

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

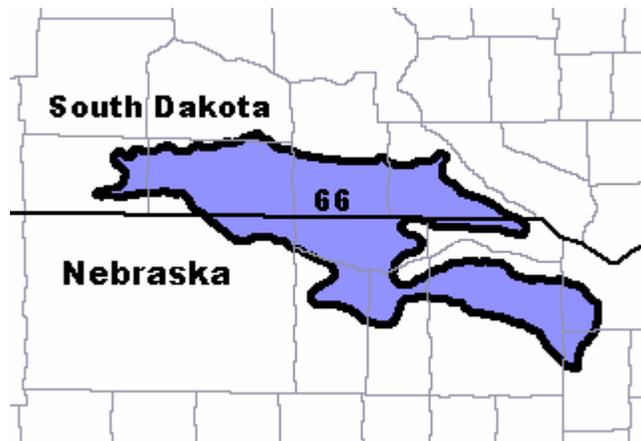
Site Name: Loamy Overflow

Site ID: R066XY026NE

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

Physiographic Features

This site occurs on nearly level areas that receive additional water from overflow of intermittent streams or runoff from adjacent slopes.



Landform: flood plain, stream terrace, swale

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	1900	3000
Slope (percent):	0	2
Water Table Depth (inches):	42	80
Flooding:		
Frequency:	Rare	Frequent
Duration:	Very brief	Brief
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Low

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>.

Riparian and Wetland Features

Stream Type: B6, C6 (Rosgen System)

Representative Soil Features

The soils of this site are very deep, well drained soils that formed in alluvium. These soils have moderate to rapid permeability. The surface layer will vary from 3 to 15 inches deep and have one of the following textures: silt loam, loamy fine sand, fine sandy loam, and silty clay loam. These areas receive additional water from overflow of intermittent streams or runoff from adjacent slopes. Available water capacity is typically high. The general fertility level and organic content of these soils is medium to high. This site should show slight to no evidence of rills, wind scoured areas, or pedestalled plants. Water flow paths are broken, irregular in appearance, or discontinuous with numerous debris dams or vegetative barriers. The soil surface is stable and intact. Subsurface soil layers are not restrictive to water movement and root penetration.

These soils are mainly susceptible to water erosion. Headcuts may develop if adequate vegetative cover is not maintained. A drastic loss of the soil surface layer on this site can result in a shift in species composition and/or production.

More information can be found in the various soil survey reports. Contact the local 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: silty clay loam, fine sandy loam, loamy fine sand
Surface Texture Modifier: none
Subsurface Texture Group: loamy
Surface Fragments ≤3" (% Cover): 0
Surface Fragments >3" (%Cover): 0
Subsurface Fragments ≤3" (% Volume): 0
Subsurface Fragments >3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well	well
Permeability Class:	moderate	rapid
Depth (inches):	80	80
Electrical Conductivity (mmhos/cm)*:	0	0
Sodium Absorption Ratio*:	0	0
Soil Reaction (1:1 Water)*:	5.6	8.4
Soil Reaction (0.1M CaCl₂)*:	NA	NA
Available Water Capacity (inches)*:	6	8
Calcium Carbonate Equivalent (percent)*:	0	15

* - These attributes represent from 0-40 inches 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 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.

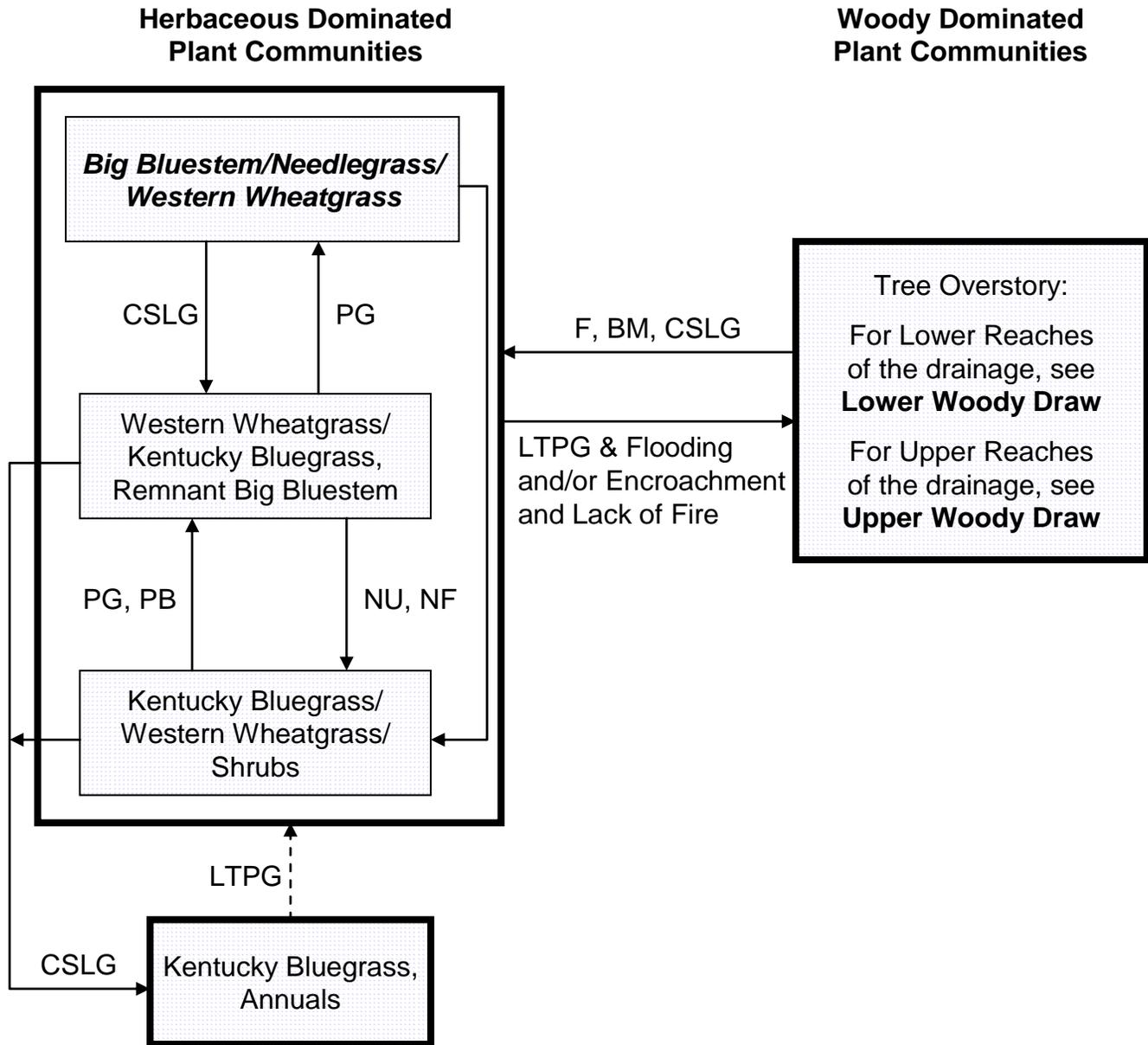
Continuous season-long grazing (during the typical growing season of May-October) and/or repeated seasonal grazing (e.g., every spring, every summer) without adequate recovery periods following each grazing occurrence causes this site to depart from the Big Bluestem/Western Wheatgrass Plant Community. Western wheatgrass increases initially and will eventually decrease with continuous grazing. Grasses such as big bluestem, prairie cordgrass, and switchgrass will decrease in frequency and production. Introduced species such as Kentucky bluegrass, cheatgrass, and smooth bromegrass invade the site as a result of inadequate recovery periods between grazing events and overstocking. Where trees dominate the site, woody regeneration will decline and grasses and forbs will become dominant in the understory. It is thought that the climax is an herbaceous dominated site on higher landscape positions where trees encroach from the adjacent landscapes and flooding events are infrequent. Loamy Overflow sites occupying lower landscape positions or plant communities adjacent to riparian areas will typically be dominated by a mixed hardwood overstory.

