USDA Natural Resources Conservation Service

Ecological site R077BY658TX
Sandy 12-17" PZ

Last updated: 9/11/2023
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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): 077B–Southern High Plains, Northwestern Part

MLRA 77B is characterized by nearly level to gently sloping plains with a minimal number of playa depressions and moderately sloping breaks along drainageways. Loamy and sandy soils are generally deep and occur in a mesic soil temperature regime and ustic soil moisture regime bordering on aridic. Current land use is dominantly rangeland with minor cropland.

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 deep loamy fine sand soils on uplands. They yield highly available water during periods of favorable precipitation yet can be quite drouthy during dry periods. The reference vegetation consists of tall and midgrasses with forbs and scattered shrubs. Abusive grazing practices can lead to a change in species composition and potential erosion. Without fire or other brush management, shrub canopy may increase.

Associated sites

R077BY725TX	**Draw 12-17" PZ** Generally adjacent and downslope from the Sandy site. These areas receive drainage from the Sandy site. The soils are sandy loam in texture. Midgrasses dominate, but there is a good mixture of tallgrasses found on this site. Generally more productive than the Sandy site.
R077BY026NM	**Gravelly Loam** Sometimes adjacent and upslope of the Sandy site. The site has deep gravelly loam soils. Slopes are steeper (0 to 9%). Midgrasses dominate but a good mixture of shortgrasses occur on this site. Production is higher.
R077BY021TX	**Sandy Loam 12-17" PZ** Generally adjacent and on similar locations of the Sandy site. The soils are sandy loam texture. Midgrasses dominate, but some tallgrasses can be found on this site. Generally more productive than the Sandy site.
R077BY020TX	**Sand Hills 12-17" PZ** Generally adjacent and upslope from the Sandy site. The soils are sandy in texture. Tallgrasses dominate, some midgrasses can be found on this site. Less production than the Sandy site.
R077BY700TX	**Sandy Bottomland 12-17" PZ** Generally adjacent and downslope from the Sandy site. These areas receive drainage from the Sandy site. The soils are sandy loam in texture. Tallgrasses dominate, but some midgrasses and shortgrasses can be found on this site. Generally more productive than the Sandy site.

Similar sites

R077AY666TX	**Sandy 16-22" PZ** This site has very deep sandy soils like the Sandy site in MLRA 77B. Mean annual precipitation is higher (16 to 22 inches). Tallgrasses dominate but there is a good mixture of midgrasses on this site. More productive than the sandy site in MLRA 77B.
R077BY020TX	**Sand Hills 12-17" PZ** Generally adjacent and upslope from the Sandy site. The soils are sandy in texture. Tallgrasses dominate, some midgrasses can be found on this site. Less production than the Sandy site.
R077BY021TX	**Sandy Loam 12-17" PZ** Generally adjacent and on similar locations of the Sandy site. The soils are sandy loam texture. Midgrasses dominate, but some tallgrasses can be found on this site. Generally more productive than the Sandy site.
R077EY064TX	**Sandy 16-24" PZ** This site has deep to very deep sandy soils like the Sandy site in MLRA 77B. Mean annual temperature is higher (59 to 63 degrees F). Mean annual precipitation is higher (16 to 24 inches). Tallgrasses dominate, but a good mixture of midgrasses can be found on this site. More productive than the Sandy site in MLRA 77B.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia filifolia*
Herbaceous	(1) *Andropogon hallii* (2) *Schizachyrium scoparium*

Physiographic features

The Sandy 12-17” PZ site occurs on nearly level to undulating plains. Due to the general nature of this site, runoff can be both generated and received. This generally depends on the amount of vegetative cover and intensity of the precipitation event.

