USDA Natural Resources Conservation Service

Ecological site R077EY052TX
Draw 16-24" PZ

Last updated: 9/12/2023
Accessed: 05/21/2025

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.

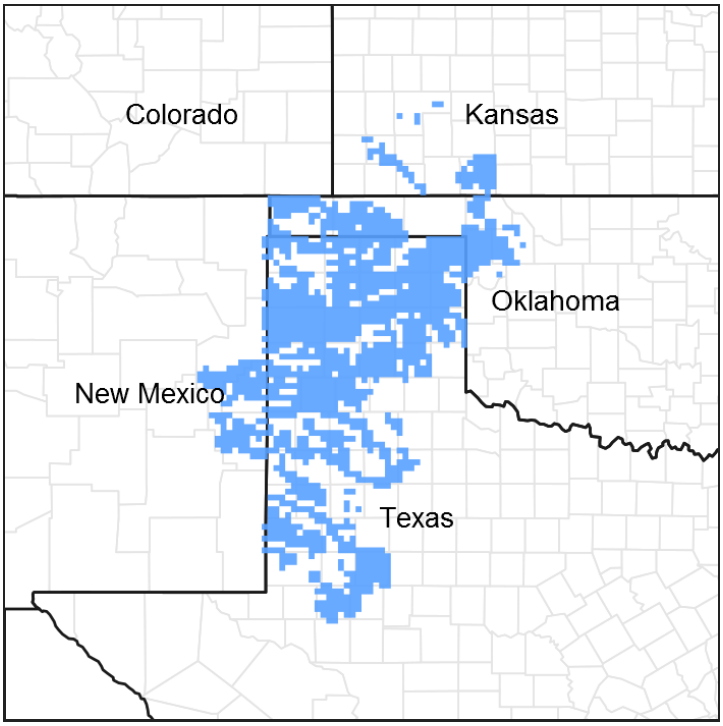


Figure 1. Mapped extent

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): 077E–Southern High Plains, Breaks

MLRA 77E occurs along moderately sloping breaks and steep escarpments associated with dissecting river systems and erosional margins of the Southern High Plains. Soil

temperature regime is thermic and soil moisture regime is ustic bordering on aridic. Loamy and sandy soils are generally well drained, range from shallow to deep, and developed in Ogallala Formation sediments.

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

This site occurs on very deep loamy soils on drainageways. The reference vegetation consists of tall and midgrass species with forbs and few woody plants. In the absence of fire or alternative brush management, woody species may expand on the site. If proper grazing management is not followed, the plant community may shift towards a midgrass/shortgrass dominated community.

Associated sites

R077EY055TX	**Hardland Slopes 16-24" PZ** Nearly level to moderately steep fine-loamy calcareous soils on higher side slope positions. Dominantly shortgrass community with some midgrasses, forbs, and few woody species.
R077EY057TX	**Limy Upland 16-24" PZ** Gently sloping to moderately sloping loamy soils with highly calcareous subsoils on similar positions or slightly lower side slopes. Short and mid-grass dominate and with few tall grasses, perennial and annual forbs, and few woody species present.
R077EY062TX	**Breaks 16-24" PZ** Strongly sloping to very steep, shallow, loamy soils often intermixed with rock outcrops on higher positions. A mixture of grasses, forbs, shrubs, and a few trees with bare ground. Many rocks and cobbles on the surface.

Similar sites

R077EY058TX	**Loamy Bottomland 16-24" PZ** Loamy alluvial soils lower in the landscape on floodplains and possible water table below 60 inches.
R077AY002TX	**Draw 16-22" PZ** A similar site in MLRA 77A with soils formed in a slightly cooler mesic soil temperature regime.

Table 1. Dominant plant species

Tree	Not specified

Shrub	Not specified
Herbaceous	(1) *Panicum obtusum* (2) *Pascopyrum smithii*

Physiographic features

This site occurs as valley floors and along stream flood plains and drainages that dissect the high plains. They flood frequently to rarely. Slopes are nearly level to very gently sloping. The site may or may not be channeled. Generally speaking, draws with large drainage areas have defined channels. This site is associated with drainage ways such as Palo Duro Creek, Coldwater Creek, Hannas Draw, Palo Duro Draw, Tierra Blanca Creek, upper Mulberry Creek and upper MeClellan Creek. These are upper drainages of the Canadian and Red River Systems.