Interpretations are primarily based on the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community. It has been determined by study of rangeland relic areas, areas protected from

excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

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

Plant Communities and Transitional Pathways



BM – Brush management (fire, chemical, mechanical); **CSLG** – Continuous season-long grazing (grazing a unit for an entire growing season); **F** – Fire; **LTPG** – Long-term prescribed grazing; **NF** – No fire; **NU** – Non use; **PG** – Prescribed grazing.

Plant Community Composition and Group Annual Production

COMMON/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Big Bluestem/Needlegrass/ Western Wheatgrass		
			Group	lbs./acre	% Comp
GRASSES & GRASS-LIKES				2550 - 3230	75 - 95
TALL WARM-SEASON GRASSES			1	850 - 1530	25 - 45
big bluestem	Andropogon gerardii	ANGE	1	680 - 1360	20 - 40
switchgrass	Panicum virgatum	PAVI2	1	68 - 340	2 - 10
Indiangrass	Sorghastrum nutans	SONU2	1	0 - 170	0 - 5
green muhly	Muhlenbergia racemosa	MURA	1	0 - 102	0 - 3
RHIZOMATOUS COOL-SEASON GRASSES			2	340 - 680	10 - 20
western wheatgrass	Pascopyrum smithii	PASM	2	340 - 680	10 - 20
MID WARM-SEASON GRASSES			3	340 - 612	10 - 18
little bluestem	Schizachyrium scoparium	SCSC	3	170 - 612	5 - 18
sideoats grama	Bouteloua curtipendula	BOCU	3	68 - 340	2 - 10
COOL-SEASON BUNCHGRASSES			4	170 - 612	5 - 18
green needlegrass	Nassella viridula	NAVI4	4	170 - 510	5 - 15
porcupine grass	Hesperostipa spartea	HESP11	4	34 - 170	1 - 5
slender wheatgrass	Elymus trachycaulus	ELTR7	4	0 - 102	0 - 3
Canada wildrye	Elymus canadensis	ELCA4	4	0 - 68	0 - 2
OTHER NATIVE GRASSES			5	34 - 170	1 - 5
dropseed	Sporobolus spp.	SPORO	5	0 - 170	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	5	0 - 68	0 - 2
Scribner panicum	Dichanthelium oligosanthos var. scribnerianum	DIOLS	5	0 - 34	0 - 1
other perennial grasses		2GP	5	0 - 170	0 - 5
GRASS-LIKES			6	68 - 340	2 - 10
Penn sedge	Carex pensylvanica	CAPE6	6	68 - 340	2 - 10
clustered field sedge	Carex praegracilis	CAPR5	6	0 - 170	0 - 5
other grass-likes		2GL	6	0 - 272	0 - 8
FORBS			8	170 - 340	5 - 10
American licorice	Glycyrrhiza lepidota	GLLE3	8	0 - 102	0 - 3
American vetch	Vicia americana	VIAM	8	0 - 34	0 - 1
blue verbena	Verbena hastata	VEHA2	8	0 - 68	0 - 2
cudweed sagewort	Artemisia ludoviciana	ARLU	8	34 - 102	1 - 3
dotted gayfeather	Liatris punctata	LIPU	8	34 - 68	1 - 2
false boneset	Brickellia eupatorioides	BREU	8	34 - 102	1 - 3
false Solomon's-seal	Maianthemum stellatum	MAST4	8	0 - 68	0 - 2
heath aster	Symphyotrichum ericoides	SYER	8	34 - 102	1 - 3
Maximilian sunflower	Helianthus maximiliani	HEMA2	8	34 - 102	1 - 3
Missouri goldenrod	Solidago missouriensis	SOMI2	8	0 - 68	0 - 2
northern bedstraw	Galium boreale	GABO2	8	0 - 34	0 - 1
purple prairie clover	Dalea purpurea	DAPU5	8	0 - 68	0 - 2
showy ticktrefoil	Desmodium canadense	DECA7	8	0 - 34	0 - 1
silverleaf scurfpea	Pediomelum argophyllum	PEAR6	8	0 - 68	0 - 2
slimflower scurfpea	Psoraleidum tenuiflorum	PSTE5	8	0 - 68	0 - 2
stiff goldenrod	Oligoneuron rigidum	OLRI	8	34 - 102	1 - 3
western ragweed	Ambrosia psilostachya	AMPS	8	0 - 68	0 - 2
western stickseed	Lappula occidentalis var. occidentalis	LAOCO	8	34 - 68	1 - 2
western yarrow	Achillea millefolium var. occidentalis	ACMIO	8	34 - 102	1 - 3
native forbs		2FN	8	34 - 170	1 - 5
SHRUBS			9	68 - 238	2 - 7
chokecherry	Prunus virginiana	PRVI	9	0 - 170	0 - 5
leadplant	Amorpha canescens	AMCA6	9	34 - 170	1 - 5
poison ivy	Toxicodendron rydbergii	TORY	9	0 - 68	0 - 2
rose	Rosa spp.	ROSA5	9	34 - 102	1 - 3
western snowberry	Symphoricarpos occidentalis	SYOC	9	34 - 170	1 - 5
other shrubs		2SHRUB	9	0 - 170	0 - 5
TREES			10	0 - 68	0 - 2
American elm	Ulmus americana	ULAM	10	0 - 68	0 - 2
boxelder	Acer negundo	ACNE2	10	0 - 68	0 - 2
bur oak	Quercus macrocarpa	QUMA2	10	0 - 68	0 - 2
green ash	Fraxinus pennsylvanica	FRPE	10	0 - 68	0 - 2
hackberry	Celtis occidentalis	CEOC	10	0 - 68	0 - 2
plains cottonwood	Populus deltoides ssp. monilifera	PODEM	10	0 - 68	0 - 2
other trees		2TREE	10	0 - 68	0 - 2