Table 2. Representative physiographic features

Landforms	(1) Plateau > Plain (2) Plateau > Interdune
Runoff class	Very low to low
Flooding frequency	None
Ponding frequency	None
Elevation	792–1,798 m
Slope	0–5%
Water table depth	203 cm
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

The climate is semiarid continental. Summers are hot with winters generally being mild. Temperature extremes are common. Humidity is generally low, and short-term droughts are common. Winds speeds average 12 mph and are highest in early spring. The prevailing wind direction is southwest. In the fall and winter, northers are common with severe temperature drops. Cold spells do not generally last more than a few days. Evaporation in summer is high. Open pan evaporation exceeds 6 ft. per year. Most of the precipitation occurs from May to September. Rainfall events often occur as intense showers of relatively short duration. Frequently during the first 15 minutes of a thunderstorm, the rate of rainfall may be 6 to 8 inches per hour. Snowfall average is about 15 inches, but it is not unusual for snowfall to exceed 30 inches every few years. Long term droughts are likely to occur every 15 to 20 years and may last 4 to 5 years. Mean precipitation is around 17 inches but varies significantly from year to year. Rainfall amounts over the last 100 years have varied from as little as 9 inches to as much as 37 inches. The probability is about 70% that precipitation will fall between 14 inches and 23 inches. Growing season averages 195 days. Average first frost is around October 22, and the last freeze of the season should occur around April 1.

Table 3. Representative climatic features

Frost-free period (characteristic range)	140-145 days
Freeze-free period (characteristic range)	169-170 days
Precipitation total (characteristic range)	432-457 mm
Frost-free period (actual range)	139-147 days
Freeze-free period (actual range)	168-170 days
Precipitation total (actual range)	406-457 mm
Frost-free period (average)	143 days
Freeze-free period (average)	169 days
Precipitation total (average)	432 mm

Climate stations used

- (1) CLAYTON 1 N [USC00291883], Clayton, NM
- (2) DALHART 6 SW [USC00412235], Hartley, TX
- (3) AMISTAD 5 SSW [USC00290377], Amistad, NM
- (4) ROSEBUD 7NW [USC00297585], Mosquero, NM
- (5) MCCARTY RCH [USC00295516], Nara Visa, NM

Influencing water features

Sandy soils allow for rapid infiltration. In years with above average rainfall, some water may percolate beyond the root zone and recharge shallow aquifers. Maximum amounts of water are available to plants. Small rainfall events may have a visible effect on vegetation.

Wetland description

None.

Soil features

These are deep sandy soils that are part of the Blackwater Draw geologic formation. Slopes dominantly range from 1 to 3 percent. They are low in fertility, have a low water storage capacity, have a high infiltration rate, and exhibit very little runoff. They yield water to plants easily and are subject to wind erosion without good cover. If cover is poor and runoff is excessive, significant water erosion can also occur. Plant roots easily penetrate the soil.

Major Soil Taxonomic Units correlated to this site include: Dallam loamy fine sand, Nara loamy fine sand, Perico loamy fine sand, Rickmore loamy fine sand, and Vingo loamy fine sand.

Table 4. Representative soil features

Parent material	(1) Eolian deposits–igneous, metamorphic and sedimentary rock
Surface texture	(1) Loamy fine sand (2) Loamy sand
Family particle size	(1) Loamy (2) Coarse-loamy (3) Fine-loamy
Drainage class	Well drained
Permeability class	Moderate to rapid
Soil depth	203 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	7.62–17.78 cm
Calcium carbonate equivalent (0-101.6cm)	0–40%
Electrical conductivity (0-101.6cm)	0–3 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–1
Soil reaction (1:1 water) (0-101.6cm)	6.6–8.4
Subsurface fragment volume <=3" (0-101.6cm)	0–5%
Subsurface fragment volume >3" (0-101.6cm)	0%

Ecological dynamics

The soils, topographic location, climate, periodic droughts and fire influenced the stabilization of the reference plant community on this site as was the case on most all High Plains ecological sites. Grazing and/or browsing by local and nomadic wildlife influenced the plant community as well. The resulting Tallgrass/Midgrass Community (1.1) consisted of tall and midgrasses, associated forbs and scattered woody shrubs. The dominant tallgrasses were sand bluestem (*Andropogon hallii*) and little bluestem (*Schizachyrium scoparium*). The midgrasses that were present include sideoats grama (*Bouteloua curtipendula*), sand lovegrass (*Eragrostis trichodes*), dropseeds (Sporobolus spp.), sand paspalum (Paspalum strumarium), fall witchgrass (*Digitaria cognata*), hairy grama (*Bouteloua hirsuta*), blue grama (*Bouteloua gracilis*), silver bluestem (*Bothriochloa laguroides*), plains bristlegrass (*Setaria leucopila*), red lovegrass (*Eragrostis secundiflora*), gummy lovegrass (Eragrostis curtipendicellata), sandbur (Cenchrus incertus), hooded windmill-grass (*Chloris cucullata*) and perennial threeawns (Aristida spp.).

