

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION



ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Very Shallow

Site ID: R077AY013TX, (formerly R077AY099OK in Oklahoma)

Precipitation or Climate Zone: Annual Precipitation: 16 – 22 inches

Oklahoma Counties: Beaver, Cimarron, Ellis, Harper, Roger Mills, Texas, Woodward

Original Site Description Approval:

Oklahoma: 1/12/1961

Authors: C.E. Kingery, NRCS (Ret), Fred Wittington, NRCS, (Ret).

Texas: 1992

Authors: J.R. Bell, Range Conservationist, NRCS

Revisions:

Author: J.R. Bell, Range Conservationist, NRCS

Date: 9/1/2003

Technical Editors:

Mark Moseley, State Range Conservationist, NRCS
Dr. Jack Eckroat, Grazing Lands Specialist, NRCS

Physiographic Features:

Narrative: This site is upland. It occurs along ridge tops and above major escarpments. Slopes are moderate to moderately steep. Soils are very shallow with caliche fragments throughout. The caliche beds in which the site occurs may be fairly soft or indurated. The site is generally located in the upper Ogallala formation. It often occurs immediately above hard caliche outcrops of the high plains escarpment and in the erosional slopes just below.

Land Form: (1) Hills

	Minimum	Maximum
Elevation (feet):	2500	4500
Slope (percent):	1	12
Water Table Depth (inches):	N/A	N/A
Flooding:		
Frequency:	None	
Duration:	N/A	
Ponding:		
Depth (inches):	None	
Frequency:	N/A	
Duration:	N/A	
Runoff Class:	Moderately Rapid	Rapid
Aspect:	Slopes	Ridgetops

Climatic Features:

Narrative: The climate is semiarid continental. Summers are hot and winters are generally mild. Temperature extremes are common. Humidity is generally low, and short-term droughts are common. Wind 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. Most of the precipitation occurs from May to September. Rainfall events often occur as intense thunderstorms of relatively short duration. Snowfall average is about 13 inches. Long-term droughts occur every 15 to 20 years and may last from 4 to 5 years. The growing season averages 195 days. Average first frost is around October 22, and the last freeze of the season occurs around April 1.

	Minimum	Maximum
Frost-free period (days):	195	210
Freeze-free period (days):	190	200
Mean annual precipitation (inches):	16	21

Monthly precipitation (inches) and temperature (°F)

	Mean precipitation (in)	Percent precipitation (%)	Avg. Daily Maximum Temperature (°F)	Avg. Daily Minimum Temperature (°F)	Mean temperature (°F)
January	0.50	2.6	49.3	22.0	35.6
February	0.63	3.2	54.7	26.9	40.8
March	1.10	5.7	63.2	33.3	48.2
April	1.40	7.3	73.8	43.9	58.8
May	3.10	16.1	81.4	53.1	67.2
June	3.15	16.4	88.9	62.1	75.5
July	3.20	16.7	91.7	66.5	79.1
August	2.10	11.0	89.4	64.7	77.0
September	1.45	7.5	82.6	57.6	70.1
October	1.26	6.5	74.0	46.0	60.0
November	0.71	3.7	61.5	34.3	47.9
December	0.54	2.8	52.8	25.4	39.0
Mean annual	19.14	100.0	71.9	42.9	58.2

Climate Stations:

Station ID	Location	From	To
TX 8523	Spearman, TX	1920	1999
OK 3628	Hooker, OK	1948	1999
TX 3787	Gruver, TX	1941	1995

Influencing Water Features: N/A

Wetland Description: None
 (Cowardin System)

Stream Types: None. It has no surface water features.
 (Rosgen System)

Representative Soil Features:

Narrative: The Potter and Plack soils on this site are very shallow, well drained, calcareous, gravelly soils. They commonly have light colored, gravelly loam surfaces over thick beds of caliche. Caliche may be soft or petrocalcic horizons (indurated caliche) may be present. Permeability of the surface layer and soft caliche is moderate. Petrocalcic horizons are impermeable. Available water holding capacity is very low and the inherent fertility is low. Plant growth and production is restricted by shallow depth.

Parent Materials:

Kind: Thick beds of caliche associated with the upper Ogallala formation.

Origin: Upper Ogallala formation (leached carbonates of aeolian origin).

