Ecological site R042AE281TX
Shallow, Mixed Prairie

Accessed: 05/11/2025

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.

Associated sites

R042AE277TX	**Igneous Hill and Mountain, Mixed Prairie** Can be adjacent to and in a higher position.
R042AE279TX	**Loamy Swale, Mixed Prairie** Can be adjacent to and in a lower position.
R042AE695TX	**Basalt Hill, Mixed Prairie** Can be adjacent to and in a higher position.

Similar sites

R042AE275TX	**Gravelly, Mixed Prairie** The reference plant community for the Gravelly (Mixed Prairie) has a higher production potential and a lower relative composition of woody plants than the Shallow (Mixed Prairie) site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

The site occurs on nearly level to hilly fan remnants, alluvial fans, and ballenas. Slopes range from 1 to 35 percent, but are mostly 1 to 8 percent. Runoff is low on slopes less than 1 percent, medium on 1 to 3 percent slopes, high on 3 to 5 percent slopes, and very high on slopes greater than 5 percent.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan (2) Fan remnant (3) Ballena
Flooding frequency	None
Ponding frequency	None
Elevation	4,500–6,000 ft

Slope	1–35%
Aspect	N, S

Climatic features

The average annual precipitation ranges from 15 to 17 inches and the annual total is highly variable from 8 to 30 inches. Most of the precipitation occurs as widely scattered thunderstorms of high intensity and short duration during the summer. Occasional precipitation occurs as light rainfall during the cool season. Annual snowfall ranges from 1-3 inches.

Mean annual air temperature is 61° F. Frost-free period ranges from 199 to 215 days (April-October). However, the optimal growing season occurs July through September as this period coincides with greater rainfall.

The average relative humidity in mid-afternoon is about 25 percent. Relative humidity is higher at night, and the average at dawn is about 57 percent. The sun shines 81 percent of the time in summer and 75 percent in winter. The prevailing wind is from the southwest. Average wind speed is highest, around 11 miles per hour, in March and April. The annual Class-A pan evaporation is approximately 82 inches.

Table 3. Representative climatic features

Frost-free period (average)	215 days
Freeze-free period (average)	230 days
Precipitation total (average)	17 in

Influencing water features

None.

Soil features

The site consists of very shallow to shallow loamy and calcareous soils that formed in gravelly alluvium weathered from mostly igneous materials. Depth to either the petrocalcic or duripan root restricting layers range from 7 to 20 inches. Permeability is moderate in the upper parts and very low in the root restricting layers. The soils have been mapped in Brewster, Culberson, Jeff Davis, and Presidio counties. The soil components correlated to the ecological site are within the following map units:

Boracho-Fowlkes-Russcotal complex, 5 to 16 percent slopes (Boracho component)
Boracho-Espy complex, 1 to 8 percent slopes (both components)
Boracho-Espy association, gently sloping (both components)
Boracho-Chilimol-Murray complex, 1 to 8 percent slopes (Boracho component)
Chinati extremely gravelly sandy clay loam, 10 to 30 percent slopes
Chinati-Boracho complex, 1 to 7 percent slopes (both components)
Chinati-Boracho complex, 5 to 15 percent slopes (both components)
Eppenauer-Russcotal-Espy complex (Espy component)

Table 4. Representative soil features

Parent material	(1) Alluvium–rhyolite
Surface texture	(1) Gravelly loam (2) Very gravelly loam (3) Extremely gravelly sandy clay loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to very slow

Soil depth	7–20 in
Surface fragment cover <=3"	30–50%
Surface fragment cover >3"	0–5%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	2–40%
Electrical conductivity (0-40in)	0–2 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	15–30%
Subsurface fragment volume >3" (Depth not specified)	0–2%

Ecological dynamics

The reference plant community for the Shallow (Mixed Prairie) ecological site is a warm season dominated mid and short grass grassland with scattered woody plants and forbs. Plant species composition and production varies with fluctuations in annual weather conditions, elevation, landform position, and the natural variability of the soils.

