United States Department of Agriculture
Natural Resources Conservation Service

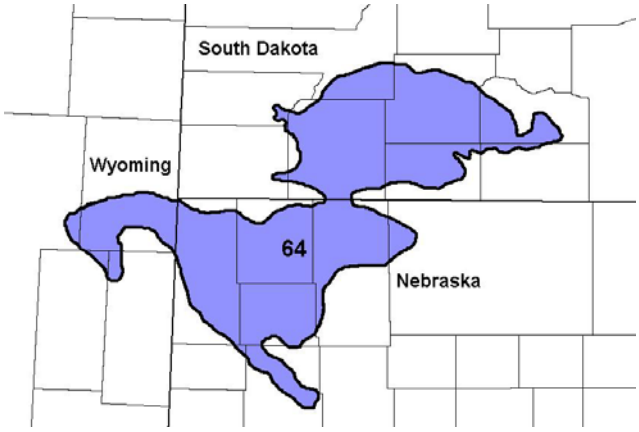
Ecological Site Description

Site Type: Rangeland

Site Name: Badlands Terrace

Site ID: R064XY048NE

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



Physiographic Features

This site occurs in the eroded badlands on nearly level areas that receive runoff from adjacent slopes.

Landform: drainageway, alluvial fan

Aspect: N/A

	Minimum	Maximum
Elevation (feet):	2900	4000
Slope (percent):	0	3
Water Table Depth (inches):	80	80
Flooding:		
Frequency:	Frequent	Frequent
Duration:	Brief	Brief
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Low	Medium

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 the winds 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, South Dakota (SD)), to about 25°F (Hemingford, Nebraska (NE)). July is the warmest month with temperatures averaging from about 70°F (Keeline 3 W, Wyoming (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 native cool season plants begins mid- to late March and continues to late June. Native warm season plants begin growth in early May and continue to late August. Green up of cool season plants may occur in September and October when adequate soil moisture is present.

	Minimum	Maximum
Frost-free period (days):	115	143
Freeze-free period (days):	137	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.

Influencing Water Features

Stream Type: B6, C6
(Rosgen System)

Representative Soil Features

The soils of this site are very deep, well drained soils that formed in sodium enriched alluvium. These soils typically have dispersive characteristics due to the high content of sodium. This feature tends to cause these soils to be naturally erosive, as the aggregate stability is low in the surface and structure is lacking in all horizons. These soils have moderate to moderately slow permeability. The surface soil will vary from two to four inches deep and have loam or silt loam textures. These areas receive additional water as runoff from adjacent slopes. Available water capacity is typically high. 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 debris dams or vegetative barriers. The soil surface is stable and intact. Subsurface soil layers are not restrictive to water movement and root penetration.

These soils are mainly susceptible to water erosion. Headcuts may develop if adequate vegetative cover is not maintained or due to sinkholes or other soil sloughing due to piping as a result of natural

features such as animal burrows, root channels, etc. A drastic loss of the soil surface layer 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: alluvium
Parent Material Origin: mixed
Surface Texture: silt loam, loam
Surface Texture Modifier: none
Subsurface Texture Group: loamy
Surface Fragments ≤ 3" (% Cover): 0
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 0-10
Subsurface Fragments > 3" (% Volume): 0-5

	Minimum	Maximum
Drainage Class:	well	well
Permeability Class:	moderately slow	moderate
Depth (inches):	80	80
Electrical Conductivity (mmhos/cm)*:	0	4
Sodium Absorption Ratio*:	10	35
Soil Reaction (1:1 Water)*:	7.4	9.0
Soil Reaction (0.1M CaCl2)*:	NA	NA
Available Water Capacity (inches)*:	8	9
Calcium Carbonate Equivalent (percent)*:	5	30

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

Plant Communities

Ecological Dynamics of the Site:
The most significant influence in the development of this site is in relation to the geologic erosion episodes that occur on this and adjacent landscape positions in the White River Badlands. Due to the proximity of weathered, loose parent material, this site is constantly in flux. The Great Plains climate plays an important role, as sporadic heavy rainfall events cause fluctuating erosion and deposition to occur on this site. Recent grazing or browsing patterns do have an effect, but only if the site is stable long enough to establish vegetation for an extended period of time. While the following 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.