Surface Texture: (1) Loams
(2) Gravelly loams

Surface Texture Modifier: (1) gravelly

Subsurface Texture Group: loams, fine sandy loams with concentrations of CaCO₃

Surface Fragments < = 3" (% Cover): 15 – 30 %

Surface Fragments > 3" (% Cover): 3 – 5 %

Subsurface Fragments < = 3" (% Volume): 15 %

Subsurface Fragments > 3" (% Volume): 5 %

Drainage Class: well-drained

Permeability Class: moderately slow to moderately

	Minimum	Maximum
Depth (inches):	4	12
Electrical Conductivity (mmhos/cm):	0–2	0–2
Sodium Absorption Ratio:	--	--
Soil Reaction (1:1 Water):	8.2	8.5
Soil Reaction (0.1M CaCl₂):	--	--
Available Water Capacity (inches):	0.4	0.8
Calcium Carbonate Equivalent (%):	20	55

Representative Soils: Potter and Plack.

Plant Communities: Ecological Dynamics of the Site

The presumed Historic Plant Community (HPC) is a mixture of grasses, forbs and low growing shrubs. Vegetation is generally sparse. Soil depth limits plant density. Areas of bare ground are common. The limey nature of the soil further defines the species occupying the site. The plant community is more productive where less limey conditions occur. Production is low and palatability of forage is less than sites with deeper soil resources. Tall, mid, and short grass species are found on the site along with several species of forbs and shrubs. Little bluestem and sideoats grama are often the most common grasses. However, other grasses such as hairy grama, blue grama, New Mexico feathergrass, and perennial threeawn are also frequently present, with occasional plants of sand bluestem and Indiangrass. The more common shrubs are feather dalea, skunkbush sumac, and one-seeded juniper. Small amounts of mountain mahogany and plains greasebush may occur on areas along escarpment edges. Areas occur within the site where the shrubs may be quite visible and make up a relatively large percent of the total biomass. Generally, forbs are relatively well dispersed throughout the site. This site is not a preferred grazing area for most domestic livestock. Plants that grow on shallow, limey soil tend to be less palatable compared to the same plants growing on deep, fertile soil. Nutrients are probably tied up by the large amounts of lime present, and are not available to plants. This site is seldomly grazed as heavily as associated upland sites. Very Shallow sites are frequently utilized by browsing species such as deer and pronghorn.

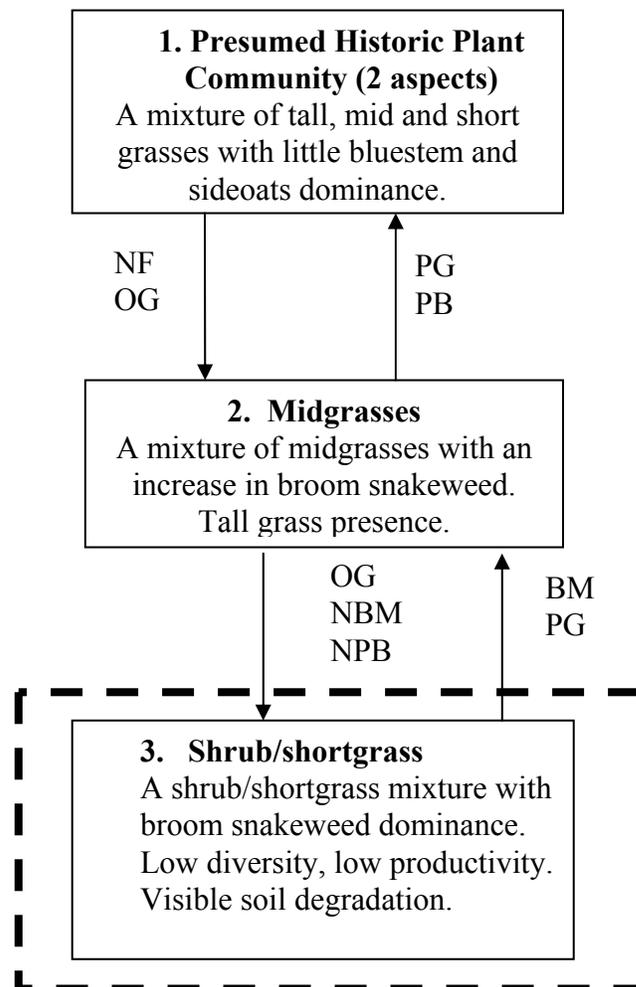
Natural fire played a role in the ecology of the site as is true for most high plains sites. The general effects of fire promoted grasslands and kept woody shrubs suppressed. However, the shallow limey soils on this site have much more influence on the plant community than does external ecological influences. The sparse vegetation and lower production probably limits heat generated by natural fires and therefore may have limited the degree of damage to woody plants. When burned periodically, tall grasses tend to benefit while shrubs are suppressed for a few years. It takes this site longer to recover from a burn than some associated sites. If the site

is abused, the general trend is for the taller grasses to decline and shrubby species to increase. Droughts also impact production and composition.

