

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Sands

Site ID: R063AY008SD

Major Land Resource Area (MLRA): 63A –
Northern Rolling Pierre Shale Plains



Physiographic Features

This site typically occurs on gently sloping lands, typically in valleys.

Landform: floodplain, terrace

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1600	2700
Slope (percent):	0	6
Water Table Depth (inches):	60	60
Flooding:		
Frequency:	Rare	Occasional
Duration:	Very brief	Brief
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Very low

Climatic Features

MLRA 63A 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 16 to 20 inches per year. The average annual temperature is about 47°F. January is the coldest month with average temperatures ranging from about 11°F (Pollock, South Dakota (SD)), to about 22°F (Cedar Butte, SD). July is the warmest month with temperatures averaging from about 72°F (Pollock, SD), to about 76°F (Cedar Butte, SD). The range of normal average monthly temperatures between the coldest and warmest months is about 58°F. This large annual range attests to the continental nature of this area's climate. Hourly winds are estimated to 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):	126	149
Freeze-free period (days):	149	165
Mean Annual Precipitation (inches):	16	20

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

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.40	0.41	-0.9	34.0
February	0.44	0.49	5.8	39.2
March	0.87	1.36	17.3	49.0
April	1.77	2.18	31.3	61.2
May	2.82	3.29	43.3	72.2
June	2.96	3.45	53.2	82.5
July	2.04	2.84	58.5	90.8
August	1.57	2.38	56.5	90.3
September	1.13	1.53	45.4	79.2
October	1.02	1.38	33.4	65.7
November	0.48	0.63	19.3	48.2
December	0.23	0.35	5.7	37.2

Climate Stations		Period	
Station ID	Location or Name	From	To
SD1539	Cedar Butte	1951	2004
SD1972	Cottonwood 3 E	1909	2004
SD6712	Pollock	1948	2004
SD6790	Presho 7 NW	1975	2004

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 soils in this site are somewhat excessively to excessively drained and formed in alluvium. The surface layer is 4 to 10 inches thick. The surface texture is typically loamy fine sand or fine sand, while the texture of the subsurface ranges from loam to sand. Slopes range from zero to six percent. This site should show slight to no evidence of rills, wind scoured areas, or pedestalled plants. Water flow paths will typically not be present. The soil surface is stable and intact.

These soils are mainly susceptible to water erosion. The hazard of water erosion increases where vegetative cover is low or in poor condition. Occasional erosion may occur with flooding events. Low available water capacity influences the soil-water-plant relationship. Loss of the soil surface layer can result in a shift in species composition and/or production.

Access Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) for specific local soils information.

Parent Material Kind: alluvium
Parent Material Origin: sandstone & siltstone
Surface Texture: loamy fine sand, fine sand, very fine sandy loam
Surface Texture Modifier: none
Subsurface Texture Group: sandy
Surface Fragments ≤3” (% Cover): 0-20
Surface Fragments >3” (%Cover): 0
Subsurface Fragments ≤3” (% Volume): 0-65
Subsurface Fragments >3” (% Volume): 0-5

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class	somewhat excessively	excessively
Permeability Class:	rapid	very rapid
Depth to Bedrock (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 0-40 inches in depth or to the first restrictive layer.

Plant Communities

Ecological Dynamics of the Site:

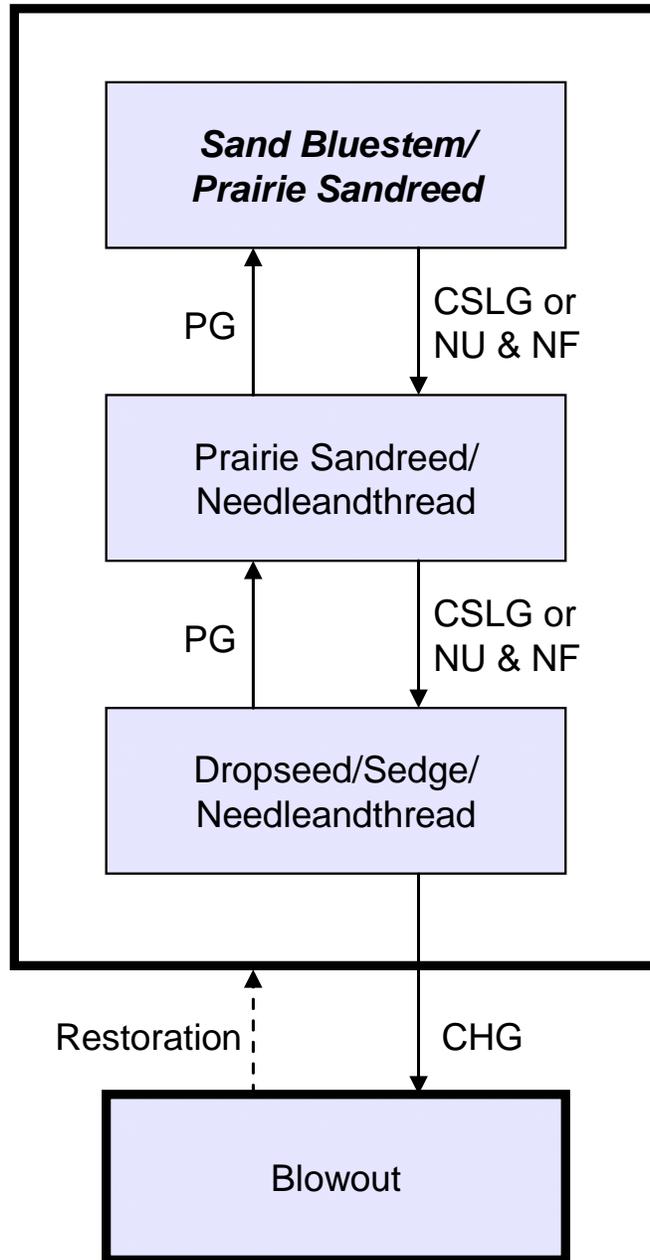
This site developed under Northern Great Plains climatic conditions, light to severe grazing by bison and other large herbivores, sporadic natural or man-caused wildfire (often of light intensities), and other biotic and abiotic factors that typically influence soil/site development. Changes will occur 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.

Interpretations are primarily based on the Sand Bluestem/Prairie Sandreed Plant Community, which is considered to be climax. 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.

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.

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



CHG – Continuous heavy grazing; **CSLG** – Continuous season-long grazing; **NU & NF** – Non-use and no fire; **PG** – Prescribed grazing; **Restoration** – Shaping, mulching and potentially seeding.

