

Ecological site R054XY036ND **Shallow Marsh**

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

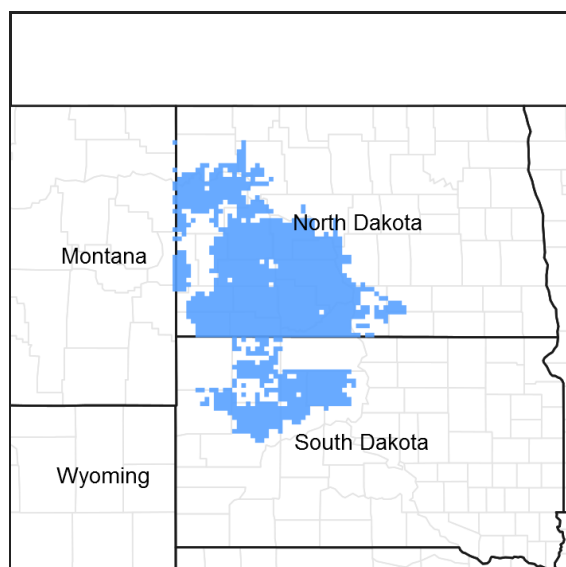


Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Classification relationships

Level IV Ecoregions of the Conterminous United States: 43a – Missouri Plateau.

Associated sites

R054XY022ND	Closed Depression
R054XY024ND	Saline Lowland
R054XY032ND	Subirrigated
R054XY037ND	Wet Meadow

Similar sites

R054XY037ND	Wet Meadow [Poorly drained soils found adjacent to streams or in depressions, with water table at the surface or within 1.5 feet from the surface with no evidence of salts, noticeable redoximorphic features within 6 inches or just below the organic soil layer. Found upslope from wet land and downslope of subirrigated or overflow sites; can be located within the listed associated sites. Indicator species are prairie cordgrass, northern reedgrass and no shrub. This site has less production, far less slough sedge and far more prairie cordgrass, and a water table is present yearlong.]
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R054XY022ND	Closed Depression [Poorly drained clayey soils with sodic subsoils and with noticeable redoximorphic features within depressions. Ponds periodically with no apparent water table. Indicator species: dominated by western wheatgrass with alkaligrass and foxtail barley intermixed, forb indicator is western dock, no shrubs. This site has similar landscape position, less production, lots of western wheatgrass and far less prairie cordgrass and slough sedge, a restrictive sodic layer or evidence of salts within the soil profile influences this site.]
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Scolochloa festucacea</i> (2) <i>Spartina pectinata</i>

Physiographic features

This site occurs on gently undulating to rolling sedimentary uplands and floodplains.

Table 2. Representative physiographic features

Landforms	(1) Depression (2) Flood plain (3) Oxbow
Flooding duration	Long (7 to 30 days)
Flooding frequency	None to occasional
Ponding duration	Long (7 to 30 days) to very long (more than 30 days)
Ponding frequency	Occasional to frequent
Elevation	488–1,097 m
Slope	0–1%
Ponding depth	0–3 cm
Water table depth	3–183 cm
Aspect	Aspect is not a significant factor

Climatic features

MLRA 54 is considered to have a continental climate – cold winters and hot summers, low humidity, light rainfall, and much sunshine. Extremes in temperature are characteristic. The climate is the result of this MLRA's location in the geographic center of North America. There are few natural barriers on the northern Great Plains. The air masses move unobstructed across the plains and account for rapid changes in temperature.

Annual precipitation ranges from 14 to 18 inches per year. The normal average annual temperature is about 42° F. January is the coldest month with average temperatures ranging from about 13° F (Beach, ND) to about 16° F (Bison, SD). July is the warmest month with temperatures averaging from about 69° F (Beach, ND) to about 72° F (Timber Lake, SD). The range of normal average monthly temperatures between the coldest and warmest months is about 57° F. This large annual range attests to the continental nature of this MLRA's climate. Hourly winds are estimated to average about 11 miles per hour annually, ranging from about 13 miles per hour during the spring to about 10 miles per hour during the summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 50 miles per hour.

