

## United States Department of Agriculture Natural Resources Conservation Service

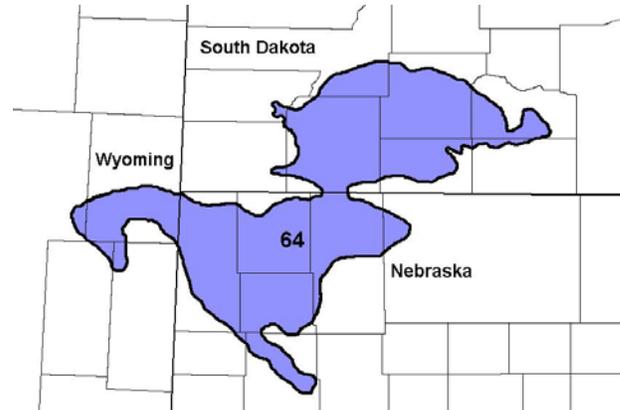
### Ecological Site Description

**Site Type:** Rangeland

**Site Name:** Wet Land

**Site ID:** R064XY022NE

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



### Physiographic Features

This site normally occurs on level to nearly level valleys near springs, seeps, and sloughs.

**Landform:** drainageway, oxbow, and floodplain

**Aspect:** N/A

|                                    | <u>Minimum</u> | <u>Maximum</u> |
|------------------------------------|----------------|----------------|
| <b>Elevation (feet):</b>           | 2,900          | 4,000          |
| <b>Slope (percent):</b>            | 0              | 3              |
| <b>Water Table Depth (inches):</b> | +6             | 12             |
| <b>Flooding:</b>                   |                |                |
| <b>Frequency:</b>                  | Occasional     | Frequent       |
| <b>Duration:</b>                   | Brief          | Brief          |
| <b>Ponding:</b>                    |                |                |
| <b>Depth (inches):</b>             | 0              | 12             |
| <b>Frequency:</b>                  | Occasional     | Frequent       |
| <b>Duration:</b>                   | Brief          | Long           |
| <b>Runoff Class:</b>               | Negligible     | Low            |

### 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 air masses 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 (mph) annually, ranging from about 13 mph during the spring to about 10 mph 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 mph.

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. Greenup of cool-season plants may occur in September and October when adequate soil moisture is present.

|  | <u>Minimum</u> | <u>Maximum</u> |
|--|----------------|----------------|
| <b>Frost-free period (days):</b>           | 115            | 143            |
| <b>Freeze-free period (days):</b>          | 137            | 163            |
| <b>Mean Annual Precipitation (inches):</b> | 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       |

| <b>Climate Stations</b> |                         | <b>Period</b> |           |
|-------------------------|-------------------------|---------------|-----------|
| <b>Station ID</b>       | <b>Location or Name</b> | <b>From</b>   | <b>To</b> |
| 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>.

**Riparian and Wetland Features**

| <b>Wetland Description:</b> | <b>System</b> | <b>Subsystem</b> | <b>Class</b>                | <b>Subclass</b>  |
|-----------------------------|---------------|------------------|-----------------------------|--|
| Cowardin, et al., 1979      | Lacustrine    | Littoral         | Unconsolidated Shoreline    | Permanently or Semi-permanently or Seasonally Flooded              |
| OR:                         |               |                  |                             |  |
| Cowardin, et al., 1979      | Palustrine    | N/A              | Persistent Emergent Wetland | Permanently or Semi-permanently or Seasonally Flooded or Saturated |

These wetland types include: fen, abandoned oxbow

**Representative Soil Features**

The features common to soils in this site are the loamy fine sand to fine sandy loam textured surface layers and slopes of zero to three percent. A number of soils have surfaces of mucky peat and/or slightly decomposed plant material. The soils in this site are very poorly drained and formed in eolian sands and sandy alluvium. The surface layer is 5 to 14 inches thick. The texture of the subsurface layers ranges from sand to very fine sandy loam. Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Litter typically falls in place and

signs of movement are not common. Chemical and physical crusts are rare to nonexistent.

