

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Choppy Sands (North) (PE 16-20)

Site ID: R072XA003KS

Major Land Resource Area: 72 – Central High Tableland

Due to the climatic gradient (effective precipitation, growing season, etc.) within MLRA - 72, the plant communities will differ between the northern and southern portions of this major land resource area. A transition zone within these two areas generally lies on either side of the Smokey Hill River drainage. Judgement will need to be used when determining which Ecological Site Description best fits field conditions within this transition zone.



Physiographic Features

This site occurs on steep to very steep, somewhat unstabilized sand dunes. These sites are fragile and may have “blow-outs” or “white caps” scattered throughout. Hillslopes on this site are characteristically broken with a series of slope slips, often referred to as “catsteps” (a type of surface slippage caused by a combination of weak soil structure, foot traffic of heavy herbivores and gravity) giving it the appearance of large stair steps. The depth and height of these “catsteps” intensifies with increasing slope. Vehicular traffic is very limited on this site. This site produces runoff to areas lower on the landscape.

Landform: dune, hill

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	2500	5000
Slope (percent):	24	60
Water Table Depth (inches):	60	60
Flooding:		
Frequency:	none	none
Duration:	none	none
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	negligible	low

Climatic Features

Annual precipitation ranges from 16 to 20 inches per year. Hourly winds are estimated to average about 10 miles per hour annually, ranging from 15-30 miles per hour during the spring to 5-15 miles per hour during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 50 miles per hour.

	<u>Minimum</u>	<u>Maximum</u>
Frost-free period (days):	141	155
Freeze-free period (days):	161	174
Mean Annual Precipitation (inches):	16	20

Average Monthly Precipitation (inches) and Temperature (°F):

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.32	0.41	9.7	43.0
February	0.39	0.51	14.8	48.3
March	0.85	1.13	22.7	55.5
April	1.5	1.98	33.5	65.7
May	2.6	3.31	44.9	75.2
June	2.56	3.53	54.9	85.4
July	2.55	3.04	60.7	92.1
August	2.16	2.3	58.5	90.2
September	1.23	1.54	47.0	81.7
October	1.04	1.09	34.0	70.4
November	0.5	0.63	21.1	54.3
December	0.41	0.42	12.8	44.9

Climate Stations		Period	
Station ID	Location or Name	From	To
CO1121	Burlington, CO	1918	2001
CO9243	Wray, CO	1918	2001
KS3153	Goodland WSO, KS	1948	2001
NE4900	Lodgepole, NE	1948	2001
NE6065	North Platte WSO AP, NE	1948	2001

For local climate stations that may be more representative, refer to <http://www.hprcc.unl.edu> or <http://www.wcc.nrcs.usda.gov>.

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

These very deep soils have sandy surface layers and subsoils. Organic matter is very low to low throughout the soil profile. Soil structure is often loose and single-grained below the surface layer. These soils are excessively drained and the available water capacity is low. Carbonates are typically leached from these soils. If the vegetative cover on this site is disturbed, leaving the soil unprotected, it is highly susceptible to wind erosion and the formation of deep, concave blown-out areas. The slopes on this site dominantly range from 24 to 60 percent. Sides of the included blown-out areas can approach vertical slope.

The Historic Climax Plant Community (HCPC) should show slight to no evidence of rills. Water flow paths, if any, are broken, irregular in appearance or discontinuous. Wind scoured areas are inherent to this site and some soil movement may be noticeable on various landscape positions. Minor plant pedestalling may occur in these areas also. Sub-surface soil layers are non-restrictive to water movement and root penetration.

Major soil series correlated to this ecological site include: Tivoli (24 to 60 percent slopes), Valent (24 to 60 percent slopes)

Predominant Parent Material Kind: eolian sands

Parent Material Origin: mixed

Surface Texture: sand, fine sand

Surface Texture Modifier: none

Subsurface Texture Group: sandy

Surface Fragments $\leq 3''$ (% Cover): 0

Surface Fragments $> 3''$ (%Cover): 0

Subsurface Fragments $\leq 3''$ (% Volume): 0

Subsurface Fragments $> 3''$ (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	excessively	excessively
Permeability Class:	rapid	rapid
Depth (inches):	60	>80
Electrical Conductivity (mmhos/cm)*:	0	0
Sodium Absorption Ratio*:	0	0
Soil Reaction (1:1 Water)*:	6.6	7.8
Soil Reaction (0.1M CaCl₂)*:	N/A	N/A
Available Water Capacity (inches)*:	3.5	4.8
Calcium Carbonate Equivalent (percent)*:	0	0

*These attributes represent 0-40 inches in depth or to the first restrictive layer.