Plant Community Composition and Group Annual Production

			Sand Bluestem/Prairie Sandreed			
COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Group	lbs./acre	% Comp	
GRASSES & GRASS-LIKES				1920 - 2160	80 - 90	
BLUESTEM			1	480 - 840	20 - 35	
sand bluestem	Andropogon hallii	ANHA	1	360 - 840	15 - 35	
big bluestem	Andropogon gerardii	ANGE	1	0 - 240	0 - 10	
TALL WARM-SEASON GRASSES			2	240 - 600	10 - 25	
prairie sandreed	Calamovilfa longifolia	CALO	2	240 - 600	10 - 25	
switchgrass	Panicum virgatum	PAVI2	2	0 - 120	0 - 5	
NEEDLEGRASS			3	120 - 360	5 - 15	
needleandthread	Hesperostipa comata ssp. comata	HECOC8	3	120 - 360	5 - 15	
MID WARM-SEASON GRASSES			4	120 - 360	5 - 15	
little bluestem	Schizachyrium scoparium	SCSC	4	120 - 360	5 - 15	
blowout grass	Redfieldia flexuosa	REFL		0 - 72	0 - 3	
SHORT WARM-SEASON GRASSES			5	48 - 240	2 - 10	
blue grama	Bouteloua gracilis	BOGR2	5	0 - 120	0 - 5	
hairy grama	Bouteloua hirsuta	BOHI2	5	0 - 120	0 - 5	
sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 120	0 - 5	
sandhill muhly	Muhlenbergia pungens	MUPU2	5	0 - 120	0 - 5	
OTHER NATIVE GRASSES			6	24 - 120	1 - 5	
prairie junegrass	Koeleria macrantha	KOMA	6	0 - 48	0 - 2	
Scribner panicum	Dichanthelium oligosanthes var. scribnerianum	DIOLS	6	24 - 48	1 - 2	
sixweeks fescue	Vulpia octoflora	VUOC	6	0 - 24	0 - 1	
other perennial grasses		ZGP	6	0 - 120	0 - 5	
GRASS-LIKES			7	24 - 120	1 - 5	
threadleaf sedge	Carex filifolia	CAFI	7	24 - 120	1 - 5	
other grass-likes		ZGL	7	0 - 72	0 - 3	
FORBS			9	120 - 240	5 - 10	
annual eriogonum	Eriogonum annuum	ERAN4	9	0 - 24	0 - 1	
annual sunflower	Helianthus annuus	HEAN3	9	0 - 48	0 - 2	
bush morningglory	Ipomoea leptophylla	IPLE	9	0 - 48	0 - 2	
cudweed sagewort	Artemisia ludoviciana	ARLU	9	24 - 48	1 - 2	
cutleaf ironplant	Machaeranthera pinnatifida	MAPI	9	0 - 24	0 - 1	
dotted gayfeather	Liatris punctata	LIPU	9	24 - 48	1 - 2	
false boneset	Brickellia eupatorioides	BREU	9	24 - 48	1 - 2	
green sagewort	Artemisia dracuncululus	ARDR4	9	24 - 48	1 - 2	
hairy goldaster	Heterotheca villosa	HEVI4	9	0 - 24	0 - 1	
Missouri goldenrod	Solidago missouriensis	SOMI2	9	24 - 48	1 - 2	
Nuttall's evening-primrose	Oenothera nuttallii	OENU	9	0 - 24	0 - 1	
penstemon	Penstemon spp.	PENST	9	24 - 48	1 - 2	
prairie clover	Dalea spp.	DALEA	9	24 - 72	1 - 3	
prairie spiderwort	Tradescantia occidentalis	TROC	9	24 - 48	1 - 2	
rush skeletonweed	Lygodesmia juncea	LYJU	9	0 - 24	0 - 1	
scurfpea	Psoraleidum spp.	PSORA2	9	24 - 48	1 - 2	
stiff sunflower	Helianthus pauciflorus	HEPA19	9	24 - 48	1 - 2	
tenpetal blazingstar	Mentzelia decapetala	MEDE2	9	0 - 24	0 - 1	
veiny dock	Rumex venosus	RUVE2	9	0 - 24	0 - 1	
wavyleaf thistle	Cirsium undulatum	CIUN	9	0 - 24	0 - 1	
western ragweed	Ambrosia psilostachya	AMPS	9	24 - 48	1 - 2	
white prairie aster	Symphyotrichum falcatum	SYFA	9	0 - 24	0 - 1	
native forbs		ZFN	9	0 - 120	0 - 5	
SHRUBS			10	120 - 240	5 - 10	
cactus	Opuntia spp.	OPUNT	10	0 - 24	0 - 1	
fringed sagewort	Artemisia frigida	ARFR4	10	0 - 24	0 - 1	
leadplant	Amorpha canescens	AMCA6	10	24 - 96	1 - 4	
poison ivy	Toxicodendron rydbergii	TORY	10	0 - 24	0 - 1	
rose	Rosa spp.	ROSA5	10	24 - 48	1 - 2	
small soapweed	Yucca glauca	YUGL	10	24 - 72	1 - 3	
western sandcherry	Prunus pumila var. besseyi	PRPUB	10	24 - 48	1 - 2	
other shrubs		ZSHRUB	10	0 - 72	0 - 3	
Annual Production lbs./acre				LOW	RV	HIGH
GRASSES & GRASS-LIKES				1690 -	2040	-2450
FORBS				105 -	180	-275
SHRUBS				105 -	180	-275
TOTAL				1900 -	2400	-3000