Broom snakeweed is cyclic depending upon moisture availability in the fall and winter, and to an extent, grazing. Wet falls and winters, when warm season plants are dormant, foster large increases in broom snakeweed. Grasses that decline through overgrazing exacerbates the problem. Increased bare ground results in increased runoff. It is somewhat uncommon to find this site severely degraded due to grazing abuse, but it can occur. Although the site is not subject to wind erosion due to coarse fragments on the surface, water erosion can occur with poor cover. A general droughty condition will prevail as a result of this erosion, and it will be very difficult to restore a plant community resembling the HPC once severe degradation has taken place. This site has limited production potential. If degraded, the site quickly loses its ability to support sufficient cover to protect the soil resource.

State and Transition Diagram:

Narrative: The following diagram suggests some pathways that vegetation on this site might take under different disturbances. 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.



Legend: NF - no natural fire, NBM - no brush management, OG – overgrazing, NPB - no prescribed burning, PG - prescribed grazing, PB - prescribed burning, BM - Brush management, Threshold -



Plant community changes in structure and composition of a site may result from management practices and natural occurrences. At some point in time, thresholds can be crossed. Once community changes have progressed beyond a threshold limit, the community has been altered to the extent that a return to the former state is not possible unless some form of energy is applied. These changes take place on all ecological sites, but some sites support communities that are more resistant to change than others. Also, some sites are more resilient. These sites tend to be able to heal or restore themselves more easily. Sometimes, changes in management practices alone, such as grazing programs, will not be sufficient to restore former plant communities. An example of energy input might be the implementation of chemical 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 accomplished with grazing alone. The amount of energy required to bring about a change in a plant community balance may vary a great deal depending on the present state and upon the desired result.

As it relates to this site, absence of fire combined with drought and/or heavy grazing pressure will result in a decrease of tallgrasses and an increase in shrubs. It may take considerable time to affect plant community change, or these changes may occur within a few years. If this shift has not gone too far, re-introduction of prescribed burning and proper grazing practices can restore the community to tallgrass, midgrass dominance. Prolonged overgrazing grazing with no rest, and no control of shrubs, can cause this site to degrade into a shrub-dominant site with few short grasses present. When this site degrades to this state, it probably cannot be restored with management alone. Normally, the low productivity of the site precludes practices such as reseeding and brush management.

Plant Community Name: Very Shallow HPC, Mixture of tall, mid and short grasses with forbs and a few shrubs.



Photo Plant Community: Very Shallow, HPC, Aspect 1

Narrative:

This photo represents the plant community for this site and is the presumed HPC. It is difficult to describe a definite community as the amount of soil material over parent material is variable. The depth of soil influences the species more than any other factor. The tall grasses, such as sand bluestem and Indiangrass, usually occur in crevices or fissures in the rock. A moderate amount of forbs are present and are well distributed. Shrubs comprise approximately 5 -10 % of the production, but may be localized in occurrence. This community is very stable and shifts very little from year to year. The site is dominated by little bluestem and a smaller component of short grasses. Major shrubs are feather Dalea and yucca. Forbs include plains actinea and echinacea. This particular site is gently sloping and has a topsoil depth of 8 - 10 inches, which is slightly greater in depth than some very shallow sites. This photo exhibits excellent production for a Very Shallow site although the diversity shown here is not as great as some locations may exhibit.

Plant Community Name: Very Shallow HPC, Little bluestem dominant



Photo Plant Community: Very Shallow HPC, Aspect 2:

Narrative: This photo shows another aspect of the Very Shallow presumed HPC. The difference between this aspect (2) and aspect 1 is that (even though it is still little bluestem dominant) it is on steeper slopes with less soil development. The decrease in plant density shown, compared to Plant Community Aspect 1, is due to the lack of soil development related to slope. Grasses in foreground are New Mexico feathergrass and Wright's threeawn. Shrubs are few, but include feather dalea, one-seeded juniper and skunkbush.