Table 3. Representative climatic features

Frost-free period (average)	136 days
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Freeze-free period (average)	157 days
Precipitation total (average)	457 mm

Influencing water features

Cowardin, et al., 1979 Palustrine N/A Persistent Emergent Permanently or Semi-Wetland permanently or Seasonally Flooded or Saturated

Soil features

The common features of soils in this site are the silt loam to clay-textured subsoil and slopes of 0 to 1 percent. The soils in this site are very poorly drained and formed in alluvium. The silt loam to silty clay surface layer is 5 to 15 inches thick. The soils have a slow to very slow infiltration rate. This site should show no evidence of rills, wind scoured areas or pedestalled plants. The soil surface is stable and intact. Sub-surface soil layers are non-restrictive to water movement and root penetration.

These soils are not susceptible to water erosion. Ponded water conditions and slow permeability strongly influences the soil-water-plant relationship.

Major soil series correlated to this ecological site can be found in Section II of the Natural Resources Conservation Service Field Office Technical Guide or the following web sites:

North Dakota <http://www.nd.nrcs.usda.gov/>

South Dakota <http://www.sd.nrcs.usda.gov/>

Montana <http://www.mt.nrcs.usda.gov/>

Table 4. Representative soil features

Surface texture	(1) Silt loam (2) Silty clay loam (3) Silty clay
Family particle size	(1) Clayey
Drainage class	Poorly drained
Permeability class	Very slow to moderate
Soil depth	183 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	15.24–20.32 cm
Calcium carbonate equivalent (0-101.6cm)	0–15%
Electrical conductivity (0-101.6cm)	0–4 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–1
Soil reaction (1:1 water) (0-101.6cm)	6.1–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–5%
Subsurface fragment volume >3" (Depth not specified)	0–10%

Ecological dynamics

The site developed under Northern Great Plains climatic conditions, and included natural influence of large herbivores, occasional fire and yearly flooding events. Changes will occur in the plant communities due to management actions and/or climatic conditions. Due to the nature of the soils, the site is considered highly variable but very stable. Under continued adverse impacts, a slow decline in vegetative vigor and composition will occur. Under favorable vegetative management treatments the site can rapidly recover to the Reference Plant Community. High variability of ponding levels and duration is the major cause of the fluctuating plant community. However, management can greatly influence the plant community dynamics during extended drought periods.

