

Ecological Site Description—Rangeland

Overflow, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East

MLRA: 60B – Pierre Shale Plains, East

R058AE007MT, R060BE570MT

Site Name: Overflow (OV), 10–14" Mean Annual Precipitation (MAP)**Site Number:** R058AE007MT, R060BE570MT**Major Land Resource Areas:** 58A – Northern Rolling High Plains, North Part
60B – Pierre Shale Plains, North Part**Rangeland Resource Units:** 58AE – Sedimentary Plains, east
60BE – Pierre Shale Plains, east

1. Physiographic features: This ecological site occurs in swales and drainageways where it receives extra moisture from run-in from adjacent land. It is associated with ephemeral streams (i.e., ones that flow only in direct response to a precipitation event or snow melt). The channel is above the water table at all times.

Elevation (feet): 1,900–3,500**Landform:** swale, drainageway**Slope (percent):** 0–5**Depth to Water Table (inches):** greater than 60**Flooding:** none to rare**Ponding:** none**Aspect:** not significant

2. Climatic Features: MLRAs 58A and 60B are considered to have a continental climate characterized by cold winters, hot summers, low humidity, light rainfall, and much sunshine. Extremes in temperature are typical. 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 and the winds move freely across the plains and account for rapid changes in temperature. Seasonal precipitation is often limiting for plant growth. Annual fluctuations in species composition and total production are typical depending on the amount and timing of rainfall. See Climatic Data Sheet MLRA 58A, east and 60B, for more details (Section II of the NRCS Field Office Technical Guide). For local climate station information, refer to <http://www.wcc.nrcs.usda.gov>.

Frost-free period (32° F)-days: 105–145**Freeze-free period (28° F)-days:** 125–170**Mean annual precipitation (inches):** 10–14

3. Influencing Water Features: Ephemeral streams that flow only in direct response to a precipitation event or snow melt and flow less than 30 consecutive days at a time. The bottom of the channel is above the water table at all times. The Rosgen classification system does not apply to ephemeral streams.

4. Associated sites: Subirrigated, Wet Meadow, Sands, Silty, Clayey, Sandy, Sandy-Steep, Silty-Steep, and Clayey-Steep.

5. Similar sites: Wet Meadow, Saline Lowland, Overflow, Riparian Subirrigated, Stream Terrace.

The Wet Meadow site differs mainly by being wet to at or near the surface for most of the growing season.

The Saline Lowland site differs mainly by being salt affected.

The Overflow site differs mainly by being associated with ephemeral streams and having no permanent water table.

The Riparian Subirrigated site differs mainly by being adjacent to perennial or intermittent streams and being frequently flooded.

The Stream Terrace site may have a permanent water table, but it usually is at a deeper depth.

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6. Soils: These soils are non-hydric. The soils associated with this ecological site are moderately deep to very deep. Textures will vary since these are alluvial soils, having been deposited by flowing water. Surfaces are often dark due to the supplemental moisture they receive. Available water holding capacity is high. Permeability varies because of the various textures and materials and the depositional patterns.

Parent material (kind): alluvium

Parent material (origin): mixed

Surface textures: will vary, mainly loam, sandy loam, clay loam

Depth (inches): greater than 40

Soil surface permeability (inches per hour): mainly moderate (0.6–2.0)

Available Water Holding Capacity to 40" (inches): mainly greater than 6

Drainage Class: well

Surface Salinity/Electrical Conductivity (mmhos/cm): non-saline (0–2)

Surface Sodium Absorption Ratio (SAR): negligible

Surface Reaction (pH) (1:1 water): neutral to moderately alkaline (6.6–8.4)

7. Plant Community and Species Composition: The physical aspect of this site in Historical Climax is that of a swale grassland dominated by cool and warm season grasses, with forbs and shrubs occurring in smaller percentages. Approximately 75% of the annual production by weight is from grasses, 10% is from forbs, and approximately 15% may be from shrubs. The canopy cover of shrubs is 5 to 10%

TABLE 7a.—Major Plant Species Composition lists plant species composition and production by dry weight for the Historic Climax (HCPC) or Potential Plant Community (PPC) for this site. The Historic Climax or Potential Plant community has been determined by the study of rangeland relict areas, exclosures, or areas protected from excessive grazing. Total annual production has been derived from several data sources, and has been adjusted to represent a typical annual moisture cycle for the site. Reference for plant species names and symbols: USDA–NRCS PLANTS Database at <http://plants.usda.gov>.

7b. Plant Group Descriptions: Plant functional groups are based on: season of growth, growth form, stature, type of root system, and ecological response to disturbance. Refer to Field Office Technical Guide (FOTG) Section II for a complete description of plant groups.

8. Total Annual Production: Total annual production is a measurement of the total above ground production (dry weight) of all major plant species that occur on the site during a single growth year, regardless of accessibility to grazing animals. This information is listed at the bottom TABLE 7a.—Major Plant Species Composition. Average production values are listed for each incremental inch of precipitation for the site.