Annual Production by Plant Type: Air Dry Weight in lbs. per acre

Plant Type	Low	RV	High
Grass/Grasslike	400	645	845
Forbs	40	70	90
Shrub/Vine	30	35	45
Tree	0	0	0
Lichen	--	--	--
Moss	--	--	--
Microbiotic Crusts	0	5	5
TOTAL	470	750	985

Growth Curve Number: OK001

Growth Curve Name: Warm season tall and midgrass

Growth Curve Description: HPC Warm Season Tall and midgrasses

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	4	7	20	24	18	9	12	5	2	1

Annual Production by Plant Type: Air Dry Weight, pounds per acre

Plant Type	Low	RV	High
Grass/Grasslike	520	750	960
Forbs	35	80	120
Shrub/Vine	25	60	75
Tree	0	3	5
Microbiotic Crusts	10	15	20
TOTAL	590	908	1180

Plant Species Composition:

Grasses and Grasslike

Group	Common Name	Scientific Name	Group Annual Production (lbs/ac)
1	sideoats grama	<i>Bouteloua curtipendula</i>	425
1	little bluestem	<i>Schizachyrium scoparium</i>	
2	hairy grama	<i>Bouteloua hirsuta</i>	180
2	blue grama	<i>Bouteloua gracilis</i>	
2	slim tridens	<i>Tridens muticus</i>	
2	sand dropseed	<i>Sporobolus cryptandrus</i>	
2	black grama	<i>Bouteloua eriopoda</i>	
3	New Mexico feathergrass	<i>Hesperostipa neomexicana</i>	73
3	Wright's threeawn	<i>Aristida wrightii</i>	
4	Indiangrass	<i>Sorghastrum nutans</i>	63
4	sand bluestem	<i>Andropogon hallii</i>	

Forbs

Group	Common name	Scientific Name	Group Annual Production (lbs/ac)
5	half-shrub sundrop	<i>Calylophus serulatus</i>	78
5	plains actinea	<i>Tetranneuris scaposa</i>	
5	blacksamson echinacea	<i>Echinacea angustifolia</i>	
5	dotted gayfeather	<i>Liatris punctata</i>	
5	plains blackfoot	<i>Melampodium leucanthum</i>	
5	fendler penstemon	<i>Penstemon fendleri</i>	
5	longleaf buckwheat	<i>Eriogonum longifolium</i>	
5	wild alfalfa	<i>Psoraleidum tenuiflorum</i>	
5	primrose sp.	<i>Oenothera spp.</i>	
5	mentzelia	<i>Mentzelia strictissima</i>	
5	broom (yellow) nailwort	<i>Paronychia virginica</i>	
5	rock daisy	<i>Melampodium cinereum</i>	
5	Lambert's loco	<i>Oxytropis lambertii</i>	
5	chalkhill woollywhite	<i>Hymenopappus flavescens</i>	
5	annual forbs	A AFF	
5	Mexican sagewort	<i>Artemisia ludoviciana</i>	
5	baby-white aster	<i>Chaetopappa ericoides</i>	
5	trailing ratany	<i>Krameria lanceolata</i>	
5	Gordon's bladderpod	<i>Lesquerella gordonii</i>	
5	euphorbia sp.	<i>Euphorbia spp</i>	
5	tragia (noseburn)	<i>Tragia ramosa</i>	
5	white milkwort	<i>Polygala alba</i>	
5	Jame's rushpea	<i>Hoffmannseggia glauca</i>	
5	Texas croton	<i>Croton texensis</i>	
5	wooly evolvulus	<i>Evolvulus nuttallianus</i>	

Shrubs, Vines and Trees

Group	Common name	Scientific plant name	Group Annual Production
6	catclaw mimosa	<i>Mimosa acutleaticarpa</i>	53
6	plains yucca	<i>Yucca glauca</i>	
6	mountain mahogany	<i>Cercocarpus montanus</i>	
6	feather Dalea	<i>Dalea formosa</i>	
6	skunkbush	<i>Rhus trilobata</i>	
6	plains greasebush	<i>Glossopetalon planitierum</i>	
6	broom snakeweed	<i>Gutierrezia sarothrae</i>	
6	ephedra sp.	<i>Ephedra spp.</i>	
6	plains pricklypear	<i>Opuntia polyacantha</i>	
7	hackberry	<i>Celtis occidentalis</i>	5
7	one-seeded juniper	<i>Juniperus monosperma</i>	

Structure and Cover

Soil Surface Cover

Basal Cover				Non-Vascula Plants	Biological Crust	Litter	Surface Fragments >1/4 & <= 3"	Surface Fragments > 3"	Bedrock	Water	Bare Ground
Grass/Grasslike	Forb	Shrub/Vine	Tree								