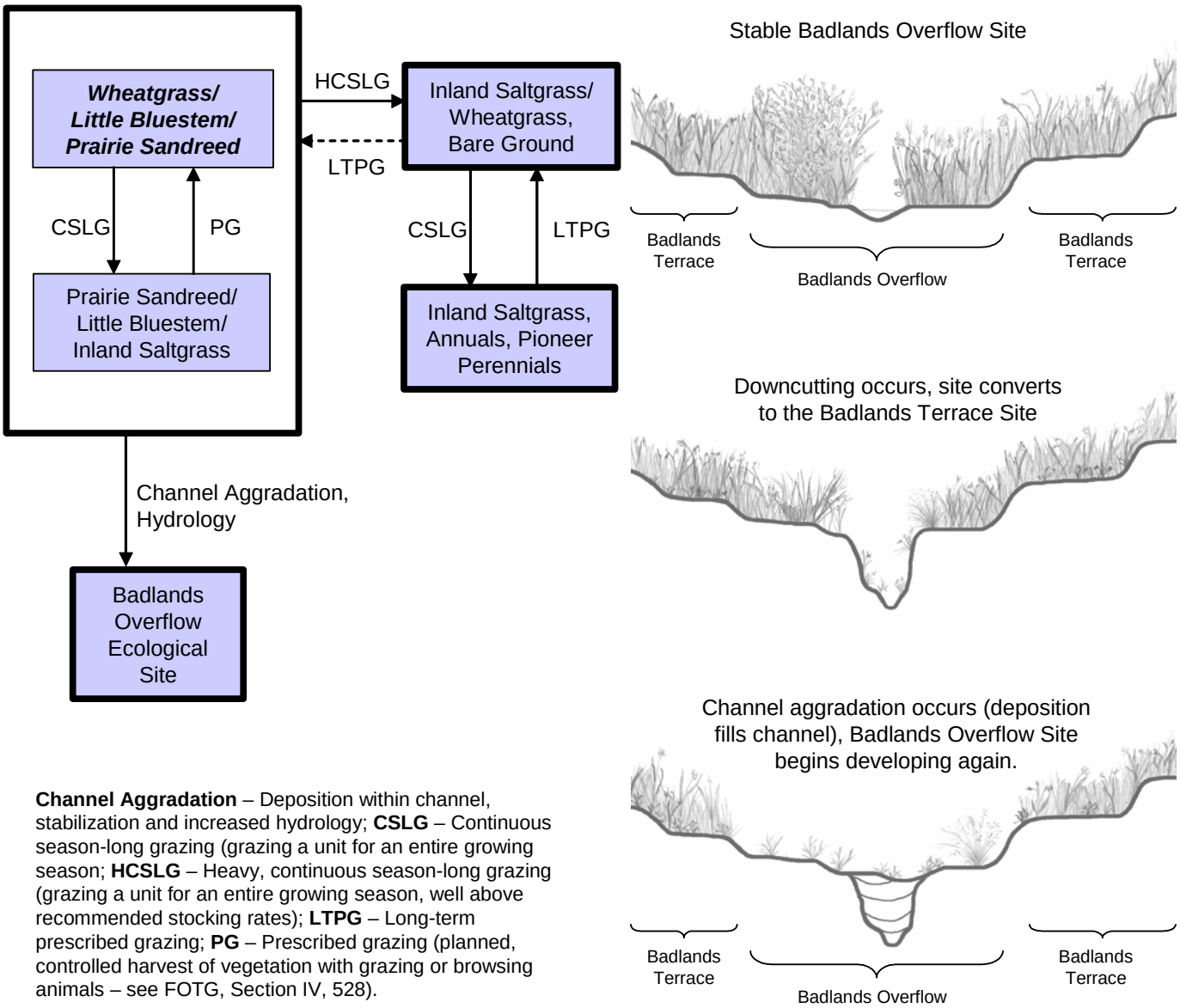
Continuous season-long grazing (during the typical growing season of May through October) and/or repeated seasonal grazing (e.g., every spring, every summer) without adequate recovery periods following each grazing occurrence causes this site to depart from the Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community. Prairie sandreed and little bluestem increase initially and will eventually decrease with continuous grazing. Grasses such as wheatgrass and green needlegrass will decrease in frequency and production. Reduction of vegetative cover can result in rapid degeneration of the site. Headcuts and downcutting are relatively common. With channel aggradation, this site can move to the Badlands Overflow ecological site.