Depending on elevation and available soil moisture, the site can be dominated by either blue or black grama. Blue grama is generally found at higher elevations while black grama is common at lower elevations. However, they also coexist in many areas. Shrubs and trees are generally more concentrated in areas more proximal to the source of alluvium (hill or mountainside).

Much of the site most likely evolved with historically light grazing. Major grazers and browsers during the last two hundred years included mule deer, pronghorn antelope, jackrabbits, and potentially some transient desert bighorn sheep. There is a lack of sufficient evidence to determine whether large herbivores such as bison played a significant role in shaping the plant community. Lack of a sufficient source of perennial water may have limited their presence on the site and the surrounding area.

Given the fire sensitivity of black grama, the lower elevation range of the site most likely evolved with infrequent fire. At higher elevations, the blue grama dominated community may have evolved with a higher fire frequency since it is more fire resistant and is closely associated with the more frequently burned (historically) pinyon-juniper or Mountain Savannah vegetation zone. The natural fires that do occur are typically associated with dry lightening storms in early summer. They generally burn in a patchy mosaic pattern that is governed by terrain and amount of vegetation. Natural fires would have helped temporally suppress woody plants in some areas of the site.

Major ranching activity by settlers began in the Trans-Pecos region in the late 1800s, which coincided with the establishment of the railroad. The majority of the domestic livestock grazing during that time were cattle, sheep, and goats. Currently, cattle are the major domestic livestock grazers.

Improper grazing management will reduce the more palatable grasses and forbs and the amount of bare ground will increase. In some areas, woody plants will increase. In other areas, shrubs may not increase probably because of climatic limitations and or lack of available woody plant seed source. Introduction of Lehmann lovegrass has the potential to displace native grasses especially in disturbed areas that receive run in water.

The following diagram suggests general pathways that the vegetation on this site might follow. There are other plant communities and 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:

State and transition model

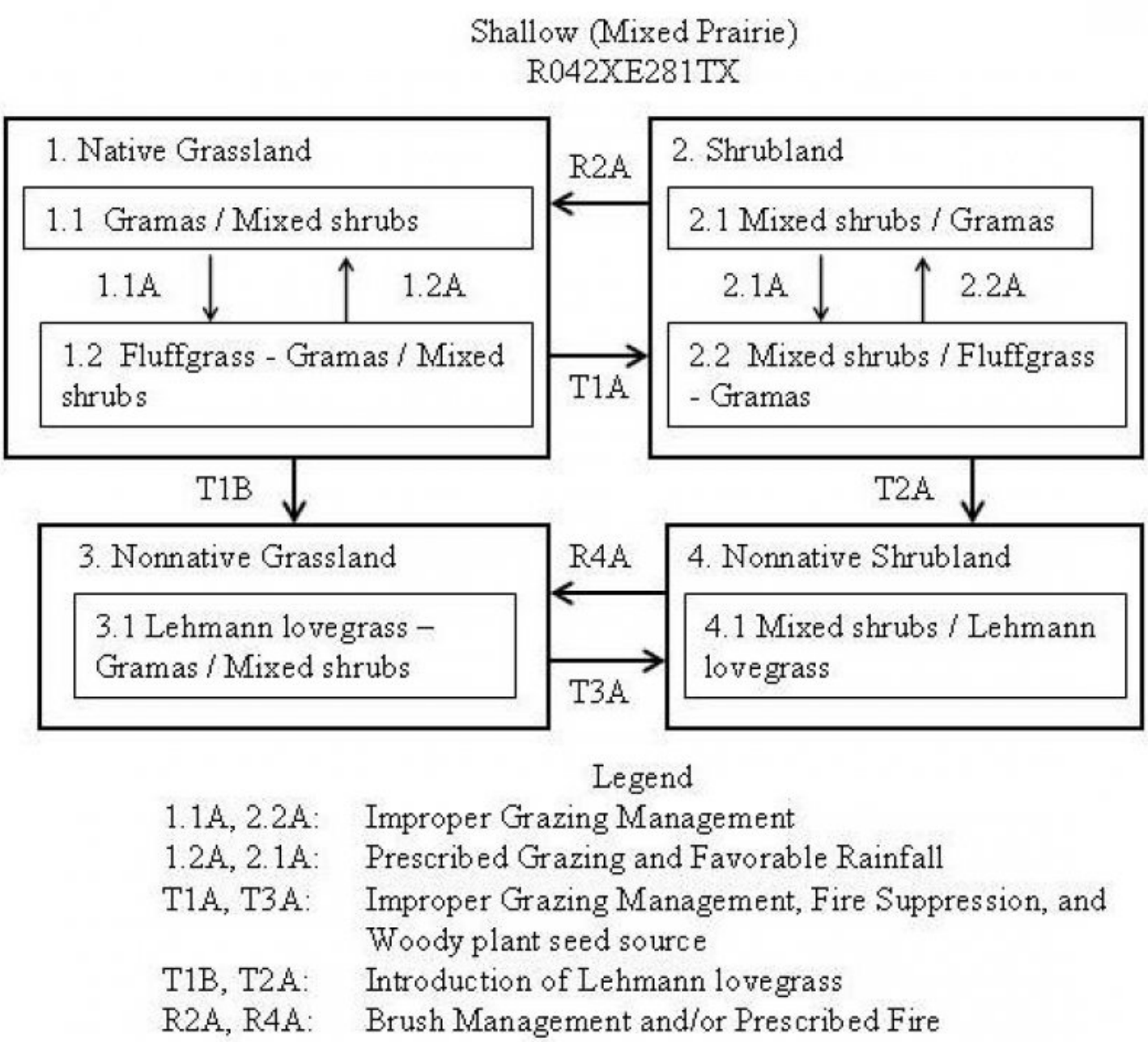


Figure 4. Shallow (Mixed Prairie) - State & Transition Diagr

State 1
Native Grassland State

Community 1.1
Gramas/Mixed Shrubs Community

Figure 5. 1.1 Gramas/Mixed Shrubs Community

This plant community phase is characterized by a grass canopy cover greater than 70 percent and shrub canopy cover of less than 25 percent. Plant composition will vary depending environmental variables such as elevation, soil properties, and landform position. Blue grama is common at higher elevations (~4700-5900 ft) or where soil moisture is adequate. Black grama is generally found at lower elevations (~4300-4700 ft) which is in a mixed prairie/desert grassland transition zone. Common grasses associated with blue and black grama include sideoats grama, cane bluestem, plains bristlegrass, and plains lovegrass. Common woody plants include javelinabush, sacahuista, sotol, western honey mesquite, creosotebush, juniper, and catclaw acacia. Recognition of a blue or black grama dominated community within the site is important since they respond differently to grazing pressure, fire, and fluctuations in seasonal weather patterns. Black grama is a short-lived stoloniferous grass that is more dynamic than the long-lived bunchgrass blue grama especially in its positive response to summer precipitation and warmer temperatures (Nelson 1934; Gosz and Gosz 1996). Black grama is also more sensitive to fire and grazing pressure than is blue grama (Reynolds and Bohning 1956). Experimental data has shown that blue grama can recover during the course of a summer following clipping and burning, while black grama usually requires several years of favorable moisture without disturbance to recover (Gosz and Gosz 1996). Within this plant community, percent bare ground should be less than 5 percent. A continuous vegetative cover of mostly perennial species will help maintain the integrity of ecosystem processes on the site such as nutrient cycling, energy capture, and hydrologic function. Prescribed fire may be a useful conservation practice in the blue grama grasslands but may not be very applicable in the fire sensitive black grama grasslands. However, black grama can slowly recover from infrequent fires if they are followed by a period of favorable moisture and grazing deferment. The community is suited for a prescribed grazing system that maintains the ecological integrity of the site.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	552	828	1104
Shrub/Vine	24	36	48
Forb	18	27	36
Tree	6	9	12
Total	**600**	**900**	**1200**