Annual Production lbs./acre		LOW	RV	HIGH
GRASSES & GRASS-LIKES		2270 -	2958	-3605
FORBS		165 -	255	-375
SHRUBS		65 -	153	-250
TREES		0 -	34	-70
TOTAL		2500 -	3400	-4300

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/Needlegrass/ Western Wheatgrass			Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem			Kentucky Bluegrass, Annuals			Kentucky Bluegrass/Western Wheatgrass/Shrubs		
		Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			2720 - 3230	80 - 95		2025 - 2430	75 - 90		1105 - 1445	65 - 85		1500 - 2000	60 - 80
TALL WARM-SEASON GRASSES		1	850 - 1530	25 - 45	1	135 - 405	5 - 15	1	0 - 34	0 - 2	1	50 - 250	2 - 10
big bluestem	ANGE	1	680 - 1360	20 - 40	1	135 - 405	5 - 15	1	0 - 34	0 - 2	1	50 - 250	2 - 10
switchgrass	PAV12	1	68 - 340	2 - 10	1	0 - 81	0 - 3				1	0 - 75	0 - 3
Indiangrass	SONU2	1	0 - 170	0 - 5							1	0 - 50	0 - 2
green muhly	MURA	1	0 - 102	0 - 3							1	0 - 50	0 - 2
RHIZOMATOUS COOL-SEASON		2	340 - 680	10 - 20	2	405 - 810	15 - 30	2	17 - 170	1 - 10	2	125 - 500	5 - 20
western wheatgrass	IPASM	2	340 - 680	10 - 20	2	405 - 810	15 - 30	2	17 - 170	1 - 10	2	125 - 500	5 - 20
MID WARM-SEASON GRASSES		3	340 - 612	10 - 18	3	54 - 270	2 - 10	3	0 - 85	0 - 5	3	50 - 250	2 - 10
little bluestem	SCSC	3	170 - 612	5 - 18	3	54 - 270	2 - 10	3	0 - 85	0 - 5	3	50 - 250	2 - 10
sideoats grama	BOCU	3	68 - 340	2 - 10	3	27 - 135	1 - 5	3	0 - 51	0 - 3	3	25 - 125	1 - 5
COOL-SEASON BUNCHGRASSES		4	170 - 612	5 - 18	4	54 - 216	2 - 8	4			4	50 - 250	2 - 10
green needlegrass	NAVI4	4	170 - 510	5 - 15	4	27 - 216	1 - 8				4	25 - 200	1 - 8
porcupine grass	HESP11	4	34 - 170	1 - 5	4	0 - 81	0 - 3				4	25 - 75	1 - 3
slender wheatgrass	ELTR7	4	0 - 102	0 - 3							4	0 - 75	0 - 3
Canada wildrye	ELCA4	4	0 - 68	0 - 2							4	0 - 50	0 - 2
OTHER NATIVE GRASSES		5	34 - 170	1 - 5	5	54 - 270	2 - 10	5	34 - 255	2 - 15	5	25 - 125	1 - 5
dropseed	SPORO	5	0 - 170	0 - 5	5	27 - 216	1 - 8	5	34 - 170	2 - 10	5	25 - 125	1 - 5
prairie junegrass	KOMA	5	0 - 68	0 - 2	5	27 - 54	1 - 2	5	17 - 51	1 - 3	5	0 - 50	0 - 2
Scribner panicum	DIOLS	5	0 - 34	0 - 1	5	0 - 27	0 - 1	5	0 - 34	0 - 2	5	0 - 50	0 - 2
other perennial grasses	2GP	5	0 - 170	0 - 5	5	0 - 135	0 - 5	5	0 - 85	0 - 5	5	0 - 125	0 - 5
GRASS-LIKES		6	68 - 340	2 - 10	6	27 - 135	1 - 5	6	17 - 85	1 - 5	6	25 - 125	1 - 5
Penn sedge	CAPE6	6	68 - 340	2 - 10	6	27 - 135	1 - 5	6	17 - 51	1 - 3	6	25 - 125	1 - 5
clustered field sedge	CAPR5	6	0 - 170	0 - 5	6	0 - 81	0 - 3	6	0 - 34	0 - 2	6	0 - 75	0 - 3
other grass-likes	2GL	6	0 - 272	0 - 8	6	0 - 135	0 - 5	6	0 - 51	0 - 3	6	0 - 125	0 - 5
NON-NATIVE GRASSES		7			7	405 - 810	15 - 30	7	510 - 935	30 - 55	7	250 - 875	10 - 35
Kentucky bluegrass	POPR				7	270 - 675	10 - 25	7	425 - 850	25 - 50	7	125 - 750	5 - 30
smooth bromegrass	BRIN2				7	54 - 270	2 - 10	7	85 - 510	5 - 30	7	125 - 375	5 - 15
cheatgrass	BRTE				7	0 - 135	0 - 5	7	0 - 170	0 - 10	7	0 - 125	0 - 5
FORBS		8	170 - 340	5 - 10	8	135 - 270	5 - 10	8	170 - 425	10 - 25	8	125 - 375	5 - 15
American licorice	GLLE3	8	0 - 102	0 - 3	8	0 - 81	0 - 3	8	0 - 51	0 - 3	8	25 - 125	1 - 5
American vetch	VIAM	8	0 - 34	0 - 1									
blue verbena	VEHA2	8	0 - 68	0 - 2	8	0 - 81	0 - 3	8	0 - 68	0 - 4	8	0 - 100	0 - 4
common mullein	VETH				8	0 - 54	0 - 2	8	17 - 102	1 - 6	8	25 - 125	1 - 5
cutweed sagewort	ARLU	8	34 - 102	1 - 3	8	27 - 135	1 - 5	8	34 - 119	2 - 7	8	50 - 200	2 - 8
curly dock	RUCR				8	0 - 54	0 - 2	8	0 - 85	0 - 5	8	0 - 125	0 - 5
dotted gayfeather	LIPU	8	34 - 68	1 - 2	8	0 - 27	0 - 1				8	0 - 25	0 - 1
false boneset	BREU	8	34 - 102	1 - 3	8	0 - 54	0 - 2				8	0 - 50	0 - 2
false Solomon's-seal	MAST4	8	0 - 68	0 - 2	8	0 - 27	0 - 1				8	0 - 25	0 - 1
heath aster	SYER	8	34 - 102	1 - 3	8	27 - 108	1 - 4	8	17 - 85	1 - 5	8	25 - 125	1 - 5
Maximilian sunflower	HEMA2	8	34 - 102	1 - 3	8	0 - 54	0 - 2				8	0 - 25	0 - 1
Missouri goldenrod	SOMI2	8	0 - 68	0 - 2	8	27 - 81	1 - 3	8	17 - 51	1 - 3	8	25 - 100	1 - 4
northern bedstraw	GABO2	8	0 - 34	0 - 1	8	0 - 27	0 - 1				8	0 - 25	0 - 1
purple prairie clover	DAPU5	8	0 - 68	0 - 2	8	0 - 27	0 - 1				8	0 - 25	0 - 1
showy ticktrefoil	DECA7	8	0 - 34	0 - 1							8	0 - 25	0 - 1
silverleaf scurfpea	PEAR6	8	0 - 68	0 - 2	8	0 - 81	0 - 3	8	0 - 68	0 - 4	8	0 - 75	0 - 3
slimflower scurfpea	PSTE5	8	0 - 68	0 - 2	8	0 - 81	0 - 3	8	0 - 68	0 - 4	8	0 - 75	0 - 3
stiff goldenrod	OLRI	8	34 - 102	1 - 3	8	27 - 135	1 - 5	8	17 - 119	1 - 7	8	25 - 150	1 - 6
sweetclover	MELI1				8	0 - 81	0 - 3	8	0 - 170	0 - 10	8	0 - 250	0 - 10
western ragweed	AMPS	8	0 - 68	0 - 2	8	27 - 81	1 - 3	8	17 - 119	1 - 7	8	25 - 125	1 - 5
western stickseed	LAOCO	8	34 - 68	1 - 2	8	0 - 54	0 - 2	8	0 - 17	0 - 1	8	0 - 25	0 - 1
western yarrow	ACMIO	8	34 - 102	1 - 3	8	27 - 135	1 - 5	8	17 - 136	1 - 8	8	25 - 125	1 - 5
native forbs	2FN	8	34 - 170	1 - 5	8	27 - 135	1 - 5	8	0 - 51	0 - 3	8	0 - 125	0 - 5
introduced forbs	2FI				8	27 - 135	1 - 5	8	34 - 255	2 - 15	8	25 - 250	1 - 10
SHRUBS		9	68 - 238	2 - 7	9	54 - 270	2 - 10	9	17 - 85	1 - 5	9	250 - 500	10 - 20
chokecherry	PRVI	9	0 - 170	0 - 5	9	0 - 135	0 - 5				9	0 - 125	0 - 5
leadplant	AMCA6	9	34 - 170	1 - 5	9	0 - 81	0 - 3				9	0 - 75	0 - 3
poison ivy	TORY	9	0 - 68	0 - 2	9	0 - 81	0 - 3	9	0 - 34	0 - 2	9	25 - 125	1 - 5
rose	ROSA5	9	34 - 102	1 - 3	9	27 - 108	1 - 4	9	17 - 51	1 - 3	9	25 - 125	1 - 5
western snowberry	SYOC	9	34 - 170	1 - 5	9	27 - 135	1 - 5	9	17 - 68	1 - 4	9	125 - 500	5 - 20
other shrubs	2SHRUB	9	0 - 170	0 - 5	9	0 - 135	0 - 5	9	0 - 51	0 - 3	9	0 - 125	0 - 5
TREES		10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
American elm	ULAM	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
boxelder	ACNE2	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
bur oak	QUMA2	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
green ash	FRPE	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
hackberry	CEOC	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
plains cottonwood	PODEM	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
other trees	2TREE	10	0 - 68	0 - 2	10	0 - 54	0 - 2	10	0 - 34	0 - 2	10	0 - 125	0 - 5
Annual Production lbs./acre			LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH		LOW RV HIGH
GRASSES & GRASS-LIKES			1970 - 2958 - 3605		1620 - 2309 - 2745		820 - 1335 - 1925		1560 - 1813 - 2020				
FORBS			165 - 255 - 375		130 - 203 - 300		165 - 298 - 450		120 - 250 - 400				
SHRUBS			65 - 153 - 250		50 - 162 - 300		15 - 51 - 90		220 - 375 - 550				
TREES			0 - 34 - 70		0 - 27 - 55		0 - 17 - 35		0 - 63 - 130				
TOTAL			2200 - 3400 - 4300		1800 - 2700 - 3400		1000 - 1700 - 2500		1900 - 2500 - 3100				