Ground Cover

Vegetative Cover						Non-Vegetative Cover					
Grass/Grasslike	Forb	Shrub/Vine	Tree	Non-Vascular Plants	Biological Crust	Litter	Surface Fragments >1/4 & <= 3"	Surface Fragments > 3"	Bedrock	Water	Bare Ground

Structure of Canopy Cover

	Grass/Grasslike	Forb	Shrub/Vine	Tree
<= 0.5 feet				
>0.5 - <=1 feet				
>1 - <=2 feet				
>2 - <=4.5 feet				
>4.5 - <=13 feet				
>13 - <= 40 feet				
>40 - <=80 feet				
>80 - <= 120 feet				
>120 feet				

Plant Community Name: Very Shallow, Midgrass

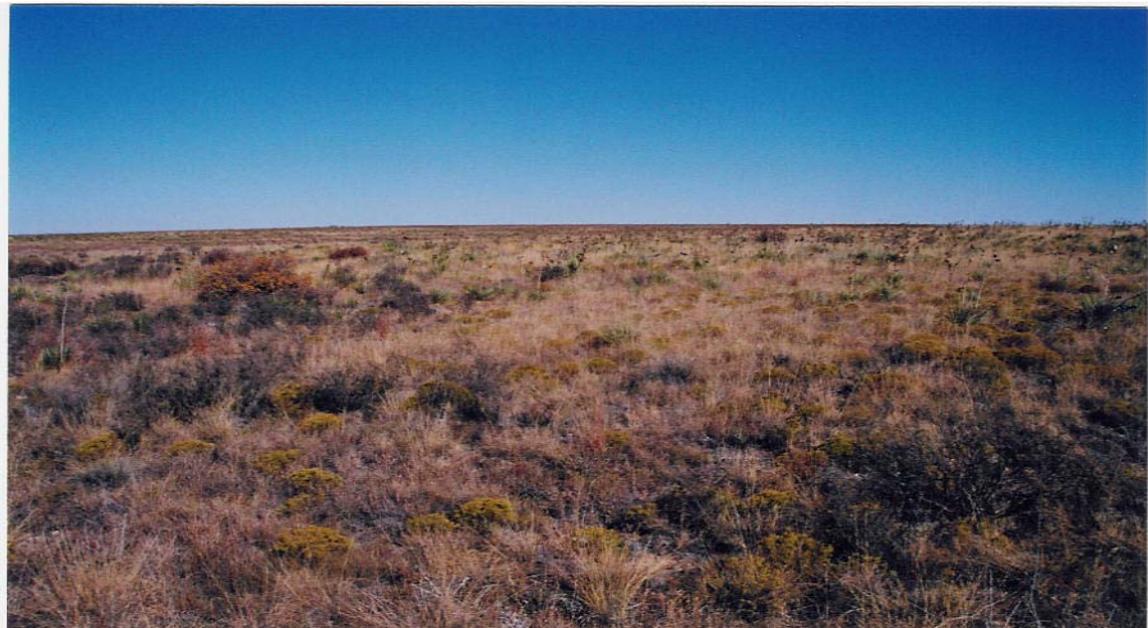


Photo Plant Community: Very Shallow, midgrasses

Narrative: This plant community is midgrass dominant with lesser amounts of shrubs. There is a small tallgrass presence. Forb diversity can be as high as 25 different species. Sideoats grama and Wright's threeawn are the dominant grasses. Some broom snakeweed is evident. Feather dalea and skunkbush sumac are present in localized areas. This photo's production depiction is average to above average for this site.

Annual Production by Plant Type: Air Dry Weight in lbs. per acre

Plant Type	Low	RV	High
Grass/grasslike	400	575	725
Forbs	30	75	100
Shrubs/Vines	25	40	65
Trees		0	0
Moss			
Lichen			
Microbiotic Crust	0	10	10
Total	475	700	900

Growth Curve Number: OK001

Growth Curve Name: Midgrasses and shrub

Growth Curve Description: Midgrasses and shrub, some broom snakeweed

Percent of annual growth per month:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	4	7	20	24	18	9	12	5	2	1

Plant Community Name: Very Shallow, Half-shrub and shortgrasses



Photo Plant Community: Very Shallow, Half-shrub and shortgrasses

Narrative: Broom snakeweed and shortgrasses dominate this site. Past grazing management has been inappropriate. This site will not be able to be restored to the presumed HPC conditions through management practices alone. This site is dominated by broom snakeweed with low vigor blue grama and perennial threeawn being the main grasses. Few forbs are present. Other shrubs include occasional yucca and catclaw mimosa. Production is low and so is diversity. This state is an example of a degraded site, with erosion damage. Even though there will be fluctuations of broom snakeweed densities over time due to climatic events, the seed source of higher seral plants are absent. Intervention, using herbicides and proper grazing management, can restore the vigor of blue grama and other remnant grasses.

