USDA Natural Resources Conservation Service

Ecological site R077CY023TX
Draw 16-21" PZ

Last updated: 9/11/2023
Accessed: 05/19/2024

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.

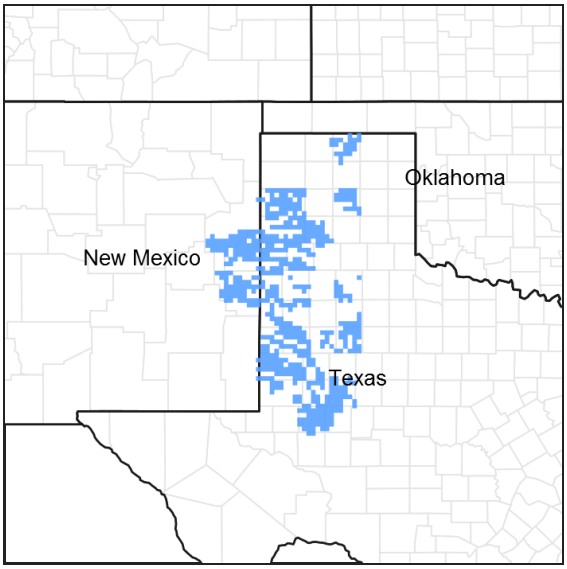


Figure 1. Mapped extent

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): 077C–Southern High Plains, Southern Part

MLRA 77C is characterized by nearly level plains with numerous playa depressions, moderately sloping breaks along drainageways, and a steep escarpment along the eastern margin. From southwest to northeast, soils grade from coarse-textured to fine-textured. Soils are generally deep and occur in a thermic soil temperature regime and ustic soil moisture regime bordering on aridic. Current land use is dominantly 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

This site occurs on very deep loamy soils on valley floors and floodplains. The site receives run on water from adjacent uplands and production can be quite a bit higher than upland sites. The reference vegetation includes short and midgrasses with forbs, and few shrubs. Abusive grazing practices can lead to a shift in the plant community. Without fire or brush management, woody species may increase across the site.

Associated sites

R077CY028TX	**Limy Upland 16-21" PZ** Limy Upland is on nearly level plains or strongly sloping summit and side slope positions. These sites have very deep loamy soils that are calcareous throughout the profile. Limy Upland soils are on higher landscape positions that run parallel and adjacent to the Draw site. Midgrasses and shortgrasses dominate the site.
R077CY037TX	**Very Shallow 16-21" PZ** Very Shallow sites are on nearly level plains or very steep summit and side slope positions. These sites are on higher positions that run parallel and adjacent to the Draw site and have loamy, shallow soils that are gravelly, and have a petrocalcic horizon between 8 and 20 inches. The reference plant community consists of midgrasses, shortgrasses and forbs. Overall production is limited due to the shallow depth of the soils.
R077CY689TX	**Wet Saline 16-21" PZ** The Wet Saline site is on relict pluvial lakes and valley flats. These areas are associated with Draw sites that occur on similar landscape positions and drainage areas of narrow valleys. Salt tolerant midgrasses and shrubs dominate these sites.

Similar sites

R077BY725TX	**Draw 12-17" PZ** This site has deep loam and fine sandy loam soils on collection points above drainages. The additional
R077DY039TX	**Draw 12-17" PZ** This site has deep loam and fine sandy loam soils on collection points above drainages. The additional "run on" water from adjacent upland sites leads to high production potential. The reference plant community consists of midgrasses with lesser amounts of tallgrasses and forbs. Mean annual precipitation is lower (15 to 17 inches) and this site is less productive than the Draw site in MLRA 77C.
R077EY052TX	**Draw 16-24" PZ** This site has very deep loam and clay loam soils on collection points above drainages. The additional

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Yucca* (2) *Gutierrezia sarothrae*
Herbaceous	(1) *Pascopyrum smithii* (2) *Bouteloua curtipendula*

Physiographic features

This site occurs as valley floors and along stream flood plains. It receives flooding occasionally. Slopes are nearly level to very gently sloping. The site is found along drainages that dissect the high plains. The site may or may not be channeled. Generally speaking, draws with large drainage areas have defined channels. This site is associated with drainages such as Tierra Blanca Creek, Frio Draw, Running Water Draw, Blackwater Draw, Yellowhouse Draw, Lost Draw, Sulphur Springs Draw, Seminole Draw, and Mustang Draw. These are upper drainages of the Prairie Dog Fork of Red River, Brazos River, Pease River and Colorado River Systems. This site is a high plains site.