Table 2. Representative physiographic features

Landforms	(1) Plains > Draw (2) Plains > Flood plain (3) Plains > Drainageway
Runoff class	Negligible to low
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to frequent
Ponding frequency	None
Elevation	2,000–4,500 ft
Slope	0–3%
Aspect	Aspect is not a significant factor

Table 3. Representative physiographic features (actual ranges)

Runoff class	Negligible to low
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to frequent
Ponding frequency	None
Elevation	2,000–4,500 ft
Slope	0–5%

Climatic features

Climate is a cold semi-arid steppe (Koppen-Geiger classification BSk). Summers are hot and winters are cold. Temperature extremes are common. Humidity is generally low,

evaporation is high, and short-term droughts are common. Average annual wind speed is 12 mph with highest winds in early spring. The prevailing wind direction is south. Summertime brings strong high pressure systems that build into heat domes with highs in the upper 90 to mid-100 degree F range. Evaporation in summer is high and open pan evaporation exceeds 6 feet per year. Early autumn temperatures are mild, with Canadian and Pacific cold fronts bringing cold air in mid-autumn throughout winter. Arctic air can settle in and dominate for several weeks during winter with very cold air in place for 2 to 3 weeks at a time.

Most of the precipitation comes in the form of rain from May through September. Rainfall events often occur as intense showers of relatively short duration. Snowfall average is about 17 inches but is also variable from 8 to 36 inches annually. Long term droughts are likely to occur every 15 to 20 years and may last 4 to 5 years. Mean precipitation is around 21 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 to 24 inches. Growing season averages 190 days. Average first frost is around October 22, and the last freeze of the season occurs around April 15.

Table 4. Representative climatic features

Frost-free period (characteristic range)	146-164 days
Freeze-free period (characteristic range)	184-194 days
Precipitation total (characteristic range)	20-24 in
Frost-free period (actual range)	144-176 days
Freeze-free period (actual range)	180-198 days
Precipitation total (actual range)	19-26 in
Frost-free period (average)	156 days
Freeze-free period (average)	189 days
Precipitation total (average)	22 in

Climate stations used

- (1) GATE [USC00343489], Gate, OK
- (2) BEAVER [USC00340593], Beaver, OK
- (3) REYDON 2SSE [USC00347579], Reydon, OK
- (4) BOYS RANCH [USC00411000], Vega, TX
- (5) SANFORD DAM [USC00418040], Fritch, TX
- (6) FOLLETT [USC00413225], Follett, TX
- (7) CANADIAN [USC00411412], Canadian, TX
- (8) GUYMON MUNI AP [USW00003030], Guymon, OK
- (9) MEADE [USC00145171], Meade, KS

- (10) CLARENDON [USW00023072], Clarendon, TX
- (11) LIPSCOMB [USC00415247], Booker, TX
- (12) CHANNING 2 [USC00411649], Channing, TX
- (13) COLDWATER [USC00141704], Coldwater, KS
- (14) MIAMI [USC00415875], Miami, TX

Influencing water features

This site receives runoff from surrounding areas. Overflows are usually over a broad area with large rainfall events and may be confined to channels during small events.

Wetland description

Soils in this ecological site are not part of wetland ecosystems.

Soil features

Soils are mapped for each county within the MLRA. Mapunits are representations of the major soil series component(s) and named accordingly. Each Mapunit is spatially represented on a digital soils map as polygons of different shapes and sizes. Within these Mapunits, there are often minor soil series components included. These minor components are soils that occur within a Mapunit polygon but are of small extent (15% or less of the Mapunit area). However, it is difficult to separate these minor soils spatially due to the scale of soil mapping.

Ecological sites are correlated at the component level of the soil survey. Therefore, a single Mapunit may contain multiple Ecological Sites just as it may contain multiple soil components. This is important to understand when investigating soils and Ecological Sites. A soil survey Mapunit may be correlated to a single Ecological Site based on the major component; however, there may be inclusions of areas of additional Ecological Sites which are correlated to the minor components of that particular soil Mapunit.

