

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Sandy Lowland

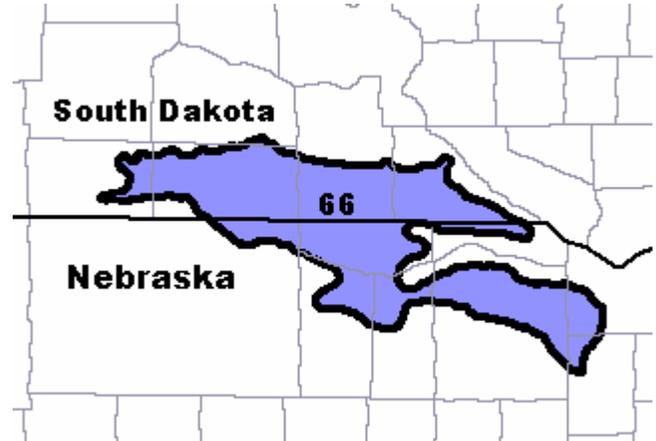
Site ID: R066XY051NE

Major Land Resource Area (MLRA): 66 –
Dakota - Nebraska Eroded Tableland

Physiographic Features

This site occurs on stream terraces and uplands where gravelly sediments are deposited.

Landform: ridge, terrace, and alluvial fan



Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1900	3000
Slope (percent):	0	3
Water Table Depth (inches):	36	80
Flooding:		
Frequency:	Rare	Frequent
Duration:	Very Brief	Brief
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Negligible

Climatic Features

MLRA 66 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 18 to 25 inches per year. The normal average annual temperature is about 48°F. January is the coldest month with average temperatures ranging from about 19°F (Bonesteel, South Dakota (SD)), to about 23°F (Ainsworth, Nebraska (NE)). July is the warmest month with temperatures averaging from about 73°F (Harrington, SD), to about 75°F (Gregory, SD). The range of normal average monthly temperatures between the coldest and warmest months is about 54°F. This large annual range attests to the continental nature of this area’s climate. Hourly winds average about 10 miles per hour annually, ranging from about 11 miles per hour during the spring to about 9 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.

	<u>Minimum</u>	<u>Maximum</u>
Frost-free period (days):	127	154
Freeze-free period (days):	144	173
Mean Annual Precipitation (inches):	18	25

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

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.28	0.42	8.2	33.6
February	0.48	0.69	13.5	38.9
March	0.92	1.58	21.3	46.9
April	1.94	3.03	31.7	61.2
May	3.08	4.20	42.8	72.5
June	3.10	3.74	52.6	82.2
July	2.86	3.25	58.5	88.3
August	2.33	2.68	56.2	86.8
September	1.54	2.71	45.9	77.3
October	1.03	1.79	33.7	65.0
November	0.55	0.94	20.8	47.6
December	0.32	0.45	11.2	37.1

Climate Stations		Period	
Station ID	Location or Name	From	To
NE0050	Ainsworth	1948	2003
SD0778	Bonesteel	1956	2003
NE1365	Butte	1948	2003
SD3574	Harrington	1960	2003
NE8760	Valentine WSO AP	1948	2003

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

Influencing Water Features

No significant water features influence this site.

Representative Soil Features

The soils of this site are very deep moderately well to well drained soils that formed in alluvium. Surface layers vary from three to six inches thick. These soils have moderately slow to very slow permeability and are moderately to strongly saline and/or alkaline. Higher soluble salt concentrations may be found in the subsoil. The surface layer will be highly variable and vary from 2 to 18 inches in thickness. The surface texture ranges from loamy fine sand to silty clay loam. A fluctuating water table occurs in these areas within four feet of the surface. These areas are subject to occasional overflow. 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.

Site Type: Rangeland
MLRA: 66 – Dakota - Nebraska Eroded Tableland

Sandy Lowland
R066XY051NE

More information can be found in the various soil survey reports. Contact the local United States Department of Agriculture (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: sand, loamy sand, sandy loam
Surface Texture Modifier: none
Subsurface Texture Group: sandy
Surface Fragments ≤3" (% Cover): 0-5
Surface Fragments >3" (%Cover): 0
Subsurface Fragments ≤3" (% Volume): 0-15
Subsurface Fragments >3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	moderately well	excessively
Permeability Class:	moderately rapid	rapid
Depth (inches):	80	80
Electrical Conductivity (mmhos/cm)*:	0	0
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	7
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:

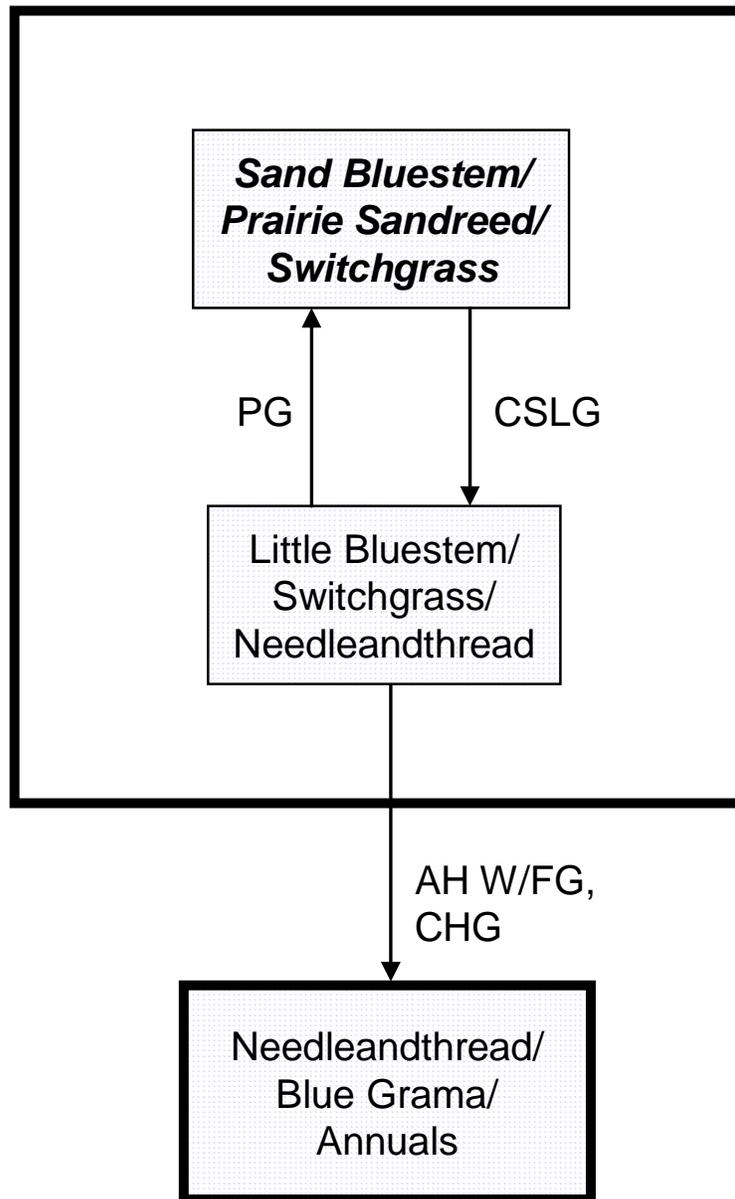
This site includes depressional areas, which allow for deep-rooted native warm-season grasses to utilize subsurface moisture. It is often a transitional area between Sandy and Subirrigated sites. If management common to Subirrigated sites extends onto Sandy Lowland sites, the plant community can quickly shift due to the limited availability of subsoil moisture.

The site is resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance. As this site deteriorates, species such as prairie sandreed, little bluestem, sand dropseed, and blue grama will increase initially. Species such as sand bluestem and switchgrass will decrease in frequency and production. With continued improper management, prairie sandreed, and little bluestem will also decrease with a significant increase in cool-season grasses and forbs.

Interpretations are primarily based on the Sand Bluestem/Prairie Sandreed/Switchgrass Plant Community. It has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational haying or 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. Subclimax 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



AH W/FG – Annual haying with fall grazing; **CHG** – Continuous heavy grazing; **CSLG** – Continuous season-long grazing; **HCPC** – Historical Climax Plant Community; **PG** – Prescribed grazing.