Some cool-season grasses occur in small amounts such as Canada wildrye (*Elymus canadensis*) and needle & thread (Stipa comata). Typically associated forbs included western ragweed (*Ambrosia psilostachya*), dotted gayfeather (*Liatris punctata*), annual wild buckwheat (Eriogonum convolvulus), queens delight (*Stillingia sylvatica*), prairie clover (*Dalea purpurea*), catclaw sensitivebriar (Schrankia uncinata), golden dalea (*Dalea aurea*), camphorweed (Heterotheca pilosa), sand lily (*Mentzelia decapetala*), gaura (Gaura spp.), prairie spiderwort (*Tradescantia occidentalis*), erect dayflower (*Commelina erecta*) and numerous annual forbs. Woody species include sand sagebrush (Artemesia filifolia), skunkbush sumac (*Rhus aromatica*), sand plum (*Prunus angustifolia*), and southwestern rabbitbrush (*Chrysothamnus pulchellus*). Nutrient cycling, the water cycle, watershed protection and biological functions are functioning at their peak.

Natural fire likely played an important role in the function of most plains sites, especially the tall grass communities. Tall grasses such as sand bluestem and little bluestem were dependent upon fire to stimulate them and remove old growth that would accumulate on the soil surface. Fire also kept shrubs from getting too thick. Fire helped to keep a balance between the grasses, forbs and shrubs. Wildlife habitat was improved by opening up canopies and stimulating forb growth. The deep rooted species that grow on the site are not easily damaged by fire. Shrubs usually resprout, but are suppressed for a time allowing grasses to dominate. If periodic fire does not occur, then the woody plants will slowly increase and with grazing pressure can begin to dominate the site. Since fire is not always available to be applied, then practices such as brush management may necessary from time to time to help keep the community in balance.

Periodic overgrazing and trampling by migrating herds of bison and resident herds of pronghorn antelope probably occurred during drought periods. However, long rest periods followed once the large herds of bison and antelope moved out of the area, allowing the resilient grassland to re-establish itself and maintain its climax community structure. The major forces influencing transition from the historic climax community is continued overgrazing by livestock and the decrease in the frequency and intensity of fire. As livestock and wildlife numbers increase and grazing use exceeds a plants ability to sustain defoliation, the more palatable and generally more productive species decline in stature, productivity and density.

The productive capacity of this site is moderately high if good management is applied. The tallgrasses are fairly sensitive to overgrazing and will begin to decrease if continuous heavy grazing is applied. They respond to rest very well and if grazed moderately and rested periodically toward the mid to late growing season, they will generally persist. If excessive grazing continues, ecological retrogression occurs. As retrogression proceeds, the tallgrasses give way to an increase in midgrasses such as sideoats grama, dropseed species and perennial threeawns. The better quality forbs are replaced with less palatable species such as gaura, western ragweed, annual wild buckwheat and camphorweed and there will be an increase in annual forbs. Sand sagebrush and skunkbush can increase to >20 percent of the total plant community. The decrease in density and stature of the tallgrass vegetation and increase in density of the woody vegetation brings about a new plant community, a Midgrass/Shrub Community phase (2.1).

In the Midgrass/Shrub Community phase (2.1), the transition back to the reference community is possible with proper grazing management, brush and pest management. Prescribed burning could be used if the conditions allow. The production of vegetation has shifted from mostly herbaceous vegetation to more woody, although the herbaceous vegetation biomass is still the largest amount. Nutrient cycling, the water cycle, watershed protection and biological functions have changed little.