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. RV = Representative value. Refer to PLANTS database for scientific names and codes: <http://plants.usda.gov>

Plant Community and Vegetation State Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility but they are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities (DPC).” 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/Needlegrass/Western Wheatgrass Plant Community

Interpretations are based primarily on the Big Bluestem/Western Wheatgrass Plant Community (this is also considered to be climax). Potential vegetation is about 85 percent grasses or grass-like plants, 10 percent forbs, and 5 percent shrubs. The plant community is dominated by both warm- and cool-season grasses. The major grasses include big bluestem and western wheatgrass. Other grasses include switchgrass, little bluestem, green needlegrass, and sideoats grama. Forbs consist of American licorice, American vetch, aster species, and goldenrod. Woody species included in the plant community are western snowberry and rose. The potential is relatively low for tree establishment or regeneration.

This plant community is productive and diverse. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community in regards to site/soil stability, watershed function, and biologic integrity.

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

Growth curve number: NE6641

Growth curve name: Eroded Tableland, lowland cool-season/warm-season co-dominant.

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

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

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

- Continuous season-long grazing will shift this plant community toward the *Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community*.
- Flooding, long-term prescribed grazing and lack of fire are necessary to shift this plant community to the *Cottonwood, Prunus/Snowberry Midstory Plant Community* on the lower reaches of the drainage. Flooding reduces herbaceous competition through scouring of the soil surface, and provides a site for regeneration to occur. Once a flooding event occurs during the proper time, a long-term period of prescribed grazing is necessary to establish and maintain a woody plant community. Grazing during the mid-summer growing season typically has an adverse affect on woody regeneration.
- Encroachment and no fire will typically shift this plant community to the *Prunus/Snowberry, Grasses & Forbs, Tree Seedlings Plant Community* on the upper reaches of the drainage. The woody shrubs often provide a microclimate for tree establishment, and prescribed grazing will allow for tree establishment.