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:** fine sandy loam, very fine sandy loam, loamy fine sand  
**Surface Texture Modifier:** none  
**Subsurface Texture Group:** sandy  
**Surface Fragments ≤3" (% Cover):** 0  
**Surface Fragments >3" (%Cover):** 0  
**Subsurface Fragments ≤3" (% Volume):** 0-5  
**Subsurface Fragments >3" (% Volume):** 0

|   | <u>Minimum</u> | <u>Maximum</u> |
|---|----------------|----------------|
| <b>Drainage Class:</b>                          | very poorly    | very poorly    |
| <b>Permeability Class:</b>                      | moderate       | rapid          |
| <b>Depth (inches):</b>                          | >80            | >80            |
| <b>Electrical Conductivity (mmhos/cm)*:</b>     | 0              | 16             |
| <b>Sodium Absorption Ratio*:</b>                | 0              | 50             |
| <b>Soil Reaction (1:1 Water)*:</b>              | 5.6            | 9.6            |
| <b>Soil Reaction (0.1M CaCl<sub>2</sub>)*:</b>  | N/A            | N/A            |
| <b>Available Water Capacity (inches)*:</b>      | 4              | 6              |
| <b>Calcium Carbonate Equivalent (percent)*:</b> | 0              | 40             |

\*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.

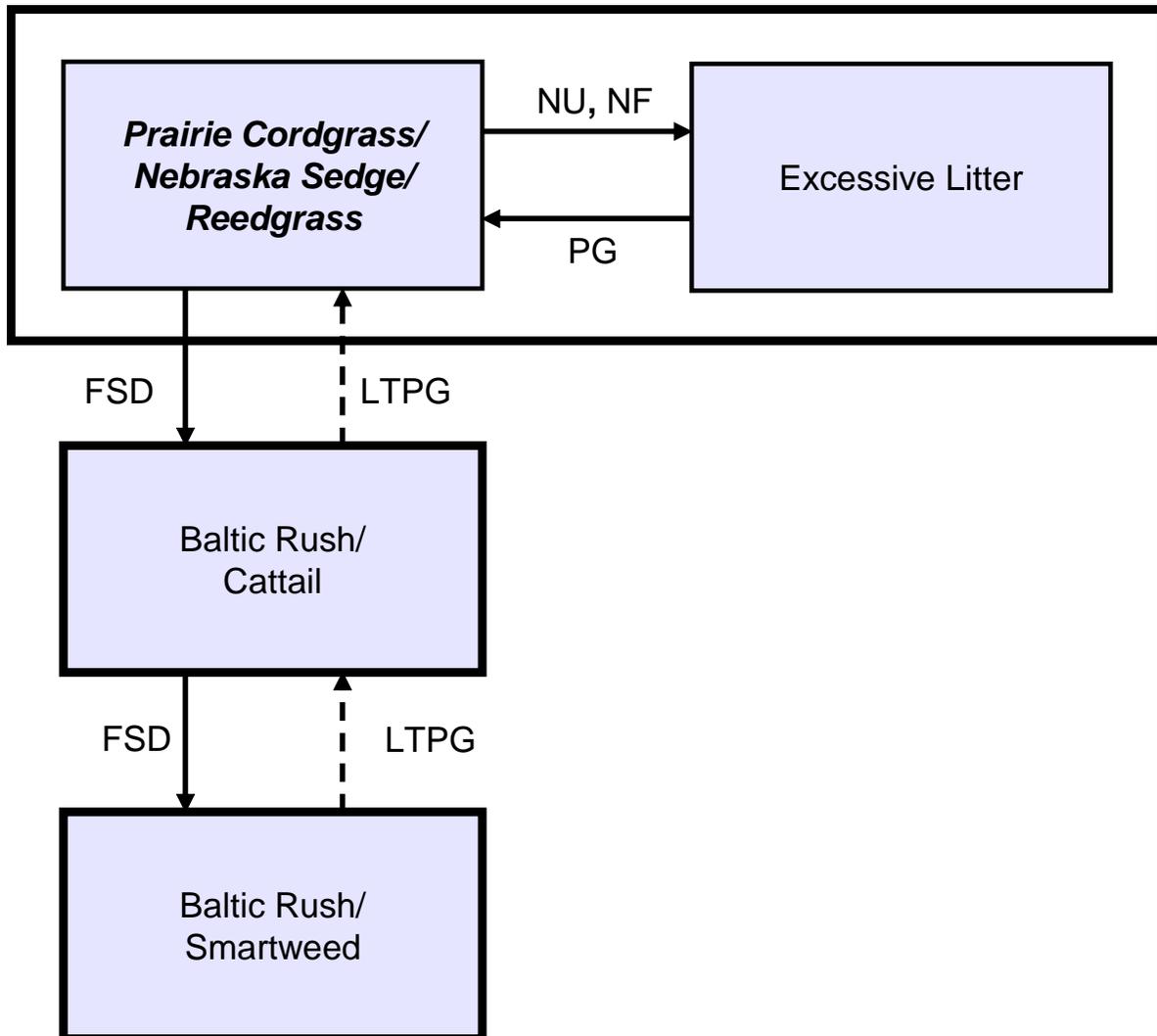
Continuous season-long grazing (during the typical growing season of May through October), and/or repeated seasonal grazing (e.g., every spring, every summer), without adequate recovery periods following each grazing occurrence, causes this site to depart from the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community. Species such as spike sedge and Baltic rush increase. Grasses/grass-likes such as Nebraska sedge, northern reedgrass, and bluejoint reedgrass will decrease in frequency and production.