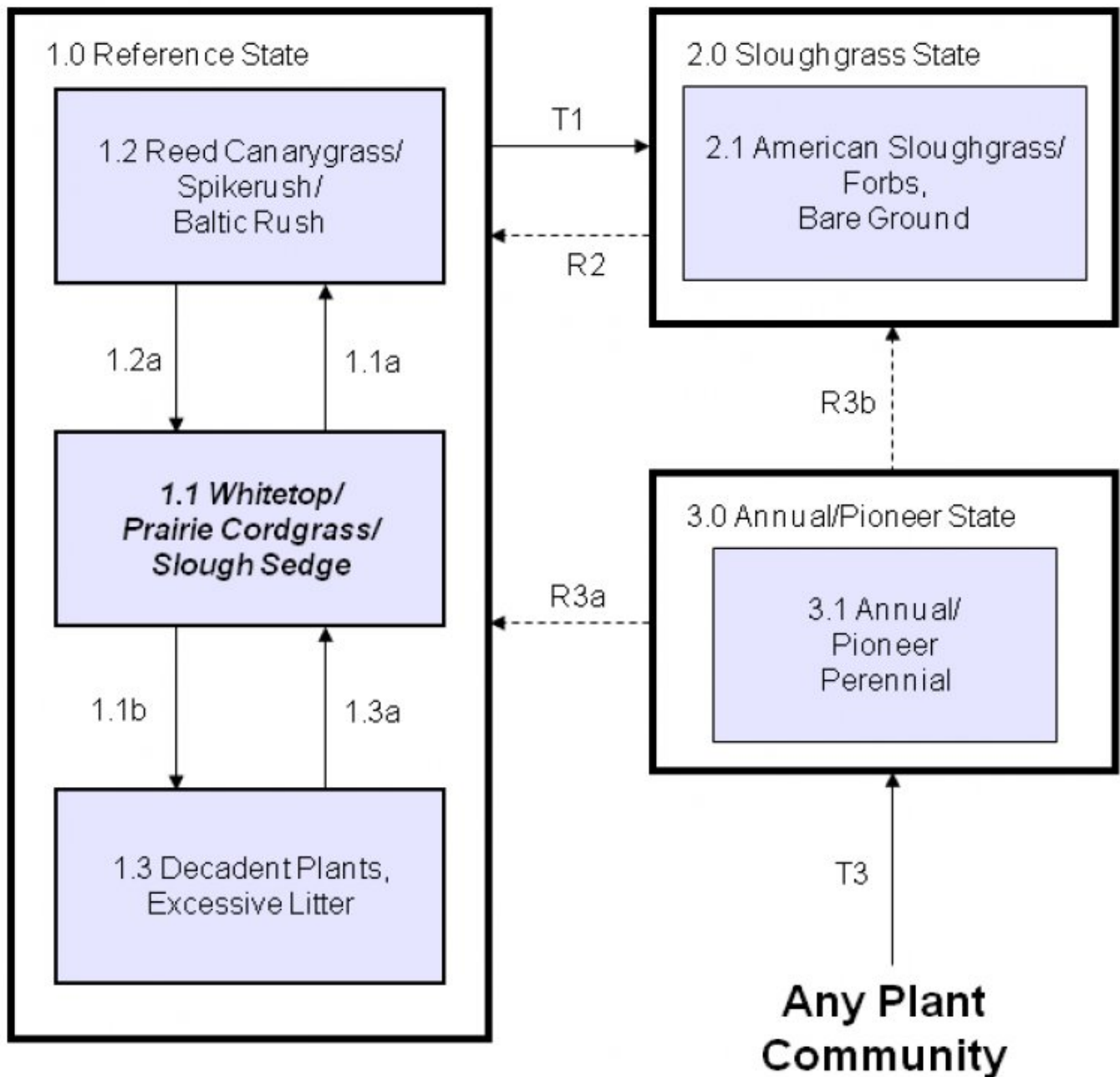
The plant community upon which interpretations are primarily based is the Reference Plant Community under normal precipitation periods. The Reference Plant Community has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational 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.

Continuous grazing without adequate recovery opportunities between grazing events over several years will cause this site to depart from the Reference Plant Community. Species such as reed canarygrass, spikerush and Baltic rush will increase in frequency and density. Non-use (rest) and lack of fire will cause litter levels and plant decadence/mortality to increase. Cattails are greatly influenced by the fluctuating water regime.

Due to a general invasion of exotic species (such as Kentucky bluegrass and smooth brome grass) across the MLRA within this site, returning to the 1.1 Whitetop/Prairie Cordgrass/Slough Sedge Plant Community Phase may not be possible.

Following the state and transition diagram are narratives for each of the described states and community phases. These may not represent every possibility, but they are the most prevalent and repeatable states/community phases. The plant composition tables shown below have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these community phases and/or states may be revised or removed, and new ones may be added. The main purpose for including the descriptions here is to capture the current knowledge and experience at the time of this revision.

State and transition model



State 1 Reference

The State narrative is under development.