Table 6. Ground cover

Tree foliar cover	0-2%
Shrub/vine/liana foliar cover	4-15%
Grass/grasslike foliar cover	50-75%
Forb foliar cover	2-5%
Non-vascular plants	0%
Biological crusts	0%

Litter	20-30%
Surface fragments >0.25" and <=3"	30-50%
Surface fragments >3"	0-5%
Bedrock	0%
Water	0%
Bare ground	0%

Table 7. Soil surface cover

Tree basal cover	0-1%
Shrub/vine/liana basal cover	1-3%
Grass/grasslike basal cover	8-18%
Forb basal cover	1-2%
Non-vascular plants	0%
Biological crusts	0%
Litter	20-30%
Surface fragments >0.25" and <=3"	30-50%
Surface fragments >3"	0-5%
Bedrock	0%
Water	0%
Bare ground	1-5%

Table 8. Canopy structure (% cover)

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	–	–	1-5%	1-2%
>0.5 <= 1	–	–	35-45%	1-3%
>1 <= 2	–	1-5%	15-25%	–
>2 <= 4.5	–	3-10%	–	–
>4.5 <= 13	0-2%	–	–	–
>13 <= 40	–	–	–	–
>40 <= 80	–	–	–	–
>80 <= 120	–	–	–	–
>120	–	–	–	–

Figure 7. Plant community growth curve (percent production by month). TX0025, Grama Dominated Prairie with Scattered Shrubs. Black and blue grama dominant prairie with scattered sotol, lotebush, juniper, agarito, and cholla..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	3	4	8	12	18	18	17	10	3	3

Community 1.2
Fluffgrass - Gramas/Mixed shrubs Community

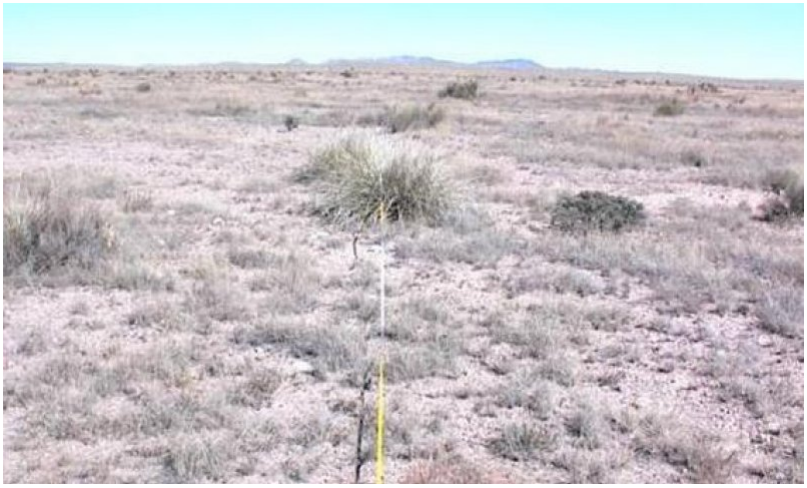
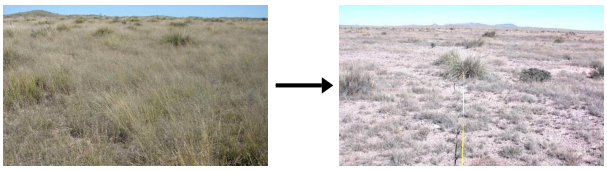


