

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Wet Subirrigated

Site ID: R066XY045NE

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



Physiographic Features

This site occurs on nearly level wet swales of interdunes on uplands and on floodplains and stream terraces of valleys.

Landform: swales, flood plain, stream terrace **Aspect:** N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1900	3000
Slope (percent):	0	2
Water Table Depth (inches):	0	18
Flooding:		
Frequency:	None	Frequent
Duration:	None	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

This ecological site has a combination of physical and hydrological features that: 1) provide season-long ground water within three and one-half feet of the surface, 2) allows relatively free movement of water and air in the upper part of the soil, and 3) are rarely to frequently flooded.

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Subclass</u>
Cowardin, et. al., 1979	Palustrine	N/A	Emergent Wetland	Persistent

Stream Type: None (Rosgen System)

Representative Soil Features

The features common to all soils in this site are the sandy and loamy textured surface layers and slopes of zero to two percent. The soils in this site are poorly drained and formed in eolian sands and sandy alluvium on the upland swales and in sandy alluvium on the floodplains and stream terraces. The surface layer is 3 to 10 inches thick. The control section texture ranges from loamy sand to gravelly coarse sand and has thin strata of loamy material. Runoff as evidenced by patterns of rills, gullies, or other water flow is negligible because of the low slope gradient and high infiltration of these soils. Some pedestalling of plants occurs, but it is not very evident on casual observation and occurs on less than five percent of the plants.

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: loamy fine sand, fine sandy loam, loamy sand

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:	poorly	poorly
Permeability Class:	rapid	rapid
Depth (inches):	80	80
Electrical Conductivity (mmhos/cm)*:	0	2
Sodium Absorption Ratio*:	0	5
Soil Reaction (1:1 Water)*:	5.6	8.4
Soil Reaction (0.1M CaCl₂)*:	NA	NA
Available Water Capacity (inches)*:	3	6
Calcium Carbonate Equivalent (percent)*:	0	40

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

Plant Communities

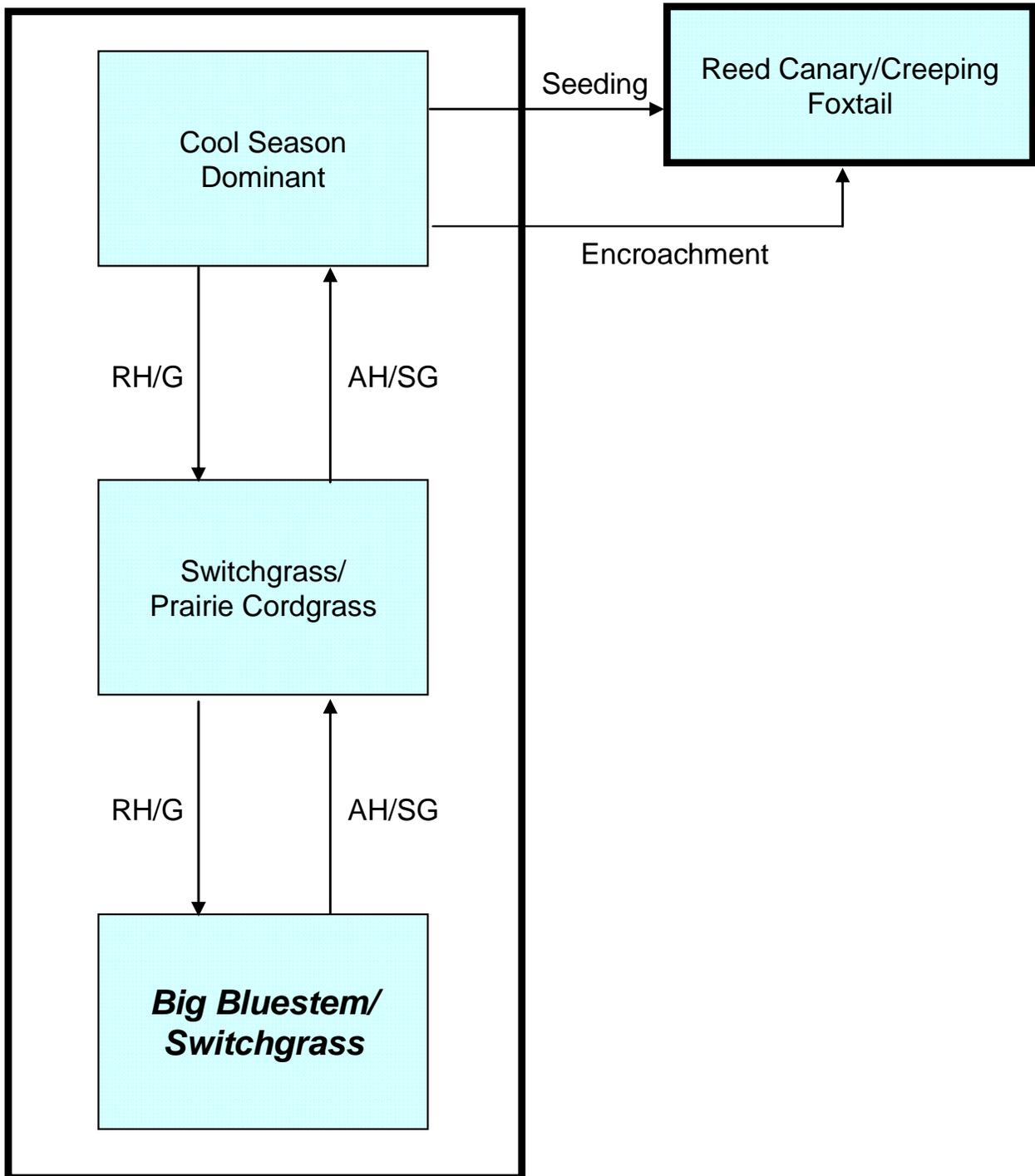
Ecological Dynamics of the Site:

As this site deteriorates, species such as switchgrass, slender wheatgrass, Scribner panicum, western wheatgrass, foxtail barley, and prairie cordgrass will increase. Warm-season grasses such as big bluestem and Indiangrass will decrease in frequency and production.

Interpretations are primarily based on the Big Bluestem/Switchgrass 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. 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/SG – Annual haying/summer grazing
RH/G – Rotational haying/grazing

Plant Community Composition and Group Annual Production

			Big Bluestem/Switchgrass		
COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Group	lbs./acre	% Comp
GRASSES				4000 - 4750	80 - 95
WARM-SEASON GRASSES			1	2000 - 4000	40 - 80
big bluestem	Andropogon gerardii	ANGE	1	750 - 1500	15 - 30
prairie cordgrass	Spartina pectinata	SPPE	1	750 - 1500	15 - 30
switchgrass	Panicum virgatum	PAV12	1	750 - 1250	15 - 25
Indiangrass	Sorghastrum nutans	SONU2	1	250 - 750	5 - 15
green muhly	Muhlenbergia racemosa	MURA	1	0 - 250	0 - 5
COOL-SEASON GRASSES			2	500 - 1500	10 - 30
bluejoint reedgrass	Calamagrostis canadensis	CACA4	2	250 - 500	5 - 10
northern reedgrass	Calamagrostis stricta ssp. inexpansa	CASTI3	2	250 - 500	5 - 10
plains bluegrass	Poa arida	POAR3	2	250 - 500	5 - 10
slender wheatgrass	Elymus trachycaulus	ELTR7	2	100 - 500	2 - 10
western wheatgrass	Pascopyrum smithii	PASM	2	0 - 250	0 - 5
foxtail barley	Hordeum jubatum	HOJU	2	0 - 100	0 - 2
OTHER NATIVE GRASSES			3	0 - 250	0 - 5
other perennial grasses		2GP	3	0 - 250	0 - 5
GRASS-LIKES			5	250 - 500	5 - 10
sedge	Carex spp.	CAREX	5	50 - 500	1 - 10
rush	Juncus spp.	JUNCU	5	0 - 250	0 - 5
bulrush	Schoenoplectus spp.	SCHOE6	5	0 - 250	0 - 5
spikerush	Eleocharis spp.	ELEOC	5	0 - 150	0 - 3
other grass-likes		2GL	5	0 - 250	0 - 5
NATIVE FORBS			6	0 - 250	0 - 5
American licorice	Glycyrrhiza lepidota	GLLE3	6	0 - 50	0 - 1
black-eyed Susan	Rudbeckia hirta	RUHI2	6	0 - 50	0 - 1
cinquefoil	Potentilla spp.	POTEN	6	0 - 50	0 - 1
goldenrod	Solidago spp.	SOLID	6	0 - 50	0 - 1
heath aster	Symphyotrichum ericoides	SYER	6	0 - 50	0 - 1
ironweed	Vernonia spp.	VERNO	6	0 - 50	0 - 1
Pennsylvania smartweed	Polygonum pensylvanicum	POPE2	6	0 - 50	0 - 1
scouringrush	Equisetum hyemale	EQHY	6	0 - 50	0 - 1
western ragweed	Ambrosia psilostachya	AMPS	6	0 - 50	0 - 1
other perennial forbs		2FP	6	0 - 100	0 - 2