If long-term heavy grazing continues, a threshold will be crossed to a Shrub Dominant Community (3.1). In this degraded state, typical vegetation will be annuals and western ragweed with an increase in perennial threeawns, red lovegrass, gummy lovegrass, sandbur and a significant canopy of sand sagebrush and possibly skunkbush. The loss of herbaceous cover and increased bare ground encourages accelerated erosion. Nutrient cycling, the water cycle, watershed protection and biological functions have been severely reduced. The plant community is so degraded that it cannot reverse retrogression without extensive energy and management inputs. Restoration of this plant community (3.1) will require prescribed grazing with rest periods during the growing season, re-seeding bare areas with adapted native grass species, and chemical and/or mechanical brush management and some form of pest management. With the reduced amounts of grass fuel, prescribed burning is usually not an option in this phase.

The sandy site is not particularly resistant to heavy grazing but exhibits amazing resilience. If even a small seed source of the tallgrasses remains and some old root crowns are still viable, then recovery is possible with minimal

re-seeding. Recovery can occur fairly rapid if the competitive plants are controlled and proper grazing management is applied. Full recovery and maintenance of the reference plant community requires continued proper grazing management as well as occasional brush and pest management.

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)

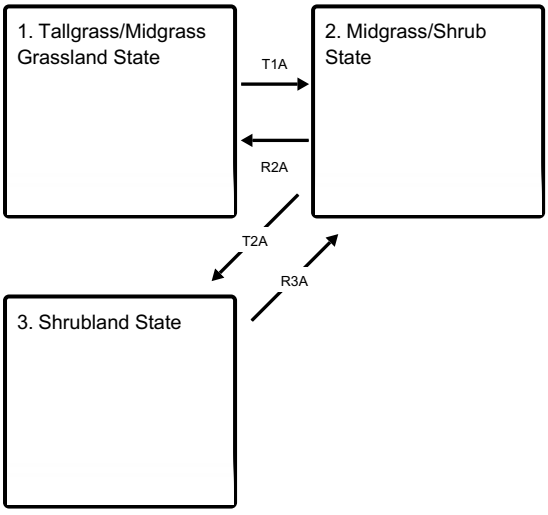
Narrative:
The following diagram suggests some pathways that the vegetation on this site might take. There may be other states not shown on the diagram. This information is intended to show what might happen in a given set of circumstances; it does not mean that this would happen the same way in every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

As a site changes in the structure and makeup of the plant community, the changes may be due to management or due to natural occurrences or both. At some point in time thresholds are crossed. This means that once changes have progressed to some certain point, the balance of the community has been altered to the extent that a return to the former state is not possible, that is, not possible unless some form of energy is applied to make it happen. These changes take place on all ecological sites, but some sites support communities that are more resistant to change than other sites. Also, some sites are more resilient, that is, they tend to be able to heal or restore themselves more easily. Usually, changes in management practices alone, such as grazing techniques, will not be sufficient to restore former plant communities. An example of energy input might be the implementation of chemical or mechanical brush management to decrease the amount of woody shrubs and increase the amount of grasses and forbs. This shift in community balance could not be brought about with grazing alone. The amount of energy required to bring about a change in plant community balance may vary a great deal depending on the present state and upon the desired result.

As it relates to this site, the plant community balance is more fragile than some of the shortgrass sites are. This balance is necessary for the community to function properly. Tallgrasses are not as resistant to grazing as short and midgrass species. The soil is more fragile since it is sandy and can result in plant and soil disturbance from hoof action. If cover is very poor, wind erosion will occur.

State and transition model

Ecosystem states



T1A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R2A - Adequate rest from defoliation and removal of woody canopy, followed by reintroduction of historic disturbance regimes

T2A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R3A - Adequate rest from defoliation and removal of woody canopy

State 1 submodel, plant communities

1.1. Tallgrass/Midgrass Community

State 2 submodel, plant communities

2.1. Midgrass/Shrub Community

State 3 submodel, plant communities

3.1. Shrub Dominant Community

State 1
Tallgrass/Midgrass Grassland State

The Tallgrass/Midgrass Grassland State is composed of tall and midgrass dominant with few perennial forbs and scattered woody shrubs. Dominant grasses include sand and little bluestem. Shrubs include sand sagebrush, skunkbush and occasional sand plum.