Plant Community Composition and Group Annual Production

COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Sand Bluestem/Prairie Sandreed/Switchgrass			
			Group	lbs./acre	% Comp	
GRASSES & GRASS-LIKES				2465 - 2755	85 - 95	
WARM-SEASON GRASSES			1	1160 - 2320	40 - 80	
sand bluestem	Andropogon hallii	ANHA	1	580 - 1160	20 - 40	
prairie sandreed	Calamovilfa longifolia	CALO	1	435 - 870	15 - 30	
little bluestem	Schizachyrium scoparium	SCSC	1	435 - 870	15 - 30	
switchgrass	Panicum virgatum	PAVI2	1	290 - 580	10 - 20	
OTHER NATIVE GRASSES			2	435 - 1160	15 - 40	
needleandthread	Hesperostipa comata ssp. comata	HECOC8	2	145 - 435	5 - 15	
Indiangrass	Sorghastrum nutans	SONU2	2	0 - 145	0 - 5	
blue grama	Bouteloua gracilis	BOGR2	2	0 - 290	0 - 10	
hairy grama	Bouteloua hirsuta	BOHI2	2	0 - 145	0 - 5	
prairie junegrass	Koeleria macrantha	KOMA	2	0 - 58	0 - 2	
sand lovegrass	Eragrostis trichodes	ERTR3	2	0 - 145	0 - 5	
sand dropseed	Sporobolus cryptandrus	SPCR	2	0 - 145	0 - 5	
purple lovegrass	Eragrostis spectabilis	ERSP	2	0 - 145	0 - 5	
sand paspalum	Paspalum setaceum	PASE5	2	0 - 58	0 - 2	
Scribner panicum	Dichanthelium oligosanthes var. scribnerianum	DIOLS	2	0 - 58	0 - 2	
sedge	Carex spp.	CAREX	2	29 - 145	1 - 5	
western wheatgrass	Pascopyrum smithii	PASM	2	0 - 145	0 - 5	
other perennial grasses		2GP	2	0 - 145	0 - 5	
FORBS			4	145 - 290	5 - 10	
cudweed sagewort	Artemisia ludoviciana	ARLU	4	0 - 29	0 - 1	
cutleaf ironplant	Machaeranthera pinnatifida	MAPI	4	0 - 29	0 - 1	
dotted gayfeather	Liatris punctata	LIPU	4	0 - 58	0 - 2	
false boneset	Brickellia eupatorioides	BREU	4	0 - 29	0 - 1	
goldenrod	Solidago spp.	SOLID	4	0 - 58	0 - 2	
heath aster	Symphotrichum ericoides	SYER	4	0 - 58	0 - 2	
penstemon	Penstemon spp.	PENST	4	0 - 58	0 - 2	
plains larkspur	Delphinium carolinianum ssp. virescens	DECAV2	4	0 - 29	0 - 1	
prairie coneflower	Ratibida columnifera	RACO3	4	0 - 29	0 - 1	
purple prairie clover	Dalea purpurea	DAPU5	4	0 - 58	0 - 2	
serrateleaf eveningprimrose	Calylophus serrulatus	CASE12	4	0 - 29	0 - 1	
stiff sunflower	Helianthus pauciflorus	HEPA19	4	0 - 29	0 - 1	
verbena	Verbena spp.	VERBE	4	0 - 29	0 - 1	
western ragweed	Ambrosia psilostachya	AMPS	4	0 - 29	0 - 1	
other perennial forbs		2FP	4	0 - 58	0 - 2	
other annual forbs		2FA	4	0 - 29	0 - 1	
SHRUBS			5	0 - 145	0 - 5	
leadplant	Amorpha canescens	AMCA6	5	0 - 58	0 - 2	
rose	Rosa spp.	ROSA5	5	0 - 58	0 - 2	
other shrubs		2SHRUB	5	0 - 87	0 - 3	
Annual Production lbs./acre				LOW	RV	HIGH
GRASSES & GRASS-LIKES				2260	2610	2925
FORBS				140	218	325
SHRUBS				0	73	150
TOTAL				2400	2900	3400

