may shift towards community phase 1.1.

State 2 Shortgrass State

Bottlebrush squirreltail, and annual grass species such as little barley and barnyardgrass, can invade the site and increase dramatically. Buffalograss and other shortgrass species will be in low vigor with few midgrass species remaining. Bare ground can exceed 40% with annuals filling the voids. Herbage production declines as shorter plants with shallow root systems dominate. The approximate total annual production ranges from 500 to 1,800 pounds per acre.

Dominant plant species

- little barley (*Hordeum pusillum*), grass

Community 2.1 Shortgrass/Annuals Community



Figure 13. 2.1 Shortgrass/Annuals Community

If long-term abusive grazing does occur on the dryer phase Lakebeds, this site tends to move towards the (2.1) Shortgrass/Annuals Plant Community. Bottlebrush squirreltail, and annual grass species such as little barley and barnyardgrass, can invade the site and increase dramatically. Buffalograss and other shortgrass species will be in low vigor with few midgrass species remaining. Bare ground can exceed 40% with annuals filling the voids. Herbage production declines as shorter plants with shallow root systems dominate. The site is more susceptible to drought, further reducing overall plant vigor. The diversity and productivity will be much less than the reference state. The approximate total annual production of this low vigor state will range from 500 to 1,800 pounds per acre, forb production will almost equal the grass production. This phase can be reversed with prescribed grazing, pest management and timely, effective rainfall.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	336	729	1121
Forb	224	560	897
Microbiotic Crusts	–	–	–
Tree	–	–	–
Shrub/Vine	–	–	–
Total	560	1289	2018

Figure 15. Plant community growth curve (percent production by month). TX1262, Shortgrass/Annuals Community. Low vigor warm season shortgrasses and annuals..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	10	20	22	13	8	4	8	6	6	0

State 3 Degraded Shortgrass/Annuals State

Further degradation of the dryer phase Lakebed site, caused by continued overgrazing and prolonged drought will move this site towards the (3.1) Degraded Shortgrass/Annuals Community. Annual forbs and grasses will dominate with small colonies of low vigor buffalograss scattered throughout the site. No midgrass species remaining with large areas of bare ground covering >50% of the site. The approximate total annual production of this degraded state will range from 600 to 1,700 pounds per acre with annual forb production exceeding perennial and annual grass production.

Dominant plant species

- buffalograss (*Bouteloua dactyloides*), grass
- curlycup gumweed (*Grindelia squarrosa*), other herbaceous
- ragweed (*Ambrosia*), other herbaceous

Community 3.1 Degraded Shortgrass/Annuals Community



Figure 16. 3.1 Degraded Shortgrass/Annuals Community

Further degradation of the dryer phase Lakebed site, caused by continued overgrazing and prolonged drought will move this site towards the (3.1) Degraded Shortgrass/Annuals Community. Annual forbs and grasses will dominate with small colonies of low vigor buffalograss scattered throughout the site. No midgrass species remaining with large areas of bare ground covering >50% of the site. The approximate total annual production of this degraded state will range from 600 to 1,700 pounds per acre with annual forb production exceeding perennial and annual grass production. Once this site reaches this level of degradation, a major threshold has been crossed. It may not

be feasible or practical to re-seed these small to moderate size Lakebeds in an attempt to return them to near the reference community. At best, prescribed grazing with repeated deferment periods (5–7 years) during the growing season along with some pest management will help in the recovery process.

Table 8. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Forb	448	785	1121
Grass/Grasslike	224	504	785
Microbiotic Crusts	–	–	–
Tree	–	–	–
Shrub/Vine	–	–	–
Total	672	1289	1906

Figure 18. Plant community growth curve (percent production by month). TX1261, Degraded Shortgrass/Annuals Community. Low vigor warm season shortgrasses and annuals..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	10	20	22	13	8	4	8	6	6	0

Transition T1A

State 1 to 2

If long term abusive grazing does occur on the dryer phase lakebeds this site tends to move towards the (2.1) Shortgrass/Annuals Plant Community.

Restoration pathway R2A

State 2 to 1

With prescribed grazing, pest management, and occasional short-term, light flooding, this site can return to state 1.

Transition T2A

State 2 to 3

Further degradation of the dryer phase Lakebed site, caused by continued overgrazing and prolonged drought will move this site towards the (3.1) Degraded Shortgrass/Annuals Community.

Restoration pathway R3A

State 3 to 2

With the implementation of Prescribed Grazing (growing season rest), Pest Management, and Short Periods of Inundation, the Degraded Shortgrass/Annuals State can be restored to the Shortgrass State.

