

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

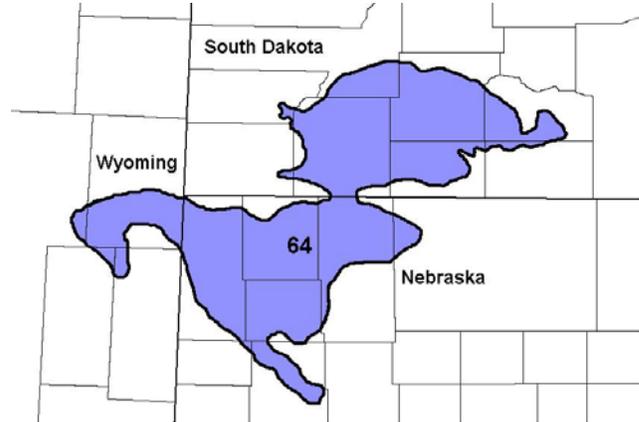
Site Name: Sands

Site ID: R064XY012NE

Major Land Resource Area:
64 – Mixed Sandy and Silty Tableland

Physiographic Features

This site typically occurs on gently to more steeply sloping to rolling dunes.



Landform: dune, hill

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	2900	4000
Slope (percent):	3	30
Water Table Depth (inches):	None	None
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Low

Climatic Features

MLRA 64 is considered to have a continental climate – cold winters and hot summers, low humidity, light rainfall, and much sunshine. Extremes in temperature may also abound. The climate is the result of this MLRA's location near the geographic center of North America. There are few natural barriers on the northern Great Plains and air masses move freely across the plains and account for rapid changes in temperature.

Annual precipitation ranges from 14 to 20 inches per year. The normal average annual temperature is about 47° F. January is the coldest month with average temperatures ranging from about 21° F (Wood, SD) to about 25° F (Hemingford, NE). July is the warmest month with temperatures averaging from about 70° F (Keeline 3 W, WY) to about 76° F (Wood, SD). The range of normal average monthly temperatures between the coldest and warmest months is about 55° F. This large annual range attests to the continental nature of this area's climate. Hourly winds average about 11 miles per hour annually, ranging from about 13 miles per hour during the spring to about 10 miles per hour during the 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.

Growth of cool season plants begins in early to mid March, slowing or ceasing in late June. Warm season plants begin growth about mid May and continue to early or mid September. Green up of cool season plants may occur in September and October when adequate soil moisture is present.

	<u>Minimum</u>	<u>Maximum</u>
Frost-free period (days):	138	143
Freeze-free period (days):	161	163
Mean Annual Precipitation (inches):	14	20

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

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.42	0.52	9.0	35.8
February	0.48	0.61	14.6	40.7
March	0.90	1.22	21.0	47.5
April	1.83	2.15	28.9	61.3
May	2.22	3.38	38.3	72.2
June	2.05	3.27	47.3	82.1
July	1.63	2.73	53.9	90.1
August	1.09	1.96	52.3	89.3
September	1.09	1.58	42.4	79.5
October	0.80	1.38	32.6	66.6
November	0.56	0.65	20.4	49.0
December	0.42	0.50	13.4	38.4

Climate Stations		Period	
Station ID	Location or Name	From	To
NE3755	Hemingford, NE	1964	1999
WY5085	Keeline 3 W, WY	1953	1986
SD9442	Wood, SD	1948	1999

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

Riparian and Wetland Features

No riparian areas or wetland features are directly associated with this site.

Representative Soil Features

The features common to soils in this site are the loamy fine sand to sand textured surface layers and slopes of 3 to 30 percent. The soils in this site are somewhat excessively to excessively drained and formed in eolian sand or sandy alluvium. The surface layer is 3 to 18 inches thick. The texture of the subsurface layers range from loamy fine sand to sand. This site should show slight to no evidence of rills, wind scoured areas or pedestalled plants. Water flow paths are broken, irregular in appearance or discontinuous with numerous vegetative barriers. The soil surface is stable and intact.