- Non-use and/or no fire will move this plant community to the *Kentucky Bluegrass/Western Wheatgrass/Shrubs Plant Community*.

Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community

This plant community is a result continuous season-long grazing. Western wheatgrass has increased. Big bluestem has decreased but remains in remnant amounts. Other grasses and grass-likes include green needlegrass, little bluestem, dropseed and sedges. The potential is low for any woody regeneration. Kentucky bluegrass has invaded and is beginning to dominate the plant community.

Production and diversity has declined compared to the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community. Loss of warm-season grasses has negatively impacted energy flow and nutrient cycling. Water infiltration can be reduced due to the shallow root system, characteristic of Kentucky bluegrass.

The following growth curve is an estimate of the monthly percentages of total annual growth of the dominant species expected during an average 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 leading to other plant communities are as follows.

- Prescribed grazing and proper stocking may eventually return this plant community to the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community.
- Flooding and long-term prescribed grazing and/or encroachment and lack of fire are necessary to shift this plant community to the Cottonwood, Prunus/Snowberry Midstory Plant Community on the lower reaches of the drainage. Flooding reduces herbaceous competition through scouring of the soil surface, and provides a site for regeneration to occur. Once a flooding event occurs during the proper time, a long-term period of prescribed grazing is necessary to establish and maintain a woody plant community. Grazing during the mid-summer growing season typically has an adverse affect on woody regeneration.
- Encroachment and no fire will typically shift this plant community to the Prunus/Snowberry, Grasses & Forbs, Tree Seedlings Plant Community on the upper reaches of the drainage. The woody shrubs often provide a microclimate for tree establishment, and prescribed grazing will allow for tree establishment.
- Continuous season-long grazing will shift this plant community toward the Kentucky Bluegrass, Annuals Plant Community.
- Non-use and/or no fire will move this plant community to the Kentucky Bluegrass/Western Wheatgrass/Shrubs Plant Community.

Kentucky Bluegrass/Western Wheatgrass/Shrubs Plant Community

This plant community developed under extended periods of non-use and no fire. Initially, the dominant grasses include western wheatgrass and big bluestem. Other grasses and grass-likes may include switchgrass, dropseeds, and sedges. With continued non-use and no fire, the plant community becomes dominated by Kentucky bluegrass, western wheatgrass, and annual grasses.

Forbs include common mullein, western ragweed, scurfpeas, cudweed sagewort, and verbenas. Shrubs in this community include rose and western snowberry.

Warm season grasses have decreased along with production and vigor. Soil erosion is low.

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

Growth curve number: NE6639

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

Growth curve description: Cool-season dominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	13	28	28	12	5	6	3	0	0

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

- With prescribed grazing, or prescribed burning followed by prescribed grazing this plant community will move toward the Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community. Managed high stock densities and stocking rates during the growing season, or burning, will remove heavy buildup of litter.

Kentucky Bluegrass Annuals Plant Community

This plant community developed under continuous season-long grazing. It is dominated by Kentucky bluegrass, annual brome, and other annual grasses and forbs. The dominant forbs include common mullein, western ragweed, scurfpeas, cudweed sagewort, and verbenas. Dominant shrubs in this community include snowberry and rose. Compared to the Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community, Kentucky bluegrass increases significantly and western wheatgrass and big bluestem has decreased significantly. Plant diversity and productivity has declined.

This plant community is resistant to change, and if disturbed, it is resilient. Bluegrass will increase under grazing pressure. Cool, moist climatic conditions will also tend to increase bluegrass production. Soil erosion is low. Compared to the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community, infiltration is reduced, and runoff increases. Once this plant community is reached, time and external resources will be needed to see any immediate recovery in the diversity.

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

Growth curve number: NE6639

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

Growth curve description: Cool-season dominant, lowland.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	13	28	28	12	5	6	3	0	0

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

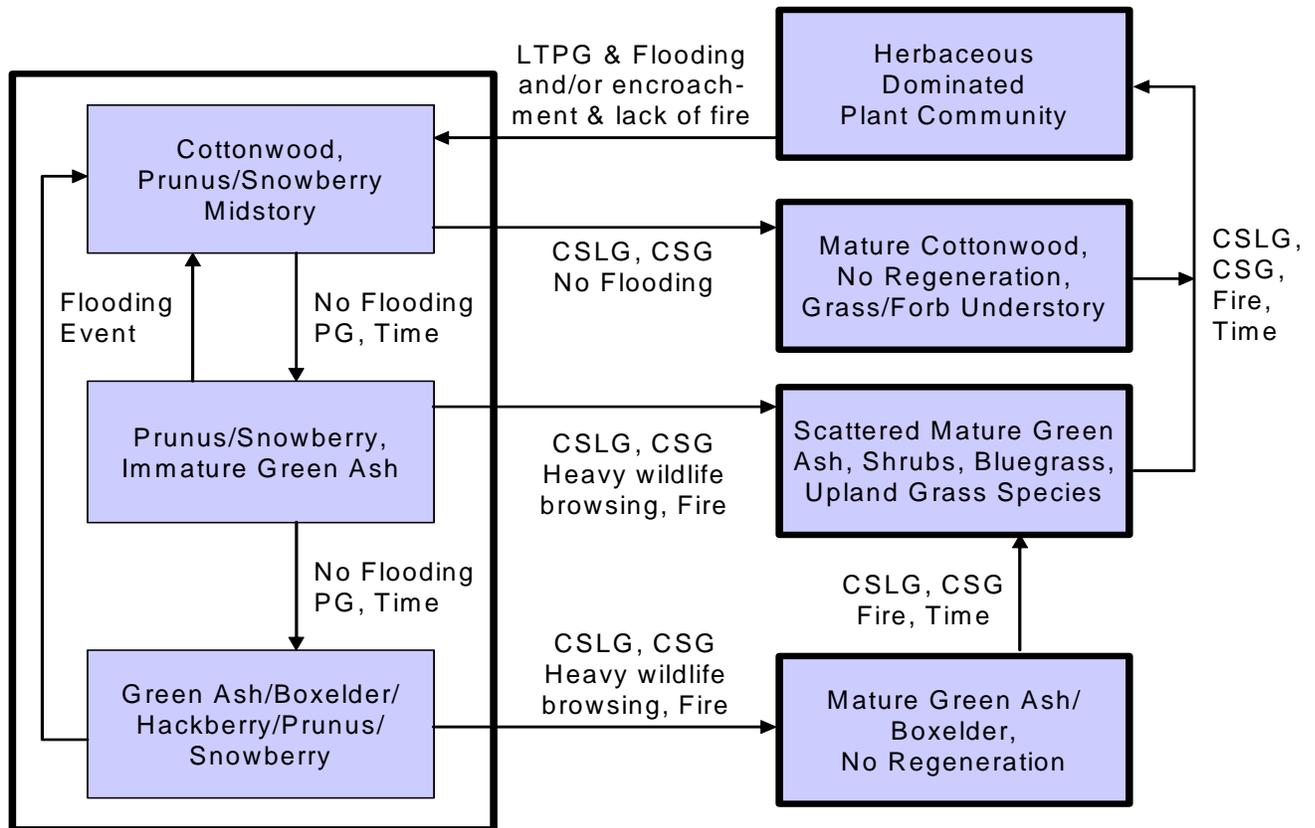
- Long-term prescribed grazing with adequate recovery periods following each grazing event and proper stocking over long periods of time may move this plant community toward the *Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community* and will eventually return to the *Big Bluestem/Needlegrass/Western Wheatgrass Plant Community* or associated successional plant community stages assuming an adequate seed/vegetative source is available. Managed high stock densities and stocking rates during the early growing season may be necessary to affect this change.