Community 1.1
Tallgrass/Midgrass Community

Figure 8. 1.1 Tallgrass/Midgrass C

The interpretive or "reference" plant community for this site is a mixture of tall/midgrasses, forbs, and a few woody shrubs. The major tallgrass species are sand bluestem and little bluestem. The midgrasses are sideoats grama, sand lovegrass, sand paspalum, fall witchgrass, hairy grama, blue grama, dropseed species, perennial threeawns, hooded windmillgrass and gummy and red lovegrass. Cool-season grasses are Canada wildrye and needle & thread. There were numerous perennial forbs present (see group production below) and a few scattered shrubs such as sand sagebrush and skunkbush and an occasional sand plum thicket. The plant community’s ecological processes were in balance with the environment. Most energy and nutrient cycling was contained in the narrow grass/soil interface and evapotranspiration was minimal. Maintenance of this community requires continued proper

grazing management as well as occasional brush and pest management.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1255	1390	1524
Shrub/Vine	235	258	280
Forb	78	90	101
Microbiotic Crusts	–	–	–
Tree	–	–	–
Total	**1568**	**1738**	**1905**

Figure 10. Plant community growth curve (percent production by month). TX0764, Tall/Midgrass Community. Tall and midgrass species dominate with few forb and woody species..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	6	9	21	24	14	6	11	4	2	1

State 2
Midgrass/Shrub State

The decrease in density and stature of the tallgrass vegetation and increase in density of the woody vegetation brings about a new plant community, a Midgrass/Shrub Community phase (2.1). As retrogression proceeds, the tallgrasses give way to an increase in midgrasses such as sideoats grama, dropseed species and perennial threeawns. The better quality forbs are replaced with less palatable species such as gaura, western ragweed, annual wild buckwheat and camphorweed and there will be an increase in annual forbs. Sand sagebrush and skunkbush can increase to >20% of the total plant community.

Community 2.1
Midgrass/Shrub Community

Figure 11. 2.1 Midgrass/Shrub Community

This plant community represents the first phase in the transition of the Midgrass/Shrub Community (2.1) toward the Shrub Dominant Community (3.1). As retrogression proceeds, the tallgrasses give way to an increase in midgrasses such as sideoats grama, dropseed species, sand paspalum and perennial three-awns. The better quality forbs are replaced with less palatable species such as gaura, western ragweed, annual wild buckwheat and camphorweed and there will be an increase in annual forbs. Sand sagebrush and skunkbush can increase to >20 percent of the total plant community. The production of vegetation has shifted from mostly herbaceous vegetation to more woody, although the herbaceous vegetation biomass is still the largest amount. Nutrient cycling, the water cycle, watershed protection and biological functions have changed little. Proper grazing and brush management can

easily maintain this phase and prevent the transition toward the Shrub Dominant Community phase (3.1).

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	336	392	448
Forb	112	168	224
Grass/Grasslike	897	1009	112
Microbiotic Crusts	–	–	–
Tree	–	–	–
Total	**1345**	**1569**	**784**

Figure 13. Plant community growth curve (percent production by month). TX0765, Midgrass/Shrub Community. Midgrass Dominant with increasing shrubs and annuals..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	6	9	21	24	14	6	11	4	2	1

State 3
Shrubland State

If long-term heavy grazing continues, a threshold will be crossed to a Shrub Dominant Community (3.1). In this degraded state, typical vegetation will be annuals and western ragweed with an increase in perennial threeawns, red lovegrass, gummy lovegrass, sandbur and a significant canopy of sand sagebrush and possibly skunkbush. The loss of herbaceous cover and increased bare ground encourages accelerated erosion. Nutrient cycling, the water cycle, watershed protection and biological functions have been severely reduced. The plant community is so degraded that it cannot reverse retrogression without extensive energy and management inputs.