Figure 8. 1.2 Fluffgrass - Gramas / Mixed shrubs

This plant community phase is characterized by a grass cover ranging from 25-50 percent and a shrub canopy cover less than 25 percent. There is a decrease in grasses palatable to livestock including blue and black grama, plains bristlegrass and an increase in less palatable grasses such as fluffgrass, threeawns, and slim tridens. The decreasers are generally found in a patchy mosaic pattern. This transition is driven by improper grazing management and can be exacerbated by drought. Percent bare ground ranges from 15-25 percent. Depending on precipitation, annual forb production, increases within this phase. If management objective is to maintain the ecological site in the grassland state, this community phase can be considered “at risk” of crossing a compositional threshold into the Shrubland State 2 if an adequate woody plant seed source is present. Hydrologically, this phase may be shedding more runoff because of a decrease in herbaceous material. However, surface fragments help minimize soil erosion in places. In addition, reduced plant cover can lead to decreased soil organic matter, fertility, and higher soil temperatures. Conservation practices such as prescribed grazing especially during favorable weather and growing conditions can help the recovery of this phase. However, the rate of recovery will depend on the extent to which soil properties were altered during retrogression (Heitschmidt and Stuth 1991).

Pathway 1.1A
Community 1.1 to 1.2

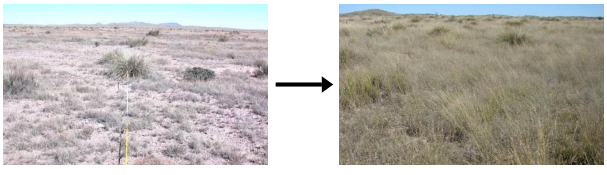


Gramas/Mixed Shrubs Community

Fluffgrass - Gramas/Mixed shrubs Community

Improper grazing management would lead to a Fluffgrass-Grama/Mixed Shrubs Community.

Pathway 1.2A
Community 1.2 to 1.1



Fluffgrass - Gramas/Mixed shrubs Community

Gramas/Mixed Shrubs Community

Prescribed Grazing and favorable rainfall would restore back to Gramas/Mixed Shrubs Community.

Conservation practices

Prescribed Grazing

State 2
Shrubland State

Community 2.1
Mixed shrubs/Gramas Community

The community phase is characterized by a woody plant canopy cover greater than 25 percent and a grass cover between 25-65 percent. This phase has transition from 2.2 from combination of prescribed grazing and a period of favorable weather will help allow some recovery of palatable grasses such as blue and black grama, and cane bluestem, and plains bristlegrass. Brush management treatments such as prescribed fire in places and/or mechanical/chemical treatments can help facilitate the transition the community back to the grass dominated State (1). However, steep slopes may limit brush management options.

Community 2.2
Mixed shrubs/Fluffgrass - Gramas Community

Figure 9. 2.2 Mixed shrubs/Fluffgrass - Gramas Community

Figure 10. Creosotebush - mariola dominant community

The community phase is characterized by a shrub canopy cover greater than 25 percent. Grasses are sparse and are dominated by early succession grasses such as fluffgrass, threeawns, and/or slim tridens. Grass cover ranges from 5-25 percent. Woody plant species that encroach vary within the range of the ecological site. Common increasers include catclaw acacia, western honey mesquite, juniper, creosotebush, viscid acacia, and mariola. Type of species that encroach will have different management implications. The causes of the shift from the grassland state to the shrubland state is probably the result of the combined effect of improper grazing management, fire suppression, and potentially changes in climate (Archer 1994; McCulley et al 2004). The time frame for this transition is probably about 100 years. The shift from grassland to a shrubland leads changes in important ecological processes such as hydrology and nutrient cycling. Plant essential elements such as nitrogen, potassium, and phosphorous tend to be redistribute under shrub canopies and non plant essential elements tend to concentrate in the intershrub spaces (Cross and Schlesinger 1999). Hydrologically, this phase may be shedding

more runoff because of a decrease in herbaceous material. However, surface fragments help minimize soil erosion in places. Conservation practices such as prescribed grazing especially during favorable weather and growing conditions can help the recovery of later succession grasses such as blue grama, black grama, sideoats grama, and cane bluestem. However, the recovery of these grasses is depended upon the extent to which the site has been modified, the availability of seed, and favorable rainfall.

Pathway 2.1A
Community 2.1 to 2.2

Improper grazing management would decrease the more palatable grama grasses and shift the community to a shortgrass community (2.2).