Community 1.1 Whitetop/Prairie Cordgrass/Slough Sedge

This is the interpretive plant community and is considered to be the Reference Plant Community. This plant community evolved with grazing by large herbivores, infrequent wild fires and periodic flooding events and is suited for grazing by domestic livestock. This plant community can be found on areas that are grazed and where the grazed plants receive adequate periods of rest during the growing season in order to recover. Historically, fires occurred infrequently. The potential vegetation is about 55% grasses, 40% grass-like, and 5% forbs. The major grasses and grass-like include whitetop, prairie cordgrass, slough sedge, woolly sedge and spikerush. Key forbs include smartweeds, western dock and aster. 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).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	4035	4134	4231
Shrub/Vine	2018	2313	2578
Forb	—	166	364
Total	6053	6613	7173

Figure 5. Plant community growth curve (percent production by month).
 ND5410, Missouri Slope, Lowland, Warm Season Dominant. Lowland, warm-season dominant, cool-season subdominant..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	3	22	30	30	8	5	2	0	0

Community 1.2

Reed Canarygrass/Spikerush/Baltic Rush

This plant community will slowly develop from the adverse effects of continuous grazing, without adequate recovery periods between each grazing event during the growing season. When compared to the Reference Plant Community, whitetop, prairie cordgrass, slough sedge, and northern reedgrass, have decreased. Reed canarygrass, spikerush, low-growing 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.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2959	3144	3363
Shrub/Vine	2466	2774	3026
Forb	179	247	336
Total	5604	6165	6725

Figure 7. Plant community growth curve (percent production by month).
 ND5409, Missouri Slope, Lowland, Cool-season Dominant. Lowland, cool-season dominant, tall grasses and grass-like..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	10	37	35	5	2	8	0	0	0

Community 1.3

Decadent Plants, Excessive Litter

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 green-up in the spring. Plants become decadent and exhibit low vigor. 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 Reference Plant Community. Weedy species, cool-season grasses, and sedges have increased. Prairie cordgrass has decreased. American licorice tends to increase. 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 and/or fire quickly changes the plant community. It is somewhat more vulnerable to severe disturbance than the Reference Plant Community. The soil remains protected and the watershed continues to function. The biotic community is at risk due to invasive plants.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2864	2939	2970
Shrub/Vine	1905	2334	2802
Forb	163	220	280
Total	4932	5493	6052

Figure 9. Plant community growth curve (percent production by month).
ND5406, Missouri Slope, Introduced Cool-season Grasses. Introduced cool-season grasses.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	10	35	35	5	2	8	2	0	0

Pathway 1.1a Community 1.1 to 1.2

Continuous grazing without adequate recovery periods between grazing events will shift this plant community to the Reed Canarygrass/Spikerush/Baltic Rush Plant Community.

Pathway 1.1b Community 1.1 to 1.3

Non-use and no fire will move this plant community to the Decadent Plants, Excessive Litter Plant Community.

Pathway 1.2a Community 1.2 to 1.1

Prescribed grazing that includes adequate recovery opportunity between grazing occurrences will shift this plant community back to the Whitetop/Prairie Cordgrass/Slough Sedge Plant Community.

Conservation practices

Prescribed Grazing

Pathway 1.3a Community 1.3 to 1.1

Prescribed grazing or prescribed burning followed by prescribed grazing with adequate recovery periods between grazing events and proper stocking will move this plant community toward the Whitetop/Prairie Cordgrass/Slough Sedge Plant Community. This would require long-term management with prescribed grazing and/or prescribed burning under controlled conditions.

Conservation practices

Prescribed Burning
Prescribed Grazing

State 2 Sloughgrass

The State narrative is under development.

Community 2.1

American Sloughgrass/Forbs, Bare Ground

This plant community developed with heavy continuous grazing without adequate recovery periods between grazing events and/or due to a long duration of flooding during unnatural climatic wet cycles. Annual grasses like American sloughgrass and short-lived perennials such as foxtail barley dominate the community. Quackgrass can invade on drier portions of the community. Prairie cordgrass, whitetop, northern reedgrass and slough sedge will be lost from the plant community while reed canarygrass and other grass-likes will tend to persist in trace amounts, greatly reduced in vigor. Smartweeds, curly dock and cinquefoil have increased. Areas of bare ground are standard throughout the site. A significant amount of production and diversity has been lost when compared to the Reference Plant Community. Loss or reduction of native grasses, grass-likes and forbs has negatively impacted energy flow and nutrient cycling. It will take a long time to restore this plant community back to the Reference Plant Community with improved management. Renovation would be very costly, whereas time is the best remedy.