Annual Production by Plant Type: Air Dry Weight in lbs. per ac

Plant Type	Low	RV	High
Grass/Grasslike	180	230	330
Forbs	25	30	35
Shrub/Vine	225	225	250
Tree	0	0	0
Lichen			
Moss			
Microbiotic Crusts	0	0	0
Total	430	485	615

Growth curve number: OK001

Growth curve name: Very Shallow, Half shrub/shortgrass

Growth curve description: Shrub/shortgrass

Percent of annual growth per month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	4	7	20	24	18	9	12	5	2	3

Ecological Site Interpretations:

Animal Community: Native animals that utilize this site include scaled quail, pronghorn antelope, coyote, jackrabbit, swift fox, Texas horned lizard, and mule deer. It is an open grassland site; therefore species that require lots of cover may not be present. Several palatable browse species commonly occur, such as sumac, mountain mahogany, and plains greasewood. It is not a preferred grazing site for most domestic livestock.

Plant preference by animal kind: This rating system provides general guidance as to animal preference for plant species. It also indicates possible competition between kinds of herbivores for various plants. Grazing preference changes from time to time, especially between seasons, and between animal kinds and classes. Grazing preference does not necessarily reflect the ecological status of the plant within the plant community.

Animal Kind: Cattle

Common Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
sideoats grama	Leaves	D	D	D	P	P	P	P	P	P	P	D	D
little bluestem	Leaves	U	U	U	D	P	P	P	D	D	D	D	U
hairy grama	Leaves	U	U	U	D	D	D	D	D	D	D	U	U
blue grama	Leaves	P	P	P	P	P	P	P	P	P	P	P	P
slim tridens	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
sand dropseed	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
Wright's threeawn	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
New Mexico feathergrass	Leaves	D	D	D	D	D	U	U	U	U	U	D	D
black grama	Leaves	D	D	D	D	P	P	D	D	D	D	D	D
Indiangrass	Leaves	D	D	D	P	P	P	P	P	P	P	D	D
sand bluestem	Leaves	D	D	D	P	P	P	P	P	P	P	D	D
half-shrub sundrop	Leaves				D	D	D	D	D	D	D	D	-
plains actinea	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
blacksamson Echinacea	Leaves	-	-	-	D	D	D	U	U	U	U	-	-
dotted gayfeather	Leaves				U	U	U	U	U	U	U		-
plains blackfoot	Leaves				U	U	U	U	U	U	U		-
catclaw sensitivebriar	Leaves				D	D	D	D	D				-
longleaf buckwheat	Leaves				U	U	U	U	U	U			-
slimflower scurfpea	Leaves				D	D	D	D	U	U			-
primrose sp.	Leaves				D	D	D	D	D				-
mentzelia	Leaves				U	U	U	U	U	U			-
broom nailwort	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
rock daisy	Leaves				U	U	U	U	U	U			-
Lambert's Loco	Leaves				U	U	U	U	U	U			-
chalkhill woollywhite	Leaves				D	D	U	U	U	U	U		-
annual forbs	Leaves				D	D	D	D	U	U			-
catclaw mimosa	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
plains yucca	Flowers	U	U	U	U	D	D	U	U	U	U	U	U
mountain mahogany	Leaf/Stem	U	U	U	U	D	D	D	U	U	U	U	U
feather dalea	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U
skunkbush	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U
plains greasewood	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U
broom snakeweed	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
ephedra sp.	Stems	D	D	D	D	D	D	D	D	D	D	D	D
hackberry	Leaf/Stem	U	U	U	U	D	D	D	D	D	U	U	U
one-seeded juniper	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U

Legend: C = cover P = preferred forage D = desirable forage U = undesirable forage

Animal Kind: Deer (mule deer)