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/Switchgrass			Little Bluestem/Prairie Sandreed/Needleandthread			Needleandthread/Blue Grama/Annuals		
		Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			2465 - 2755	85 - 95		1840 - 2185	80 - 95		1350 - 1710	75 - 95
WARM-SEASON GRASSES		1	1160 - 2320	40 - 80	1	460 - 1150	20 - 50	1	0 - 180	0 - 10
sand bluestem	ANHA	1	580 - 1160	20 - 40	1	115 - 230	5 - 10			
prairie sandreed	CALO	1	435 - 870	15 - 30	1	115 - 460	5 - 20	1	0 - 90	0 - 5
little bluestem	SCSC	1	435 - 870	15 - 30	1	115 - 690	5 - 30	1	0 - 90	0 - 5
switchgrass	PAVI2	1	290 - 580	10 - 20	1	115 - 230	5 - 10			
OTHER NATIVE GRASSES		2	435 - 1160	15 - 40	2	575 - 1495	25 - 65	2	720 - 1440	40 - 80
needleandthread	HECOC8	2	145 - 435	5 - 15	2	115 - 345	5 - 15	2	90 - 450	5 - 25
Indiangrass	SONU2	2	0 - 145	0 - 5	2	0 - 23	0 - 1			
blue grama	BOGR2	2	0 - 290	0 - 10	2	115 - 345	5 - 15	2	90 - 450	5 - 25
hairy grama	BOHI2	2	0 - 145	0 - 5	2	0 - 115	0 - 5	2	0 - 90	0 - 5
prairie junegrass	KOMA	2	0 - 58	0 - 2	2	0 - 23	0 - 1	2	18 - 90	1 - 5
sand lovegrass	ERTR3	2	0 - 145	0 - 5	2	0 - 23	0 - 1			
sand dropseed	SPCR	2	0 - 145	0 - 5	2	23 - 230	1 - 10	2	90 - 360	5 - 20
purple lovegrass	ERSP	2	0 - 145	0 - 5	2	0 - 23	0 - 1			
sand paspalum	PASE5	2	0 - 58	0 - 2	2	0 - 46	0 - 2	2	0 - 90	0 - 5
Scribner panicum	DIOLS	2	0 - 58	0 - 2	2	0 - 115	0 - 5	2	0 - 90	0 - 5
sedge	CAREX	2	29 - 145	1 - 5	2	23 - 115	1 - 5	2	18 - 180	1 - 10
western wheatgrass	PASM	2	0 - 145	0 - 5	2	0 - 230	0 - 10	2	18 - 180	1 - 10
other perennial grasses	2GP	2	0 - 145	0 - 5	2	0 - 115	0 - 5	2	0 - 90	0 - 5
NON-NATIVE GRASSES		3			3	0 - 230	0 - 10	3	90 - 540	5 - 30
cheatgrass	BRTE				3	0 - 115	0 - 5	3	0 - 270	0 - 15
Kentucky bluegrass	POPR				3	0 - 115	0 - 5	3	0 - 270	0 - 15
FORBS		4	145 - 290	5 - 10	4	115 - 230	5 - 10	4	90 - 270	5 - 15
cudweed sagewort	ARLU	4	0 - 29	0 - 1	4	0 - 69	0 - 3	4	0 - 90	0 - 5
cutleaf ironplant	MAPI	4	0 - 29	0 - 1	4	0 - 23	0 - 1	4	0 - 18	0 - 1
dotted gayfeather	LIPU	4	0 - 58	0 - 2	4	0 - 23	0 - 1	4	0 - 18	0 - 1
false boneset	BREU	4	0 - 29	0 - 1	4	0 - 23	0 - 1	4	0 - 18	0 - 1
goldenrod	SOLID	4	0 - 58	0 - 2	4	0 - 46	0 - 2	4	0 - 36	0 - 2
heath aster	SYER	4	0 - 58	0 - 2	4	0 - 115	0 - 5	4	0 - 90	0 - 5
penstemon	PENST	4	0 - 58	0 - 2	4	0 - 23	0 - 1			
plains larkspur	DECAV2	4	0 - 29	0 - 1	4	0 - 23	0 - 1	4	0 - 18	0 - 1
prairie coneflower	RACO3	4	0 - 29	0 - 1	4	0 - 23	0 - 1			
purple prairie clover	DAPU5	4	0 - 58	0 - 2	4	0 - 23	0 - 1	4	0 - 18	0 - 1
serrateleaf eveningprimrose	CASE12	4	0 - 29	0 - 1	4	0 - 23	0 - 1	4	0 - 18	0 - 1
stiff sunflower	HEPA19	4	0 - 29	0 - 1	4	0 - 23	0 - 1			
thistle	CIRSI				4	0 - 23	0 - 1	4	0 - 90	0 - 5
verbena	VERBE	4	0 - 29	0 - 1	4	0 - 115	0 - 5	4	0 - 90	0 - 5
western ragweed	AMPS	4	0 - 29	0 - 1	4	0 - 115	0 - 5	4	0 - 270	0 - 15
other perennial forbs	2FP	4	0 - 58	0 - 2	4	0 - 46	0 - 2	4	0 - 36	0 - 2
other annual forbs	2FA	4	0 - 29	0 - 1	4	0 - 46	0 - 2	4	0 - 54	0 - 3
SHRUBS		5	0 - 145	0 - 5	5	0 - 230	0 - 10	5	0 - 180	0 - 10
cactus	OPUNT				5	0 - 46	0 - 2	5	0 - 180	0 - 10
leadplant	AMCA6	5	0 - 58	0 - 2	5	0 - 23	0 - 1			
rose	ROSA5	5	0 - 58	0 - 2	5	0 - 69	0 - 3	5	0 - 90	0 - 5
other shrubs	2SHRUB	5	0 - 87	0 - 3	5	0 - 115	0 - 5	5	0 - 90	0 - 5
Annual Production lbs./acre			LOW RV HIGH			LOW RV HIGH			LOW RV HIGH	
GRASSES & GRASS-LIKES			2260 - 2610 - 2925			1890 - 2013 - 2100			1415 - 1530 - 1615	
FORBS			140 - 218 - 325			110 - 173 - 250			85 - 180 - 300	
SHRUBS			0 - 73 - 150			0 - 115 - 250			0 - 90 - 185	
TOTAL			2400 - 2900 - 3400			2000 - 2300 - 2600			1500 - 1800 - 2100	