Interpretations are primarily based on the Wheatgrass/Little 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 is a diagram that illustrates the common plant communities that can occur on the site and the transition pathways between communities. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways



Channel Aggradation – Deposition within channel, stabilization and increased hydrology; **CSLG** – Continuous season-long grazing (grazing a unit for an entire growing season; **HCSLG** – Heavy, continuous season-long grazing (grazing a unit for an entire growing season, well above recommended stocking rates); **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

		Wheatgrass/Little Bluestem/ Prairie Sandreed			Prairie Sandreed/Little Bluestem/Inland Saltgrass			Inland Saltgrass/Wheatgrass, Bare Ground			Inland Saltgrass, Annuals, Pioneer Perennials		
COMMON/GROUP NAME	**SYMBOL**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**	**Grp**	**lbs./acre**	**% Comp**
GRASSES & GRASS-LIKES			*1785 - 1995*	*85 - 95*		*1440 - 1620*	*80 - 90*		*800 - 900*	*80 - 90*		*420 - 560*	*60 - 80*
WHEATGRASS		**1**	**210 - 630**	**10 - 30**	**1**	**90 - 270**	**5 - 15**	**1**	**100 - 300**	**10 - 30**	**1**	**0 - 70**	**0 - 10**
western wheatgrass	PASM	1	210 - 630	10 - 30	1	90 - 270	5 - 15	1	100 - 300	10 - 30	1	0 - 70	0 - 10
thickspike wheatgrass	ELLAL	1	210 - 630	10 - 30	1	90 - 270	5 - 15	1	100 - 300	10 - 30	1	0 - 70	0 - 10
NEEDLEGRASS		**2**	**105 - 210**	**5 - 10**	**2**	**90 - 180**	**5 - 10**	**2**	**0 - 50**	**0 - 5**	**2**		
green needlegrass	NAVI4	2	105 - 210	5 - 10	2	18 - 90	1 - 5						
needleandthread	HECOC8	2	105 - 210	5 - 10	2	90 - 180	5 - 10	2	0 - 50	0 - 5			
TALL WARM-SEASON GRASSES		**3**	**315 - 525**	**15 - 25**	**3**	**270 - 630**	**15 - 35**	**3**	**0 - 100**	**0 - 10**	**3**		
prairie sandreed	CALO	3	210 - 525	10 - 25	3	270 - 630	15 - 35	3	0 - 100	0 - 10			
big bluestem	ANGE	3	0 - 105	0 - 5									
WARM-SEASON GRASSES		**4**	**210 - 630**	**10 - 30**	**4**	**450 - 900**	**25 - 50**	**4**	**20 - 350**	**2 - 35**	**4**	**140 - 350**	**20 - 50**
little bluestem	SCSC	4	210 - 525	10 - 25	4	270 - 630	15 - 35	4	0 - 100	0 - 10			
sideoats grama	BOCU	4	42 - 105	2 - 5	4	36 - 144	2 - 8	4	0 - 20	0 - 2			
blue grama	BOGR2	4	21 - 105	1 - 5	4	36 - 144	2 - 8	4	0 - 30	0 - 3			
hairy grama	BOHI2	4	0 - 63	0 - 3	4	0 - 90	0 - 5						
buffalograss	BUDA	4	0 - 105	0 - 5	4	0 - 90	0 - 5	4	0 - 20	0 - 2			
inland saltgrass	DISP	4	0 - 63	0 - 3	4	36 - 180	2 - 10	4	100 - 300	10 - 30	4	140 - 350	20 - 50
plains muhly	MUCU3	4	0 - 63	0 - 3	4	0 - 18	0 - 1						
NATIVE GRASSES/GRASS-LIKES		**5**	**0 - 105**	**0 - 5**	**5**	**18 - 90**	**1 - 5**	**5**	**0 - 50**	**0 - 5**	**5**	**0 - 105**	**0 - 15**
prairie junegrass	KOMA	5	0 - 63	0 - 3	5	0 - 54	0 - 3						
Sandberg bluegrass	POSE	5	0 - 63	0 - 3	5	0 - 36	0 - 2	5	0 - 10	0 - 1			
