

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Very Shallow

Site ID: R063AY016SD

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



Physiographic Features

This site typically occurs on gently to steeply sloping uplands.

Landform: terrace, knoll, ridge

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1600	2700
Slope (percent):	6	40
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:	Very low	Medium

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 common features of soils in this site are the loam to clay loam textured subsoil and slopes of 6 to 40 percent. The soils in this site are well drained and formed in gravelly alluvium. The loam surface layer is three to six inches thick. The soils have a moderate to very rapid infiltration rate. This site should show no evidence of rills, wind scoured areas, or pedestalled plants. If present, water flow paths are broken, irregular in appearance, or discontinuous. The soil surface is very unstable but intact. Subsurface soil layers are restrictive to water movement and root penetration.

These soils are mainly susceptible to water erosion. The hazard of water erosion increases on slopes greater than about 15 percent. Low available water capacity caused by the shallow rooting depth

strongly 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: sedimentary, unspecified
Surface Texture: loam, sandy loam
Surface Texture Modifier: gravelly
Subsurface Texture Group: sandy
Surface Fragments ≤3" (% Cover): 25-50
Surface Fragments >3" (%Cover): 0-5
Subsurface Fragments ≤3" (% Volume): 50-75
Subsurface Fragments >3" (% Volume): 0-15

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class	well	excessively
Permeability Class:	moderate	very rapid
Depth to Bedrock (inches):	4	10
Electrical Conductivity (mmhos/cm)*:	0	2
Sodium Absorption Ratio*:	0	0
Soil Reaction (1:1 Water)*:	6.1	8.4
Soil Reaction (0.1M CaCl₂)*:	NA	NA
Available Water Capacity (inches)*:	1	4
Calcium Carbonate Equivalent (percent)*:	0	15

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

Plant Communities

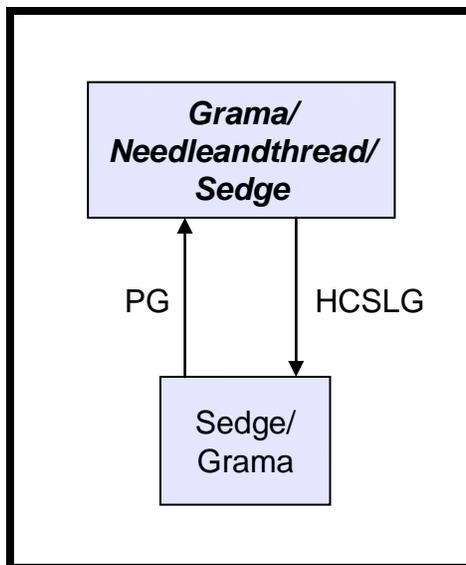
Ecological Dynamics of the Site:

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 Grama/Needleandthread/Sedge 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.