Table 8. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	179	2172	3026
Shrub/Vine	135	280	448
Forb	247	350	448
Total	561	2802	3922

Figure 11. Plant community growth curve (percent production by month).
ND5406, Missouri Slope, Introduced Cool-season Grasses. Introduced cool-season grasses.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	10	35	35	5	2	8	2	0	0

State 3 Annual/Pioneer

The State narrative is under development.

Community 3.1 Annual/Pioneer Perennial

This plant community develops under severe disturbance, long enduring flooding and/or excessive defoliation. This can result from heavy livestock or wildlife concentration, excessive ponding and cropping abandonment (go-back land). The dominant vegetation includes pioneer annual grasses, forbs, invaders, and early successional biennial and perennial species. Grasses may include foxtail barley, barnyardgrass, annual brome, quackgrass and rushes. The dominant forbs include curly dock, smartweeds and other early successional species. Plant species from adjacent ecological sites may become minor components of this plant community. The community also is susceptible to invasion of other non-native species due to severe soil disturbances and relatively high percent of bare ground. Many annual and perennial forbs, including non-native species, have invaded the site. This plant community is resistant to change, as long as soil disturbance or severe vegetation defoliation persists, thus holding back secondary plant succession. Soil erosion is potentially low in this plant community. Reduced surface cover, low plant density, low plant vigor, loss of root biomass, and soil compaction, all contribute to decreased water infiltration, excessive ponding, and salt concentrations on the surface. Significant economic inputs, management and time would be required to move this plant community toward a higher successional stage and a more productive plant community. Secondary succession is highly variable, depending upon availability and diversity of a viable seed bank of higher successional species within the existing plant community and neighboring plant communities. This plant community can be renovated to improve the production capability, but management changes would be needed to maintain the new plant community. The total annual production ranges from 300 to 2000 lbs./ac. (air-dry weight) depending upon species and severity of the degradation of the site.

Transition T1

State 1 to 2

Heavy, continuous grazing and/or continuous seasonal (spring) grazing will convert this plant community to the American Sloughgrass/Forbs, *Bare Ground* Plant Community.

Restoration pathway R2

State 2 to 1

Long-term prescribed grazing with adequate recovery periods following each grazing event may move this plant community toward the Reed Canarygrass/Spikerush/Baltic Rush Plant Community. Eventually it may return to the Reference Plant Community or associated successional plant community stages assuming an adequate seed/vegetative source is available. This process may take greater than 10 years.

Conservation practices

Prescribed Grazing

Transition T3

State 2 to 3

Excessive defoliation (i.e., areas of heavy animal concentration) or cropped go-back land with continuous grazing will convert the plant community to the Annual/Pioneer Perennial Plant Community.

Restoration pathway R3a

State 3 to 1

Under long-term prescribed grazing and/or removal of disturbance, including adequate rest periods, this plant community will move through the successional stages, and may eventually lead towards the Whitetop/Prairie Cordgrass/Slough Sedge Plant Community. Depending on the severity of compaction, sedimentation, and concentrated heavy-loaded organic build-up and if adequate perennial plants exist, this change can occur more slowly. This process will likely take a period of (20+ years).

Conservation practices

Prescribed Grazing

Restoration pathway R3b

State 3 to 2

Heavy, continuous grazing will upgrade the plant community towards a low successional state resembling the American Sloughgrass/Forbs, *Bare Ground* Plant Community.