These soils are susceptible to wind and water erosion. The hazard of water erosion increases on slopes greater than about 15 percent. Loss of 50 percent or more of the surface layer of the soils on this site can result in a shift in species composition and/or production.

More information can be found in the various soil survey reports. Contact the local USDA Service Center for soil survey reports that include more detail specific to your location.

Parent Material Kind: eolian deposits, alluvium
Parent Material Origin: mixed
Surface Texture: loamy fine sand, fine sand, 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:	somewhat excessively	excessively
Permeability Class:	rapid	very rapid
Depth (inches):	80	80
Electrical Conductivity (mmhos/cm)*:	0	2
Sodium Absorption Ratio*:	0	0
Soil Reaction (1:1 Water)*:	5.6	8.4
Soil Reaction (0.1M CaCl₂)*:	NA	NA
Available Water Capacity (inches)*:	3	4
Calcium Carbonate Equivalent (percent)*:	0	10

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

Plant Communities

Ecological Dynamics of the Site:

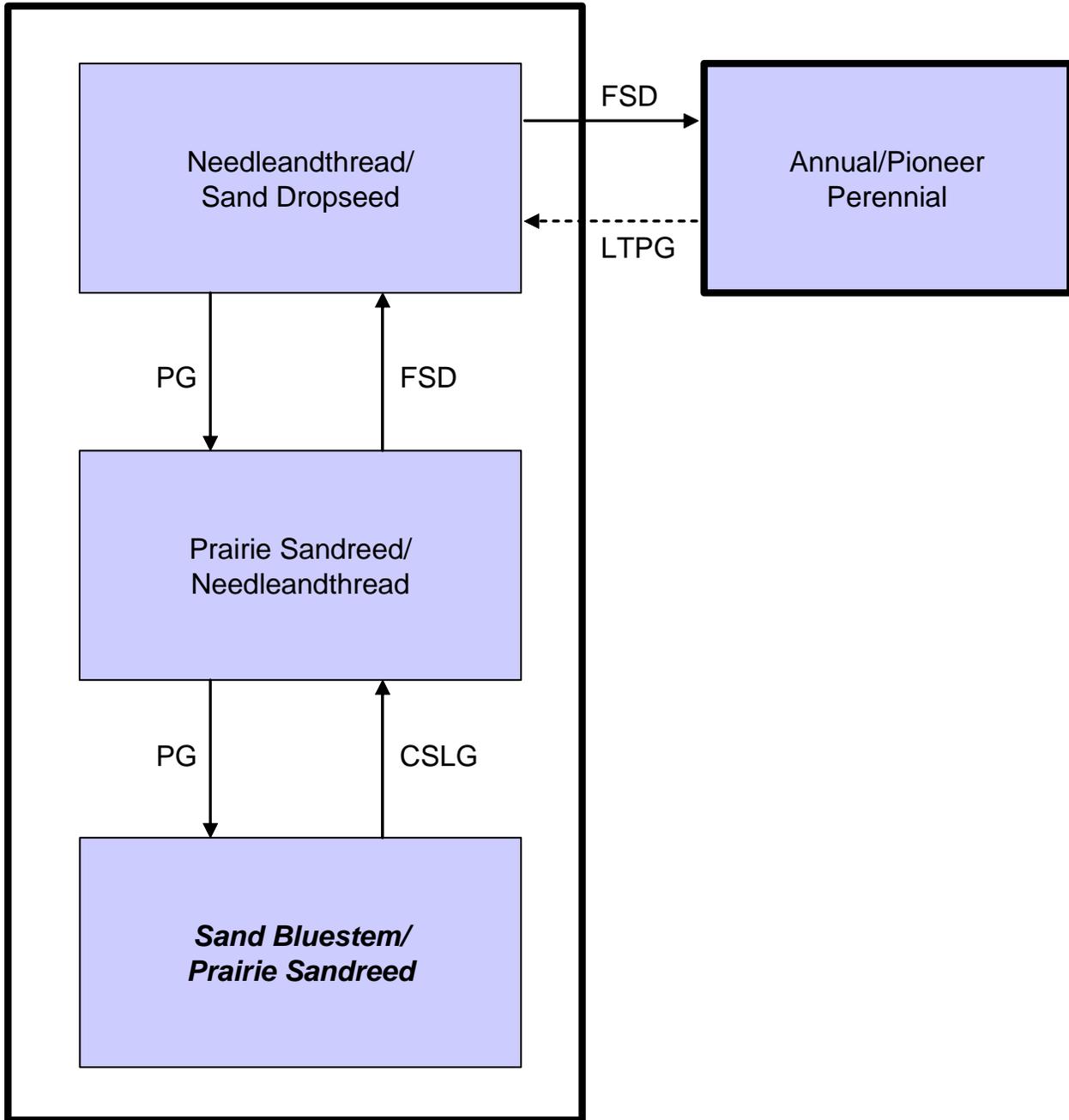
This site developed under Northern Great Plains climatic conditions, light to severe grazing by bison and other large herbivores, sporadic natural or man-caused wildfire (often of light intensities), and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