Table 2. Representative physiographic features

Landforms	(1) Plateau > Draw (2) Plateau > Flood plain
Runoff class	Negligible
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Occasional to frequent
Elevation	792–1,554 m
Slope	0–2%

Water table depth	0–61 cm
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

Climate is semi-arid dry steppe. Summers are hot with winters being generally mild with numerous cold fronts that drop temperatures into the single digits for 24 to 48 hours. Temperature extremes are the rule rather than the exception. Humidity is generally low and evaporation high. Wind speeds are highest in the spring and are generally southwesterly. Canadian and Pacific cold fronts come through the region in fall, winter and spring with predictability and temperature changes can be rapid. Most of the precipitation comes in the form of rain and during the period from May through October. Snowfall averages around 15 inches but may be as little as 8 inches or as much as 36 inches. Rainfall in the growing season often comes as intense showers of relatively short duration. Long-term droughts occur on the average of once every 20 years and may last as long as five to six years (during these drought years moisture during the growing season is from 50 to 60 percent of the mean.) Based on long-term records, approximately 60 percent of years are below the mean rainfall and approximately 40 percent are above the mean. May, June and July are the main growth months for perennial warm-season grasses. Forbs make their growth somewhat earlier.

Table 3. Representative climatic features

Frost-free period (characteristic range)	152-184 days
Freeze-free period (characteristic range)	188-203 days
Precipitation total (characteristic range)	457-559 mm
Frost-free period (actual range)	148-199 days
Freeze-free period (actual range)	184-211 days
Precipitation total (actual range)	457-584 mm
Frost-free period (average)	170 days
Freeze-free period (average)	197 days
Precipitation total (average)	508 mm

Climate stations used

- (1) CROSBYTON [USC00412121], Crosbyton, TX
- (2) PANHANDLE [USC00416785], Panhandle, TX
- (3) CAMERON [USC00291332], Grady, NM
- (4) PORTALES [USC00297008], Portales, NM
- (5) SILVERTON [USC00418323], Silverton, TX
- (6) BIG SPRING [USW00023041], Big Spring, TX
- (7) PLAINS [USC00417074], Plains, TX
- (8) LITTLEFIELD [USC00415265], Littlefield, TX

Influencing water features

This site receives runoff from surrounding uplands. Flooding occurs as overflow from heavy rainfall events. High water tables are not common but do occur on some of these sites for short periods of time after prolonged rainfall events.

Wetland description

N/A

Soil features

This site consists of very deep, well drained, alluvial soils on nearly level to very gently sloping flood plains and valley floors. This site is not frequently flooded but flooding does occur occasionally during major rainfall events. The soils range from dark colored loam or clay loam surfaces and clay loam subsurface layers or light colored fine sandy loam surfaces and sandy clay loam subsurface layers. Permeability is moderately rapid to moderate, and available water holding capacity is moderate. The inherent fertility of these soils is high and the root zone is easily penetrated by plant roots. Production capacity is moderately high.

Major Soil Taxonomic Units correlated to this site include: Baileyboro loam, Bippus clay loam, Sprone loam and clay loam , Levelland fine sandy loam (some old soil surveys may include Spur soils for this site)

Table 4. Representative soil features

Parent material	(1) Alluvium–metamorphic and sedimentary rock
Surface texture	(1) Loam (2) Clay loam (3) Sandy clay loam (4) Fine sandy loam
Family particle size	(1) Fine-loamy (2) Coarse-loamy
Drainage class	Well drained
Permeability class	Moderate to moderately rapid
Soil depth	203 cm
Surface fragment cover <=3"	0–1%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	13.46–19.3 cm
Calcium carbonate equivalent (0-101.6cm)	0–14%
Electrical conductivity (0-101.6cm)	0–3 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–2
Soil reaction (1:1 water) (0-101.6cm)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–3%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

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 compliment 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 illinoiensis), Maximilian sunflower (Helianthus maximilianus) 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.