Plant Communities

Ecological Dynamics of the Site:

The plant community for this site is dynamic due to the complex interaction of many ecological processes. The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). The HCPC has been determined by the study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing strategies. Due to steepness of slope and soil texture, this site is more susceptible to erosion from disturbances such as drought, overstocking, and continuous grazing compared to associated sites.

Drought cycles have a major impact on the vegetation of this site. The species composition changes with the duration and severity of drought. Initially, shallow rooted species (blue grama) will die out and the deeper-rooted species (prairie sandreed, sand bluestem) persist. Sustained drought can result in a reduction of deeper rooted species. Loss of plant cover and increased bare ground creates the probability of wind erosion. Drought induced wind scouring coupled with disturbance (fire, continuous grazing, rodents, vehicle traffic) can lead to blow outs.

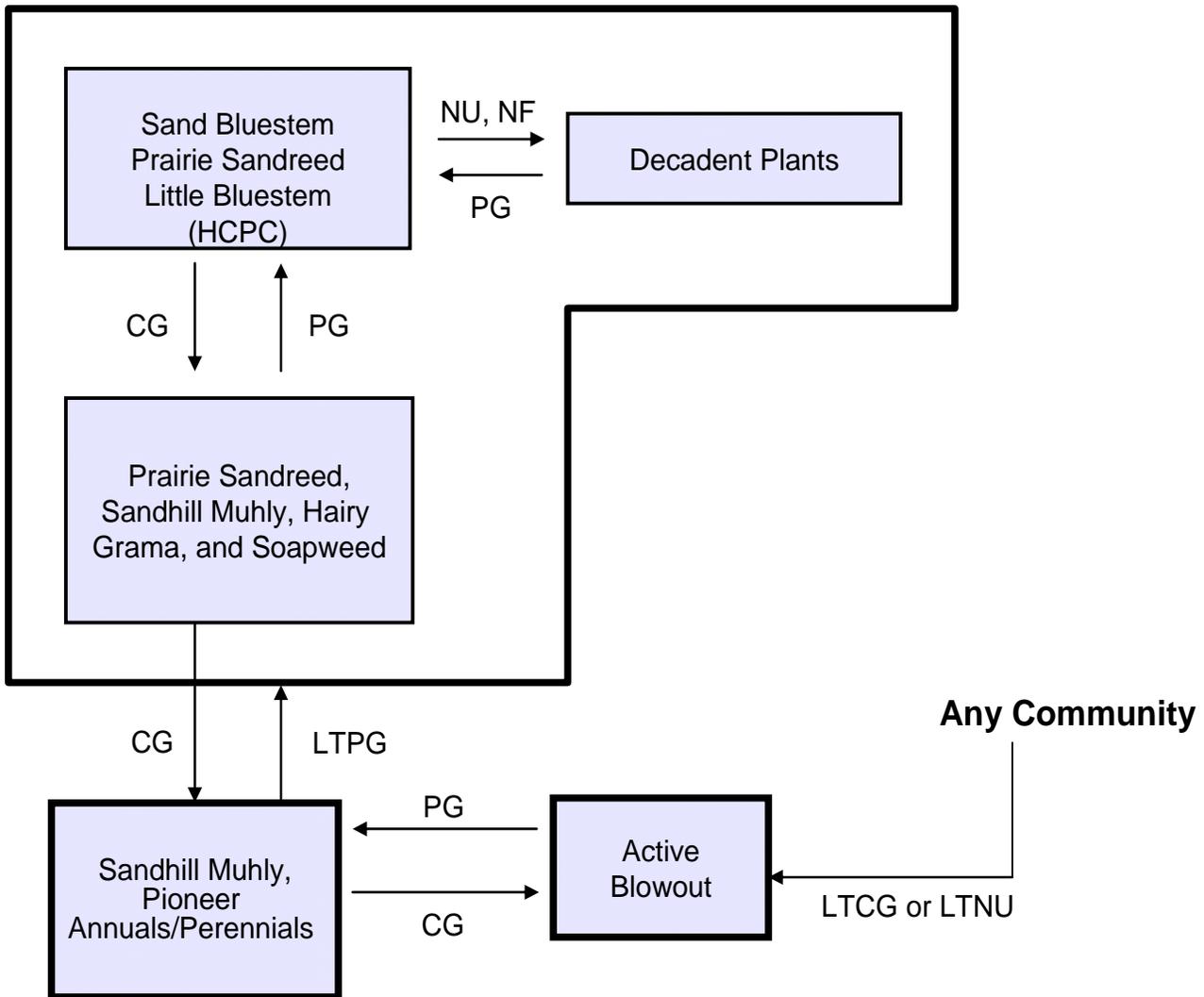
As a higher precipitation cycle returns, annuals like Texas croton, sunflower and other early successional plants such as blowout grass, lemon scurfpea, sandhill muhly, sand dropseed, and needleandthread that can better tolerate the movement of sand and drought conditions will establish. As these plants begin to stabilize the site, other perennial plants such as prairie sandreed, sand bluestem and blue grama reestablish.