Continuous season-long grazing (during the typical growing season of May through October) and/or repeated seasonal grazing (e.g., every spring, every summer) without adequate recovery periods following each grazing occurrence causes this site to depart from the Sand Bluestem/Prairie Sandreed Plant Community. Species such as sand dropseed and blue grama will increase, while sand bluestem and little bluestem will decrease. Sand sagebrush occurs primarily in the western portion of this MLRA.

Interpretations are primarily based on the Sand Bluestem/Prairie Sandreed Plant Community. It has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

The following diagram illustrates the common plant communities and vegetation states commonly occurring on the site and the transition pathways between communities and states. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways



CSLG - Continuous season-long grazing (grazing a unit for an entire growing season); **FSD** - Frequent and severe defoliation; **LTPG** - Long-term prescribed grazing; **PG** - Prescribed grazing (planned, controlled harvest of vegetation with grazing or browsing animals – see FOTG, Section IV, 528).

Plant Community Composition and Group Annual Production

COMMON/GROUP NAME	SYMBOL	Sand Bluestem/Prairie Sandreed			Prairie Sandreed/Needleandthread			Needleandthread/Sand Dropseed			Annual/Pioneer Perennial		
		Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			1615 - 1805	85 - 95		1120 - 1260	80 - 90		675 - 765	75 - 85		325 - 375	65 - 75
sand bluestem	ANHA	1	285 - 475	15 - 25	1	14 - 140	1 - 10	1			1		
prairie sandreed	CALO	2	285 - 760	15 - 40	2	210 - 420	15 - 30	2	0 - 90	0 - 10	2	0 - 50	0 - 10
little bluestem	SCSC	3	0 - 285	0 - 15	3	0 - 70	0 - 5	3			3		
needleandthread	HECOC8	4	95 - 190	5 - 10	4	70 - 210	5 - 15	4	90 - 180	10 - 20	4	50 - 100	10 - 20
SHORT WARM-SEASON		5	38 - 190	2 - 10	5	70 - 210	5 - 15	5	90 - 270	10 - 30	5	50 - 150	10 - 30
blue grama	BOGR2	5	19 - 190	1 - 10	5	14 - 210	1 - 15	5	90 - 270	10 - 30	5	50 - 150	10 - 30
hairy grama	BOHI2	5	19 - 95	1 - 5	5	14 - 70	1 - 5	5	0 - 45	0 - 5	5	0 - 25	0 - 5
OTHER NATIVE		6	95 - 285	5 - 15	6	70 - 210	5 - 15	6	45 - 180	5 - 20	6	25 - 100	5 - 20
switchgrass	PAVI2	6	0 - 95	0 - 5	6	0 - 28	0 - 2						
sand dropseed	SPCR	6	0 - 190	0 - 10	6	14 - 140	1 - 10	6	9 - 135	1 - 15	6	5 - 75	1 - 15
Indian ricegrass	ACHY	6	0 - 38	0 - 2	6	0 - 14	0 - 1						
threeawn	ARIST	6	0 - 95	0 - 5	6	0 - 70	0 - 5	6	0 - 45	0 - 5	6	0 - 25	0 - 5
sand lovegrass	ERTR3	6	0 - 38	0 - 2	6	0 - 14	0 - 1						
sand paspalum	PASE5	6	0 - 19	0 - 1	6	0 - 14	0 - 1						
Scribner panicum	DIOLS	6	0 - 38	0 - 2	6	0 - 28	0 - 2						
sandhill muhly	MUPU2	6	0 - 95	0 - 5	6	0 - 70	0 - 5						