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 Composition and Group Annual Production

COMMON/GROUP NAME	SYMBOL	Sand Bluestem/Prairie Sandreed			Prairie Sandreed/Needleandthread			Dropseed/Sedge/Needleandthread		
		Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			1920 - 2160	80 - 90		1520 - 1710	80 - 90		840 - 1020	70 - 85
BLUESTEM		1	480 - 840	20 - 35	1	38 - 190	2 - 10	1	0 - 36	0 - 3
sand bluestem	ANHA	1	360 - 840	15 - 35	1	38 - 190	2 - 10	1	0 - 36	0 - 3
big bluestem	ANGE	1	0 - 240	0 - 10	1	0 - 57	0 - 3	1	0 - 12	0 - 1
TALL WARM-SEASON GRASSES		2	240 - 600	10 - 25	2	190 - 570	10 - 30	2	12 - 120	1 - 10
prairie sandreed	CALO	2	240 - 600	10 - 25	2	190 - 570	10 - 30	2	12 - 120	1 - 10
switchgrass	PAV12	2	0 - 120	0 - 5	2	0 - 38	0 - 2			
NEEDLEGRASS		3	120 - 360	5 - 15	3	190 - 380	10 - 20	3	24 - 120	2 - 10
needleandthread	HECOC8	3	120 - 360	5 - 15	3	190 - 380	10 - 20	3	24 - 120	2 - 10
MID WARM-SEASON GRASSES		4	120 - 360	5 - 15	4	95 - 285	5 - 15	4	12 - 120	1 - 10
little bluestem	SCSC	4	120 - 360	5 - 15	4	95 - 285	5 - 15	4	12 - 120	1 - 10
blowout grass	REFL	4	0 - 72	0 - 3	4	0 - 57	0 - 3	4	0 - 48	0 - 4
SHORT WARM-SEASON GRASSES		5	48 - 240	2 - 10	5	95 - 190	5 - 10	5	120 - 360	10 - 30
blue grama	BOGR2	5	0 - 120	0 - 5	5	19 - 133	1 - 7	5	24 - 120	2 - 10
hairy grama	BOH12	5	0 - 120	0 - 5	5	19 - 133	1 - 7	5	24 - 120	2 - 10
sand dropseed	SPCR	5	0 - 120	0 - 5	5	19 - 190	1 - 10	5	60 - 240	5 - 20
sandhill muhly	MUPL2	5	0 - 72	0 - 3	5	0 - 95	0 - 5	5	0 - 60	0 - 5
OTHER NATIVE GRASSES		6	24 - 120	1 - 5	6	19 - 152	1 - 8	6	24 - 84	2 - 7
prairie junegrass	KOMA	6	0 - 48	0 - 2	6	0 - 38	0 - 2	6	0 - 24	0 - 2
Scribner panicum	DIOLS	6	24 - 48	1 - 2	6	19 - 57	1 - 3	6	12 - 60	1 - 5
sixweeks fescue	VUOC	6	0 - 24	0 - 1	6	0 - 38	0 - 2	6	12 - 48	1 - 4
other perennial grasses	2GP	6	0 - 120	0 - 5	6	0 - 95	0 - 5	6	0 - 60	0 - 5
GRASS-LIKES		7	24 - 120	1 - 5	7	38 - 190	2 - 10	7	60 - 180	5 - 15
threadleaf sedge	CAFI	7	24 - 120	1 - 5	7	38 - 190	2 - 10	7	60 - 180	5 - 15
other grass-likes	2GL	7	0 - 72	0 - 3	7	0 - 95	0 - 5	7	0 - 60	0 - 5
NON-NATIVE GRASSES		8			8	0 - 133	0 - 7	8	24 - 120	2 - 10
cheatgrass	BRTE				8	0 - 133	0 - 7	8	0 - 120	0 - 10
Japanese brome grass	BRJA				8	0 - 133	0 - 7	8	0 - 120	0 - 10
FORBS		9	120 - 240	5 - 10	9	95 - 190	5 - 10	9	60 - 180	5 - 15
annual eriogonum	ERAN4	9	0 - 24	0 - 1	9	0 - 38	0 - 2	9	0 - 48	0 - 4