Tree Overstory

Woody shrubs, and especially trees can establish and/or encroach on this site. The succession will take different paths depending on where on the drainage this occurs. For lower reaches of the drainage, refer to the Lower Woody Draw descriptions. For upper reaches of the drainage, refer to the Upper Woody Draw descriptions.

Lower Woody Draw

The following diagram depicts the successional changes that can occur on lower reaches of the drainage when trees encroach onto the site. Following the diagram are descriptions of each of the plant communities in the diagram.



Cottonwood, Prunus/Snowberry Midstory Plant Community – This plant community typically occurs after a flooding event, and with prescribed grazing. Flooding reduces herbaceous competition through scouring of the soil surface, and provides a site for establishment and regeneration to occur. Prescribed grazing is necessary for this plant community to establish in order to prevent grazing of sapling cottonwood trees. Trees will be from seedling to immature stages, and the herbaceous understory will still be productive as a result of the filtered canopy of the deciduous trees. Understory shrubs, primarily plum and/or chokecherry, and snowberry will be most likely to establish. However, other species, including silver buffaloberry and currants can establish and dominate the shrub layer.

Prunus/Snowberry, Immature Green Ash Plant Community – If the cottonwood trees remain intact, and green ash establishes on the site, prescribed grazing will allow this plant community to develop. The cottonwood trees and woody shrubs provide a suitable microclimate for establishment of other deciduous trees such as green ash. Green ash is typically the first tree to establish, but other species such as boxelder and hackberry will often become established as well. Cottonwood trees will

be from the immature to young mature stage, and green ash will be from the sapling to immature stages. The herbaceous plant community will remain relatively productive, but will be reduced somewhat from the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community. This is due mainly to the competition from the woody shrub understory.

Green Ash/Boxelder/Hackberry/Prunus/Snowberry Plant Community – This plant community develops over time, with prescribed grazing and no flooding. Cottonwood trees will likely remain in lesser numbers, but the dominant trees will normally be green ash, boxelder and/or hackberry. At times there will be a mix of all three species. However, some areas will be dominated by one or two of these species. Woody shrubs will remain in the understory, but typically in lesser amounts than in the previous two plant communities. While somewhat reduced, the herbaceous understory will remain relatively productive. The trees will mostly be in the mature stage, but regeneration will normally be evident (i.e., seedlings and saplings should be present).

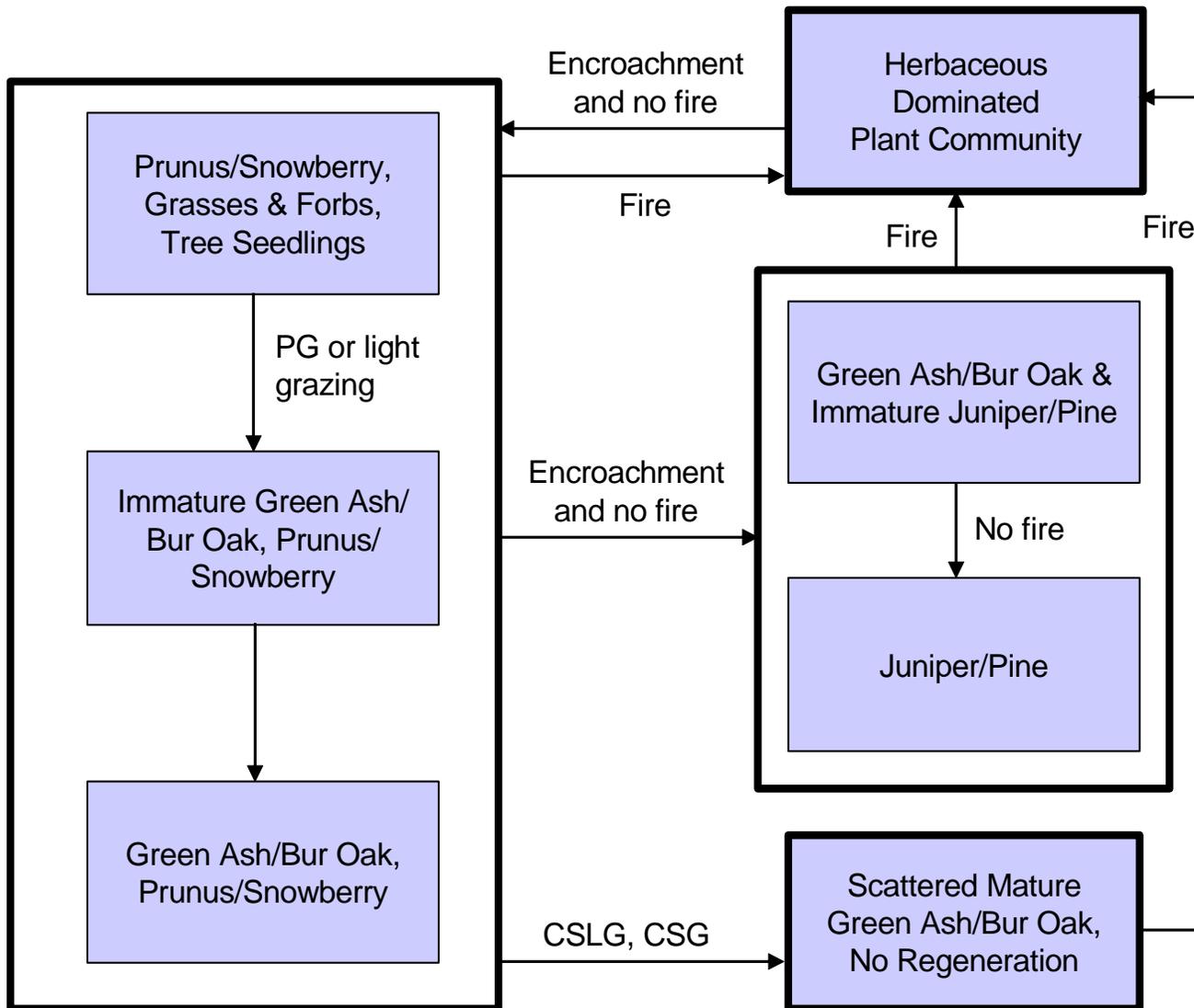
Mature Cottonwood, No Regeneration, Grass/Forb Understory Plant Community – This plant community is typically derived from the Cottonwood, Prunus/Snowberry Midstory Plant Community as a result of continuous season-long grazing or continuous seasonal grazing and no flooding. With time, the cottonwood trees that survive become mature, and little or no regeneration occurs due mainly to grazing of seedlings & saplings. The type of grazing that limits regeneration also results in a reduction of the desirable native herbaceous species, often resulting in a dominance of species such as bluegrass and/or smooth brome grass, and forbs such as American licorice, aster, cudweed sagewort, goldenrod and western ragweed. Introduced forbs such as Canada thistle, burdock, curly dock, and others will likely invade the site.