Common Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
sideoats grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
hairy grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
slim tridens	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
sand dropseed	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
Wright's threeawn	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
New Mexico feathergrass	Leaves	U	U	D	D	U	U	U	U	U	U	U	U
black grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
Indiangrass	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
sand bluestem	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
half-shrub sundrop	Leaves	-	-	-	P	P	P	P	P	P	P	D	-
plains actinea	Leaves	U	U	U	D	D	U	U	U	U	U	U	U
blacksamson echinacea	Leaves	-	-	-	D	D	D	U	U	U	U	-	-
dotted gayfeather	Leaves	-	-	-	D	D	D	D	U	U	U	-	-
plains blackfoot	Leaves	-	-	-	D	D	U	U	U	U	U	-	-
catclaw sensitivebriar	Leaves	-	-	-	D	D	D	D	D	D	U	-	-
longleaf buckwheat	Leaves	-	-	-	U	U	U	U	U	U	U	-	-
wild alfalfa	Leaves	-	-	-	D	D	D	D	D	D	U	-	-
primrose sp.	Leaves	-	-	-	P	P	P	P	D	D	D	-	-
mentzelia	Leaves	-	-	-	D	D	D	U	U	U	U	-	-
broom nailwort	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
rock daisy	Leaves	-	-	-	D	D	D	D	U	U	U	-	-
Lambert's Loco	Leaves	-	-	-	U	U	U	U	U	U	U	-	-
Chalkhill woollywhite	Leaves	-	-	-	D	D	D	D	D	D	D	-	-
annual forbs	Leaves	D	D	D	P	P	P	P	P	D	D	D	D
catclaw mimosa	Leaves	U	U	U	D	D	D	U	U	U	U	U	U
plains yucca	Flowers	C	C	C	D	D	D	C	C	C	C	C	C
mountain mahogany	Leaf/Stem	U	U	U	P	P	P	D	D	D	U	U	U
feather dalea	Leaf/Stem	U	U	U	D	D	D	D	D	D	U	U	U
skunkbush	Leaf/Stem	C	C	C	D	D	D	D	D	D	C	C	C
plains greasebush	Leaf/Stem	U	U	U	P	P	P	D	D	D	U	U	U
broom snakeweed	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
ephedra sp.	Stems	D	D	D	D	D	D	D	D	D	D	D	D
hackberry	Leaf/Stem	U	U	U	P	P	P	P	P	P	U	U	U
one-seeded juniper	Leaf/Stem	CU											

Legend: C = cover P = preferred forage D = desirable forage U = undesirable forage

Animal Kind: Pronghorn Antelope

Common Name	Plant Part	J	F	M	A	M	J	J	A	S	O	N	D
sideoats grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
little bluestem	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
hairy grama	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
blue grama	Leaves	U	U	U	U	D	D	U	U	U	U	U	U
slim tridens	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
sand dropseed	Leaves	U	U	U	D	D	U	U	U	U	U	U	U
Wright's threeawn	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
New Mexico feathergrass	Leaves	U	U	D	D	U	U	U	U	U	U	U	U
black grama	Leaves	U	U	D	D	U	U	U	U	U	U	U	U
Indiangrass	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
sand bluestem	Leaves	U	U	U	U	U	U	U	U	U	U	U	U

Animal Kind: Pronghorn Antelope (continued)													
Common Name	Plant Part		F	M	A	M	J	J	A	S	O	N	D
half-shrub sundrop	Leaves	-	-	-	P	P	P	P	P	P	-	-	-
plains actinea	Leaves	U	U	U	D	D	D	U	U	U	U	U	U
blacksamson echinacea	Leaves	-	-	-	U	U	U	U	U	U	-	-	-
dotted gayfeather	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
plains blackfoot	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
catclaw sensitivebriar	Leaves	-	--	-	D	D	D	U	U	U	-	-	-
longleaf buckwheat	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
slim scurfpea	Leaves	-	--	-	D	D	D	D	D	D	-	-	-
primrose sp.	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
mentzelia	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
broom nailwort	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
rock daisy	Leaves	-	-	-	D	D	D	U	U	U	-	-	-
Lambert's Loco	Leaves	-	-	-	U	U	U	U	U	U	-	-	-
chalkhill woollywhite	Leaves	-	-	-	D	D	D	D	D	D	-	-	-
baby white aster	Leaves	D	D	D	P	P	P	P	P	P	P	P	D
annual forbs	Leaves	D	D	D	D	D	D	D	D	D	D	D	D
catclaw mimosa	Leaves	U	U	U	U	U	U	U	U	U	U	U	U
plains yucca	Flowers	U	U	U	U	D	D	U	U	U	U	U	U
mountain mahogany	Leaf/Stem	U	U	U	D	D	U	U	U	U	U	U	U
feather Dalea	Leaf/Stem	U	U	U	D	D	U	U	U	U	U	U	U
skunkbush	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U
plains greasebush	Leaf/Stem	U	U	U	D	D	U	U	U	U	U	U	U
broom snakeweed	Leaves	U	U	D	D	D	U	U	U	D	D	U	U
ephedra sp.	Stems	D	D	D	D	D	D	D	D	D	D	D	D
hackberry	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U
one-seeded juniper	Leaf/Stem	U	U	U	U	U	U	U	U	U	U	U	U

Legend: C = cover P = preferred forage D = desirable forage U = undesirable forage

Hydrology Functions: This site often occurs above draws and along escarpments. Runoff from the site may enter major drainages. It is possible that some recharge water may enter through cracks and fissures in the indurated caliche substrate.