It is believed that fires were infrequent, randomly distributed, and started by lightning at various times throughout the year when thunderstorms occurred. Pre-European inhabitants used fire as a management tool for attracting herds of large migratory herbivores (bison, elk, deer, and pronghorn).

Long term continuous grazing results in a shift from tall grass species to mid and short grass species. Sand dropseed, sandhill muhly, needleandthread, and hairy grama will increase while species such as prairie sandreed, sand bluestem, little bluestem, switchgrass, and Indiangrass will decrease in frequency and production. The use of grazing management that includes proper stocking and adequate recovery periods following each grazing event during the growing season will restore this site.

The following diagram illustrates the common plant communities that can occur on the site and the transition pathways (arrows) among communities. Bold lines surrounding each plant community or communities represent ecological thresholds. The ecological processes are discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways



CG - continuous grazing without adequate recovery periods, **HCPC** - Historic Climax Plant Community, **LTCG** – long term continuous grazing, **LTNU** - long term non-use(>25 years), **LTPG** - long term prescribed grazing with adequate recovery periods (>20 years), **NF** - no fire, **NU** - non-use, **PG** - prescribed grazing with adequate recovery periods

Plant Community Composition and Group Annual Production

COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Sand Bluestem, Prairie Sandreed, Little Bluestem (HCPC)		
			Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES			1	1330 - 1710	70 - 90
sand bluestem	Andropogon hallii	ANHA	1	190 - 570	10 - 30
prairie sandreed	Calamovilfa longifolia	CALO	1	285 - 475	15 - 25
blue grama	Bouteloua gracilis	BOGR2	1	0 - 190	0 - 10
hairy grama	Bouteloua hirsuta	BOHI2	1	95 - 190	5 - 10
needleandthread	Hesperostipa comata ssp. comata	HECOC8	1	95 - 190	5 - 10
switchgrass	Panicum virgatum	PAVI2	1	95 - 190	5 - 10
little bluestem	Schizachyrium scoparium	SCSC	1	95 - 190	5 - 10
Indiangrass	Sorghastrum nutans	SONU2	1	19 - 190	1 - 10
sand lovegrass	Eragrostis trichodes	ERTR3	1	0 - 95	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	1	19 - 95	1 - 5
sun sedge	Carex inops ssp. heliophila	CAINH2	1	19 - 57	1 - 3
sandhill muhly	Muhlenbergia pungens	MUPU2	1	19 - 57	1 - 3
sand paspalum	Paspalum setaceum	PASE5	1	19 - 57	1 - 3
blowout grass	Redfieldia flexuosa	REFL	1	19 - 57	1 - 3
sand dropseed	Sporobolus cryptandrus	SPCR	1	19 - 57	1 - 3
Indian ricegrass	Achnatherum hymenoides	ACHY	1	0 - 38	0 - 2
great plains flatsedge	Cyperus lupulinus	CYLU2	1	19 - 38	1 - 2