annual sunflower	HEAN3	9	0 - 48	0 - 2	9	0 - 57	0 - 3	9	0 - 48	0 - 4
bush morningglory	IPLE	9	0 - 48	0 - 2	9	0 - 19	0 - 1			
cudweed sagewort	ARLU	9	24 - 48	1 - 2	9	19 - 57	1 - 3	9	12 - 36	1 - 3
cutleaf ironplant	MAPI	9	0 - 24	0 - 1	9	0 - 19	0 - 1			
dotted gayfeather	LIPU	9	24 - 48	1 - 2	9	19 - 38	1 - 2	9	0 - 12	0 - 1
false bonaset	BREU	9	24 - 48	1 - 2	9	0 - 19	0 - 1			
green sagewort	ARDR4	9	24 - 48	1 - 2	9	19 - 57	1 - 3	9	12 - 60	1 - 5
hairy goldaster	HEV14	9	0 - 24	0 - 1	9	0 - 19	0 - 1			
Missouri goldenrod	SOM12	9	24 - 48	1 - 2	9	19 - 38	1 - 2	9	0 - 24	0 - 2
Nuttall's evening-primrose	OENU	9	0 - 24	0 - 1						
penstemon	PENST	9	24 - 48	1 - 2	9	0 - 19	0 - 1			
prairie clover	DALEA	9	24 - 72	1 - 3	9	0 - 38	0 - 2			
prairie spiderwort	TROC	9	24 - 48	1 - 2	9	0 - 19	0 - 1			
rush skeletonweed	LYJU	9	0 - 24	0 - 1	9	0 - 19	0 - 1	9	0 - 12	0 - 1
scurfpea	PSORA2	9	24 - 48	1 - 2	9	19 - 57	1 - 3	9	12 - 60	1 - 5
stiff sunflower	HEPA19	9	24 - 48	1 - 2	9	0 - 19	0 - 1			
tenpetal blazingstar	MEDE2	9	0 - 24	0 - 1	9	0 - 38	0 - 2	9	0 - 36	0 - 3
veiny dock	RUVE2	9	0 - 24	0 - 1	9	0 - 38	0 - 2	9	0 - 24	0 - 2
wavyleaf thistle	CIUN	9	0 - 24	0 - 1	9	0 - 19	0 - 1	9	0 - 12	0 - 1
western ragweed	AMPS	9	24 - 48	1 - 2	9	19 - 57	1 - 3	9	24 - 72	2 - 6
white prairie aster	SYFA	9	0 - 24	0 - 1	9	0 - 19	0 - 1	9	0 - 12	0 - 1
native forbs	2FN	9	0 - 120	0 - 5	9	0 - 95	0 - 5	9	0 - 60	0 - 5
introduced forbs	2FI				9	0 - 57	0 - 3	9	0 - 84	0 - 7
SHRUBS		10	120 - 240	5 - 10	10	95 - 190	5 - 10	10	60 - 180	5 - 15
cactus	OPUNT	10	0 - 24	0 - 1	10	0 - 38	0 - 2	10	0 - 60	0 - 5
fringed sagewort	ARFR4	10	0 - 24	0 - 1	10	0 - 38	0 - 2	10	12 - 60	1 - 5
leadplant	AMCA6	10	24 - 96	1 - 4	10	0 - 19	0 - 1			
poison ivy	TORY	10	0 - 24	0 - 1	10	0 - 19	0 - 1			
rose	ROSA5	10	24 - 48	1 - 2	10	0 - 38	0 - 2	10	0 - 12	0 - 1
small soapweed	YUGL	10	24 - 72	1 - 3	10	19 - 95	1 - 5	10	24 - 120	2 - 10
western sandcherry	PRPUB	10	24 - 48	1 - 2	10	0 - 19	0 - 1			
other shrubs	2SHRUB	10	0 - 72	0 - 3	10	0 - 57	0 - 3	10	0 - 36	0 - 3
Annual Production lbs./acre			LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH	
GRASSES & GRASS-LIKES			1690 - 2040 - 2450		1220 - 1615 - 1970		690 - 960 - 1200			
FORBS			105 - 180 - 275		90 - 143 - 215		55 - 120 - 200			
SHRUBS			105 - 180 - 275		90 - 143 - 215		55 - 120 - 200			
TOTAL			1900 - 2400 - 3000		1400 - 1900 - 2400		800 - 1200 - 1600			