Additional community tables

Table 9. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Grasses and Grass-likes			2976–3637	
	common rivergrass	SCFE	<i>Scolochloa festucacea</i>	1323–1653	–
	prairie cordgrass	SPPE	<i>Spartina pectinata</i>	992–1323	–
	American sloughgrass	BESY	<i>Beckmannia syzigachne</i>	66–331	–
	northern reedgrass	CASTI3	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	66–331	–
	American mannagrass	GLGR	<i>Glyceria grandis</i>	66–331	–
	reed canarygrass	PHAR3	<i>Phalaris arundinacea</i>	66–331	–
	Grass, perennial	2GP	<i>Grass, perennial</i>	0–132	–
2	Grass-Likes			1984–2645	
	wheat sedge	CAAT2	<i>Carex atherodes</i>	992–1323	–
	woolly sedge	CAPE42	<i>Carex pellita</i>	331–661	–
	spikerush	ELEOC	<i>Eleocharis</i>	331–661	–
	Grass-like (not a true grass)	2GL	<i>Grass-like (not a true grass)</i>	66–331	–
	broadleaf cattail	TYLA	<i>Typha latifolia</i>	66–331	–
	bur-reed	SPARG	<i>Sparganium</i>	66–132	–
Forb					
3	Forbs			0–331	
	western dock	RUAQ	<i>Rumex aquaticus</i>	0–132	–
	Forb, perennial	2FP	<i>Forb, perennial</i>	0–132	–
	aster	ASTER	<i>Aster</i>	0–132	–
	knotweed	POLYG4	<i>Polygonum</i>	0–132	–
	Pennsylvania smartweed	POPE2	<i>Polygonum pensylvanicum</i>	0–132	–
	cinquefoil	POTEN	<i>Potentilla</i>	0–66	–
	American licorice	GLLE3	<i>Glycyrrhiza lepidota</i>	0–66	–

Table 10. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Grasses			2158–2774	
	quackgrass	ELRE4	<i>Elymus repens</i>	0–1849	–
	reed canarygrass	PHAR3	<i>Phalaris arundinacea</i>	1233–1849	–
	American mannagrass	GLGR	<i>Glyceria grandis</i>	308–616	–
	foxtail barley	HOJU	<i>Hordeum jubatum</i>	62–308	–
	American sloughgrass	BESY	<i>Beckmannia syzigachne</i>	62–308	–
	common rivergrass	SCFE	<i>Scolochloa festucacea</i>	62–308	–
	prairie cordgrass	SPPE	<i>Spartina pectinata</i>	62–308	–
	Grass, annual	2GA	<i>Grass, annual</i>	0–308	–
	barnyardgrass	ECCR	<i>Echinochloa crus-galli</i>	62–308	–
	Grass, perennial	2GP	<i>Grass, perennial</i>	0–123	–
	northern reedgrass	CASTI3	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	0–123	–
2	Grass-Likes			2466–3082	
	spikerush	ELEOC	<i>Eleocharis</i>	616–925	–
	woolly sedge	CAPE42	<i>Carex pellita</i>	308–616	–
	broadleaf cattail	TYLA	<i>Typha latifolia</i>	62–308	–
	Grass-like (not a true grass)	2GL	<i>Grass-like (not a true grass)</i>	62–308	–
	wheat sedge	CAAT2	<i>Carex atherodes</i>	62–308	–
	bur-reed	SPARG	<i>Sparganium</i>	62–123	–
Forb					
3	Forbs			185–308	
	Forb, annual	2FA	<i>Forb, annual</i>	185–308	–
	aster	ASTER	<i>Aster</i>	62–308	–
	American licorice	GLLE3	<i>Glycyrrhiza lepidota</i>	62–308	–
	knotweed	POLYG4	<i>Polygonum</i>	62–308	–
	Pennsylvania smartweed	POPE2	<i>Polygonum pensylvanicum</i>	62–308	–
	cinquefoil	POTEN	<i>Potentilla</i>	62–308	–
	western dock	RUAQ	<i>Rumex aquaticus</i>	62–308	–
	curly dock	RUCR	<i>Rumex crispus</i>	62–308	–
	Forb, perennial	2FP	<i>Forb, perennial</i>	0–123	–