The soils of this site are deep, well drained, and slightly alkaline to neutral alluvial soils on nearly level to very gently sloping terrain on valley floors and flood plains adjacent to drainages. They are frequently to rarely flooded when major rainfall events occur. They do not usually have high water tables. Surface horizons are dark colored loam or clay loam and may be calcareous to the surface. Permeability is moderate and available water holding capacity is high. Fertility is high and the root zone is easily penetrated by plant roots. Productive capacity is moderately high.

Representative soil components for this site include: Bippus and Sprone. Some older surveys may include Spur soils for this site.

Table 5. Representative soil features

Parent material	(1) Alluvium
Surface texture	(1) Loam (2) Clay loam
Family particle size	(1) Fine-loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	80 in
Surface fragment cover <=3"	0–2%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	4.2–8 in
Calcium carbonate equivalent (0-40in)	0–8%
Electrical conductivity (0-40in)	0–3 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (0-40in)	0–2%
Subsurface fragment volume >3" (0-40in)	0%

Ecological dynamics

The information contained in the State and Transition Diagram (STD) and the Ecological Site Description was developed using archeological and historical data, professional experience, and scientific studies. The information presented is representative of a very complex set of plant communities. Not all scenarios or plants are included. Key indicator plants, animals and ecological processes are described to inform land management decisions.
The reference plant community consists of a mixture of tall and midgrasses with lesser amounts of shortgrass species along with a respectable amount of forbs and scattered woody plants.

The productivity is fairly high due to a deep soil and extra runoff from adjacent upland sites. The main grass species are western wheatgrass (*Pascopyrum smithii*), vine mesquite (*Panicum obtusum*), sideoats grama (*Bouteloua curtipendula*), along with smaller components of switchgrass (*Panicum virgatum*) and Indiangrass (*Sorghastrum*

nutans). There is always a component of blue grama (*Bouteloua gracilis*) and buffalograss (*Bouteloua dactyloides*) present but it is relatively small in the reference community. Some sites will have some alkali sacaton (*Sporobolus airoides*) present.

More commonly found forbs are goldenrod (Solidago spp.), baldwin ironweed (*Vernonia baldwinii*), berlandiera (Berlandiera spp.), gaura (Gaura spp.), western ragweed (*Ambrosia psilostachya*), mallow (Sphaeralcea spp.), heath aster (*Chaetopappa ericoides*), sagewort (Artemisia spp.), Illinois bundleflower (*Desmanthus illinoensis*), Maximilian sunflower (*Helianthus maximiliani*) and numerous annuals. Scattered elm (Ulmus spp.), hackberry (Celtis spp.), western soapberry (*Sapindus saponaria*), and cottonwood (*Populus deltoides*) occur but these are not as prevalent as on loamy or wet bottomland sites.

A few shrubs such as baccharis (Baccharis spp.), and occasional yucca (Yucca spp.) are present. The significant presence of western wheatgrass makes this site preferred in the cool season as well as in the summer. At times there may be small holes of water present in the drainage channels. These provide a good source of water for wildlife and occasionally some plants such as curly dock (Rumex spp.) and smartweed (Polygonum spp.) may be found growing in wetter years. Since the site occupies a location lower on the landscape, animals prefer to take shelter from wind during the colder part of the year.

Grazing by large herbivores played a major role in shaping the site vegetatively. It is well documented that large herds of bison often grazed the site and domestic livestock prefer it as well. As bison migrated with the seasons, these sites received heavy grazing pressure from time to time but had long recovery periods. There is considerable evidence of haying of these sites by early day settlers. The increased productivity was recognized and the quality of the forage was good.

Natural fire also played a major role in grassland ecology. The general role of fire seems to have been to perpetuate grasslands and keep any encroaching woody vegetation at bay. Woody plants were scattered along the channels where they could often escape fires, but there is little doubt that fire kept the number of woody plants controlled. Fires may have occurred as often as every 5 to 7 years on the average and this site usually had an above average fuel load compared to other plains sites.

Grazing pressure began to be severe in the 1890’s and the diversity and productivity of the site has generally declined except where excellent management has been practiced for long periods. The taller warm-season grasses such as Indiangrass and switchgrass have declined in most instances.