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 recurring 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 is 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 (DPC).” According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) National Range and Pasture Handbook, DPCs 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 percent grasses or grass-likes, 10 percent forbs, and 5 percent 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 offsite and natural plant mortality is low. The high plant diversity allows for high drought tolerance.

The following growth curve is an estimate of the monthly percentages of the annual growth of the dormant species expected during the normal year.

Growth curve number: SD6305

Growth curve name: Pierre Shale Plains, warm-season dominant.

Growth curve description: Warm-season dominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	5	15	25	30	15	7	1	0	0

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

- Continuous season-long grazing or nonuse and no fire will convert the plant community to the *Prairie Sandreed/Needleandthread Plant Community*.

Prairie Sandreed/Needleandthread Plant Community

This plant community developed under continuous season-long grazing or nonuse and no fire. The plant community's mid-grass component is reduced and an understory of short sod-forming grasses is increasing. Dominant grasses include needleandthread and prairie sandreed. Other grasses and grass-likes include blue grama, sideoats grama, western wheatgrass, and sedge. Forbs commonly found in this plant community include cudweed sagewort, goldenrod, green sagewort, scurfpea, and western ragweed. Shrubs in this community include rose and fringed sagewort. When compared to the Sand Bluestem/Prairie Sandreed Plant Community, sand bluestem, and little bluestem have

decreased. Prairie sandreed is beginning to decline. Needleandthread, blue grama, and sand dropseed are increasing. Plant diversity is high but on a downward trend.

This plant community is not resistant to change. Management changes can easily shift this plant community. Soil erosion is low. The water cycle is functioning, infiltration is high, and runoff is low.

The following growth curve is an estimate of the monthly percentages of the annual growth of the dormant species expected during the normal year.

Growth curve number: SD6304

Growth curve name: Pierre Shale Plains, warm-season dominant, cool-season subdominant.

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

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	18	25	25	15	7	1	0	0

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing will adequate precipitation and recovery time from grazing occurrences will move this plant community toward the *Sand Bluestem/Prairie Sandreed Plant Community*.
- Continuous season-long grazing or nonuse and no fire will convert the plant community to the *Dropseed/Sedge/Needleandthread Plant Community*.

Dropseed/Sedge/Needleandthread Plant Community

This plant community typically developed over a period of several years under continuous season long grazing with inadequate deferment during the growing season. This plant community is made up of about 70-85 percent grasses and grass-likes, 5-15 percent forbs, and 5-15 percent shrubs. Short, drought tolerant grasses dominate. Occasional mid-grasses may be found within the canopy of the shrubs where it is protected from grazing. The dominant grasses are sand dropseed, threadleaf sedge, blue grama, hairy grama, and needleandthread. Other grasses and grass-likes present include switchgrass and little bluestem. The dominant forbs include cudweed sagewort, scurfpea, and western ragweed. Common shrubs include fringed sagewort and small soapweed.

Compared to the Sand Bluestem/Prairie Sandreed Plant Community, sand dropseed, blue grama, and hairy grama have increased. Sand bluestem and prairie sandreed have decreased dramatically. Annual forbs will begin to invade the site. The plant diversity and production has decreased compared to the Sand Bluestem/Prairie Sandreed Plant Community.

The following growth curve is an estimate of the monthly percentages of the annual growth of the dormant species expected during the normal year.