Table 11. Community 1.3 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Grasses			1098–2197	
	reed canarygrass	PHAR3	<i>Phalaris arundinacea</i>	275–549	–
	common rivergrass	SCFE	<i>Scolochloa festucacea</i>	275–549	–
	prairie cordgrass	SPPE	<i>Spartina pectinata</i>	275–549	–
	northern reedgrass	CASTI3	<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	55–275	–
	American mannagrass	GLGR	<i>Glyceria grandis</i>	55–275	–
	Grass, annual	2GA	<i>Grass, annual</i>	0–110	–
	Grass, perennial	2GP	<i>Grass, perennial</i>	0–110	–
	American sloughgrass	BESY	<i>Beckmannia syzigachne</i>	0–110	–
2	Grass-Likes			1648–3021	
	wheat sedge	CAAT2	<i>Carex atherodes</i>	275–1098	–
	woolly sedge	CAPE42	<i>Carex pellita</i>	275–1098	–
	spikerush	ELEOC	<i>Eleocharis</i>	275–1098	–
	Grass-like (not a true grass)	2GL	<i>Grass-like (not a true grass)</i>	55–275	–
	broadleaf cattail	TYLA	<i>Typha latifolia</i>	55–275	–
	bur-reed	SPARG	<i>Sparganium</i>	55–110	–
Forb					
3	Forbs			165–275	
	cinquefoil	POTEN	<i>Potentilla</i>	110–165	–
	Forb, annual	2FA	<i>Forb, annual</i>	110–165	–
	American licorice	GLLE3	<i>Glycyrrhiza lepidota</i>	110–165	–
	curly dock	RUCR	<i>Rumex crispus</i>	55–165	–
	knotweed	POLYG4	<i>Polygonum</i>	0–110	–
	Pennsylvania smartweed	POPE2	<i>Polygonum pensylvanicum</i>	0–110	–
	Forb, perennial	2FP	<i>Forb, perennial</i>	0–110	–
	aster	ASTER	<i>Aster</i>	0–110	–
	western dock	RUAQ	<i>Rumex aquaticus</i>	55–110	–

Table 12. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Grasses			1401–1961	
	American sloughgrass	BESY	<i>Beckmannia syzigachne</i>	560–1121	–
	quackgrass	ELRE4	<i>Elymus repens</i>	0–981	–
	American mannagrass	GLGR	<i>Glyceria grandis</i>	140–560	–
	foxtail barley	HOJU	<i>Hordeum jubatum</i>	140–560	–
	barnyardgrass	ECCR	<i>Echinochloa crus-galli</i>	140–420	–
	Grass, annual	2GA	<i>Grass, annual</i>	280–420	–
	Grass, perennial	2GP	<i>Grass, perennial</i>	0–56	–
	reed canarygrass	PHAR3	<i>Phalaris arundinacea</i>	0–56	–
2	Grass-Likes			140–420	
	spikerush	ELEOC	<i>Eleocharis</i>	28–140	–
	broadleaf cattail	TYLA	<i>Typha latifolia</i>	0–56	–
	Grass-like (not a true grass)	2GL	<i>Grass-like (not a true grass)</i>	28–56	–
	wheat sedge	CAAT2	<i>Carex atherodes</i>	0–28	–
	woolly sedge	CAPE42	<i>Carex pellita</i>	0–28	–
	bur-reed	SPARG	<i>Sparganium</i>	0–28	–
Forb					
3	Forbs			280–420	
	curly dock	RUCR	<i>Rumex crispus</i>	140–280	–
	Forb, annual	2FA	<i>Forb, annual</i>	140–280	–
	knotweed	POLYG4	<i>Polygonum</i>	140–280	–
	cinquefoil	POTEN	<i>Potentilla</i>	84–224	–
	Forb, perennial	2FP	<i>Forb, perennial</i>	84–140	–
	aster	ASTER	<i>Aster</i>	84–140	–
	Pennsylvania smartweed	POPE2	<i>Polygonum pensylvanicum</i>	84–112	–
	western dock	RUAQ	<i>Rumex aquaticus</i>	28–56	–
	American licorice	GLLE3	<i>Glycyrrhiza lepidota</i>	28–56	–

Animal community

Animal Community – Wildlife Interpretations:
Under development.