threeawn	ARIST	5	0 - 21	0 - 1	5	0 - 54	0 - 3		0 - 50	0 - 5		0 - 105	0 - 15
sedge	CAREX	5	0 - 105	0 - 5	5	0 - 54	0 - 3						
other perennial grasses	2GP	5	0 - 105	0 - 5	5	0 - 54	0 - 3	5	0 - 20	0 - 2	5	0 - 35	0 - 5
NON-NATIVE GRASSES		**6**			**6**	**18 - 54**	**1 - 3**	**6**	**10 - 50**	**1 - 5**	**6**	**0 - 35**	**0 - 5**
cheatgrass	BRTE				6	18 - 54	1 - 3	6	10 - 50	1 - 5	6	0 - 35	0 - 5
FORBS		*7*	*21 - 105*	*1 - 5*	*7*	*90 - 180*	*5 - 10*	*7*	*20 - 100*	*2 - 10*	*7*	*70 - 210*	*10 - 30*
American vetch	VIAM	7	21 - 42	1 - 2	7	0 - 36	0 - 2						
cudweed sagewort	ARLU	7	21 - 63	1 - 3	7	18 - 90	1 - 5	7	0 - 40	0 - 4	7	0 - 21	0 - 3
curlycup gumweed	GRSQ				7	0 - 36	0 - 2	7	0 - 30	0 - 3	7	0 - 70	0 - 10
deathcamas	ZIGAD	7	0 - 21	0 - 1	7	0 - 36	0 - 2	7	0 - 10	0 - 1			
dotted gayfeather	LIPU	7	0 - 42	0 - 2	7	0 - 36	0 - 2						
false boneset	BREU	7	0 - 63	0 - 3	7	0 - 18	0 - 1						
goldenrod	SOLID	7	21 - 63	1 - 3	7	18 - 54	1 - 3	7	0 - 30	0 - 3			
heath aster	SYER	7	21 - 42	1 - 2	7	18 - 90	1 - 5	7	0 - 30	0 - 3			
prairie coneflower	RACO3	7	21 - 42	1 - 2	7	0 - 36	0 - 2						
purple prairie clover	DAPU5	7	0 - 42	0 - 2	7	0 - 18	0 - 1						
pussytoes	ANTEN	7	0 - 21	0 - 1	7	0 - 36	0 - 2	7	0 - 10	0 - 1			
rush skeletonweed	LYJU	7	0 - 21	0 - 1	7	0 - 36	0 - 2	7	0 - 10	0 - 1	7	0 - 7	0 - 1
scarlet gaura	GACO5	7	21 - 42	1 - 2	7	0 - 18	0 - 1						
scarlet globemallow	SPCO	7	21 - 42	1 - 2	7	0 - 36	0 - 2	7	0 - 10	0 - 1	7	0 - 7	0 - 1
scurfpea	PSORA2	7	21 - 63	1 - 3	7	18 - 54	1 - 3	7	0 - 20	0 - 2			
verbena	VERBE	7	0 - 21	0 - 1	7	0 - 36	0 - 2	7	0 - 10	0 - 1			
western ragweed	AMPS	7	0 - 42	0 - 2	7	18 - 54	1 - 3	7	0 - 20	0 - 2	7	0 - 7	0 - 1
western yarrow	ACMI2	7	0 - 42	0 - 2	7	0 - 54	0 - 3	7	0 - 10	0 - 1			
other annual forbs	2FA	7	0 - 21	0 - 1	7	0 - 90	0 - 5	7	0 - 30	0 - 3	7	0 - 105	0 - 15
other perennial forbs	2FP	7	21 - 63	1 - 3	7	18 - 54	1 - 3	7	10 - 50	1 - 5	7	0 - 105	0 - 15
SHRUBS		*8*	*42 - 210*	*2 - 10*	*8*	*36 - 180*	*2 - 10*	*8*	*50 - 150*	*5 - 15*	*8*	*7 - 70*	*1 - 10*
big sagebrush	ARTR2	8	0 - 105	0 - 5	8	0 - 180	0 - 10	8	0 - 50	0 - 5			
broom snakeweed	GUSA2				8	0 - 54	0 - 3	8	0 - 50	0 - 5	8	0 - 35	0 - 5
rose	ROSA5	8	21 - 63	1 - 3	8	18 - 90	1 - 5	8	0 - 50	0 - 5	8	0 - 7	0 - 1
silver buffaloberry	SHAR	8	0 - 63	0 - 3	8	0 - 54	0 - 3						
silver sagebrush	ARCA13	8	0 - 126	0 - 6	8	0 - 180	0 - 10	8	0 - 100	0 - 10	8	0 - 70	0 - 10
small soapweed	YUGL	8	0 - 63	0 - 3	8	0 - 90	0 - 5	8	0 - 50	0 - 5			
western snowberry	SYOC	8	21 - 105	1 - 5	8	18 - 90	1 - 5	8	0 - 30	0 - 3			
other shrubs	2SHRUB	8	0 - 63	0 - 3	8	0 - 36	0 - 2	8	0 - 30	0 - 3			
TREES		*9*	*0 - 21*	*0 - 1*	*9*	*0 - 18*	*0 - 1*	*9*	*0 - 10*	*0 - 1*	*9*	*0 - 7*	*0 - 1*
plains cottonwood	PODEM	9	0 - 21	0 - 1	9	0 - 18	0 - 1	9	0 - 10	0 - 1	9	0 - 7	0 - 1
other trees	2TREE				9	0 - 18	0 - 1	9	0 - 10	0 - 1	9	0 - 7	0 - 1