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 repeatable. 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 considered “Desired Plant Communities (DPC).” According to the USDA 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 these communities is to capture the current knowledge and experience at the time of this revision.

Sand Bluestem/Prairie Sandreed/Switchgrass Plant Community

Interpretations are primarily based on this community (it is also considered climax). This site evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community is found on areas that are properly managed with grazing and or prescribed burning. Harvesting hay biennially at a different time during the growing season will allow this plant community to persist. The potential vegetation is about 90 percent grasses, 5 percent forbs, and 5 percent woody plants. Tall, warm-season grasses predominate.

The major grasses include sand bluestem, prairie sandreed, switchgrass, and little bluestem. Other grasses occurring in this plant community include needleandthread, Indiangrass, hairy and blue grama, and grass-likes including sedges.

This plant community is extremely resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a healthy and sustainable plant community (site/soil stability, watershed function, and biologic integrity).

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

Growth curve number: NE6637

Growth curve name: Eroded Tableland, 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	5	8	15	24	23	15	5	5	0	0

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

- Continuous season-long grazing will convert the plant community to the *Little Bluestem/Switchgrass/Needleandthread Plant Community*. Continuous heavy grazing tends to accelerate this movement.

Little Bluestem/Switchgrass/Needleandthread Plant Community

Plants resistant to grazing are maintaining themselves in this plant community which developed under grazing by domestic livestock. Most of the palatable plants from the Sand bluestem/Prairie sandreed/Switchgrass Plant Community are present but occur in lesser amounts. The potential vegetation is about 85 percent grasses or grass-like plants, 10 percent forbs, and 5 percent woody species. Dominant grasses include prairie sandreed and little bluestem. Grasses of secondary importance include blue or hairy grama, needleandthread, sand dropseed, and western wheatgrass. Forbs commonly found in this plant community include cudweed sagewort, heath aster, goldenrod, verbena, and western ragweed. Indiangrass is no longer present and sand bluestem and perennial forbs are present in lesser amounts.

This plant community has a higher percentage of cool-season grasses and forbs than the Sand bluestem/Prairie sandreed/Switchgrass Plant Community. Lesser amounts of desirable tall warm season grasses reduces production and the community's ability to increase production in favorable years.

The soil surface has remained intact. This plant community is considered stable, but is at risk if a major shift in climate or overgrazing occurs. The resiliency of this plant community is moderate depending on the intensity and duration of disturbance. Infiltration and runoff are not greatly affected due to the nature of the soil.

The close proximity of this site to the Subirrigated ecological site often leads to identical management scenarios on both areas. The lack of subsoil moisture reduces the ability of the Sandy Lowland site grasses to adequately recover from annual mowing to maintain plant vigor and health. One option is to hay this site biennially, and graze the site every fall in conjunction with the Subirrigated site. Fencing along ecological site boundaries provides additional management scenarios on both Subirrigated and Sandy Lowland sites. This option should be considered if adequate water facilities exist.

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

Growth curve number: NE6637

Growth curve name: Eroded Tableland, 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	5	8	15	24	23	15	5	5	0	0

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

- Continuous season-long grazing or annual haying followed by fall grazing will convert the plant community to the *Needleandthread/Blue Grama/Annuals Plant Community*. This shift crosses the threshold and requires reseeding to return to a productive, stable plant community within a forage suitability group.
- Prescribed grazing with and adequate recovery period will return this plant community to the *Sand Bluestem/Prairie Sandreed/Switchgrass Plant Community*.