Scribner panicum	Dichantherium oligosanthes var. scribnerianum	DIOLS	1	19 - 38	1 - 2
Schweinitz's flatsedge	Cyperus schweinitzii	CYSC3	1	0 - 19	0 - 1
other perennial grasses		2GP	1	0 - 190	0 - 10
FORBS			2	95 - 285	5 - 15
Pacific peavine	Lathyrus polymorphus	LAPO2	2	19 - 38	1 - 2
silky prairie clover	Dalea villosa	DAVI	2	19 - 38	1 - 2
annual buckwheat	Eriogonum annuum	ERAN4	2	0 - 19	0 - 1
bigtop dalea	Dalea enneandra	DAEN	2	0 - 19	0 - 1
bracted spiderwort	Tradescantia bracteata	TRBR	2	0 - 19	0 - 1
common evening-primrose	Oenothera biennis	OEBI	2	0 - 19	0 - 1
lemon scurphea	Psoraleidium lanceolatum	PSLA3	2	19 - 38	1 - 2
tenpetal blazingstar	Mentzelia decapetala	MEDE2	2	19 - 38	1 - 2
Texas croton	Croton texensis	CRTE4	2	0 - 19	0 - 1
western ragweed	Ambrosia psilostachya	AMPS	2	19 - 38	1 - 2
snowball sand verbena	Abronia fragrans	ABFR2	2	0 - 19	0 - 1
green sagewort	Artemisia dracunculus	ARDR4	2	0 - 19	0 - 1
purple prairie clover	Dalea purpurea	DAPU5	2	19 - 38	1 - 2
gilia	Gilia spp.	GILIA	2	0 - 19	0 - 1
bush morning-glory	Ipomoea leptophylla	IPLA	2	0 - 19	0 - 1
othake	Palafoxia sphacelata	PASP	2	0 - 19	0 - 1
beardtongue	Penstemon spp.	PENST	2	19 - 38	1 - 2
ragwort	Senecio spp.	SENEC	2	0 - 19	0 - 1
whorled milkweed	Asclepias verticillata	ASVE	2	0 - 19	0 - 1
other perennial forbs		2FP	2	19 - 95	1 - 5
SHRUBS			3	95 - 285	5 - 15
leadplant	Amorpha canescens	AMCA6	3	38 - 95	2 - 5
sand sagebrush	Artemisia filifolia	ARFI2	3	19 - 38	1 - 2
fringed sagewort	Artemisia frigida	ARFR4	3	0 - 19	0 - 1
small soapweed	Yucca glauca	YUGL	3	19 - 38	1 - 2
skunkbush sumac	Rhus trilobata	RHTR	3	0 - 38	0 - 2
western sandcherry	Prunus pumila var. besseyi	PRPUB	3	0 - 38	0 - 2
brittle cactus	Opuntia fragilis	OPFR	3	0 - 19	0 - 1
western snowberry	Symphoricarpos occidentalis	SYOC	3	0 - 19	0 - 1
other shrubs		2SHRUB	3	38 - 95	2 - 5

Annual Production lbs./acre	LOW	RV*	HIGH
GRASSES & GRASS-LIKES	1020 -	1520	-1900
FORBS	90 -	190	-300
SHRUBS	90 -	190	-300
TOTAL	1200 -	1900	-2500

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. *RV = Representative value.

Plant Community Narratives

Sand Bluestem, Prairie Sandreed, Little Bluestem Plant Community

The Historic Climax Plant Community (HCPC) serves as the basis for all other interpretations. The potential vegetation of this community is a mixed grass prairie and consists chiefly, of tall and mid warm and cool season grasses. Approximately 70-90 % of annual production consists of grass and grass-like plants, 5-15% forbs and 5-15% shrubs. Sand bluestem, prairie sandreed and little bluestem are the primary species in this community. Secondary species include sandhill muhly, hairy grama, needleandthread, sand sagebrush and leadplant. The community has a diverse forb population.