Interpretations are primarily based on the Prairie Cordgrass/Nebraska Sedge/Reedgrass 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 transitions between communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.

### Plant Communities and Transitional Pathways



**FSD** - Frequent and Severe Defoliation of the cool-season mid-grasses/grasslikes during the growing season

**LTPG** - Long-term prescribed grazing

**NU, NF** - No Use and No Fire

**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                  | SYMBOL | Prairie Cordgrass/Nebraska Sedge/Reedgrass |             |         | Baltic Rush/Cattail |             |         | Baltic Rush/Smartweed |            |         | Excessive Litter |             |         |      |
|------------------------------------|--------|--|-------------|---------|---------------------|-------------|---------|-----------------------|------------|---------|------------------|-------------|---------|------|
|                                    |        | Grp  | lbs./acre   | % Comp  | Grp                 | lbs./acre   | % Comp  | Grp                   | lbs./acre  | % Comp  | Grp              | lbs./acre   | % Comp  |      |
| <b>GRASSES</b>                     |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        | 1  | 3850 - 4950 | 70 - 90 |                     | 1950 - 2550 | 65 - 85 |                       | 810 - 1350 | 45 - 75 |                  | 3250 - 4250 | 65 - 85 |      |
|                                    |        | 1  | 3025 - 3575 | 55 - 65 | 1                   | 450 - 1050  | 15 - 35 | 1                     | 0 - 180    | 0 - 10  | 1                | 1500 - 2500 | 30 - 50 |      |
| prairie cordgrass                  | SPPE   | 1  | 2200 - 3025 | 40 - 55 | 1                   | 300 - 450   | 10 - 15 | 1                     | 0 - 90     | 0 - 5   | 1                | 1000 - 1500 | 20 - 30 |      |
| bluejoint reedgrass                | CACA4  | 1  | 550 - 1375  | 10 - 25 | 1                   | 150 - 300   | 5 - 10  | 1                     | 0 - 90     | 0 - 5   | 1                | 250 - 750   | 5 - 15  |      |
| northern reedgrass                 | CASTI3 | 1  | 275 - 825   | 5 - 15  | 1                   | 150 - 300   | 5 - 10  | 1                     | 0 - 90     | 0 - 5   | 1                | 250 - 500   | 5 - 10  |      |
| <b>MISCELLANEOUS GRASSES</b>       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        | 2  | 275 - 550   | 5 - 10  | 2                   | 150 - 600   | 5 - 20  | 2                     | 90 - 180   | 5 - 10  | 2                | 250 - 1000  | 5 - 20  |      |
| bluegrass                          | POA    | 2  | 0 - 275     | 0 - 5   | 2                   | 150 - 300   | 5 - 10  | 2                     | 90 - 180   | 5 - 10  | 2                | 250 - 750   | 5 - 15  |      |
| foxtail barley                     | HOJU   | 2  | 0 - 275     | 0 - 5   | 2                   | 150 - 300   | 5 - 10  | 2                     | 18 - 90    | 1 - 5   | 2                | 250 - 500   | 5 - 10  |      |
| reed canarygrass                   | PHAR3  | 2  | 0 - 275     | 0 - 5   | 2                   | 150 - 300   | 5 - 10  | 2                     | 90 - 180   | 5 - 10  | 2                | 250 - 500   | 5 - 10  |      |
| slender wheatgrass                 | ELTRT  | 2  | 0 - 275     | 0 - 5   | 2                   | 0 - 60      | 0 - 2   | 2                     | 0 - 18     | 0 - 1   | 2                | 0 - 100     | 0 - 2   |      |