Annual Production lbs./acre	LOW	RV	HIGH
GRASSES	4280	4500	4675
GRASS-LIKES	220	375	550
NATIVE FORBS	0	125	275
TOTAL	4500	5000	5500

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	Big Bluestem/Switchgrass			Switchgrass/Prairie Cordgrass			Cool Season Dominant		
		Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES			4000 - 4750	80 - 95		3600 - 4275	80 - 95		2960 - 3515	80 - 95
WARM-SEASON GRASSES		1	2000 - 4000	40 - 80	1	1800 - 3600	40 - 80	1	740 - 1665	20 - 45
big bluestem	ANGE	1	750 - 1500	15 - 30	1	450 - 900	10 - 20	1	0 - 555	0 - 15
prairie cordgrass	SPPE	1	750 - 1500	15 - 30	1	900 - 1800	20 - 40	1	555 - 1295	15 - 35
switchgrass	PAVI2	1	750 - 1250	15 - 25	1	900 - 1800	20 - 40	1	185 - 555	5 - 15
Indiangrass	SONU2	1	250 - 750	5 - 15	1	0 - 225	0 - 5	1	0 - 185	0 - 5
green muhly	MURA	1	0 - 250	0 - 5	1	0 - 225	0 - 5	1	0 - 74	0 - 2
COOL-SEASON GRASSES		2	500 - 1500	10 - 30	2	450 - 1350	10 - 30	2	1110 - 2775	30 - 75
bluejoint reedgrass	CACA4	2	250 - 500	5 - 10	2	225 - 450	5 - 10	2	370 - 925	10 - 25
northern reedgrass	CASTI3	2	250 - 500	5 - 10	2	225 - 450	5 - 10	2	370 - 925	10 - 25
plains bluegrass	POAR3	2	250 - 500	5 - 10	2	225 - 450	5 - 10	2	370 - 925	10 - 25
slender wheatgrass	ELTR7	2	100 - 500	2 - 10	2	90 - 450	2 - 10	2	74 - 555	2 - 15
western wheatgrass	PASM	2	0 - 250	0 - 5	2	0 - 450	0 - 10	2	0 - 370	0 - 10
foxtail barley	HOJU	2	0 - 100	0 - 2	2	0 - 135	0 - 3	2	0 - 185	0 - 5
OTHER NATIVE GRASSES		3	0 - 250	0 - 5	3	0 - 225	0 - 5	3	0 - 185	0 - 5
other perennial grasses	2GP	3	0 - 250	0 - 5	3	0 - 225	0 - 5	3	0 - 185	0 - 5
NON-NATIVE GRASSES		4			4	0 - 225	0 - 5	4	0 - 555	0 - 15
reed canarygrass	PHAR3				4	0 - 225	0 - 5	4	0 - 555	0 - 15
Kentucky bluegrass	POPR				4	0 - 225	0 - 5	4	0 - 555	0 - 15
GRASS-LIKES		5	250 - 500	5 - 10	5	225 - 675	5 - 15	5	185 - 740	5 - 20
sedge	CAREX	5	50 - 500	1 - 10	5	45 - 450	1 - 10	5	74 - 555	2 - 15
rush	JUNCU	5	0 - 250	0 - 5	5	0 - 225	0 - 5	5	37 - 185	1 - 5
bulrush	SCHOE6	5	0 - 250	0 - 5	5	0 - 225	0 - 5	5	0 - 185	0 - 5
spikerush	ELEOC	5	0 - 150	0 - 3	5	0 - 135	0 - 3	5	0 - 185	0 - 5
other grass-likes	2GL	5	0 - 250	0 - 5	5	0 - 225	0 - 5	5	0 - 185	0 - 5
NATIVE FORBS		6	0 - 250	0 - 5	6	0 - 225	0 - 5	6	0 - 370	0 - 10
American licorice	GLLE3	6	0 - 50	0 - 1	6	0 - 45	0 - 1	6	0 - 37	0 - 1
black-eyed Susan	RUHI2	6	0 - 50	0 - 1	6	0 - 90	0 - 2	6	0 - 74	0 - 2
cinquefoil	POTEN	6	0 - 50	0 - 1	6	0 - 45	0 - 1	6	0 - 37	0 - 1
goldenrod	SOLID	6	0 - 50	0 - 1	6	0 - 45	0 - 1	6	0 - 37	0 - 1
heath aster	SYER	6	0 - 50	0 - 1	6	0 - 90	0 - 2	6	0 - 111	0 - 3
ironweed	VERNO	6	0 - 50	0 - 1	6	0 - 90	0 - 2	6	0 - 111	0 - 3
Pennsylvania smartweed	POPE2	6	0 - 50	0 - 1	6	0 - 90	0 - 2	6	0 - 74	0 - 2
scouringrush	EQHY	6	0 - 50	0 - 1	6	0 - 45	0 - 1	6	0 - 37	0 - 1
western ragweed	AMPS	6	0 - 50	0 - 1	6	0 - 90	0 - 2	6	0 - 74	0 - 2
other perennial forbs	2FP	6	0 - 100	0 - 2	6	0 - 90	0 - 2	6	0 - 74	0 - 2
NON-NATIVE FORBS		7			7			7	0 - 185	0 - 5
red clover	TRPR2							7	0 - 185	0 - 5
white clover	TRRE3							7	0 - 74	0 - 2
Annual Production lbs./acre			LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH	
GRASSES			4280 · 4500 - 4675		3780 · 3938 - 4120		2820 · 2960 - 3160			
GRASS-LIKES			220 · 375 - 550		220 · 450 - 650		180 · 463 - 650			
NATIVE FORBS			0 · 125 - 275		0 · 113 - 230		0 · 185 - 400			
NON-NATIVE FORBS							0 · 93 - 190			
TOTAL			4500 · 5000 - 5500		4000 · 4500 - 5000		3000 · 3700 - 4400			