Western wheatgrass acts as a strong increaser as grazing pressure initially increases. If abusive grazing is practiced for many years, the western wheatgrass and other midgrasses will give way to increasing buffalograss and blue grama. These shortgrasses can adapt better to grazing pressure. The more desirable forbs decrease rapidly with abuse and western ragweed increases with a host of annual forbs. In some cases, annual

grasses such as Japanese brome (Bromus spp.) and little barley (*Hordeum pusillum*) have become excessive and are competing strongly with perennials. If good plant cover is not maintained on this site, erosion from water can become a problem. Gullies may appear and the channels, which are usually grass-covered, become deeper and are sometimes devoid of cover.

Good grass cover and a variety of species make this site desirable for deer, turkey, and many ground nesting birds. Small mammals and predators such as coyotes and bobcats find the site attractive as well.

Poor cover and decreased plant diversity brought about by poor grazing management disrupt the natural processes such as the water cycle and nutrient cycle. Since the site receives runoff water from surrounding areas, good cover is essential to prevent gully and sheet erosion. The site has the capacity to store a good deal of water in the soil profile but poor vegetative cover inhibits this process. If little water enters the soil, then the taller grass species tend to do poorly. Opportunistic plants such as weedy forbs and annual grasses decrease the long term stability of the site.

State and Transition Diagram:
A State and Transition Diagram for the Draw (R077EY052TX) site is depicted below. Thorough descriptions of each state, transition, and pathway follow the model. Experts base this model on available experimental research, field observations, professional consensus, and interpretations. It is likely to change as knowledge increases.
Plant communities will differ across the MLRA because of the natural variability in weather, soils, and aspect. The Reference Plant Community is not necessarily the management goal; other vegetative states may be desired plant communities as long as the Range Health assessments are in the moderate and above category.

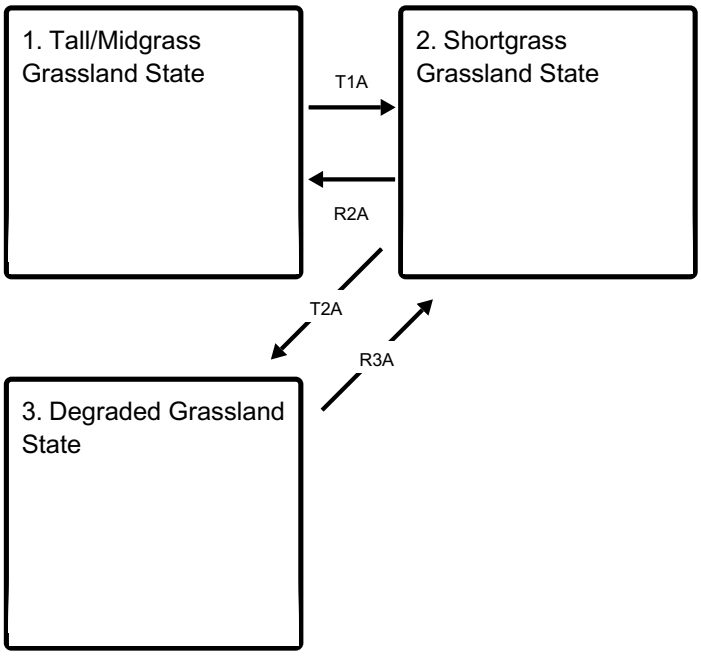
The biological processes on this site are complex. Therefore, representative values are presented in a land management context. The species lists are representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

Composition by dry weight and percent canopy cover are provided to describing the functional groups. Most observers find it easier to visualize or estimate percent canopy for woody species (trees and shrubs).