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



HCSLG – Heavy, continuous season-long grazing (grazing a unit for an entire growing season well above recommended stocking rates);
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	SCIENTIFIC NAME	SYMBOL	Grama/Needleandthread/Sedge		
			Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES				750 - 900	75 - 90
SHORT WARM-SEASON GRASSES			1	150 - 450	15 - 45
blue grama	Bouteloua gracilis	BOGR2	1	100 - 350	10 - 35
hairy grama	Bouteloua hirsuta	BOHI2	1	50 - 300	5 - 30
threeawn	Aristida spp.	ARIST	1	10 - 50	1 - 5
buffalograss	Bouteloua dactyloides	BODA2	1	0 - 50	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	1	0 - 50	0 - 5
COOL-SEASON BUNCHGRASSES			2	50 - 250	5 - 25
needleandthread	Hesperostipa comata ssp. comata	HECOC8	2	50 - 200	5 - 20
prairie junegrass	Koeleria macrantha	KOMA	2	10 - 80	1 - 8
RHIZOMATOUS COOL-SEASON GRASSES			3	20 - 80	2 - 8
western wheatgrass	Pascopyrum smithii	PASM	3	20 - 80	2 - 8
OTHER NATIVE GRASSES			4	50 - 100	5 - 10
sideoats grama	Bouteloua curtipendula	BOCU	4	20 - 80	2 - 8
plains muhly	Muhlenbergia cuspidata	MUCU3	4	0 - 50	0 - 5
other perennial grasses		2GP	4	0 - 50	0 - 5
GRASS-LIKES			5	50 - 150	5 - 15
threadleaf sedge	Carex filifolia	CAFI	5	50 - 150	5 - 15
other grass-likes		2GL	5	0 - 50	0 - 5
FORBS			7	50 - 150	5 - 15
bush morningglory	Ipomoea leptophylla	IPLE	7	0 - 10	0 - 1
cutleaf ironplant	Machaeranthera pinnatifida	MAPI	7	0 - 10	0 - 1
dotted gayfeather	Liatris punctata	LIPU	7	10 - 20	1 - 2
eriogonum	Eriogonum spp.	ERIOG	7	0 - 10	0 - 1
green sagewort	Artemisia dracuncululus	ARDR4	7	0 - 10	0 - 1
hairy goldaster	Heterotheca villosa	HEVI4	7	10 - 20	1 - 2
milkvetch	Astragalus spp.	ASTRA	7	10 - 20	1 - 2
prairie clover	Dalea spp.	DALEA	7	10 - 30	1 - 3
prairie coneflower	Ratibida columnifera	RACO3	7	10 - 20	1 - 2
purple coneflower	Echinacea angustifolia	ECAN2	7	10 - 20	1 - 2
pussytoes	Antennaria spp.	ANTEN	7	0 - 10	0 - 1
scarlet gaura	Gaura coccinea	GACO5	7	0 - 10	0 - 1
scarlet globemallow	Sphaeralcea coccinea	SPCO	7	10 - 20	1 - 2
silverleaf scurfpea	Pediomelum argophyllum	PEAR6	7	10 - 20	1 - 2
slimflower scurfpea	Psoralidium tenuiflorum	PSTE5	7	0 - 20	0 - 2
spiny phlox	Phlox hoodii	PHHO	7	10 - 20	1 - 2
stemless hymenoxys	Tetranneuris acaulis var. acaulis	TEACA2	7	0 - 10	0 - 1
white prairie aster	Symphotrichum falcatum	SYFA	7	10 - 20	1 - 2
woolly Indianwheat	Plantago patagonica	PLPA2	7	10 - 20	1 - 2
native forbs		2FN	7	10 - 30	1 - 3
SHRUBS			8	50 - 100	5 - 10
broom snakeweed	Gutierrezia sarothrae	GUSA2	8	0 - 20	0 - 2
cactus	Opuntia spp.	OPUNT	8	10 - 20	1 - 2
fringed sagewort	Artemisia frigida	ARFR4	8	10 - 50	1 - 5
rose	Rosa spp.	ROSA5	8	10 - 30	1 - 3
yucca	Yucca glauca	YUGL	8	10 - 40	1 - 4
other shrubs		2SHRUB	8	0 - 30	0 - 3

Annual Production lbs./acre	LOW	RV	HIGH
GRASSES & GRASS-LIKES	610 -	825	-1125
FORBS	45 -	100	-165
SHRUBS	45 -	75	-110
TOTAL	700 -	1000	-1400