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, cool-season 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 gullying 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 Transitional Pathways:
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. Changes may occur slowly or fairly rapidly, depending on the type of events that effect change. At some point in time thresholds are crossed, which means that once changes in vegetative makeup have progressed to a certain point, the balance of the community has been altered. When this point is reached, a return to the former community state is generally not possible – unless some significant energy inputs are provided to induce a response in that direction. These changes in plant communities occur on all ecological sites with some being more resistant to changes than other sites. Some sites seem to be more resilient and are more easily restored to former vegetative states than are other sites. Usually, changes in grazing management alone, such as improvement in grazing techniques, will not be sufficient to induce the desired change in plant communities. An example of energy input that might be needed to induce change might be the implementation of chemical brush management and complete growing season rest in order to reduce the domination of woody shrubs and promote the dominance of perennial grasses and forbs. This action might have to be done more than once and might take some time. Such a vegetative shift would not be possible with grazing management alone. The amount of energy input needed to effect change depends on present vegetation and the desired result.

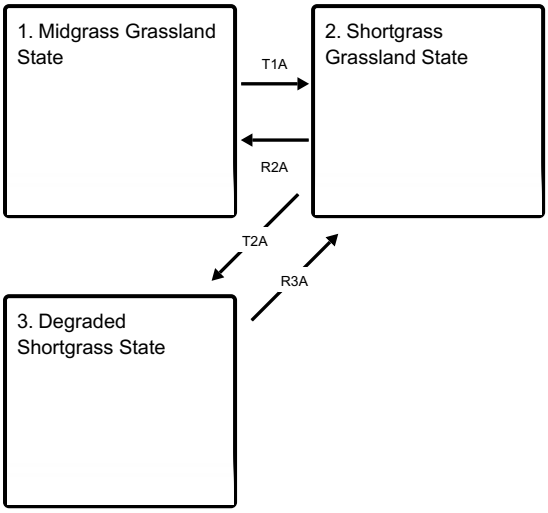
Plant Communities and Transitional Pathways (diagram):

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



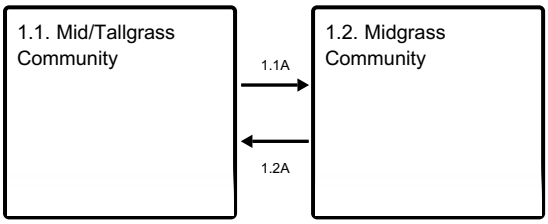
T1A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R2A - Adequate rest from defoliation and reintroduction of historic disturbance regimes

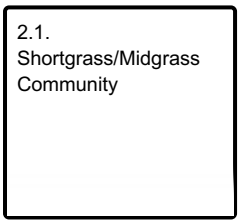
T2A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R3A - Adequate rest from defoliation and removal of woody canopy

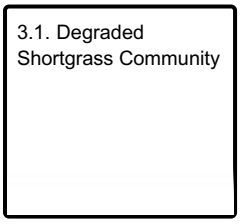
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Midgrass Grassland State

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, vine

mesquite, sideoats grama, along with smaller components of switchgrass and Indiangrass. There is always a compliment of blue grama and buffalograss present but it is relatively small in the reference community. There are also a few shrubs and trees present. The Midgrass Community (1.2) contains midgrass dominant plants like vine mesquite and western wheatgrass with scattered remnants of tallgrasses. There are also a few scattered shrubs and trees in this community as well.

Dominant plant species

- western wheatgrass (*Pascopyrum smithii*), grass
- vine mesquite (*Panicum obtusum*), grass

Community 1.1
Mid/Tallgrass Community

Figure 8. 1.1 Mid/Tallgrass Community

The interpretive or "reference" plant community for this site consists of mid and tall perennial grasses such as switchgrass, western wheatgrass, meadow dropseed, and vine mesquite. The community also has deep rooted perennial forbs and scattered woody shrubs and trees such as cottonwood and elm.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2802	3363	4483
Forb	224	336	448
Tree	39	45	67
Shrub/Vine	22	67	67
Microbiotic Crusts	11	11	22
Total	**3098**	**3822**	**5087**

Figure 10. Plant community growth curve (percent production by month). TX1007, Mid/tallgrasses - both cool/warm season. Mid and tallgrasses composed of both cool and warm seasons..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	10	20	20	20	8	6	5	4	2	2

Community 1.2
Midgrass Community

Figure 11. 1.2 Midgrass Community

This plant community is midgrass dominant with the main species being western wheatgrass and vine mesquite. There are scattered remnants of tallgrasses like Eastern gamagrass, Indiangrass and switchgrass. Forbs and scattered shrubs and trees are also present.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2074	3363	3923
Forb	67	168	224
Shrub/Vine	11	17	28
Tree	–	6	6
Microbiotic Crusts	6	6	6
Total	**2158**	**3560**	**4187**