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



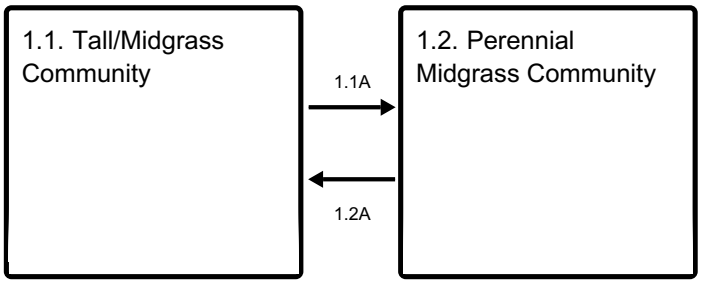
T1A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R2A - Reintroduction of historic disturbance regimes, may be coupled with rangeland seeding

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

R3A - Introduction of historic disturbances and adequate rest from defoliation

State 1 submodel, plant communities



State 2 submodel, plant communities

State 3 submodel, plant communities

3.1. Degraded Shortgrass Community

State 1
Tall/Midgrass Grassland State

This is the reference or diagnostic community for the site. The description is based on early range site descriptions, clipping data, professional consensus of experienced range specialists, and analysis of field work. The reference plant community for this site is mid and tall perennial grasses with deep rooted perennial forbs and scattered woody shrubs and trees. Tall and midgrasses such as switchgrass, western wheatgrass, meadow dropseed, and vine mesquite are present. Channels are stable due to good vegetative cover.

Dominant plant species

- switchgrass (*Panicum virgatum*), grass
- western wheatgrass (*Pascopyrum smithii*), grass

Community 1.1
Tall/Midgrass Community

Figure 8. 1.1 Tall/Midgrass Community (tallgrass dominant)

Figure 9. 1.1 Tall/Midgrass Community (midgrass dominant)

The reference vegetation for this site is mid and tall perennial grasses with deep rooted perennial forbs and scattered woody shrubs and trees. Tall and midgrasses such as switchgrass, western wheatgrass, meadow dropseed, and vine mesquite are present. Channels are stable due to good vegetative cover. Depending on alkalinity, alkali sacaton may also occur on this site.

Table 6. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	2500	3000	4000
Forb	200	300	400
Tree	20	40	60
Shrub/Vine	25	60	60
Microbiotic Crusts	10	10	20
Total	**2755**	**3410**	**4540**

Figure 11. Plant community growth curve (percent production by month). TX1513, Warm season tall and midgrasses. "It is a mixture of mid and tall grasses with several short grass species present. It has a variety of forbs, and a few woody shrubs. The major grass species are little bluestem, sideoats grama, Indiangrass, and sand bluestem. ".

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	6	9	22	25	12	6	11	4	2	1

Community 1.2
Perennial Midgrass Community

Figure 12. 1.2 Perennial Midgrass Community

This plant community is Perennial Midgrass Community (1.2) with the main grass species being western wheatgrass and vine mesquite. There are only scattered remnants of tallgrasses in this community. This site is very stable and no erosion is visible.

Table 7. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1850	3000	3500
Forb	60	150	200
Shrub/Vine	10	15	25
Tree	0	5	5
Microbiotic Crusts	5	5	5
Total	**1925**	**3175**	**3735**

Figure 14. Plant community growth curve (percent production by month). TX1514, Midgrass, cool/warm season. Midgrasses such as Western Wheatgrass and Vine Mesquite..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	10	17	25	15	6	4	8	7	4	1

Pathway 1.1A
Community 1.1 to 1.2

Tall/Midgrass Community

Perennial Midgrass Community

With heavy continuous grazing and no burning, the Tall/Midgrass Community will shift to the Perennial Midgrass Community.

Pathway 1.2A
Community 1.2 to 1.1

Perennial Midgrass Community

Tall/Midgrass Community

With the implementation of beneficial conservation practices such as Prescribed Grazing and Prescribed Burning, the Perennial Midgrass Community can be reverted back to the Tall/Midgrass Community.

Conservation practices

Prescribed Burning
Prescribed Grazing

State 2
Shortgrass Grassland State

This plant community is dominated by blue grama and buffalograss. Vigor and annual production are reduced considerably. There are a few pockets of western wheatgrass. False tarragon sagewort is beginning to increase.

Dominant plant species

- blue grama (*Bouteloua gracilis*), grass
- buffalograss (*Bouteloua dactyloides*), grass

Community 2.1
Shortgrass/Midgrass Community

Figure 15. 2.1 Shortgrass/Midgrass Community

This plant community is dominated by blue grama and buffalograss. Vigor and annual production are reduced considerably. There are a few pockets of western wheatgrass. False tarragon sagewort is beginning to increase. Hydrology is negatively affected by lack or cover and gully erosion is beginning to be more visible.