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 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).” 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.

Big Bluestem/Switchgrass Plant Community

Interpretations are primarily based on the Big Bluestem/Switchgrass Plant Community (this is also considered climax). This site evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning. Harvesting hay at a different time during the growing season each year allows this plant community to persist. The potential vegetation is about 85 percent grasses, 10 percent grass-like plants, and 5 percent forbs. Tall, warm-season grasses dominate the plant community.

The major grasses include big bluestem, Indiangrass, switchgrass, bluejoint reedgrass, northern reedgrass, and prairie cordgrass. Other grasses occurring on this plant community include slender wheatgrass, plains bluegrass, and western wheatgrass.

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: NE6642

Growth curve name: Eroded Tableland, 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

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

- Annual haying or summer grazing will shift this plant community to the *Switchgrass/Prairie Cordgrass Plant Community*. Haying or grazing at set times during the growing season can reduce plant diversity and reduce the vigor of desirable grasses.

Switchgrass/Prairie Cordgrass Plant Community

Historically, this plant community evolved under annual haying or moderate summer grazing followed by heavy grazing in the fall. The potential vegetation is about 80 percent grasses, 15 percent grass-like plants, and 5 percent forbs. Dominant grasses include switchgrass, prairie cordgrass, big bluestem, and forbs such as smartweed and ironweed.

When compared to the Big Bluestem/Switchgrass Plant Community, switchgrass and prairie cordgrass have increased while big bluestem and Indiangrass have decreased. Plant diversity has decreased with the desirable, more palatable, grasses being suppressed due to heavier use.

This plant community is somewhat 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.

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: NE6642

Growth curve name: Eroded Tableland, 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

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

- Timely haying and/or rotational grazing will shift this plant community back to the *Big Bluestem/Switchgrass Plant Community*. Haying or grazing prior to the onset of active warm-season grass growth will improve warm season grass vigor. This early haying also reduces cool-season grass competition, and improves the quality of the hay. Waiting to graze after a killing frost in the fall will also help to reduce the cool-season grasses, while improving the vigor of the warm-season grasses.
- Repeated annual mid summer haying or grazing will shift this plant community to the *Cool Season Dominant Plant Community*.