Growth curve number: SD6304

Growth curve name: Pierre Shale Plains, warm-season dominant, cool-season subdominant.

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

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	7	18	25	25	15	7	1	0	0

Transitional pathways leading to other plant communities are as follows:

- Continuous heavy grazing will shift this community to the *Blowout Plant Community*.

- Prescribed grazing will move this plant community back towards the *Sand Bluestem/Prairie Sandreed Plant Community*. The rate of this transition can be extremely variable depending on the species present on the site and the availability of a seed source.

Blowout Plant Community

Continuous heavy grazing, excessive defoliation, disturbance (tillage, etc.) and/or wildfire bring about this condition. Continuous grazing will only increase the size of the blowouts. This condition is not stable. It consists of bare areas that are continually eroded by wind.

Transitional pathways leading to other plant communities are as follows:

- Restoration which can include shaping, mulching, and potentially seeding, followed by prescribed grazing can be used to convert this plant community to one that may resemble the *Sand Bluestem/Prairie Sandreed Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under development --

Bluestem/Prairie Sandreed/Needlegrass Plant Community:

Prairie Sandreed/Needleandthread Plant Community:

Dropseed/Sedge/Needleandthread Plant Community:

Blowout Plant Community:

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

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses & Grass-like							
big 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
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
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
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 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
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
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
sixweeks fescue	N N N N	N U N N	N N N N	N U N N	N U N N	N N N N	N N N N
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
threadleaf 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
Forbs							
annual eriogonum	U D U U	N U U N	U D U U	N U U N	N U U N	U D U U	N U U N
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
bush morningglory	U D P U	U D D U	U D P U	U D D U	U D D U	U D P U	U D D 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
dotted 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
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
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
hairy goldaster	U U D U	N N N N	U U D U	N N N N	N N N N	U U D U	N N N N
Missouri 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
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
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
prairie 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
rush skeletonweed	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
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
stiff sunflower	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U
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
veiny dock	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
wavyleaf 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
white prairie aster	U U D U	N N N N	U U D U	N N N N	N N N N	U U D 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
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
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

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	2400	0.66
Prairie Sandreed/Needleandthread	1900	0.52
Dropseed/Sedge/Needleandthread	1200	0.33

*Based on 912 lbs./acre (air-dry weight) per Animal Unit Month (AUM), and on 25 percent 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 moderate to rapid. Runoff potential for this site varies from very low to low depending on slope and ground cover. In many cases, areas with greater than 75 percent ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where shortgrasses form a strong sod and dominate the site. Normally, areas where ground cover is less than 50 percent have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook 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 aesthetic value that appeals to visitors.

Wood Products

No appreciable wood products are typically present on this site.

Other Products

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

Supporting Information

Associated Sites

Sandy (R063AY009SD), Loamy Terrace (R063AY022SD), Loamy Overflow (R063AY020SD).

Similar Sites

(R063AY009SD) – Sandy [more western wheatgrass; less sand bluestem; less slope]

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: April Boltjes, Range Management Specialist (RMS), NRCS; Stan Boltz, RMS, NRCS; Kent Cooley, Soil Scientist, NRCS; Rick Peterson, RMS, NRCS; and L. Michael Stirling, RMS, NRCS.

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	0			

State Correlation

MLRA 63A lies entirely within SD, so no cross-state correlation has occurred.

Field Offices/Counties

Dupree, SD	Ziebach	McIntosh, SD	Corson	Pierre, SD	Hughes/Stanley
Faith, SD	Meade	Mound City, SD	Campbell	Selby, SD	Walworth
Gettysburg, SD	Potter	Murdo, SD	Jones	Timber Lake, SD	Dewey
Kadoka, SD	Jackson	Onida, SD	Sully	Wall, SD	East Pennington
Kennebec, SD	Lyman	Philip, SD	Haakon	White River, SD	Mellette

Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States: 43c – River Breaks and 43f – Subhumid Pierre Shale Plains.

Other References

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

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (<http://www.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

SD, State Range Management Specialist

Date