Table 8. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1000	1400	2000
Forb	50	75	130
Tree	0	15	25
Shrub/Vine	0	0	10
Microbiotic Crusts	5	5	10
Total	**1055**	**1495**	**2175**

Figure 17. Plant community growth curve (percent production by month). TX1515, shortgrass with few midgrasses. shortgrasses such as blue grama and buffalograss are dominating the site..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	3	5	30	30	8	4	8	6	3	1

State 3
Degraded Grassland State

The Degraded Grassland State contains a shortgrass community and annual forbs are present. Surface erosion is evident at the site. The hydrology is poor. There are signs of

erosion of channel banks and very poor plant community production.

Dominant plant species

- broom snakeweed (*Gutierrezia sarothrae*), shrub

Community 3.1
Degraded Shortgrass Community

Figure 18. 3.1 Degraded Shortgrass Community

Shortgrasses and annual forbs are present. Surface erosion is evident at the site. The hydrology is poor. There are signs of erosion of channel banks and very poor plant community production. This community occurs due to being grazed heavily and continuously.

Table 9. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	500	800	1200
Forb	50	100	150
Shrub/Vine	5	10	20
Tree	0	0	10
Microbiotic Crusts	0	0	0
Total	**555**	**910**	**1380**

Figure 20. Plant community growth curve (percent production by month). TX1516, Degraded shortgrass/annuals. Low vigor shortgrasses with annual invasion, limited production potential, and high erosion potential..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	5	15	30	25	5	3	6	6	2	1

Transition T1A
State 1 to 2

The Tall/Midgrass Grassland State will transition to the Shortgrass Grassland State with heavy continuous grazing pressure and no fires.

Restoration pathway R2A
State 2 to 1

With the implementation of conservation practices such as Prescribed Grazing and Prescribed Burning, the Shortgrass Grassland State can be restored to the Tall/Midgrass Grassland State.

Conservation practices

Prescribed Burning
Prescribed Grazing

Transition T2A
State 2 to 3

With heavy continuous grazing, brush invasion of mesquite and yucca, and no brush or pest management practices implemented, the Shortgrass Grassland State transitions to the Degraded Grassland State.

Restoration pathway R3A
State 3 to 2

With the implementation of conservation practices such as Prescribed Grazing, Brush Management, and Pest Management, the Degraded Shortgrass State can be restored to the Shortgrass Grassland State.

Conservation practices

Brush Management
Prescribed Grazing
Integrated Pest Management (IPM)

Additional community tables

Table 10. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Cool-season Grasses**			1475–2360	
	western wheatgrass	PASM	*Pascopyrum smithii*	1200–2000	–
	Canada wildrye	ELCA4	*Elymus canadensis*	150–275	–
	Texas bluegrass	POAR	*Poa arachnifera*	50–125	–
2	**Tallgrasses**			675–1080	
	vine mesquite	PAOB	*Panicum obtusum*	500–825	–
	switchgrass	PAVI2	*Panicum virgatum*	75–150	–
	Indiangrass	SONU2	*Sorghastrum nutans*	75–125	–
	eastern gamagrass	TRDA3	*Tripsacum dactyloides*	10–25	–
3	**Midgrasses**			375–600	
	alkali sacaton	SPAI	*Sporobolus airoides*	150–275	–
	composite dropseed	SPCOC2	*Sporobolus compositus var. compositus*	75–150	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	75–150	–
	blue grama	BOGR2	*Bouteloua gracilis*	35–75	–
4	**Mid/Shortgrasses**			25–50	
	buffalograss	BODA2	*Bouteloua dactyloides*	25–50	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	20–50	–
	saltgrass	DISP	*Distichlis spicata*	25–50	–
	creeping muhly	MURE	*Muhlenbergia repens*	25–50	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	20–50	–
5	**Annuals**			30–75	
	brome	BROMU	*Bromus*	30–75	–
Forb					
6	**Forbs**			200–400	
	Forb, annual	2FA	*Forb, annual*	0–200	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	0–100	–