Pathway 2.2A
Community 2.2 to 2.1

Prescribed Grazing would shift back to Mixed-shrubs/Gramas Community.

Conservation practices

Prescribed Grazing

State 3
Non-native Grassland State

Community 3.1
Lehmann lovegrass - Gramas / Mixed shrubs Community

Figure 11. 3.1 Lehmann lovegrass - Gramas / Mixed shrubs Comm

This open grassland plant community differs from the reference plant community 1.1 by the presence of Lehmann lovegrass (*Eragrostis lehmanniana*), an introduced warm season bunchgrass with high seed production and a rapid growth rate. Some cultivars (A-68) have a stoloniferous growth form. Lehmann lovegrass prefers areas of the site that have predominantly sandy loam soils and where the daily mean minimum and maximum temperatures vary annually from 25 to 68ºF and from 55 to 100ºF, respectively (Cox et al. 1988). It can tolerate extreme low temperature around 0ºF, but not very often. Lehmann lovegrass's ability to displace native grasses and spread appears to be related to greater seedling drought tolerance and its ability to utilize winter moisture more efficiently than warm season native grasses (Anable et al. 1992; Archer and Predick 2008). Any future changes in climate that includes warmer temperatures and greater winter precipitation may facilitate the spread of Lehmann lovegrass. Palatability of Lehmann lovegrass is fair for domestic livestock. An area dominated by Lehmann lovegrass negatively alters the functional relationship between birds, their prey, and prey habitat (Flanders et al 2006). Eliminating Lehmann lovegrass from a site may be impossible. This community phase can potentially be prone to woody plant encroachment caused by a combined effect of fire suppression, improper grazing management, and woody plant seed source.

State 4
Non-native Shrubland State

Community 4.1
Mixed Shrubs - Lehmann lovegrass Community

This site is characterized by a shrub canopy cover of greater than 25 percent and Lehmann lovegrass with scattered native grasses. Woody plant species that encroach vary within the range of the ecological site. Common increasers include catclaw acacia, western honey mesquite, juniper, creosotebush, viscid acacia, and mariola. Type of species that encroach will have different management implications. The causes of the shift from the grassland state to the shrubland state seems to be the result of the combined effect of improper grazing management, fire suppression, and potentially changes in climate(Archer 1994; McCulley et al 2004). The time frame for this transition is probably about 100 years. Brush management can help restore the community to the nonnative grassland state. Brush management will be limited on steep slopes.

Transition T1A
State 1 to 2

With Improper Grazing Management, Fire Suppression, and woody plants seed source, the Native Grassland will shift to the Native Shrubland State.

Transition T1A
State 1 to 2

A combination of improper grazing management, fire suppression, and a woody plant seed source will transition the Grassland State to the Shrubland State.

Transition T1B
State 1 to 3

Introduction of Lehmann lovegrass

Transition T1B
State 1 to 3

With the introduction of Lehmann lovegrass, the native grassland state will shift to the non-native grassland state.

Restoration pathway R2A
State 2 to 1

With the implementation of Brush Management and/or Prescribed Fire, the Shrubland State can revert back to the Native Grassland State.

Conservation practices

Brush Management
Prescribed Burning

Restoration pathway R2A
State 2 to 1

Conservation practices

Brush Management
Prescribed Burning
Prescribed Grazing

Transition T2A
State 2 to 4

With the introduction of Lehmann lovegrass in the mix, the Native Shrubland State will shift to the Non-native Shrubland State.

Transition T3A
State 3 to 4

With improper grazing management, fire supression, and woody plant seed source, the Non-native Grassland State will transition to the Non-native Shrubland State.

Restoration pathway R4A
State 4 to 3

With Brush Management and/or Prescribed Fire, the Non-native Shrubland State will revert back to the Non-native Grassland State.