Animal Community – Grazing Interpretations:

This site is well adapted to managed grazing by domestic livestock. The predominance of herbaceous plants across all plant community phases best lends these sites to grazing by cattle but other domestic grazers with differing diet preferences may also be a consideration depending upon management objectives. Often, the current plant community does not entirely match any particular plant community (as described in the ecological site description). Because of this, a resource inventory is necessary to document plant composition and production. Proper interpretation of this inventory data will permit the establishment of a safe, initial stocking rate for the type and class of animals and level of grazing management. More accurate stocking rate estimates should eventually be calculated using actual stocking rate information and monitoring data.

Hydrological functions

Water ponding is the principal factor limiting herbage production on this site. The site is dominated by soils in

hydrologic group D. Infiltration varies from moderately slow to very slow and runoff potential for this site is negligible. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An exception would be where short grasses form a dense sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

Recreational uses

This site provides hunting opportunities for upland and waterfowl game species. The wide variety 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

None noted.

Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. All descriptions were peer reviewed and/or field tested by various private, state and federal agency specialist.

Those involved in developing this site description include: Dennis Froemke, NRCS Range Management Specialist; Jeff Printz, NRCS State Range Management Specialist; Stan Boltz, NRCS Range Management Specialist; Darrell Vanderbusch, NRCS Resource Soil Scientist; L. Michael Stirling, NRCS Range Management Specialist; Josh Saunders, NRCS Range Management Specialist; Jody Forman, NRCS Grazing Land Management Specialist; David Dewald, NRCS State Biologist; and Brad Podoll, NRCS Biologist.

Other references

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (<http://hpccsun.unl.edu>)

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (<http://wcc.nrcs.usda.gov>)

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USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

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Contributors

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Jeff Printz/Stam Boltz

Approval

Suzanne Mayne-Kinney, 8/31/2023

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be

known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Date	05/21/2012
Approved by	Jeff Pritnz
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** None.

- 2. Presence of water flow patterns:** None.

- 3. Number and height of erosional pedestals or terracettes:** None.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 0 to 5%. Amount of bare ground may increase for a short time following periods of inundation.

- 5. Number of gullies and erosion associated with gullies:** None.

- 6. Extent of wind scoured, blowouts and/or depositional areas:** None.

- 7. Amount of litter movement (describe size and distance expected to travel):** None.

- 8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Stability class 6. Soil surface fragments will typically retain structure indefinitely when dipped in distilled water.

- 9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Use soil series description for depth, color and structure of A horizon/surface layer.

- 10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Combination of shallow and deep rooted species (mid & tall rhizomatous and tufted perennial cool- and warm-season grasses) with fine and coarse roots positively influences infiltration.

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

Dominant: Mid and tall cool-season grasses > grass-likes >

Sub-dominant: tall, warm-season rhizomatous >

Other: forbs

Additional: Due to differing root structure and distribution, Kentucky bluegrass and smooth brome grass do not fit into reference plant community F/S groups.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** None.
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14. **Average percent litter cover (%) and depth (in):** Plant litter is in contact with soil surface.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Representative value = 5900 lbs/ac air dry with a range of 5400 lbs/ac air dry to 6400 lbs/ac air dry depending upon growing conditions.
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** State and local noxious, Kentucky bluegrass, smooth brome grass, reed canarygrass, redtop
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17. **Perennial plant reproductive capability:** All species exhibit high vigor relative to climatic conditions. Do not rate based solely on seed production. Perennial grasses should have vigorous rhizomes or tillers.
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