	sagebrush				
	desert milkweed	ASER2	*Asclepias erosa*	0–100	–
	aster	ASTER	*Aster*	0–100	–
	bundleflower	DESMA	*Desmanthus*	0–100	–
	Engelmann's daisy	ENGEL	*Engelmannia*	0–100	–
	scarlet beeblossom	GACO5	*Gaura coccinea*	0–100	–
	American licorice	GLLE3	*Glycyrrhiza lepidota*	0–100	–
	curlycup gumweed	GRSQ	*Grindelia squarrosa*	0–100	–
	common sunflower	HEAN3	*Helianthus annuus*	0–100	–
	Maximilian sunflower	HEMA2	*Helianthus maximiliani*	0–100	–
	slimflower scurfpea	PSTE5	*Psoralidium tenuiflorum*	0–100	–
	silverleaf nightshade	SOEL	*Solanum elaeagnifolium*	0–100	–
	Baldwin's ironweed	VEBA	*Vernonia baldwinii*	0–100	–
	hoary verbena	VEST	*Verbena stricta*	0–100	–
Shrub/Vine					
7	**Shrubs**			25–75	
	saltwater false willow	BAAN	*Baccharis angustifolia*	0–20	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–20	–
	Oklahoma plum	PRGR	*Prunus gracilis*	0–20	–
	willow	SALIX	*Salix*	0–20	–
	soapweed yucca	YUGL	*Yucca glauca*	0–20	–
Tree					
8	**Trees**			5–25	
	hackberry	CELTI	*Celtis*	0–25	–
	eastern cottonwood	PODE3	*Populus deltoides*	0–25	–

	western soapberry	SASAD	*Sapindus saponaria var. drummondii*	0–25	–
	American elm	ULAM	*Ulmus americana*	0–25	–

Animal community

This site supports a variety of small mammals, grassland birds, and predators. It does not afford cover for deer and turkey unless trees and shrubs are more prevalent, which they are often not. Pronghorn use the site especially when forb growth is prolific.

Dove and Quail will use the site for nesting and for escape cover. Dove and Quail use the tall and mid grasses for nesting cover. The main source of food for dove and quail comes from annual and perennial seed bearing forbs. Some of the desirable forbs are Texas croton, annual sunflower, pigweed, western ragweed, and Illinois bundleflower. These plants make seed in late spring through summer and then seeds are dropped on the ground. This site lacks shrubby cover for bobwhite quail, but if water holes are available, mourning doves frequent the site in late summer and early fall.

Hydrological functions

This site acts as a conduit for drainage from the high plains to the major creeks and rivers. With good cover, water quality from runoff is good. If cover is poor, then erosion on the site can be substantial and off site effects are negative. Poor vegetative cover can contribute to flooding over roads and highways in the event of heavy rains.

Recreational uses

Hunting, camping, hiking, horseback riding.

Wood products

None.

Other products

None.

Other information

long these draws throughout the plains significant archaeological sites exist. Early native Americans often camped along these draws and hunted game that grazed and watered there.

Inventory data references

The information in this document is based on long term observations of well managed ranges, several years of clipping data, NRCS FOTG Ecological Site Descriptions (both past and present), and numerous historical accounts of vegetation present at the time of settlement of the area.

Inventory Data References: NRCS 417 production data collected over approximately eight years was reviewed.

Other references

USDA, Soil Survey Reports, Soil Series Official Narratives
Hatch, Gandi, and Brown, Checklist of the Vascular Plants of Texas (Texas A&M, 1990)

Technical Review:
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Approval

Bryan Christensen, 9/12/2023

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.

Rangeland health reference sheet

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

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Date	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.

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

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

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

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):** 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):** Very resistant to soil erosion.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Loam to clay loam; friable surface; high SOM.

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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 has moderate permeability, runoff is slow to medium and available water capacity is high.

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.

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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: Cool-season grasses >

    Sub-dominant: Warm-season midgrasses > Warm-season tallgrasses > Warm-season shortgrasses >

    Other: Forbs > Shrubs/Vines > Trees

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality and decadence moderate due to high herbaceous vegetative canopy.

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

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 2,750 - 4,500 pounds per acre.

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Yucca and willow baccharis. Broom snakeweed can become invasive.

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