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	Grama/Needleandthread/Sedge			Sedge/Grama		
		Group	lbs./acre	% Comp	Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES			750 - 900	75 - 90		525 - 630	75 - 90
SHORT WARM-SEASON GRASSES		1	150 - 450	15 - 45	1	175 - 385	25 - 55
blue grama	BOGR2	1	100 - 350	10 - 35	1	140 - 315	20 - 45
hairy grama	BOHI2	1	50 - 300	5 - 30	1	35 - 280	5 - 40
threeawn	ARIST	1	10 - 50	1 - 5	1	7 - 70	1 - 10
buffalograss	BODA2	1	0 - 50	0 - 5	1	0 - 56	0 - 8
sand dropseed	SPCR	1	0 - 50	0 - 5	1	7 - 70	1 - 10
COOL-SEASON BUNCHGRASSES		2	50 - 250	5 - 25	2	7 - 56	1 - 8
needleandthread	HECOC8	2	50 - 200	5 - 20	2	7 - 35	1 - 5
prairie junegrass	KOMA	2	10 - 80	1 - 8	2	0 - 35	0 - 5
RHIZOMATOUS COOL-SEASON		3	20 - 80	2 - 8	3	0 - 14	0 - 2
western wheatgrass	PASM	3	20 - 80	2 - 8	3	0 - 14	0 - 2
OTHER NATIVE GRASSES		4	50 - 100	5 - 10	4	0 - 35	0 - 5
sideoats grama	BOCU	4	20 - 80	2 - 8	4	0 - 28	0 - 4
plains muhly	MUCU3	4	0 - 50	0 - 5			
other perennial grasses	2GP	4	0 - 50	0 - 5	4	0 - 21	0 - 3
GRASS-LIKES		5	50 - 150	5 - 15	5	70 - 175	10 - 25
threadleaf sedge	CAFI	5	50 - 150	5 - 15	5	70 - 175	10 - 25
other grass-likes	2GL	5	0 - 50	0 - 5	5	0 - 35	0 - 5
NON-NATIVE GRASSES		6			6	0 - 35	0 - 5
bluegrass	POA				6	0 - 28	0 - 4
cheatgrass	BRTE				6	0 - 21	0 - 3
FORBS		7	50 - 150	5 - 15	7	35 - 105	5 - 15
bush morningglory	IPLP	7	0 - 10	0 - 1			
common dandelion	TAOF				7	0 - 21	0 - 3
curlycup gumweed	GRSQ				7	0 - 21	0 - 3
cutleaf ironplant	MAPI	7	0 - 10	0 - 1	7	0 - 14	0 - 2
dotted gayfeather	LIPU	7	10 - 20	1 - 2	7	0 - 7	0 - 1
erigonum	ERIOG	7	0 - 10	0 - 1			
green sagewort	ARCA12	7	0 - 10	0 - 1	7	0 - 21	0 - 3
hairy goldaster	HEVI4	7	10 - 20	1 - 2			
milkvetch	ASTRA	7	10 - 20	1 - 2	7	0 - 7	0 - 1
prairie clover	DALEA	7	10 - 30	1 - 3	7	0 - 7	0 - 1
prairie coneflower	RACO3	7	10 - 20	1 - 2	7	0 - 7	0 - 1
purple coneflower	ECAN2	7	10 - 20	1 - 2			
pussytoes	ANTEN	7	0 - 10	0 - 1	7	0 - 7	0 - 1
scarlet gaura	GACO5	7	0 - 10	0 - 1			
scarlet globemallow	SPCO	7	10 - 20	1 - 2	7	7 - 14	1 - 2
silverleaf scurfpea	PEAR6	7	10 - 20	1 - 2	7	7 - 21	1 - 3
slimflower scurfpea	PSTE5	7	0 - 20	0 - 2	7	0 - 21	0 - 3
spiny phlox	PHHO	7	10 - 20	1 - 2	7	7 - 14	1 - 2
stemless hymenoxys	TEACA2	7	0 - 10	0 - 1			
white prairie aster	SYFA	7	10 - 20	1 - 2	7	7 - 21	1 - 3
woolly Indianwheat	PLPA2	7	10 - 20	1 - 2	7	7 - 21	1 - 3
native forbs	2FN	7	10 - 30	1 - 3	7	7 - 21	1 - 3
introduced forbs	2FI				7	0 - 28	0 - 4
SHRUBS		8	50 - 100	5 - 10	8	35 - 70	5 - 10
broom snakeweed	GUSA2	8	0 - 20	0 - 2	8	0 - 21	0 - 3
cactus	OPUNT	8	10 - 20	1 - 2	8	7 - 21	1 - 3
fringed sagewort	ARFR4	8	10 - 50	1 - 5	8	14 - 56	2 - 8
rose	ROSA5	8	10 - 30	1 - 3	8	7 - 14	1 - 2
yucca	YUGL	8	10 - 40	1 - 4	8	7 - 21	1 - 3
other shrubs	2SHRUB	8	0 - 30	0 - 3	8	0 - 14	0 - 2
Annual Production lbs./acre			LOW RV HIGH		LOW RV HIGH		
GRASSES & GRASS-LIKES			610 · 825 · 1140		340 · 577.5 · 915		
FORBS			45 · 100 · 155		30 · 70 · 110		
SHRUBS			45 · 75 · 105		30 · 53 · 75		
TOTAL			700 · 1000 · 1400		400 · 700 · 1100		

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 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.

Grama/Needleandthread/Sedge Plant Community

The Grama/Needleandthread/Sedge Plant Community is the plant community upon which interpretations are primarily based. This is also considered to be climax. This plant community can be found on areas that are properly managed with prescribed grazing that allows for proper utilization, changes in season of use and adequate recovery periods following each grazing event.