sedge	CAREX	6	19 - 190	1 - 10	6	14 - 140	1 - 10	6	45 - 90	5 - 10	6	25 - 50	5 - 10
NON-NATIVE		7			7	0 - 70	0 - 5	7	0 - 45	0 - 5	7	0 - 50	0 - 10
cheatgrass	BRTE	7			7	0 - 70	0 - 5	7	0 - 45	0 - 5	7	0 - 50	0 - 10
FORBS		8	38 - 190	2 - 10	8	28 - 140	2 - 10	8	45 - 90	5 - 10	8	25 - 100	5 - 20
annual eriogonum	ERAN4							8	0 - 18	0 - 2	8	0 - 15	0 - 3
annual sunflower	HEAN3	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 18	0 - 2	8	0 - 75	0 - 15
cudweed sagewort	ARLU	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 25	0 - 5
cutleaf ironplant	MAPI	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
false boneset	BREU	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
gayfeather	LIATR	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
goldenrod	SOLID	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
green sagewort	ARDR4	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
heath aster	SYER	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
penstemon	PENST	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
scurfspea	PSORA2	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 18	0 - 2	8	0 - 5	0 - 1
spiderwort	TRADE	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
tenpetal blazingstar	MEDE2	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
thistle	CIRSI	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 9	0 - 1	8	0 - 5	0 - 1
western ragweed	AMPS	8	0 - 19	0 - 1	8	0 - 14	0 - 1	8	0 - 18	0 - 2	8	0 - 50	0 - 10
other perennial forbs	2FP	8	0 - 38	0 - 2	8	0 - 28	0 - 2	8	0 - 18	0 - 2	8	0 - 10	0 - 2
SHRUBS		9	19 - 95	1 - 5	9	28 - 140	2 - 10	9	27 - 135	3 - 15	9	25 - 75	5 - 15
cactus	OPUNT	9	0 - 19	0 - 1	9	0 - 28	0 - 2	9	0 - 45	0 - 5	9	0 - 25	0 - 5
fringed sagewort	ARFR4	9	0 - 19	0 - 1	9	0 - 28	0 - 2	9	0 - 45	0 - 5	9	0 - 25	0 - 5
leadplant	AMCA6	9	0 - 19	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1			
poison ivy	TORY	9	0 - 19	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1	9	0 - 5	0 - 1
rose	ROSA5	9	0 - 19	0 - 1	9	0 - 14	0 - 1				9	0 - 5	0 - 1
sand sagebrush	ARFI2	9	0 - 19	0 - 1	9	0 - 70	0 - 5	9	0 - 90	0 - 10	9	0 - 50	0 - 10
sandcherry	PRPU3	9	0 - 19	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1			
small soapweed	YUGL	9	0 - 19	0 - 1	9	0 - 28	0 - 2	9	0 - 45	0 - 5	9	0 - 25	0 - 5
Annual Production lbs./acre			LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH
GRASSES & GRASS-LIKES			1450 - 1729 - 2205		750 - 1232 - 1410		535 - 752 - 965		260 - 388 - 515				
FORBS			35 - 114 - 195		25 - 84 - 145		40 - 68 - 95		20 - 63 - 105				
SHRUBS			15 - 57 - 100		25 - 84 - 145		25 - 81 - 140		20 - 50 - 80				
TOTAL			1500 - 1900 - 2500		800 - 1400 - 1700		600 - 900 - 1200		300 - 500 - 700				