9. Cover and structure: The following table shows the approximate amounts of basal cover, canopy cover, and plant heights for this site in the Historic Climax or Potential Plant Community.

COVER TYPE	BASAL COVER (%)	CANOPY COVER (%)	AVERAGE HEIGHT (inches)
Cryptogams	0 – T	0 – T	0.25
Grasses/ sedges	30 – 40	55 – 70	24
Forbs	1 – 3	1 – 5	12
Shrubs	1 – 5	5 – 10	24
Litter	50 – 60		
Coarse fragments	0 – T		
Bare ground	0 – T		

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7a. Major Plant Species Composition – Historic Climax/Potential Plant Community

Common Name	Plant Symbol	Plant Group	Percent Comp.	Group Max. %	Mean Annual Precipitation (MAP) (inches)				
					10	11	12	13	14
					(lbs./acre)	(lbs./acre)	(lbs./acre)	(lbs./acre)	(lbs./acre)
Grasses and Sedges 75–85%					1125	1500	1875	2250	2625
Prairie cordgrass	SPPE	5	1-5		15-75	20-100	25-125	30-150	35-175
Switchgrass	PAVI2	5	5-10		75-150	100-200	125-250	150-300	175-350
Slender wheatgrass	ELTRT	2	1-10		15-150	20-200	25-250	30-300	35-350
Bearded wheatgrass	ELTRS	6	0-5		0-75	0-100	0-125	0-150	0-175
Western wheatgrass	PASM	14	5-15		75-225	100-300	125-375	150-450	175-525
Green needlegrass	NAVE	2	5-15		75-225	100-300	125-375	150-450	175-525
Big bluestem	ANGE	1	15-25		225-375	300-500	375-625	450-750	525-875
Little bluestem	ANSC10	1	1-10		15-150	20-200	25-250	30-300	35-350
Prairie sandreed	CALO	5	0-20		0-300	0-400	0-500	0-600	0-700
Canada wildrye	ELCA	2	1-10		15-150	20-200	25-250	30-300	35-350
Needleandthread	HECOC8	10	5-10		75-150	100-200	125-250	150-300	175-350
Prairie junegrass	KOMA	12	1-5}	10	15-75, no more than 150 for this group	20-100, no more than 200 for this group	20-125, no more than 250 for this group	30-150, no more than 300 for this group	35-175, no more than 350 for this group
Sandberg bluegrass	POSE	12	1-5}						
Blue grama	BOGR2	15	1-5}						
Buffalograss	BUDA	15	1-5}						
Other grasses	2GP		1-5}						
Sedge spp.	CAREX		0-5						
Baltic rush	JUBA	14	1-5						
Rush spp.	JUNCU		0-5						
Forbs 5–10%					150	200	250	300	350
Scurfpea spp.	PSORA	23	0-5}	10	15-75, no more than 150 for this group	20-100, no more than 200 for this group	25-125, no more than 250 for this group	30-150, no more than 300 for this group	35-175, no more than 350 for this group
Prairie coneflower	RACO	25	1-5}						
Maximilian sunflower	HEMA	17	1-5}						
Stiff sunflower	HEPA	17	0-5}						
Canada goldenrod	SOCA	19	0-5}						
Missouri goldenrod	SOMI	19	0-5}						
Horsemint	MOFI	24	0-5}						
American licorice	GLLE3	19	0-5}						
Cudweed sagewort	ARLU	19	0-5}						
Other native forbs	2FP		0-5}						
Shrubs 10–15%					225	300	375	450	525
Snowberry	SYAL	37	1-5}	15	15-75 no more than 225 for this group	20-100 no more than 300 for this group	25-125 no more than 375 for this group	30-150 no more than 450 for this group	35-175 no more than 525 for this group
Wood's rose	ROWO	38	1-5}						
Silver sagebrush	ARCA13	36	0-5}						
Golden currant	RIAU	34	0-5}						
Silver buffaloberry	SHAR	37	0-5}						
Chokecherry	PRVI	37	0-5}						
Other native shrubs	2SB		0-5}						
Total Annual Production: (lbs./acre)			100%		1500	2000	2500	3000	3500

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10. Ecological Dynamics: This site developed under Northern Great Plains climatic conditions, which included the natural influence of large herbivores and occasional fire. The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC) or Potential Plant Community. This community is given as a reference to understand the original potential of this site, and is not always considered to be the management goal for every acre of rangeland. The following descriptions should enable the landowner or manager to better understand which plant communities occupy their land, and assist with setting goals for vegetation management. It can also be useful to understand the environmental and economic values of each plant community.