Needleandthread/Blue Grama/Annuals Plant Community

This plant community develops with heavy livestock grazing, usually season-long, or with annual haying followed by fall grazing. Plant diversity is diminished as the bluestems, prairie sandreed, and switchgrass are removed from the plant community. Small isolated plants may exist in a prostrate form to avoid defoliation. The potential vegetation is about 80 percent grass or grass-like plants, 10 percent forbs, and 10 percent shrubs. Dominate grasses include needleandthread, blue or hairy grama, and sand dropseed. Other grasses or grass-likes include annual bromes, Kentucky bluegrass, prairie Junegrass, Scribner panicum, western wheatgrass, and sedges. Dominant forbs include Western ragweed, verbena, cudweed sagewort, thistle, and heath aster. Plant diversity is low. Sand sagebrush shows significant increase in Vegetative Zone I, with cactus and rose showing the most increase in Vegetative Zones II and III. Annual haying delays the increase of sand sagebrush and rose, but increases the cactus component in this community.

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R066XY051NE

This plant community is fairly resistant to change. If disturbed, it is not resilient due to the low species diversity. Soil erosion is low. The water cycle is reduced because of the lack of surface litter. Infiltration is moderate due to soil texture, which also reduces runoff.

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

Growth curve number: NE6638

Growth curve name: Eroded Tableland, 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

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

Due to the lack of native tall warm season grass remnants and large amounts of blue and hairy grama, annual bromes, and Kentucky bluegrass, improved management techniques have little effect on shifting the plant community. To improve plant diversity and forage production, suppression of the existing plant community followed by re-seeding will be necessary. See Forage Suitability Groups for additional information.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under Development --

Sand Bluestem/Prairie Sandreed/Switchgrass Plant Community:

Little Bluestem/Switchgrass/Needleandthread Plant Community:

Needleandthread/Blue Grama/Annuals 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
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
Indiangrass	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
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
purple lovegrass	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	U U U 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
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
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							
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
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
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
plains larkspur	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
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
serrateleaf eveningprimrose	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
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
Shrubs							
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
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

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 suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions; however, *continuous grazing is not recommended*. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. 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/Switchgrass	2900	0.79
Little Bluestem/Prairie Sandreed/Needleandthread	2300	0.63
Needleandthread/Blue Grama/Annuals	1800	**

*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).

**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. Meadin and Simeon soils on this site are in Hydrologic Soil Group A. Water transmission through Group A soils is normally greater than 0.30 inches per hour. Runoff is expected to occur only during the most intense storms (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

The high infiltration rate of these sands results in few rills and gullies or water flow patterns. Pedestals are only slightly present in association with bunchgrasses such as needleandthread. Litter typically falls in place. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present but only cover one to two percent of the soil surface. This crusting is not significant for hydrologic considerations. Overall, this site has the appearance of being stable and productive.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide varieties 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

(066XY033NE) – Sands 18-22" P.Z.

(066XY032NE) – Sandy 18-22" P.Z.

(066XY036NE) – Loamy 18-22" P.Z.

(066XY055NE) – Sands 22-25" P.Z.

(066XY054NE) – Sandy 22-25" P.Z.

(066XY058NE) – Loamy 22-25" P.Z.

Similar Sites

(066XY032NE) – Sandy 18-22" P.Z.

[higher production; sand bluestem dominant; less blue grama]

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: Wayne Bachman, Soil Scientist, NRCS; Stan Boltz, Range Management Specialist, NRCS; Anna Ferguson, Soil Conservationist, NRCS; Roger Hammer, Soil Scientist, NRCS; Dana Larsen, Range Management Specialist, NRCS; Dave Schmidt, Rangeland Management Specialist, NRCS; and Kim Stine, Rangeland Management Specialist, NRCS.

Data Source Number of Records Sample Period State County
SCS-RANGE-417

State Correlation

This site has been correlated with NE and SD in MLRA 66.

Field Offices Counties

Ainsworth, NE Brown, Keya Paha & Rock
Bloomfield, NE Knox
Burke, SD Gregory
Martin, SD Bennett & Shannon
Neligh, NE Antelope

Field Offices Counties

O'Neill, NE Holt
Spencer, NE Boyd
Valentine, NE Cherry
White River, SD Mellette, Todd
Winner, SD Tripp

Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States: 43i – Keya Paha Tablelands.

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, 2002. National Soil Survey Handbook, title 430-VI. (<http://soils.usda.gov/technical/handbook/>)

Site Description Approval

NE, State Range Management Specialist

Date

SD, State Range Management Specialist

Date