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. Refer to PLANTS database for scientific names and codes: <http://plants.usda.gov>

Plant Community and Vegetation State Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Sand Bluestem/Prairie Sandreed Plant Community

Interpretations are based primarily on the Sand Bluestem/Prairie Sandreed Plant Community (this is also considered to be climax). This site can be found on areas that are properly managed with grazing and/or prescribed burning, and on areas receiving occasional short periods of rest.

The potential vegetation is about 85% grasses or grass-likes, 10% forbs, and 5% shrubs. The site is dominated by tall and mid-grasses. The major grasses include sand bluestem, prairie sandreed, little bluestem and needleandthread. Other species occurring on the site include sand dropseed, hairy grama, blue grama, switchgrass and sedge. Forbs and shrubs such as penstemon, gayfeather, rose, leadplant, and sand sagebrush are significant.

This plant community is well adapted to the Northern Great Plains climatic conditions. Community dynamics, nutrient cycle, water cycle and energy flow are functioning at the sites potential. Plant litter is properly distributed with some movement off-site and natural plant mortality is low. The high plant diversity allows for high drought tolerance.

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

Growth curve number: NE6405

Growth curve name: Pine Ridge/Badlands, warm-season dominant.

Growth curve description: Warm-season dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	15	20	30	15	5	5	0	0

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

- Continuous season-long grazing will convert the plant community to the *Prairie Sandreed/Needleandthread Plant Community*.

Prairie Sandreed/Needleandthread Plant Community

This plant community typically develops under continuous season-long grazing. The plant community has a reduced component of mid-grasses with an understory of short sod-forming grasses. Dominant grasses include prairie sandreed, needleandthread, hairy grama and blue grama. Other species may include sand dropseed, and sedge. Forbs commonly found in this plant community include dotted gayfeather, cudweed sagewort, scurfpeas, and western ragweed. Shrubs in the community include small soapweed, sand sagebrush, cactus, and rose.

Compared to the Sand Bluestem/Prairie Sandreed Plant Community hairy grama, blue grama, sand dropseed, and annual forbs have increased. Sand bluestem and little bluestem have decreased. Plant diversity remains high, despite the decrease in sand bluestem and little bluestem. This plant community is not resistant to change. Changes in grazing management can result in a shift to another plant community. This community is fairly resilient following normal disturbances because of the high diversity of plant species and the high amount of litter. Soil erosion is low. The water cycle is functioning due to the litter cover on the soil surface. Infiltration is high because of the soil texture and surface litter.

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

Growth curve number: NE6404

Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.

Growth curve description: Warm-season dominant, cool-season sub-dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	8	15	24	23	15	5	5	0	0

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

- Prescribed grazing will convert this plant community to the *Sand Bluestem/Prairie Sandreed Plant Community*.
- Frequent and severe defoliation throughout the growing season will move this plant community to the *Needleandthread/Sand Dropseed Plant Community*.

Needleandthread/Sand Dropseed Plant Community

This plant community typically develops over a period of several years, under frequent and severe defoliation during the warm-season grass growing period. The dominant grasses are needleandthread, sand dropseed, hairy grama and blue grama. Significant forbs include western ragweed, annual sunflower, tenpetal mentzelia, and annual eriogonum. Dominant shrubs in this community include sand sagebrush, small soapweed and cactus.