Photo by Jeff Nichols, NRCS, Nebraska, 2008

This plant community is diverse and productive. The overall appearance of the rangeland is excellent and the water cycle is functioning properly. The plant litter is distributed evenly and provides protection from soil erosion, reduces evaporation from the soil surface and promotes good water infiltration. This plant community is well suited to drought conditions due to the species diversity.

Total annual production during an average year ranges from approximately 1200 to 2500 pounds of air dry vegetation per acre per year and will average 1900 pounds.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: KS7201

Growth curve name: Cool-season/ warm-season co-dominant; upland fine textured soils

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	10	20	30	20	10	5	3	0	0

Transitions or pathways leading to other plant communities are as follows:

- Continuous grazing without adequate recovery periods will convert this plant community to the *Prairie Sandreed, Sandhill Muhly, Hairy Grama and Soapweed Plant Community*. Vigor and production of tall warm season grasses and desirable shrubs are declining. Heavy grazing will result in a decrease in plant diversity, ground cover and an increase in annual grasses and forbs.
- Prescribed grazing with adequate recovery periods will maintain the *Sand Bluestem, Prairie Sandreed, Little Bluestem (HCPC) Plant Community*.
- Non-use and/or no-fire will convert this plant community to the *Decadent Plants Community*. Ground cover will increase as a result of higher amounts of litter, but plant cover decreases, as decadence and mortality become more prevalent. The increased ground cover reduces soil erosion and runoff.

Prairie Sandreed, Sandhill Muhly, Hairy Grama and Soapweed Plant Community

This plant community develops under continuous grazing without adequate recovery periods during the growing season. Sand bluestem, little bluestem, leadplant, and other desirable species rapidly lose productive capacity through loss of vigor and reproductive potential. Prairie sandreed and sandhill muhly are the dominant species, and increase to fill the voids left by the decrease of desirable species. Shrubs such as sand sagebrush and small soapweed also increase in this plant community.

Species diversity is reduced due to grazing pressures. With continuous grazing this plant community is at risk of losing tall warm season grasses and crossing an ecological threshold. If this occurs it will require considerable time and expense to return this community to a more productive condition. The potential for erosion remains the same. Desirable species have been replaced by less desirable species maintaining the plant cover.

Total annual production during an average year ranges from 500 to 1200 pounds of air dry vegetation per acre per year and will average 900 pounds.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: KS7207

Growth curve name: Warm-season dominant, cool season sub-dominant; upland coarse textured soils

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	20	35	20	10	3	2	0	0

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing with adequate recovery periods will move this plant community to the *Sand Bluestem, Prairie Sandreed, Little Bluestem (HCPC) Plant Community*
- Continuous grazing will move this plant community to the *Sandhill Muhly, Pioneer Annuals/Perennials Plant Community*.

Decadent Plants Community

This plant community developed under exclusion from grazing and wildfire. Plant litter accumulates as this community first develops. Eventually litter levels become high enough that plants are crowded out and large areas of bare ground develop. Annual forbs and grasses commonly fill these bare areas. Bunchgrasses may develop dead centers and rhizomatous grasses may lack tiller stimulation. The perennial grasses become decadent, reducing their density while increasing the population of annuals. Soil erosion is low when ground cover is high, then increases as litter disappears. The water cycle is functioning.

This community is highly susceptible to disturbance and any short-term disturbance could result in a shift to another plant community due to a decrease in species diversity and plant cover.

Production can vary from 250 to 1500 pounds of air dry vegetation per acre per year.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: KS7209

Growth curve name: Excess litter; upland coarse textured soils

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	35	25	10	5	0	0	0

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing will, over time, move this plant community toward a more vigorous *Sand Bluestem, Prairie Sandreed, Little Bluestem Plant Community*.
- Continuous grazing or long term non-use will shift this community to an *Active Blowout*.

Sandhill Muhly, Pioneer Annuals/Perennials Plant Community

With prescribed grazing, the blow out will start to revegetate with pioneer perennials. These areas are still very susceptible to erosion and can regress rapidly.

As succession progresses, pioneer perennials such as blowout grass, sand dropseed, western ragweed, lemon scurfpea, and sandhill muhly will stabilize this community. Annuals may also be present in small amounts. Disturbances can cause it to digress through the stages of succession to an active blowout.