Figure 13. Plant community growth curve (percent production by month). TX1008, Perennial Midgrass Community with scattered tallgrasses. Perennial midgrasses are dominant on this site with scattered remnants of tall grasses. Western wheatgrass and vine mesquite compose most of the composition..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	3	9	19	24	19	5	4	7	6	3	1

Pathway 1.1A
Community 1.1 to 1.2

Mid/Tallgrass Community **Midgrass Community**

With heavy continuous grazing pressure by livestock and wildlife, the Mid/Tallgrass Community shifts to the Midgrass Community.

Pathway 1.2A
Community 1.2 to 1.1

Midgrass Community

Mid/Tallgrass Community

With the implementation of the Prescribed Grazing conservation practice, the Midgrass Community can shift back towards the Mid/Tallgrass Community(1.1).

Conservation practices

Prescribed Grazing

State 2
Shortgrass Grassland State

This plant community is dominated by blue grama and buffalograss. There are a few pockets of western wheatgrass. There are also a half-shrubs and yucca invasion. This community has a low vigor and production potential.

Dominant plant species

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

Community 2.1
Shortgrass/Midgrass Community

Figure 14. 2.1 Shortgrass/Midgrass Community

This Shortgrass/Midgrass plant community is dominated by blue grama and buffalograss. There are a few pockets of western wheatgrass. False tarragon sagewort is beginning to increase. There is a brush invasion of half-shrubs and yucca. There is a low vigor and low production potential for this site. The hydrology of this site is negatively affected by the lack of cover and gully erosion is becoming more visible.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1121	1569	2242
Forb	56	84	146
Tree	–	17	28
Shrub/Vine	–	–	11
Microbiotic Crusts	6	6	11
Total	**1183**	**1676**	**2438**

Figure 16. Plant community growth curve (percent production by month). TX1009, Shortgrass Dominant. Shortgrass dominant species include blue grama and buffalograss..

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 Shortgrass State

This plant community consists of shortgrasses, forbs and annuals. Shrubs and half-shrubs are also present on this site. The acceleration of soil erosion has begun and gullies are visible.

Dominant plant species

- broom snakeweed (*Gutierrezia sarothrae*), shrub
- buffalograss (*Bouteloua dactyloides*), grass
- brome (*Bromus*), grass

Community 3.1
Degraded Shortgrass Community

Figure 17. 3.1 Degraded Shortgrass Community

This abused shortgrass plant community consists of degraded shortgrasses and annuals. Surface erosion is evident due to high percentage increase of bare ground. The hydrology is poor, erosion of channel banks occurring and total annual forage production is poor.

Table 8. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	560	897	1345
Forb	56	112	168
Shrub/Vine	6	11	22
Tree	–	–	11
Microbiotic Crusts	–	–	–
Total	**622**	**1020**	**1546**

Figure 19. Plant community growth curve (percent production by month). TX1010, Degraded shortgrasses and annuals. Low vigor shortgrasses with annual invasion. Limited production potential and very 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

With the continuous heavy grazing and no fire being practiced, the Midgrass Community will transition to the Shortgrass/Midgrass Community.

Restoration pathway R2A
State 2 to 1

With the implementation of various conservation practices such as Prescribed Grazing and Prescribed Burning conducted over a three to five year period, the Shortgrass/Midgrass Community can revert back to the Midgrass Grassland State.

Conservation practices

Prescribed Burning
Prescribed Grazing

Transition T2A
State 2 to 3

With heavy continuous grazing, brush invasion, no brush management, and no pest management, the Shortgrass/Midgrass Community will transition to the Degraded Shortgrass Community.

Restoration pathway R3A
State 3 to 2

The degraded shortgrass community can be restored to the Shortgrass Grassland State through the use of Prescribed Grazing, Brush Management, and Pest Management conservation practices.