Community 3.1
Shrub Dominant Community

Figure 14. 3.1 Shrub Dominant Community

The Shrub Dominant Community (3.1) is a shrub community with sand sagebrush and skunkbush being the primary woody plants. The understory consists of annual grasses and forbs, very few perennial grasses remaining. Few if any reference grasses and forbs are present. Herbaceous forage production is less than half of community 1.1. The moisture regime is less than normal because of evapo-transpiration losses and bare ground has increased. Nutrient cycling, the water cycle, watershed protection and biological functions have decreased substantially. Major energy and economic inputs are required to change the Shrub Dominant Community (3.1) back to near the reference plant community. Brush and pest management, prescribed grazing, and perhaps range seeding will be necessary at a major expense. This site is not particularly resistant to heavy grazing but exhibits amazing resilience. If even a

small seed source of the tallgrasses remains and some old root crowns are still viable, then recovery is possible with minimal re-seeding. Recovery can occur fairly rapid if the competitive plants are controlled and proper grazing management is applied. Full recovery and maintenance of the reference plant community requires continued proper grazing management as well as occasional brush and pest management.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	897	112	1681
Forb	280	336	392
Shrub/Vine	280	336	336
Tree	56	56	56
Microbiotic Crusts	–	–	–
Total	**1513**	**840**	**2465**

Figure 16. Plant community growth curve (percent production by month). TX0758, Shrubs/Annuals Dominant Community. Shrubs dominate the site. The understory consist of annual forbs and few grasses. Bare ground has increased to (>40%). .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	4	16	30	25	6	5	5	4	2	1

Transition T1A
State 1 to 2

With heavy continuous grazing, no fires, and brush invasion. The Tallgrass/Midgrass/Grassland State will transition to the Midgrass/Shrub State.

Restoration pathway R2A
State 2 to 1

With the application of conservation practices such as Prescribed Grazing, Prescribed Burning, and Brush Management, the Midgrass/Shrub State can revert back to the Tallgrass/Midgrass Community.

Conservation practices

Brush Management
Prescribed Burning
Prescribed Grazing

Transition T2A
State 2 to 3

With heavy continuous grazing, no fire, and no brush management, the Midgrass/Shrub State will transition to the Shrubland State.

Restoration pathway R3A
State 3 to 2

With the implementation of various conservation practices such as Prescribed Grazing (one to three year deferment), Brush Management, and Prescribed Burning, the Shrub Dominant Community can be restored to the Midgrass/Shrub Community.

Conservation practices

Brush Management
Prescribed Burning
Prescribed Grazing

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Tallgrasses**			420–560	
	sand bluestem	ANHA	*Andropogon hallii*	280–448	–
	little bluestem	SCSC	*Schizachyrium scoparium*	224–392	–
2	**Midgrasses**			207–347	
	sideoats grama	BOCU	*Bouteloua curtipendula*	168–280	–
	sand lovegrass	ERTR3	*Eragrostis trichodes*	168–280	–
	thin paspalum	PASE5	*Paspalum setaceum*	112–224	–
3	**Mid/Shortgrasses**			140–207	
	large-spike bristlegrass	SEMA5	*Setaria macrostachya*	28–140	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	28–90	–
	hooded windmill grass	CHCU2	*Chloris cucullata*	28–90	–
	fall witchgrass	DICO6	*Digitaria cognata*	28–90	–
	Wright's threeawn	ARPUW	*Aristida purpurea var. wrightii*	28–90	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	28–90	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	28–90	–
	gummy lovegrass	ERCU	*Eragrostis curtipedicellata*	28–78	–
	red lovegrass	ERSE	*Eragrostis secundiflora*	28–67	–
	coastal sandbur	CESP4	*Cenchrus spinifex*	22–56	–
4	**Midgrasses**			28–67	
	spike dropseed	SPCO4	*Sporobolus contractus*	22–67	–
	giant dropseed	SPGI	*Sporobolus giganteus*	28–67	–
5	**Cool-season grasses**			28–67	
	Canada wildrye	ELCA4	*Elymus canadensis*	28–67	–
	needle and thread	HECO26	*Hesperostipa comata*	28–67	–
6	**Shortgrass**			11–67	
	blue grama	BOGR2	*Bouteloua gracilis*	11–67	–
Forb					
7	**Forbs**			78–101	
	Cuman ragweed	AMPS	*Ambrosia psilostachya*	56–90	–
	golden prairie clover	DAAU	*Dalea aurea*	28–56	–
	eastern daisy fleabane	ERAN	*Erigeron annuus*	28–56	–
	beeblossom	GAURA	*Gaura*	28–56	–