Annual Production lbs./acre	LOW RV HIGH	LOW RV HIGH	LOW RV HIGH	LOW RV HIGH
GRASSES & GRASS-LIKES	1540 - 1901 - 2250	1180 - 1548 - 1910	440 - 835 - 1225	330 - 518 - 700
FORBS	20 - 63 - 110	85 - 135 - 185	15 - 60 - 105	65 - 140 - 215
SHRUBS	40 - 126 - 215	35 - 108 - 185	45 - 100 - 155	5 - 39 - 75
TREES	0 - 11 - 25	0 - 9 - 20	0 - 5 - 15	0 - 4 - 10
TOTAL	1600 - 2100 - 2600	1300 - 1800 - 2300	500 - 1000 - 1500	400 - 700 - 1000

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" (DPC's). According to the USDA Natural Resources Conservation Service (NRCS) National Range and Pasture Handbook, 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.

Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community

Interpretations are based primarily on the Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community (this is also considered climax). This plant community evolved with grazing by large herbivores and occasional prairie fires. This plant community is typically derived from the Badlands Overflow site, where downcutting and entrenchment has dropped the water table and left the vegetation in a much drier terrace position. The potential vegetation is about 85 percent grasses and grass-like plants, 5 percent forbs, and 10 percent shrubs. Major grasses include western wheatgrass and/or thickspike wheatgrass, little bluestem, and prairie sandreed. Other grasses occurring on this community include green needlegrass, needleandthread, and sideoats grama. Major forbs and shrubs include cudweed sagewort, goldenrod, scurfpea, rose, silver sagebrush, and western snowberry. Scattered plains cottonwood may occur.

This plant community is productive and diverse. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community in regards to site/soil stability, watershed function, and biologic integrity as long as extreme erosion or depositional events do not occur.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6409
Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season subdominant.
Growth curve description: Warm-season dominant, cool-season subdominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	8	18	27	23	12	6	3	0	0

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

- Continuous season-long grazing will shift this plant community toward the *Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community*.
- Heavy, continuous season-long grazing will shift this plant community toward the *Inland Saltgrass/Wheatgrass, Bare Ground Plant Community*.
- Channel aggradation will likely shift this site to the Badlands Overflow ecological site.

Prairie Sandreed/Little Bluestem/Inland Saltgrass Plant Community

This plant community is a result continuous season-long grazing. Western wheatgrass and/or thickspike wheatgrass decrease, while prairie sandreed, little bluestem, and inland saltgrass increase. The potential vegetation is about 80 percent grasses or grass-like species, 10 percent forbs, and 10 percent shrubs. Other grasses and grass-likes include needleandthread, sideoats grama, and blue

grama. Significant forbs include cudweed sagewort, heath aster, scurfpea, and western ragweed. The dominant shrubs include rose, silver sagebrush, and western snowberry.

Production and diversity has declined somewhat compared to the Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community. There is typically more bare ground as a result of erosion and/or deposition. The plant community is still relatively stable, but more prone to continued erosion.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6409
Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.
Growth curve description: Warm-season dominant, cool-season sub-dominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	8	18	27	23	12	6	3	0	0

Transitional pathways leading to other plant communities are as follows.

- Heavy, continuous season-long grazing will shift this plant community toward the *Inland Saltgrass/Wheatgrass, Bare Ground Plant Community*.

- Prescribed grazing will shift this plant community toward the *Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community*.

- Channel aggradation will likely shift this site to the Badlands Overflow Ecological Site.

Inland Saltgrass/Wheatgrass, Bare Ground Plant Community

This plant community is a result of heavy, continuous season-long grazing. Inland saltgrass increases significantly. Western wheatgrass and/or thickspike wheatgrass increase slightly in composition, while prairie sandreed and little bluestem decrease dramatically. Big bluestem and green needlegrass are no longer present. Other grasses and grass-likes include threeawn and needleandthread. Significant forbs include cudweed sagewort, curlycup gumweed and heath aster. Shrubs of significance include silver sagebrush, rose, small soapweed and big sagebrush in the western portions of the MLRA. Potential vegetation is about 75 percent grasses or grass-like plants, 10 percent forbs, and 15 percent shrubs.