| other perennial grasses            | 2GP    | 2  | 0 - 275     | 0 - 5   | 2                   | 0 - 150     | 0 - 5   | 2                     | 0 - 90     | 0 - 5   | 2                | 0 - 250     | 0 - 5   |      |
| <b>SEDGES AND RUSHES</b>           |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        | 3  | 1100 - 1925 | 20 - 35 | 3                   | 450 - 750   | 15 - 25 | 3                     | 270 - 720  | 15 - 40 | 3                | 500 - 1250  | 10 - 25 |      |
| Nebraska sedge                     | CANE2  | 3  | 550 - 1375  | 10 - 25 | 3                   | 150 - 450   | 5 - 15  | 3                     | 18 - 90    | 1 - 5   | 3                | 250 - 500   | 5 - 10  |      |
| bulrush                            | SCHOE6 | 3  | 275 - 550   | 5 - 10  | 3                   | 150 - 450   | 5 - 15  | 3                     | 18 - 90    | 1 - 5   | 3                | 250 - 500   | 5 - 10  |      |
| sedge                              | CAREX  | 3  | 275 - 550   | 5 - 10  | 3                   | 150 - 450   | 5 - 15  | 3                     | 18 - 180   | 1 - 10  | 3                | 250 - 750   | 5 - 15  |      |
| Baltic rush                        | JUBA   | 3  | 0 - 275     | 0 - 5   | 3                   | 300 - 750   | 10 - 25 | 3                     | 270 - 720  | 15 - 40 | 3                | 250 - 750   | 5 - 15  |      |
| rush                               | JUNCU  | 3  | 0 - 275     | 0 - 5   | 3                   | 150 - 300   | 5 - 10  | 3                     | 18 - 90    | 1 - 5   | 3                | 250 - 500   | 5 - 10  |      |
| spikerush                          | ELEOC  | 3  | 55 - 275    | 1 - 5   | 3                   | 30 - 150    | 1 - 5   | 3                     | 18 - 90    | 1 - 5   | 3                | 50 - 250    | 1 - 5   |      |
| horsetail                          | EOLA   | 3  | 0 - 110     | 0 - 2   | 3                   | 0 - 150     | 0 - 5   | 3                     | 0 - 90     | 0 - 5   | 3                | 0 - 250     | 0 - 5   |      |
| <b>FORBS</b>                       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        | 4  | 275 - 1100  | 5 - 20  | 4                   | 300 - 1050  | 10 - 35 | 4                     | 270 - 900  | 15 - 50 | 4                | 500 - 1750  | 10 - 35 |      |
| aster                              | ASTER  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 36     | 0 - 2   | 4                | 0 - 100     | 0 - 2   |      |
| American licorice                  | GLLE3  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 300     | 0 - 10  | 4                     | 90 - 270   | 5 - 15  | 4                | 250 - 750   | 5 - 15  |      |
| arrowgrass                         | TRPA6  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 36     | 0 - 2   | 4                | 0 - 100     | 0 - 2   |      |
| blue-eyed grass                    | SISYR  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 18     | 0 - 1   | 4                | 0 - 100     | 0 - 2   |      |
| cattail                            | TYLA   | 4  | 0 - 110     | 0 - 2   | 4                   | 300 - 750   | 10 - 25 | 4                     | 270 - 720  | 15 - 40 | 4                | 250 - 750   | 5 - 15  |      |
| cinquefoil                         | POTEN  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 18     | 0 - 1   | 4                | 0 - 100     | 0 - 2   |      |
| iris                               | IRIS   | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 0      | 0 - 0   | 4                | 0 - 50      | 0 - 1   |      |