	dotted blazing star	LIPU	*Liatris punctata*	34–56	–
	grassland blazingstar	MEST3	*Mentzelia strictissima*	28–56	–
	littleleaf sensitive-briar	MIMI22	*Mimosa microphylla*	28–56	–
	scurfpea	PSORA2	*Psoralidium*	28–56	–
	queen's-delight	STSY	*Stillingia sylvatica*	28–56	–
	Forb, annual	2FA	*Forb, annual*	28–56	–
	prairie spiderwort	TROC	*Tradescantia occidentalis*	22–45	–
	camphorweed	HESU3	*Heterotheca subaxillaris*	28–45	–
	whitemouth dayflower	COER	*Commelina erecta*	22–45	–
Shrub/Vine					
8	**Shrubs**			235–280	
	sand sagebrush	ARFI2	*Artemisia filifolia*	157–191	–
	Oklahoma plum	PRGR	*Prunus gracilis*	78–90	–
	skunkbush sumac	RHTR	*Rhus trilobata*	78–90	–
	leadplant	AMCA6	*Amorpha canescens*	78–90	–

Animal community

The animal species that utilize this site as habitat are mainly small mammals, song birds, and traditional game species like bobwhite and scaled quail, mule deer, pronghorn antelope and lesser prairie chicken. The combination of grasses, forbs and woody shrubs that occur in the plant community provide suitable habitat for all the above species, at least at some time during the year. Predators such as coyotes and bobcats may utilize the site for hunting prey and to hide during the day. If the site is a shrub dominant community, then diversity is decreased and the wildlife habitat will usually be less desirable.

Hydrological functions

This site captures nearly 100 % of the water that falls on it. The sandy soil infiltrates water rapidly. There is negligible runoff. Some water will percolate past the root zone and find its way into shallow aquifers. This site and the Sandhills (Dune) site are primary recharge areas.

Recreational uses

Hunting, Camping, Hiking, Birdwatching, Photography, Horseback Riding

Wood products

None.

Other products

None.

Other information

None.

Inventory data references

Inventory is based upon long-term observation of well-managed ranges, range inventory data, and numerous historical accounts of vegetation present at time of settlement.

Inventory Data References:
Several years of clipping data and numerous old range inventories have been reviewed.

Other references

J.R. Bell, NRCS-RMS (retired)
Natural Resources Conservation Service Range Site Descriptions
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Clint Rollins, RMS, NRCS, Amarillo, Texas
Mark Moseley, RMS, NRCS, San Antonio, Texas
Kelly Attebury, Soil Scientist, NRCS, Lubbock, Texas
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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.

Reviewers:
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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Contact for lead author	806-791-0581
Date	09/04/2007
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%.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Slight to Moderate.

7. **Amount of litter movement (describe size and distance expected to travel):** Slight to moderate.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Not resistant to surface erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Fine single grain surface and very low 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 moderate interspaces should make rainfall impact minimal. This site has rapid permeability, slow runoff and available water holding capacity is low.

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: Warm-season tallgrasses >

    Sub-dominant: Warm-season midgrasses >

    Other: Cool-season grasses > Forbs > Shrubs/Vines

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Grasses due to their growth habit will exhibit some mortality and decadence, though minimal.

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

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1,500 to 2,000 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:** Sand sagebrush and sand shin oak can be potentially invasive on this site.

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17. **Perennial plant reproductive capability:** All plant species should be capable of reproduction except during periods of prolonged drought conditions, heavy natural herbivory and intense wildfires.