Cool Season Dominant Plant Community

Historically, this plant community evolved under long-term annual haying in the mid summer. Cool-season grasses make up a majority of the plant community with the balance made up of warm-season grasses and miscellaneous forbs. The potential vegetation is about 70 percent grasses, 20 percent grass-like plants, and 10 percent forbs. Dominant grasses include bluejoint and northern reedgrass, which are acceptable grasses on this plant community. The reedgrasses become aggressive and increase, crowding out the warm-season plants of big bluestem, Indiangrass, and switchgrass. Kentucky bluegrass also invades and is typically found throughout the site. Grasses of secondary importance include prairie cordgrass, slender wheatgrass, and western wheatgrass. Forbs commonly found in this plant community include red and white clover.

When compared to the Big Bluestem/Switchgrass Plant Community, bluejoint and northern reedgrass, slender wheatgrass, and prairie cordgrass have increased. Big bluestem and Indiangrass have decreased.

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.

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: NE6640

Growth curve name: Eroded Tableland, cool-season dominant, warm-season subdominant.

Growth curve description: Cool-season dominant, warm-season subdominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	8	25	30	15	10	2	5	0	0

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

- Timely haying and/or rotational grazing will shift this plant community back to the *Big Bluestem/Switchgrass Plant Community*. Haying or grazing prior to the onset of active warm-season grass growth will improve plant vigor. This early haying also reduces cool season grass competition, and improves the quality of the hay. Grazing after a killing frost in the fall will also help to reduce cool season grasses.
- Seeding can move this plant community to the *Reed Canary/Creeping Foxtail Plant Community*.

Reed Canary/Creeping Foxtail

When the Cool Season Dominant Plant Community is stressed by heavy grazing and repeated haying, reed canarygrass or creeping foxtail may encroach if a viable seed source is available. Reed canarygrass and creeping foxtail seedings have occurred when cool-season grass production deteriorates. However, this seeding practice has serious repercussions on numerous wildlife species, and once established becomes difficult to alter due to the aggressive behavior of creeping foxtail and especially of reed canarygrass. While this plant community has high production potential, forage quality is sacrificed.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under Development --

Big Bluestem/Switchgrass Plant Community:

Switchgrass/Prairie Cordgrass Plant Community:

Cool Season Dominant Plant Community:

Reed Canary/Creeping Foxtail 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
bluejoint reedgrass	U P D U	N D U N	U P D U	N D U N	N D U N	U P D U	U P D U
bulrush	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
foxtail barley	U D N N	N P N N	U D N N	N P N N	N P N N	U D N N	U D N N
green muhly	U D D U	N U N N	U D D U	N U N N	N U N N	U D D U	U D D 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
northern reedgrass	U P U D	N D N U	U P U D	N D N U	N D N U	U P U D	U P U D
plains bluegrass	U D U D	N D N U	U D U D	U P N D	U P N D	U D U D	U D U D
prairie cordgrass	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
rush	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
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
slender wheatgrass	U P U U	N D U N	U P U U	N D U N	N D U N	U P U U	U P U U
spikerush	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
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							
American licorice	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
black-eyed Susan	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
cinquefoil	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
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
ironweed	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
Pennsylvania smartweed	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
scouringrush	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
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

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)
Big Bluestem/Switchgrass	5000	1.37
Switchgrass/Prairie Cordgrass	4500	1.23
Cool-Season Dominant	3700	1.01
Reed Canary/Creeping Foxtail	**	**

*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

Moisture conditions tend to be ideal for forage production on this site. Soils on this site are nearly all in Hydrologic Soil Group D due to high water tables. Although soils are permeable, high water tables limit infiltration in wet seasons. Surrounding upland areas tend to have permeable soils and surface inflow peaks on these sites are often muted. Many areas are seasonally flooded for brief periods in wet weather. For the interpretive plant community, rills and gullies are not typically present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present. Litter falls in place and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts may be present but are not significant for hydrologic considerations. Overall, this site has the appearance of being very stable and very 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

(066XY032NE) – Sandy 18-22" P.Z.
 (066XY033NE) – Sands 18-22" P.Z.
 (066XY044NE) – Wet Land

(066XY054NE) – Sandy 22-25" P.Z.
 (066XY055NE) – Sands 22-25" P.Z.
 (066XY046NE) – Subirrigated

Similar Sites

(066XY046NE) – Subirrigated
[more big bluestem; little bluestem present; less prairie cordgrass;
bluejoint reedgrass common; slightly less 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: 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.

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

State Correlation

This site has been correlated with 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