Scattered Mature Green Ash, Shrubs, Bluegrass, Upland Grass Species Plant Community – This plant community is derived from the Prunus/Snowberry Immature Green Ash Plant Community or the Mature Green Ash/Boxelder, No Regeneration Plant Community as a result of continuous season-long grazing or continuous seasonal grazing and no flooding, or heavy wildlife browsing and no flooding. Fire may also be a factor in this transition. With time, the green ash trees that survive become mature, and little or no regeneration occurs due mainly to grazing of seedlings and saplings. The type of grazing that limits regeneration also results in a reduction of the desirable native herbaceous species, often resulting in a dominance of species such as bluegrass and/or smooth brome grass, and forbs such as American licorice, aster, cudweed sagewort, goldenrod, and western ragweed. Introduced forbs such as Canada thistle, burdock, curly dock, and others will likely invade the site. The trees are scattered and the site may have a “park-like” appearance with few trees and reduced understory.

Mature Green Ash/Boxelder, No Regeneration Plant Community – This plant community is typically derived from the Green Ash/Boxelder/Hackberry/Prunus/Snowberry Plant Community as a result of continuous season-long grazing or continuous seasonal grazing and no flooding, or heavy wildlife browsing and no flooding. Fire may also be a factor in this transition. With time, the trees that survive become mature, and little or no regeneration occurs due mainly to grazing of seedlings and saplings. The type of grazing that limits regeneration also results in a reduction of the desirable native herbaceous species, often resulting in a dominance of species such as bluegrass and/or smooth brome grass, and forbs such as American licorice, aster, cudweed sagewort, goldenrod, and western ragweed. Introduced forbs such as Canada thistle, burdock, curly dock, and others will likely invade the site.

Upper Woody Draw

The following diagram depicts the successional changes that can occur on upper reaches of the drainage when trees encroach onto the site. Following the diagram are descriptions of each of the plant communities in the diagram.



Prunus/Snowberry, Grasses & Forbs, Tree Seedlings Plant Community – This plant community typically occurs when woody shrubs and trees from adjacent sites encroach, and with a lack of fire. The woody shrubs provide a suitable microclimate for the establishment of trees. Trees will be from seedling to immature stages, and the herbaceous understory will still be productive as a result of the filtered canopy of the deciduous trees. The vegetation will consist of more woody shrubs than in the Big Bluestem/Needlegrass/Western Wheatgrass Plant Community, and the herbaceous component will be reduced slightly. Understory shrubs, primarily plum and/or chokecherry, and snowberry will be most likely to establish. However, other species, including silver buffaloberry and currants can establish and dominate the shrub layer.

Immature Green Ash/Bur Oak, Prunus/Snowberry Plant Community – With time and prescribed grazing or light grazing that allows for survival of the young trees, this plant community will develop from the Prunus/Snowberry, Grasses and Forbs, Tree Seedlings Plant Community. On the eastern portions of the MLRA, bur oak will tend to be the likely tree to establish; whereas, on the western portions of the MLRA, green ash will be more prevalent. Green ash and/or bur oak trees will be from the immature to young mature stage, and seedling and saplings will still be present in the understory.

The herbaceous plant community will remain relatively productive, but will be reduced somewhat from the Big Bluestem/Needlegrass/Needlegrass/Western Wheatgrass Plant Community. This is due mainly to the competition from the woody shrub understory.

Green Ash/Bur Oak, Prunus/Snowberry Plant Community – A relatively full canopy of green ash, bur oak, or a combination of the two, dominates this plant community. It develops over time from the Immature Green Ash/Bur Oak, Prunus/Snowberry Plant Community, with prescribed grazing or light grazing that allows for survival of the young trees, and a healthy, productive herbaceous/shrub understory. Woody shrubs will remain in the understory, but typically in lesser amounts than in the previous two plant communities. While somewhat reduced, the herbaceous understory will remain relatively productive. The trees will mostly be in the mature stage, but regeneration will normally be evident (i.e., seedlings and saplings should be present).

Scattered Mature Green Ash/Bur Oak, No Regeneration Plant Community – This plant community is typically derived from the Immature Green Ash/Bur Oak, Prunus/Snowberry Plant Community or the Green Ash/Bur Oak, Prunus/Snowberry Plant Community as a result of continuous season-long grazing or continuous seasonal grazing. With time, the trees that survive become mature, and little or no regeneration occurs due mainly to grazing of seedlings & saplings. When this plant community comes from the more mature stages, the canopy becomes scattered as a result of tree loss by disease or old age. The type of grazing that limits regeneration also results in a reduction of the desirable native herbaceous species, often resulting in a dominance of species such as bluegrass and/or smooth brome grass, and forbs such as aster, cudweed, sagewort, goldenrod and western ragweed. The trees are scattered, and the site may have a “park-like” appearance with few trees and reduced understory. With fire, this plant community may return to an herbaceous dominated plant community. Bur oak does sprout with fire, but the dominance of the herbaceous understory may result in few or no bur oak trees remaining on the site after fire.