| milkvetch                          | ASTRA  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 18     | 0 - 1   | 4                | 0 - 100     | 0 - 2   |      |
| Pennsylvania smartweed             | POPE2  | 4  | 0 - 110     | 0 - 2   | 4                   | 30 - 150    | 1 - 5   | 4                     | 90 - 270   | 5 - 15  | 4                | 0 - 500     | 0 - 10  |      |
| poison hemlock                     | COMA2  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 36     | 0 - 2   | 4                | 0 - 100     | 0 - 2   |      |
| swamp smartweed                    | POHY2  | 4  | 0 - 110     | 0 - 2   | 4                   | 30 - 150    | 1 - 5   | 4                     | 90 - 270   | 5 - 15  | 4                | 0 - 500     | 0 - 10  |      |
| water hemlock                      | CICUT  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 36     | 0 - 2   | 4                | 0 - 100     | 0 - 2   |      |
| wild onion                         | ALLIU  | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 18     | 0 - 1   | 4                | 0 - 50      | 0 - 1   |      |
| wild strawberry                    | FRVI   | 4  | 0 - 110     | 0 - 2   | 4                   | 0 - 60      | 0 - 2   | 4                     | 0 - 18     | 0 - 1   | 4                | 0 - 50      | 0 - 1   |      |
| other perennial forbs              | 2FP    | 4  | 0 - 275     | 0 - 5   | 4                   | 0 - 150     | 0 - 5   | 4                     | 0 - 90     | 0 - 5   | 4                | 0 - 250     | 0 - 5   |      |
| <b>TREES</b>                       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        | 5  | 0 - 500     | 0 - 10  | 5                   | 0 - 300     | 0 - 10  | 5                     | 0 - 90     | 0 - 5   | 5                | 0 - 500     | 0 - 10  |      |
| willow                             | SALIX  | 5  | 0 - 550     | 0 - 10  | 5                   | 0 - 300     | 0 - 10  | 5                     | 0 - 90     | 0 - 5   | 5                | 0 - 500     | 0 - 10  |      |
| <b>Annual Production lbs./acre</b> |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        |  | LOW         | RV      | HIGH                | LOW         | RV      | HIGH                  | LOW        | RV      | HIGH             | LOW         | RV      | HIGH |
| <b>GRASSES &amp; GRASS-LIKES</b>   |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        |  | 4280        | 4538    | 4700                | 1780        | 2175    | 2575                  | 980        | 1170    | 1455             | 3550        | 3625    | 3700 |
| <b>FORBS</b>                       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        |  | 220         | 688     | 1200                | 220         | 675     | 1100                  | 220        | 585     | 950              | 450         | 1125    | 1750 |
| <b>TREES</b>                       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        |  | 0           | 275     | 600                 | 0           | 150     | 325                   | 0          | 45      | 95               | 0           | 250     | 550  |
| <b>TOTAL</b>                       |        |  |             |         |                     |             |         |                       |            |         |                  |             |         |      |
|                                    |        |  | 4500        | 5500    | 6500                | 2000        | 3000    | 4000                  | 1200       | 1800    | 2500             | 4000        | 5000    | 6000 |