Production on is highly variable and will fluctuate depending on the amount of vegetative cover. Total annual production may range from 50 to 700 lbs.

Transitions or pathways leading to other plant communities are as follows:

- Long term prescribed grazing with adequate recovery periods between grazing events will move this plant community through the stages of succession to the *Prairie Sandreed, Sandhill Muhly, Hairy Grama, and Soapweed Plant Community* and eventually toward the *HCPC*, if an adequate seed/vegetative source exists. Slope, aspect, and abundance of perennial pioneer plants will influence the rate the change will occur.

Active Blowout

Continuous grazing or long term non-use can bring about this condition. Disturbance (tillage, vehicle traffic, etc.) drought and/or wild fires can also create blowouts. These blowouts are very dynamic and result in a soil surface that will resist revegetation. Desertification is well advanced.

Properly stocked, prescribed grazing that allows for adequate recovery periods after each grazing event will eventually heal the blowout and is the most cost effective. Land shaping, seeding, mulching, and fencing efforts are effective but very costly. Briefly feeding livestock on blowouts followed by one to two years of exclusion have been successful and cost effective. Reclamation efforts will be in vain unless prescribed grazing that allows for adequate recovery periods between grazing events is not applied.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing will allow a *Sandhills Muhly, Pioneer Annuals/Perennials Plant Community* to begin establishment.

Ecological Site Interpretations

Animal Community - Wildlife Interpretations (under development)

Animal Preferences (Quarterly – 1,2,3,4[†])

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses and Grass-likes							
prairie junegrass	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
switchgrass	U D D U	U D U U	U D D U	N N N N	N N N N	U D D U	U D D U
needleandthread	U P D D	N D N D	U P D D	N D N D	N D N D	U P D D	U P D D
sun sedge	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
blue grama	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D	D P P D
hairy grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
sandhill muhly	N U N N	N N N N	N U N N	N N N N	N N N N	D U U D	N U N N
sand bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
prairie sandreed	U D D U	U D U U	U D D U	U U D U	U U D U	U D D U	U D D U
sand paspalum	N U U N	N U N N	N U U N	N U N N	N U N N	N U U N	N U U N
blowout grass	U U D U	N N N N	U U D U	N N N N	N N N N	U U D U	U U D U
sand dropseed	U D U N	N U D N	U D U N	N U D N	N U D N	U D U N	U D U N
Indiangrass	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
Indian ricegrass	D P D D	D P D D	D P D D	D P D D	D P D D	D P D D	D P D D
little bluestem	U D P U	N D D N	U D P U	N D D N	N D D N	U D P U	U D P U
sand lovegrass	U D D U	N N N N	U D D U	N N N N	N N N N	U D D U	U D D U
great plains flatsedge	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
Scribner panicum	U U D U	N U N N	U U D U	N U N N	N U N N	U U D U	U U D U
Schweinitz's flatsedge	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D	U P D D
Forbs							
bigtop dalea	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
bracted spiderwort	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
common evening-primrose	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
lemon scurfspea	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
silky prairie clover	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
Pacific peavine	U D U U	U P P U	U D U U	U P P U	U P P U	U D U U	U D U U
annual buckwheat	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
Texas croton	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
tenpetal blazingstar	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
snowball sand verbena	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
tarragon	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U
purple prairie clover	U P P D	U P P U	U P P D	U P P U	U P P U	U P P D	U P P U
gilia	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
bush morning-glory	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
othake	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
beardtongue	U U U U	U P P U	U U U U	U P P U	U P P U	U U U U	U P P U
western ragweed	U D U U	U D U U	U D U U	U D U U	U D U U	U D U U	U D U U
ragwort	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
whorled milkweed	U U U U	N N U N	U U U U	N N U N	N N N N	U U U U	N N N N
Shrubs							
brittle cactus	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
fringed sagewort	U N N U	U D D U	U N N U	U D D U	U D D U	U N N U	U N N U
leadplant	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U
western sandcherry	D P P D	D U U D	D P P D	P U D P	D U U D	D P P D	P U U P
skunkbush sumac	D U U D	D U U D	D U U D	D U U D	D U U D	D U U D	D U U D
western snowberry	U U U U	U U U U	U U U U	D U D D	U U U U	U U U U	D U U U
sand sagebrush	U N N U	U N N U	U N N U	U N N U	U N N U	U N N U	U N N U
small soapweed	D P N D	D P N D	D P N D	D P N D	D P N D	D P N D	D P N D

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

[†] Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

Animal Community – Grazing Interpretations

Grazing by domestic livestock is one of the major income producing industries in the area. Rangelands in this area provide year long forage under prescribed grazing for cattle, sheep, horses and other herbivores. During the dormant period, livestock may need supplementation based on reliable forage analysis. Plant communities are highly variable and consumable forage must be determined on site.