Conservation practices

Brush Management
Prescribed Burning

Additional community tables

Table 9. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant Shortgrasses**			300–600	
	black grama	BOER4	*Bouteloua eriopoda*	150–400	–
	blue grama	BOGR2	*Bouteloua gracilis*	150–300	–
2	**Dominant Midgrasses**			120–240	
	sideoats grama	BOCU	*Bouteloua curtipendula*	60–200	–
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	60–100	–
3	**Subdominant Midgrasses**			120–240	
	plains lovegrass	ERIN	*Eragrostis intermedia*	25–75	–
	green sprangletop	LEDU	*Leptochloa dubia*	25–75	–
	streambed bristlegrass	SELE6	*Setaria leucopila*	25–75	–
	southwestern needlegrass	ACEM4	*Achnatherum eminens*	15–50	–
	threeawn	ARIST	*Aristida*	15–50	–
4	**Subdominant Mid/shortgrasses**			60–120	
	sprucetop grama	BOCH	*Bouteloua chondrosioides*	15–45	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	15–45	–
	Hall's panicgrass	PAHA	*Panicum hallii*	15–45	–
	tobosagrass	PLMU3	*Pleuraphis mutica*	10–20	–
	common wolfstail	LYPH	*Lycurus phleoides*	10–20	–
	ear muhly	MUAR	*Muhlenbergia arenacea*	5–15	–
	sand muhly	MUAR2	*Muhlenbergia arenicola*	5–15	–

	burrograss	SCBR2	*Scleropogon brevifolius*	5–15	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	5–15	–
Shrub/Vine					
5	**Shrubs/Vines**			24–48	
	catclaw acacia	ACGR	*Acacia greggii*	1–5	–
	viscid acacia	ACNE4	*Acacia neovernicosa*	1–5	–
	javelina bush	COER5	*Condalia ericoides*	1–5	–
	tree cholla	CYIMI	*Cylindropuntia imbricata var. imbricata*	1–5	–
	Texas sacahuista	NOTE	*Nolina texana*	1–5	–
	pricklypear	OPUNT	*Opuntia*	1–5	–
	green sotol	DALE2	*Dasylirion leiophyllum*	1–5	–
	rough jointfir	EPAS	*Ephedra aspera*	1–5	–
	crown of thorns	KOSP	*Koeberlinia spinosa*	1–5	–
	western honey mesquite	PRGLT	*Prosopis glandulosa var. torreyana*	1–5	–
	woody crinklemat	TICAC	*Tiquilia canescens var. canescens*	1–5	–
	soaptree yucca	YUEL	*Yucca elata*	1–5	–
	Torrey's yucca	YUTO	*Yucca torreyi*	1–5	–
	creosote bush	LATR2	*Larrea tridentata*	1–3	–
	mariola	PAIN2	*Parthenium incanum*	1–3	–
	featherplume	DAFO	*Dalea formosa*	1–3	–
Tree					
6	**Tree**			6–12	
	redberry juniper	JUCO11	*Juniperus coahuilensis*	6–12	–
Forb					
7	**Perennials**			18–36	
	Forb, perennial	2FP	*Forb, perennial*	5–10	–
	grassland croton	CRDI6	*Croton dioicus*	1–3	–
	leatherweed	CRPO5	*Croton pottsii*	1–3	–
	polkadots	DYLI	*Dyschoriste linearis*	1–3	–
	tall buckwheat	ERTE9	*Eriogonum tenellum*	1–3	–
	beeblossom	GAURA	*Gaura*	1–3	–
	Gregg's tube tongue	JUPI5	*Justicia pilosella*	1–3	–
	menodora	MENOD	*Menodora*	1–3	–
	polygala	POLYG	*Polygala*	1–3	–
	woolly paperflower	PSTA	*Psilostrophe tagetina*	1–3	–
	pricklyleaf dogweed	THAC	*Thymophylla acerosa*	1–3	–
8	**Legumes**			1–3	
	Cooley's bundleflower	DECO2	*Desmanthus cooleyi*	1–3	–
9	**Annuals**			0–5	
	Forb, annual	2FA	*Forb, annual*	0–5	–
	bladderpod	LESQU	*Lesquerella*	0–1	–

Animal community

The reference plant community is suited for conservatively grazing livestock such as cattle, horses, burros, goats, and sheep. Livestock should be stocked in proportion to the grazeable grass, forbs, and browse. Improper grazing management, especially during droughts, causes a gradual decline in rangeland health and livestock nutrition.