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 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" (DPCs). According to the 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.

**Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community**

Interpretations are based primarily on the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community (this is also considered to be climax). Potential vegetation is about 45-75 percent grasses, 20-35 percent sedges and rushes, 5-10 percent forbs, and 0-10 trees. The major grasses/grass-likes include prairie cordgrass, Nebraska sedge, bluejoint reedgrass, and northern

reedgrass. Grasses/grass-likes of lesser importance are Baltic rush and low-growing, unpalatable sedges.

The plant community is well adapted to the Northern Great Plains climatic conditions. It is a critical plant community providing water and habitat for the surrounding area. The diversity in plant species provides a variety of habitats for wildlife. It is resistant to drought due to a dependable water supply. This is a sustainable plant community (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 an average year:

Growth curve number: NE6408

Growth curve name: Pine Ridge/Badlands, lowland cool-season/warm-season codominant.

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

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

- Frequent and severe defoliation will convert this plant community to the *Baltic Rush/Cattail Plant Community*.
- Nonuse and no fire will convert this plant community to the *Excessive Litter Plant Community*.

### **Baltic Rush/Cattail Plant Community**

This plant community evolved under moderate grazing by domestic livestock. Dominant grasses include cattails, low-growing unpalatable sedges, and Baltic rush. Willows are present near the dryer edges of this plant community.

When compared to the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community, prairie cordgrass, northern reedgrass, bluejoint reedgrass, and Nebraska sedge have decreased. Low growing unpalatable sedges, Baltic rush, and cattails have increased. The abundant production and proximity to water make this plant community important for livestock and wildlife such as birds, mule deer, and antelope. The plant community is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. The watershed is usually functioning.

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

Growth curve number: NE6408

Growth curve name: Pine Ridge/Badlands, lowland cool-season/warm-season codominant.

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

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

- Prescribed grazing over the long-term will result in a plant community very similar to the *Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community*.
- Frequent and severe defoliation will convert this plant community to the *Baltic Rush/Smartweed Plant Community*.

### **Baltic Rush/Smartweed Plant Community**

This plant community is the result of long-term frequent and severe defoliation. Baltic rush, smartweed, and cattails dominate this plant community. American licorice has invaded.

Bare ground has increased. The soil is not well protected. Degraded stream banks may erode. The watershed is functioning but may produce excessive runoff. The biotic community is at risk due to invasive plants.

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

Growth curve number: NE6408

Growth curve name: Pine Ridge/Badlands, lowland cool-season/warm-season codominant.

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

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

- Prescribed grazing over the long-term will return this plant community to near the *Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community*.

### **Excessive Litter Plant Community**

This plant community developed under the absence of grazing and fire. Excessive litter is shading out plants. This inhibits photosynthesis and reduces soils temperatures, delaying greenup in the spring. Plants become decadent and exhibit low vigor. Bunch grasses often develop dead centers. Organic matter oxidizes in the air rather than being incorporated into the soil. The dominant plants tend to be somewhat similar to those found in the *Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community*. Weedy species, cool-season grasses, and sedges have increased. *Prairie cordgrass* has decreased. American licorice tends to invade. Noxious weeds such as purple loosestrife may invade if a seed source is present. Plant diversity is moderate to high.

This plant community is not resistant to change. The introduction of grazing quickly changes the plant community. It is somewhat more vulnerable to severe disturbance than the *Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community*. Bare ground has increased. The soil is not well protected. The watershed is functioning but may produce excessive runoff. The biotic community is at risk due to invasive plants.

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

Growth curve number: NE6408

Growth curve name: Pine Ridge/Badlands, lowland cool-season/warm-season codominant.

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

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

- Prescribed grazing over the long-term will return this plant community to near the *Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community*.

## Ecological Site Interpretations

### Animal Community – Wildlife Interpretations

**Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community:** The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. This plant community may provide brood rearing/foraging areas for sage grouse. Other birds that would frequent this plant community include red-wing blackbirds, sandhill cranes, Wilson snipe, western meadowlarks, and golden eagles. Many small mammals would occur here.