Conservation practices

Brush Management
Integrated Pest Management (IPM)
Prescribed Grazing

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	**Cool Season Grasses**			1513–2466	
	western wheatgrass	PASM	*Pascopyrum smithii*	1261–2102	–
	Canada wildrye	ELCA4	*Elymus canadensis*	168–280	–
	Texas bluegrass	POAR	*Poa arachnifera*	62–106	–
2	**Tall/Midgrasses**			673–1121	
	vine mesquite	PAOB	*Panicum obtusum*	504–841	–
	switchgrass	PAVI2	*Panicum virgatum*	84–140	–
	Indiangrass	SONU2	*Sorghastrum nutans*	73–118	–
	eastern gamagrass	TRDA3	*Tripsacum dactyloides*	11–22	–
3	**Warm Season Midgrasses**			392–616	
	alkali sacaton	SPAI	*Sporobolus airoides*	168–280	–
	composite dropseed	SPCOC2	*Sporobolus compositus var. compositus*	84–140	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	84–140	–
	blue grama	BOGR2	*Bouteloua gracilis*	45–67	–
4	**Mid/Shortgrasses**			146–235	
	buffalograss	BODA2	*Bouteloua dactyloides*	34–56	–
	saltgrass	DISP	*Distichlis spicata*	34–56	–
	creeping muhly	MURE	*Muhlenbergia repens*	34–56	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	22–34	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	22–34	–
5	**Annual Grasses**			45–67	
	brome	BROMU	*Bromus*	45–67	–
Forb					
6	**Forbs**			168–336	
	Maximilian sunflower	HEMA2	*Helianthus maximiliani*	84–140	–
	bundleflower	DESMA	*Desmanthus*	84–140	–
	Forb, annual	2FA	*Forb, annual*	0–112	–
	sagebrush	ARTEM	*Artemisia*	62–106	–
	scarlet beeblossom	GACO5	*Gaura coccinea*	62–106	–
	American licorice	GLLE3	*Glycyrrhiza lepidota*	45–67	–
	curlycup gumweed	GRSQ	*Grindelia squarrosa*	45–67	–
	swamp sunflower	HEAN2	*Helianthus angustifolius*	45–67	–
	rose heath	CHER2	*Chaetopappa ericoides*	45–67	–
	Engelmann's daisy	ENPE4	*Engelmannia peristenia*	45–67	–
	slimflower scurfpea	PSTE5	*Psoralidium tenuiflorum*	45–67	–
	silverleaf nightshade	SOEL	*Solanum elaeagnifolium*	45–67	–
	Baldwin's ironweed	VEBA	*Vernonia baldwinii*	45–67	–
	hoary verbena	VEST	*Verbena stricta*	45–67	–

Shrub/Vine					
7	**Shrubs**			62–106	
	saltwater false willow	BAAN	*Baccharis angustifolia*	11–22	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	11–22	–
	Oklahoma plum	PRGR	*Prunus gracilis*	11–22	–
	willow	SALIX	*Salix*	11–22	–
	soapweed yucca	YUGL	*Yucca glauca*	11–22	–
Tree					
8	**Trees**			45–112	
	hackberry	CELTI	*Celtis*	11–28	–
	eastern cottonwood	PODE3	*Populus deltoides*	11–28	–
	western soapberry	SASAD	*Sapindus saponaria var. drummondii*	11–28	–
	American elm	ULAM	*Ulmus americana*	11–28	–

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. Quail use the tall and mid grasses for nesting cover. This site lacks shrubby cover for bobwhite quail, but if water holes are available, mourning doves will 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

Along 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

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.

Other references

J.R. Bell , USDA-NRCS Rangeland Management Specialist (retired)
Natural Resources Conservation Service - Range Site Descriptions
USDA-Natural Resources Conservation Service - Soil Surveys & Website soil database
Rathjen, Frederick W., The Texas Panhandle Frontier, Rev. 1998, Univ. of Texas Press
Hatch, Brown and Ghandi, Vascular Plants of Texas (An Ecological Checklist)
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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.

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	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:** Slight to moderate.

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2. **Presence of water flow patterns:** Slight to moderate.

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3. **Number and height of erosional pedestals or terracettes:** Slight to moderate.

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:** Slight to moderate.

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

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):** Moderate resistance to surface erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Fine Sandy Loam, Loam or clay loam; friable surface; and 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 moderate interspaces should make rainfall impact minimal. This site has moderate permeability, runoff is slow to medium, and available water holding capacity is high.

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: Cool-season grasses >>

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

    Other: Forbs > Shrubs/Vines = Trees

    Additional:

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.

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

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 2,200 to 2,800 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:** Yucca, Baccharis, and Broom snakeweed can become invasive.

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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 or intense wildfires.