Green Ash/Bur Oak & Immature Juniper/Pine – The next two plant communities can occur whenever this site is near a seed source for juniper and/or pine. This plant community typically develops after some amount of deciduous canopy exists, which provides a suitable microclimate for the establishment of the shade tolerant juniper and/or pine. If no fire occurs, the juniper and/or pine will continue to increase in size, and in the process, change the microclimate (soil moisture) so that it becomes less suitable for the deciduous trees. This plant community is the beginning stage of this transformation, and typically will have numerous immature juniper and/or pine under the deciduous tree canopy. The herbaceous/shrub understory will begin to decline rapidly.

Juniper/Pine Plant Community – This plant community develops over time, and with a lack of fire from the Green Ash/Bur Oak & Immature Juniper/Pine Plant Community. As the juniper and/or pine continue to gain stature and overtop the green ash and/or bur oak, they also tap much of the available soil moisture and make the site essentially inhabitable to the deciduous trees. Juniper and/or pine will dominate the vegetation, and eventually form a nearly closed canopy. The understory vegetation will be the most suppressed of all the woody dominated plant communities. Fire on this or the previous plant community will result in an herbaceous plant community. However, if this plant community persists long enough, the resultant herbaceous community may consist mostly of pioneer species with a likelihood of an abundance of cheatgrass.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

-- Under Development --

Big Bluestem/Western Wheatgrass Plant Community:

Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem Plant Community:

Excessive Litter Plant Community:

Kentucky Bluegrass, Annuals Plant Community:

Lower Woody Draw:

Upper Woody Draw:

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

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
Grasses & Grass-likes							
big bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
Canada wildrye	U D U U	N U N N	U D U U	N U N N	N U N N	U D U U	U D U U
clustered field sedge	U D U U	U P N D	U D U U	U D U D	U D U D	U D U U	U D U U
dropseed	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N
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
green needlegrass	U P U D	N P N P	U P U D	N P N P	N P N P	U P U D	U P U D
Indiangrass	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
little bluestem	U D D U	N D N N	U D D U	N D N N	N D N N	U D D U	U D D U
Penn 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
porcupine grass	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 junegrass	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
Scribner panicum	U U D U	N U N N	U U D U	N U N N	N U N N	U U D U	U U D U
sideoats grama	U D P U	U P D U	U D P U	U P D U	U P D U	U D P U	U D P U
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
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
American vetch	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
blue verbena	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
cudweed sagewort	U U U U	U U D U	U U U U	U U D U	U U D U	U U U U	U U D U
dotted gayfeather	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
false boneset	U U D U	N D U N	U U D U	N D U N	N D U N	U U D U	N D U N
false Solomon's-seal	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
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
Maximilian sunflower	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U
Missouri 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
northern bedstraw	N N N N	N U D N	N N N N	N U D N	N U D N	N N N N	N N N N
purple prairie clover	U D P U	U P P U	U D P U	U P P U	U P P U	U D P U	U P P U
showy ticktrefoil	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U
silverleaf scurfpea	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
slimflower scurfpea	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
stiff goldenrod	U U U U	N N U N	U U U U	N N U N	N N U N	U U U U	N N U N
western ragweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
western stickseed	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
western yarrow	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
Shrubs							
chokecherry	D T T D	D T T D	D T T D	P U D P	D U U D	D T T D	P U U P
leadplant	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U
poison ivy	N N N N	U U U U	N N N N	U U U U	U U U U	N N N N	U U U U
rose	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U
western snowberry	U U U U	U U U U	U U U U	D U D D	U U U U	U U U U	D U U U
Trees							
American elm	N N N N	N N N N	N N N N	N U D N	N N N N	N N N N	N N N N
boxelder	N N N U	N N U U	N N N U	N N U U	N N U U	N N N U	N N U U
bur oak	T T T T	T T T T	N N N N	N U D U	N N N N	T T T T	N U D U
green ash	N U D U	N D D U	N U D U	N D D U	N U D U	N U D U	N D D U
hackberry	N U D U	N D D U	N U D U	N D D U	N U D U	N U D U	N D D U
plains cottonwood	D U U D	D U U D	D U U D	D U D D	D U U D	D U U D	D U U D

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

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

Animal Community – Grazing Interpretations

The following table lists annual, suggested initial stocking rates with average growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of conservation planning. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a resource inventory is necessary to document plant composition and production. More accurate carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data and actual stocking records, particularly when grazers other than cattle are involved. With consultation of the land manager, more intensive grazing management may result in improved harvest efficiencies and increased carrying capacity.

Plant Community	Average Annual Production (lbs./acre, air-dry)	Stocking Rate* (AUM/acre)
Big Bluestem/Needlegrass/Western Wheatgrass	3400	0.93
Western Wheatgrass/Kentucky Bluegrass, Remnant Big Bluestem	2700	0.74
Kentucky Bluegrass/Western Wheatgrass/Shrubs	2500	0.69
Kentucky Bluegrass, Annuals	1700	0.47

*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).

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage. During the dormant period, the forage for livestock will likely be lacking protein to meet livestock requirements, and added protein will allow ruminants to better utilize the energy stored in grazed plant materials. A forage quality test (either directly or through fecal sampling) should be used to determine the level of supplementation needed.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B, with localized areas in hydrologic group A and C. Infiltration rate is moderate to rapid. Runoff potential for this site varies from negligible to low depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75 percent ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where rhizomatous grasses form a strong sod and dominate the site. Areas where ground cover is less than 50 percent have the greatest potential to have reduced infiltration and higher runoff (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

Recreational Uses

This site provides hunting, hiking, photography, bird watching, and other opportunities. The wide varieties of plants that bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

Local or individual fire wood can be utilized from this site.

Other Products

Seed harvest of native plant species can provide additional income on this site.

Supporting Information

Associated Sites

(066XY036NE) – Loamy 18-22" P.Z.
(066XY066NE) – Loamy Terrace

(066XY058NE) – Loamy 22-25" P.Z.

Similar Sites

(066XY066NE) – Loamy Terrace [less big bluestem, lower production]

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 Nebraska and South Dakota 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://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.

USDA, NRCS, Various Published Soil Surveys.