Conservation practices

Prescribed Grazing
Integrated Pest Management (IPM)

Additional community tables

Table 9. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Shortgrasses			224–1121	
	buffalograss	BODA2	<i>Bouteloua dactyloides</i>	224–1121	–
2	Midgrasses			112–897	
	vine mesquite	PAOB	<i>Panicum obtusum</i>	112–897	–
3	Mid/Shortgrasses			56–729	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	22–336	–
	white tridens	TRAL2	<i>Tridens albescens</i>	22–336	–
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	6–28	–
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	6–28	–
Forb					
4	Forbs			168–1177	
	Cuman ragweed	AMPS	<i>Ambrosia psilostachya</i>	34–235	–
	lanceleaf tickseed	COLA5	<i>Coreopsis lanceolata</i>	34–235	–
	snow on the mountain	EUMA8	<i>Euphorbia marginata</i>	34–235	–
	curlycup gumweed	GRSQ	<i>Grindelia squarrosa</i>	34–235	–
	silverleaf nightshade	SOEL	<i>Solanum elaeagnifolium</i>	34–235	–

Animal community

Many types of reptiles, birds and mammals use the Lakebed sites, either as their base habitat or from the adjacent upland sites. Quail and dove prefer this site because of the numerous seed producing forbs. Numerous small mammals including many kinds of rodents, jackrabbits and skunks frequent the site. Predators include coyote, bobcats and snakes. Prairie dogs may inhabit this site in the dryer phase. Frogs and salamanders are found in abundance in wet seasons. When inundation does occur, migratory waterfowl will utilize the site.

Overgrazing is very detrimental to the host of wildlife that utilize these Lakebed sites for habitat. All species of plains wildlife benefit from these sites. They are an extremely important part of the shortgrass plains ecosystem. Most Lakebed sites today are generally in a deteriorated condition unless good grazing management has been practiced over the years. It is probable that the value for native wildlife exceeds the value for grazing. Therefore, more intensive management is warranted.

Hydrological functions

Lakebed sites occur as small to moderate size depressions, these soils are not subject to water erosion. They occasionally receive runoff water from surrounding upland sites and accumulate coarser sediments along the outer edges. When dry, these soils form cracks and take water rapidly until saturated. The cracks then swell shut and intake becomes extremely slow.

Recreational uses

Hunting, Camping, Hiking, Bird-watching, Photography, Horseback Riding

Wood products

None.

Other products

None.

Other information

None.

Inventory data references

NRCS FOTG – Section II of the FOTG Range Site Descriptions and numerous historical accounts of vegetative conditions at the time of early settlement in the area were used in the development of this site description. Vegetative inventories were made at several site locations for support documentation.

Inventory Data References (documents) :

NRCS FOTG – Section II - Range Site Descriptions

NRCS Clipping Data summaries over a 20 year period

Other references

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Approval

Bryan Christensen, 9/11/2023

Acknowledgments

Site Development and Testing Plan

Future work, as described in a Project Plan, to validate the information in this Provisional Ecological Site

Description is needed. This will include field activities to collect low, medium and high intensity sampling, soil correlations, and analysis of that data. Annual field reviews should be done by soil scientists and vegetation specialists. A final field review, peer review, quality control, and quality assurance reviews of the ESD will be needed to produce the final document.

Annual reviews of the Project Plan are to be conducted by the Ecological Site Technical Team.

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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)	Stan Bradbury, Zone RMS, NRCS, Lubbock, Texas
Contact for lead author	806-791-0581
Date	08/18/2009
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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

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

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 20-25% bare ground.

5. **Number of gullies and erosion associated with gullies:** None to slight.

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

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7. **Amount of litter movement (describe size and distance expected to travel):** None to slight.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Moderate to high resistance to erosion.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Moderate fine granular structure and moderate medium subangular blocky; very hard, very firm; few fine roots; moderate to high SOM.
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Basal cover and density with small interspaces should make rainfall impact minimal. This site is poorly drained, permeability is very slow to moderately slow, and available water holding capacity varies from excessive to non-available.
-
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No evidence of compaction.
-
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: Warm-season shortgrasses >
- Sub-dominant: Warm-season midgrasses > Sedges/Grasslikes >
- Other: Forbs > Cool-season grasses
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality and decadence varies from low to high depending on the water regime (flooding).
-
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):** 500 lbs./ac. (dry periods) to 5,000 lbs./ac. (wet periods)
-
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: Invasive annual & perennial forbs, Willows, and Baccharis.

17. **Perennial plant reproductive capability:** All perennial species should be capable of reproducing every year depending on water regime unless disrupted by extended drought, overgrazing, wildfire, insect damage, or other events occurring immediately prior to, or during the reproductive phase.
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