Compared to the Sand Bluestem/Prairie Sandreed Plant Community, sand dropseed, sandhill muhly, blue grama, and hairy grama have greatly increased. Needleandthread and prairie sandreed are limited to areas in the sagebrush. Sand bluestem and little bluestem are absent. Desirable plant species have decreased.

This plant community is not resistant to change due to the higher percentage of bare ground and increased sand sagebrush component. The water cycle is impaired due to a reduction in litter and the potential for higher runoff and decreased infiltration. The risk for soil erosion increases.

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

Growth curve number: NE6404

Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.

Growth curve description: Warm-season dominant, cool-season sub-dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	8	15	24	23	15	5	5	0	0

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

- Prescribed grazing will move this plant community to the *Prairie Sandreed/Needleandthread Plant Community*.

- Continued frequent and severe defoliation, throughout the growing season of the mid-grasses, will move this plant community to the *Annual/Pioneer Perennial Plant Community*.

Annual/Pioneer Perennial Plant Community

This plant community develops under frequent and severe defoliation and/or excessive disturbance. This can result from heavy livestock or wildlife concentration (i.e. water locations, bedding or loafing grounds, feeding areas, etc.) or cropping abandonment (go-back land). The dominant vegetation includes pioneer annual grasses and forbs and early successional biennial and perennial species. Grasses may include blue grama, sand dropseed, sedge, sixweeks fescue, and cheatgrass. The dominant forbs may include green sagewort, western ragweed, annual sunflower, and annual eriogonum. Shrubs that may be present include cactus, small soapweed and sand sagebrush.

This plant community is resistant to change, as long as soil disturbance or severe vegetation defoliation persist, thus holding back secondary plant succession. Soil erosion is potentially high in this plant community. The community also is susceptible to invasion of non-native annual and perennial forbs due to severe soil disturbances and relatively high percent of bare ground. Reduced surface cover, low plant density, low plant vigor and loss of root biomass, all contribute to decreased water infiltration, increased runoff, and accelerated erosion rates. If left without management blowouts may occur.

Significant economic inputs and time would be required to move this plant community toward a higher successional stage and a more productive plant community. Secondary succession is highly variable, depending upon availability and diversity of a viable seed bank of higher successional species within the existing plant community and neighboring plant communities. This plant community can be renovated to improve the production capability, but management changes would be needed to maintain the new plant community.

The following growth curve represents monthly percentages of total annual growth of the dominant species expected during an average year:

Growth curve number: NE6403

Growth curve name: Pine Ridge/Badlands, cool-season/warm-season co-dominant.

Growth curve description: Cool-season, warm-season co-dominant.

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

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

- Long-term prescribed grazing (including adequate rest periods) may move this plant community through the successional stages leading to the *Sand Bluestem/Prairie Sandreed Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under Development --

Sand Bluestem/Prairie Sandreed Plant Community:

Prairie Sandreed/Needleandthread Plant Community:

Needleandthread/Sand Dropseed Plant Community:

Annual/Pioneer Perennial Plant Community:

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

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses and Grass-like							
blue 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
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
Indian ricegrass	D P U D	N P N D	D P U D	N P N D	N P N D	D P U D	D P U D
little bluestem	U D D U	N D N N	U D D U	N D N N	N D N N	U D D U	U D D U
needleandthread	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
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 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
sand dropseed	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N
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
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
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
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
sedge	U D U D	U P N D	U D U D	U D U D	U D U D	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
threeawn	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
Forbs							
annual sunflower	U U D U	U D U U	U U D U	U D U U	U D U U	U U D U	U D U U
cudweed sagewort	U U U U	U U D U	U U U U	U U D U	U U D U	U U U U	U U D U
cutleaf ironplant	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
false boneset	U U D U	N D U N	U U D U	N D U N	N D U N	U U D U	N D U N
gayfeather	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
goldenrod	U U D U	N U U N	U U D U	N U U N	N U U N	U U D U	N U U N
green sagewort	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
heath aster	U U D U	U U P U	U U D U	U U P U	U U P U	U U D U	U U P U
penstemon	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
scurfpea	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
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
tenpetal blazingstar	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
thistle	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
western ragweed	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
Shrubs							
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 U U U	U U U U	U U U U	U D D U	U P P D	U U U U	U U U D
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
poison ivy	N N N N	U U U U	N N N N	U U U U	U U U U	N N N N	U U U U
rose	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 D 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
sandcherry	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 D U
small soapweed	D N N D	D U U D	D N N D	D U U D	D U U D	D N N D	D U U 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