Recreational Uses: Hunting, Camping, Hiking, Birdwatching, Photography, Horseback Riding

Wood Products: No wood products are found on this site.

Other Products: At some locations, caliche is mined and used for road base. These are open pit mines and are usually relatively small.

Supporting Information:

Associated Site:

Site Name	Site ID	Site Narrative
Breaks	R077EY005TX	Upland site with a mixture of tall and mid grasses with a perennial forb component, and few shrubs or trees
Hardland	R077AY001TX	Upland site dominated by short grasses, blue grama dominate with few forbs and rarely any woody species present
Mixland Slope (Limey upland)	R077EYO61TX (077EY049OK)	Upland site with a mixture of warm season tall, mid-grass, perennial forbs and few woody species
Loamy	077AY006TX	Gently sloping to moderately sloping ridges and side slopes with short and mid-grass dominate and few tall grass and perennial and annual forbs. Few woody species present.

Similar Sites: Shallow, R077XY082OK. Upland site dominated by mixture of tall, mid, and short grasses. This site has more production than the very shallow site due to deeper soil.

State Correlation: Oklahoma and Texas

Inventory Data References: Inventory is based on long-term observation of well-managed ranges, range inventory data, and numerous historical accounts of vegetation present at time of settlement. Several years of clipping data and numerous old range inventories have been reviewed.

Type locality: The types are on private property. These localities are sensitive data.

Other references:

Natural Resources Conservation Service Range Site Descriptions

USDA-Natural Resources Conservation Service Soil Surveys

Vavra, Martin, William A. Laycock, and Rex D. Pieper, ed. *Ecological Implications of Livestock Herbivory in the West*. Denver: Society for Range Management, 1994.

Rathjen, Frederick W., *The Texas Panhandle Frontier*, Rev. 1998, Univ. of Texas Press

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Dr. Bob Gillen, Agricultural Research Service, Woodward, Oklahoma
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Site Description Approval:

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State Range Conservationist
Stillwater, Oklahoma

Homer Sanchez
State Range Conservationist
Temple, Texas

Appendix 1:

Ecological Reference Worksheet

Author(s)/participant(s): J. R. Bell, NRCS (Retired)

Reference site used? Yes (Presumed Historic Plant Community)

MLRA: 77A/E **Ecological Site:** Very Shallow, R077AY013TX (Formerly R070AY099OK)

Date: Sept. 2003

*Soil Organic Matter in this region is generally low on all sites. This is typical for this climate.

Indicators.

1. **Number and extent of rills:** There are few rills present.
2. **Presence of water flow patterns:** Not very discerable. Some patterns exist, but effects are minimal.
3. **Number and height of erosional pedestals or terracettes:** Few pedestals. Those present tend to be in areas of light cover (2 to 3 inches)
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground):** There is 20 to 25% bare ground. Bunchgrasses with bare interspaces of 8 to 15 inch diameters. 10 to 15% caliche cover over approximately 40% of the site.
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):** Very little litter movement. Hard rains may move litter up to 2 feet. Litter production on this site is limited.
8. **Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different):** Resistance is moderate. Presence of small rocks and pebbles increase stability.
9. **Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different):** Some soil aggregation, but generally weak. A horizon is dark brown and 4 to 8 inches thick. Low SOM (1 to 1.5%).
10. **Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff:** Bunchgrass cover and spatial distances has a positive affect on infiltration and helps reduce runoff. Shallow soils do not store much water.
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 weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to):** Mid, tall and some short bunchgrasses > perennial forbs > woody shrubs > cryptogamic crusts.
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Some decadence and mortality, but not excessive for the site. Bunchgrasses are expected to show some decadence.
14. **Average percent litter cover (15 %) and depth (.3 inches).** This site does not produce large amounts of litter.
15. **Expected annual production (this is TOTAL above-ground production, not just forage production):**500 - 1200 #/acre.
16. **Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”:** None. In a very degraded state, broom snakeweed can become dominant.
17. **Perennial plant reproductive capability:** All species can reproduce.

Rev. 12/15/2002