The following table lists suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions however, *continuous grazing is not recommended*. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

Plant Community	Production (lbs./acre)	*Stocking Rate (AUM/acre)
Sand Bluestem, Prairie Sandreed, Little Bluestem (HCPC)	1900	0.52
Sandhill Muhly, Prairie Sandreed, Sand Sagebrush/Soapweed	900	0.25
Pioneer Perennials	**	**
Decadent Plants	**	**

* Based on 912 lbs./acre (air-dry weight) per Animal Unit Month (AUM), and on 25% harvest efficiency (refer to USDA NRCS, National Range and Pasture Handbook).

** Highly variable; stocking rate needs to be determined on site.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group A. Infiltration and runoff potential for this site ranges from high to moderate. Water transmission through group A soils is normally greater than 0.30 inches per hour. Runoff is expected to occur only during the most intense storms (refer to NRCS Section 4, National Engineering Handbook (NEH-4) for runoff quantities and hydrologic curves).

Recreational Uses

This site provides hunting, hiking, photography, bird watching and other opportunities. The wide varieties of plants that bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

Collection of berries, cherries and seed.

Supporting Information

Associated Sites

(072XA021KS) – Sands

(072XA022KS) – Sandy
(072XA023KS) – Sandy Lowland

Similar Sites

(072XA021KS) – Sands
[occurs on gentler slopes, more sand sagebrush prevalent]

Inventory Data References

Information presented here has been derived from NRCS clipping data, numerous ocular estimates, and other inventory data. Field observations from experienced range-trained personnel were used extensively to develop this ecological site description. Specific data information is contained in individual landowner/user case files and other files located in county NRCS field offices.

Those involved in developing this site description include: Harvey Sprock, Rangeland Management Specialist, NRCS, Colorado; Josh Saunders, Rangeland Management Specialist, NRCS Colorado; Herman Garcia, State Rangeland Management Specialist, Colorado; Carol Eakins, Rangeland Management Specialist, NRCS, Nebraska; Chuck Markley, Soil Scientist, NRCS, Nebraska; Jeff Nichols, Rangeland Management Specialist, NRCS, Nebraska; Mary Schrader, Resource Conservationist NRCS, Nebraska; Dana Larsen, State Rangeland Management Specialist, NRCS, Nebraska; David Kraft, State Rangeland Management Specialist, NRCS, Kansas; Joan Gienger, District Conservationist, NRCS, Kansas; Ted Houser, District Conservationist, NRCS, Kansas.

State Correlation

This site has been correlated with Colorado, Kansas, and Nebraska in MLRA -72.

Field Offices

Colorado: Akron, Burlington, Cheyenne Wells, Eads, Flagler, Holly, Holyoke, Julesburg, Sterling, Yuma, Wray

Kansas: Atwood, Colby, Goodland, Gove, Hoxie, Oakley, Oberlin, Sharon Springs, St. Francis

Nebraska: Curtis, Grant, Hayes Center, Imperial, Kimball, McCook, North Platte, Ogallala, Oshkosh, Sidney, Trenton

Other References

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (<http://hpcc.unl.edu>)

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (<http://wcc.nrcs.usda.gov>)

USDA, NRCS. National Range and Pasture Handbook, September 1997

USDA, NRCS. National Soil Information System, Information Technology Center, 2150 Centre Avenue, Building A, Fort Collins, CO 80526. (<http://nasis.nrcs.usda.gov>)

USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Site Description Approval

State Range Management Specialist (Kansas)

Date

State Range Management Specialist (Colorado)

Date

State Range Management Specialist (Nebraska)

Date