The following table lists annual, suggested initial stocking rates with average growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of conservation planning. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this a resource inventory is necessary to document plant composition and production. More accurate carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data and actual stocking records, particularly when grazers other than cattle are involved. With consultation of the land manager, more intensive grazing management may result in improved harvest efficiencies and increased carrying capacity.

Plant Community	Average Annual Production (lbs./acre, air-dry)	Stocking Rate* (AUM/acre)
Sand Bluestem/Prairie Sandreed	1900	0.60
Prairie Sandreed/Needleandthread	1400	0.44
Needleandthread/Sand Dropseed	900	0.28
Annual/Pioneer Perennial	500	0.16

* Based on 790 lbs./acre (air-dry weight) per Animal Unit Month (AUM), and on 25% harvest efficiency (refer to USDA NRCS, National Range and Pasture Handbook).

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage. During the dormant period, the forage for livestock will likely be lacking protein to meet livestock requirements, and added protein will allow ruminants to better utilize the energy stored in grazed plant materials. A forage quality test (either directly or through fecal sampling) should be used to determine the level of supplementation needed.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group A. Infiltration ranges from high to very high. Runoff potential for this site varies from very low to low depending on soil hydrologic group, slope and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook for detailed information).

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which 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

Seed harvest of native plant species can provide additional income on this site.

Supporting Information

Associated Sites

(064XY011NE) – Sandy 14-17" P.Z.

(064XY032NE) – Sandy 17-20" P.Z.

(064XY024NE) – Subirrigated

Similar Sites

(064XY011NE & 064XY032NE) – Sandy 14-17” P.Z. & Sandy 17-20” P.Z.
 [More prairie sandreed; more level terrain]

Inventory Data References

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range-trained personnel were also used. Those involved in developing this site include: Stan Boltz, Range Management Specialist, NRCS; Jill Epley, Range Management Specialist, NRCS; Rick Peterson, Range Management Specialist, NRCS; David Steffen, Range Management Specialist, NRCS; Jeff Vander Wilt; Range Management Specialist, NRCS; Phil Young, Soil Scientist, NRCS.

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417				

State Correlation

This site has been correlated with Nebraska, South Dakota and Wyoming in MLRA 64.

Field Offices/Counties

Alliance, NE	Box Butte	Kadoka, SD	Jackson	Rushville, NE	Sheridan
Bridgeport, NE	Morrill	Lusk, WY	Niobrara	Scottsbluff, NE	Scottsbluff
Chadron, NE	Dawes/Sioux	Martin, SD	Bennett/Shannon	Torrington, WY	Goshen
Custer, SD	Custer	Pine Ridge, SD	Pine Ridge IR	Valentine, NE	Cherry
Douglas, WY	Converse	Rapid City, SD	Pennington	Wall, SD	East Pennington
Hot Springs, SD	Fall River	Rosebud, SD	Rosebud IR	Wheatland, WY	Platte
White River, SD	Mellette/Todd				

Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States: 25a – Pine Ridge Escarpment, 43h – White River Badlands, and 43i – Keya Paha Tablelands.

Other References

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (<http://hpccsun.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. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA, NRCS, Various Published Soil Surveys.

Site Description Approval

 NE, State Range Management Specialist Date _____
 SD, State Range Management Specialist Date

 WY, State Range Management Specialist Date