Wildlife that use this site for at least a portion of their overall habitat needs include mule deer, pronghorn antelope, javelinas, bobcats, coyotes, black-tailed jackrabbits, cottontails, raccoons, ringtails, gray foxes, mice, and ground squirrels. Birds that use this site for at least a portion of their lifecycle include scaled quail, doves, raptors, and numerous song birds. Insects and reptiles also frequent the area.

Plant Preference by Animal Kind:
These preferences are general because plant preference is dependent upon grazing experience, time of year, availability of choices, and total forage supply.

Legend: P=Preferred D=Desirable U=Undesirable N=Not Consumed T=Toxic X=Used, but degree of utilization unknown
Preferred – Percentage of plant in animal diet is greater than it occurs on the land.
Desirable – Percentage of plant in animal diet is similar to the percentage composition on the land.
Undesirable – Percentage of plant in animal diet is less than it occurs on the land.
Not Consumed – Plant would not be eaten under normal conditions. Only consumed when other forages unavailable.
Toxic – Rare occurrence in diet and, if consumed in any tangible amounts, results in death or severe illness in animal.

Hydrological functions

Plant communities 1.1 (Gramas / mixed shrubs) and 2.2 (Mixed shrubs / gramas) provide optimum hydrologic function because of the high canopy cover of perennial grasses. Water runoff is limited and infiltration rates are maximized. However, runoff is inherently high on slopes greater than 5 percent. A deteriorated herbaceous component with increased bare ground and annuals will allow increased runoff and decreased water infiltration. The inherently high amount of rock fragments on the surface helps minimized soil loss.

Recreational uses

The site can be used for hiking, camping, and hunting.

Wood products

N/A.

Other products

N/A

Other information

N/A

Inventory data references

Information presented here has been developed from NRCS clipping, composition, plant cover, soils data, animal diet data, and ecological interpretations gained by field observation.

Other references

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Rangeland health reference sheet

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

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Date	04/16/2012

Approved by	Kent Ferguson
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, except following high intesity storms, when short (less than 1 m) and discontinuous flow patterns may appear. Flow patterns in drainages are linear and continuous.

3. **Number and height of erosional pedestals or terracettes:** Uncommon for this site under reference conditions.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Under reference conditions, bare ground usually ranges from 1-5%.

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):** On most of the site, minimal and short distance (<5ft) of litter movement associated with high intense rainfall.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability values ranging from 5 to 6.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Typically, surface horizon about 2 inches thick, very dark grayish brown with a weak fine platy structure.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** A high canopy cover of midgrass bunch and stoliniferous grasses will help minimize runoff and maximize infiltration. Grasses should comprise approximately 92% of total plant compostion by weight. Shrubs will comprise about 4% and by weight.

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:

    Sub-dominant:

    Other:

    Additional: Dominant shortgrasses > subdominant midgrasses > minor short/midgrasses = shrubs > trees > perennial forbs > annual forbs = misc. grasses

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** All grasses will show some mortality and decadence in addition to annual forbs. Mid/tall perennial shrubs will show some mortality or decadence only after prolonged and severe droughts. Subshrubs will be less resistant to severe droughts than mid/tall perennial shrubs.

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14. **Average percent litter cover (%) and depth (in):** Majority of litter cover will occur under plants.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 600-1200 lbs/ac depending on annual rainfall.

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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:** Dry climate generally prevents non-native species to encroach on this site. However, lehmann's lovegrass is known to invade some locations. Whitethorn acacia, catclaw acacia, creosotebush, and mariola are typical increasers within this site.

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17. **Perennial plant reproductive capability:** All species should be capable of reproducing except during severe droughts.