**Baltic Rush/Cattail Plant Community:** This plant community may be useful for the same large grazers that would use the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

**Baltic Rush/Smartweed Plant Community:** This plant community may be useful for the same large grazers that would use the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

**Excessive Litter Plant Community:** This plant community may be useful for the same large grazers that would use the Prairie Cordgrass/Nebraska Sedge/Reedgrass Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

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

| Common Name            | Cattle  | Sheep   | Horses  | Deer    | Antelope | Bison   | Elk     |
|------------------------|---------|---------|---------|---------|----------|---------|---------|
| <b>Grasses</b>         |         |         |         |         |          |         |         |
| bluegrass              | U D U U | D P U D | U D U U | U P N D | U P N D  | U D U U | U D U U |
| 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 |
| 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 |
| 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 |
| 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 |
| reed canarygrass       | U D U U | N N N N | U D U U | N N N N | N N N N  | U D U U | U D U U |
| 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 |
| <b>Grass-likes</b>     |         |         |         |         |          |         |         |
| Baltic 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 |
| 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 |
| horsetail              | 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 |
| Nebraska sedge         | U P U D | U P N D | U P U D | U D U D | U D U D  | U P U D | U P U D |
| 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 |
| 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 |
| <b>Forbs</b>           |         |         |         |         |          |         |         |
| 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 |
| arrowgrass             | 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 |
| aster                  | U U D U | U U D U | U U D U | U U D U | U U D U  | U U D U | U U D U |
| blue-eyed grass        | U U U U | U U P U | U U U U | U U P U | U U P U  | U U U U | U U P U |
| 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 |
| iris                   | 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 |
| 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 |
| 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 |
| poison hemlock         | 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 |
| swamp 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 |
| water hemlock          | 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 |
| wild onion             | U D U U | U D D U | U D U U | U D D U | U D D U  | U D U U | U D D U |
| wild strawberry        | U D U U | N U U N | U D U U | N U U N | N U U N  | U D U U | N U U N |
| <b>Trees</b>           |         |         |         |         |          |         |         |
| willow                 | P U D P | P U D P | P U D P | P U D P | U U U U  | P U D P | P U D P |

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

† Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

### Animal Community – Grazing Interpretations

The following table lists annual, suggested initial stocking rates with average growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of conservation planning. Often, the current plant composition does not entirely match any particular plant community (as described in this ES 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.

| <b>Plant Community</b>                     | <b>Average Annual Production (lbs./acre, air-dry)</b> | <b>Stocking Rate* (AUM/acre)</b> |
|--|---|----------------------------------|
| Prairie Cordgrass/Nebraska Sedge/Reedgrass | 5,500   | 1.70                             |
| Baltic Rush/Cattail                        | 3,000   | 0.95                             |
| Baltic Rush/Smartweed                      | 1,800   | 0.57                             |
| Excessive Litter                           | 5,000   | 1.58                             |

\*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).

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

Excessive water is the principal factor limiting forage production on this site. Soils on this site are in Hydrologic Soil Group C and D due to high water tables. Although soils are permeable, high water tables limit infiltration. Surrounding upland areas tend to have very permeable soils that cause surface inflow peaks to these sites to be muted. Outflows generally occur only as a result of very intense storms or seepage inflows during very wet years. Many areas are frequently to continuously flooded. Refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves.

## 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

- (064XY024NE) – Subirrigated
- (064XY027NE) – Clayey Overflow
- (064XY026NE) – Loamy Overflow
- (064XY029NE) – Sandy Lowland
- (064XY028NE) – Loamy Terrace

### Similar Sites

- (064XY002NE) – Wet Subirrigated [less prairie cordgrass]

## 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 (RMS), NRCS; Jill Epley, RMS, NRCS; Rick Peterson, RMS, NRCS; David Steffen, RMS, NRCS; Jeff Vander Wilt; RMS, NRCS; and Phil Young, Soil Scientist, 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, SD, and WY 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: 25a – Pine Ridge Escarpment, 43h – White River Badlands, and 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://soils.usda.gov/technical/nasis/>)

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

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Date