The potential vegetation is about 75-90 percent grasses or grass-like plants, 5-15 percent forbs, and 5-10 percent shrubs. An even mix of both warm- and cool-season grasses or grass-likes dominates this plant community. The major grasses or grass-likes include blue and/or hairy grama, needleandthread, threadleaf sedge, western wheatgrass, little bluestem, and both sideoats and blue grama. Other grasses occurring on the site include threeawn, buffalograss, plains muhly, and prairie Junegrass. The significant forbs include dotted gayfeather, hairy goldaster, purple coneflower, prairie clover, and stemless hymenoxys. Significant shrubs are fringed sagewort, rose, skunkbush sumac, and yucca.

This plant community is moderately resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term. This plant community is stable and protected from excessive erosion.

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: SD6303

Growth curve name: Pierre Shale Plains, cool-season/warm-season codominant.

Growth curve description: Cool-season, warm-season codominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	10	20	28	21	10	5	3	0	0

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

- Heavy continuous season-long grazing (grazing the same area for the entire growing season well above recommended stocking rates) will convert the plant community to the *Sedge/Grama Plant Community*. Mid and tall warm-season grasses decrease, while western wheatgrass and short warm-season grasses blue grama, hairy grama, buffalograss, and sedges increase.

Sedge/Grama Plant Community

This plant community can develop from the adverse effects of heavy, continuous season-long grazing. Shortgrasses and forbs increase to dominate the site and annual production decreases dramatically. Lack of litter and short plant heights result in higher soil temperatures, poor water infiltration rates, and higher evaporation, which gives blue grama and sedges a competitive advantage over cool- and warm-season mid-grasses. Blue grama and threadleaf sedge are the dominant grass/grass-like species. Other grasses may include western wheatgrass, needleandthread, buffalograss, prairie Junegrass, and threeawn. Significant forbs include green sagewort, cutleaf ironplant, scurfpeas, white prairie aster, and woolly Indianwheat. Common shrubs include cactus, yucca, and fringed sagewort.

This plant community is relatively stable. The competitive advantage of blue grama and threadleaf sedge prevents other species from establishing. This plant community is less productive than the Grama/Needleandthread/Sedge Plant Community. Runoff has increased and infiltration has decreased. Soil erosion does not increase substantially.

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: SD6003

Growth curve name: Pierre Shale Plains, cool-season/warm-season codominant.

Growth curve description: Cool-season, warm-season codominant.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	10	20	28	21	10	5	3	0	0

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing will move this plant community to the *Gramma/Needleandthread/Sedge Plant Community*

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under development --

Gramma/Needleandthread/Sedge Plant Community:

Sedge/Grama Plant Community:

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

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses & Grass-likes							
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
buffalograss	U U D U	N U D U	U U D U	N U D U	N U D U	U U D U	U U D 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
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
plains muhly	U U D U	U U D U	U U D U	N N N N	N N N N	U U D U	U U D U
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
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
sideoats grama	U D P U	U P D U	U D P U	U P D U	U P D U	U D P U	U D P 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
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
western wheatgrass	U P D U	N D N N	U P D U	N D N N	N D N N	U P D U	U P D U
Forbs							
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
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
eriogonum	U U D U	U U U U	U U D U	U U U U	U U U U	U U D U	U U U U
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
milkvetch	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 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 coneflower	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
purple coneflower	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
pussytoes	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
scarlet gaura	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
scarlet globemallow	U U D U	U D D U	U U D U	U D D U	U D D U	U U D U	U D D U
silverleaf 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
slimflower 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
spiny phlox	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 P P U
stemless hymenoxys	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
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
woolly Indianwheat	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
Forbs							
broom snakeweed	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
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
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
yucca	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)
Gramma/Needleandthread/Sedge	1000	0.27
Sedge/Gramma	700	0.19

*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, with localized areas in group B. Infiltration varies from moderately slow to rapid and runoff varies from low to medium 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 exception would be where shortgrasses form a dense 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

(R063AY009SD) – Sandy
(R063AY024SD) – Shallow Loamy

(R063AY044SD) – Shallow Sandy
(R063AY017SD) – Shallow Clay

Similar Sites

(R063AY024SD) – Shallow Loamy [less needleandthread, western wheatgrass, and sideoats grama; higher production]

(R063AY044SD) – Shallow Sandy [more sandreed/bluestem; less plains muhly/sideoats grama; higher production]

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. No SCS-RANGE-417 clipping records have been collected on this ecological site.

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