Production and diversity has declined considerably when compared to the Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community. Bare ground is evident, and occupies from 20-50 percent of the ground surface. The plant community has a greatly diminished effect on site stability, and future weather events determine site aggradation or degradation.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6408
Growth curve name: Pine Ridge/Badlands, lowland cool-season/warm-season co-dominant.
Growth curve description: Cool-season, warm-season co-dominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	12	20	25	19	11	5	3	0	0

Transitional pathways leading to other plant communities are as follows.

- Continuous season-long grazing will shift this plant community toward the *Inland Saltgrass, Annuals, Pioneer Perennials Plant Community*.

- Long-term prescribed grazing may eventually move this plant community through successional stages leading toward the *Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community*.

Inland Saltgrass, Annuals, Pioneer Perennials Plant Community

This plant community develops with continuous season-long grazing. The vegetation is mainly made up of inland saltgrass and various annual and pioneer perennial grasses and forbs. Western wheatgrass and/or thickspike wheatgrass typically will remain in small amounts. Most other native species are either greatly diminished or absent. Silver sagebrush, rose and broom snakeweed may survive under these extreme conditions.

This plant community is susceptible to increased erosion, as the vigor of most plants is reduced, and bare ground is prevalent. However, at times the inland saltgrass, which avoids grazing, can persist and serve to stabilize the site.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during a normal year:
Growth curve number: NE6409
Growth curve name: Pine Ridge/Badlands, warm-season dominant, cool-season sub-dominant.
Growth curve description: Warm-season dominant, cool-season sub-dominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	3	8	18	27	23	12	6	3	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- With long-term prescribed grazing this plant community may eventually move toward the *Inland Saltgrass/Wheatgrass, Bare Ground Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under Development --

Wheatgrass/Little Bluestem/Prairie Sandreed Plant Community:

Prairie Sandreed/Little Bluestem/Inland Saltgrass Plant Community:

Inland Saltgrass/Wheatgrass, Bare Ground Plant Community:

Inland Saltgrass, Annuals, Pioneer Perennials Plant Community:

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

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses & Grass-likes							
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
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
green needlegrass	U P U D	N P N P	U P U D	N P N P	N P N P	U P U D	U P U 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
inland saltgrass	N U U N	N N N N	N U U N	N N N N	N N N N	N U U N	N U U N
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
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
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
Sandberg bluegrass	N U N N	N D N N	N U N N	N D N N	N D N N	N U N N	N U N N
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
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
thickspike wheatgrass	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
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							
American vetch	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
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
deathcamas	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T	T T T T
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
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
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
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 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
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
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
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
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
verbena	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
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
western yarrow	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
Shrubs							
big sagebrush	U N U U	D U U D	U N U U	P U D P	P P P P	U N U U	D 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
silver buffaloberry	D U U U	D U U U	D U U U	P U D P	U U U U	D U U U	D U U U
silver sagebrush	D U U D	D U U D	D U U D	P D D P	P P P P	D U U D	D U U D
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 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
Trees							
plains cottonwood	D U U D	D U U D	D U U D	D U D D	D U U D	D U U 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)
Wheatgrass/Little Bluestem/Prairie Sandreed	2100	0.66
Prairie Sandreed/Little Bluestem/Inland Saltgrass	1800	0.57
Inland Saltgrass/Wheatgrass, Bare Ground	1000	0.32
Inland Saltgrass, Annuals, Pioneer Perennials	700	0.22

* Based on 790 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).

** Highly variable; stocking rate needs to be determined onsite.

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 B. Infiltration rate is moderate. Runoff potential for this site varies from moderate to high depending on soil hydrologic group 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 short-grasses form a strong sod and dominate the site. 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).

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 this site.

Other Products

None noted.

Supporting Information

Associated Sites

(064XY048NE) – Badlands Overflow (064XY036NE) – Loamy 17-20" P.Z.

Similar Sites

(064XY048NE) – Badlands Overflow [switchgrass present; less little bluestem; more productive]

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; Kent Cooley, Soil Scientist, NRCS; Rick Peterson, Range Management Specialist, NRCS; and L. Michael Stirling, Range Management Specialist, NRCS.

Data Source	Number of Records	Sample Period	State	County
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: 43h – White River Badlands.

Other References

Carey, Carol. 2004. Provided art work for Plant Communities and Transitional Pathways diagram.

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		