This site is considered highly resilient to disturbance as it has essentially no limitations for plant growth, except for growing season. Changes may occur to the Historic Climax Plant Community due to management actions and/or climatic conditions, such as prolonged drought. Under continued adverse impacts, a moderate decline in vegetative vigor and composition will occur. Under favorable vegetative management treatments the site can readily return to the Historic Climax Plant Community (HCPC).

Continual adverse impacts to the site over a period of years results in a departure from the HCPC, with a decrease of the taller, more palatable species such as **green needlegrass, big bluestem, little bluestem, and switchgrass**. **Prairie sandreed** will be common on sites that are predominately sandy textured. These plants will be replaced by a mixture of medium and short grasses, including **needleandthread, western wheatgrass, prairie junegrass, Sandberg bluegrass, buffalograss, and blue grama** as well as several species of non-palatable forbs. Shrubs such as **Wood's rose and snowberry** also increase.

Continued deterioration results in an abundance of short grasses and forbs, and annuals. Plants that are not a part of the Historic Climax Plant Community that are most likely to invade include **quackgrass, Kentucky and fowl bluegrass, foxtail barley, annual bromes, other annual grasses, curlycup gumweed, cocklebur, thistles, dandelion, leafy spurge**, annual forbs, and other weedy species.

Long-term non-use (>3 years) combined with the absence of fire will result in excessive litter and decadent plants.

10a. Major Plant Community Types: The following are descriptions of several plant communities that may occupy this site.

Plant Community 1: Tall and Medium Grasses/ Forbs/ Shrubs: This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC) or Potential Plant Community (PPC) for this site. This plant community contains a high diversity of tall and medium height, cool and warm season grasses and sedges (**green needlegrass, big bluestem, prairie sandreed, little bluestem, western wheatgrass, switchgrass, and needleandthread**), and short grasses (**Sandberg bluegrass, prairie junegrass**). There are abundant forbs which occur in smaller percentages. Shrubs such as **snowberry and rose** are common. Less common are shrubs such as **chokecherry, silver buffaloberry, and currant**.

This plant community is well adapted to the Northern Great Plains climatic conditions. The diversity in plant species and presence of tall, deep rooted perennial grasses allows for drought tolerance. Individual species can vary greatly in production depending on growing conditions (timing and amount of precipitation and runoff events, and temperature). Plants on this site have strong, healthy root systems that allow production to increase significantly with favorable moisture conditions. Abundant plant litter is available for soil building and moisture retention. Plant litter is properly distributed with very little movement off-site and natural plant mortality is very low.

The location of this site in the landscape plus the influence of extra water in the early part of the growing season provides a very favorable soil-water-plant relationship. This plant community provides for soil stability and a functioning hydrologic cycle.

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Plant Community 2: Medium and Short Grasses/ Medium Shrubs: With slight disturbance, the HCPC/PPC will tend to change to a community dominated by medium and short grasses such as **western wheatgrass, needleandthread, prairie junegrass, Sandberg bluegrass, blue grama, and buffalograss**. Most of the taller, more palatable grasses (green needlegrass, big bluestem, prairie sandreed, little bluestem, and switchgrass) will be present in smaller percentages. There may be an increase in the amount of **snowberry, rose** or other shrubs. Palatable and nutritious forbs will be replaced by less desirable and more aggressive species.

Biomass production and litter become reduced on the site as the taller grasses disappear, increasing evaporation and reducing moisture retention. Additional open space in the community can result in undesirable invader species. This plant community provides for moderate soil stability.

Plant Community 3: Shrubs/ Short Grasses/ Forbs: With continued heavy disturbance the site will become dominated by shrubs, short grasses, and unpalatable forbs such as **snowberry, rose, prairie junegrass, Sandberg bluegrass, blue grama, buffalograss, and cudweed sagewort**. The taller grasses will occur only occasionally. Palatable forbs will be mostly absent.

This plant community is less productive than Plant Community 1 or 2. The lack of litter and short plant heights result in higher soil temperatures, poor water infiltration rates, and higher evaporation, thus eventually favoring species that are more adapted to drier conditions. This community has lost many of the attributes of a healthy rangeland, including good infiltration, minimal erosion and runoff, nutrient cycling and energy flow.

This community will respond positively to improved grazing management, but significant economic inputs and time are usually required to move this plant community toward a higher successional stage and a more productive plant community.

Plant Community 4: Shrubs/ Annuals/ Weedy Forbs: As continued heavy disturbance continues, the plant community deteriorates to one dominated by dense patches of shrubs such as **snowberry and rose**, along with **annual bromes**, other annual grasses (e.g., **tumblegrass**), weedy forbs such as **thistles, cudweed sagewort, and curlycup gumweed**. Non-native species such as **Kentucky and fowl bluegrass and quackgrass** often invade this site.

This community can respond positively to improved grazing management but it will take additional inputs to move it towards a community similar in production and composition to that of Plant Community 1 or 2.

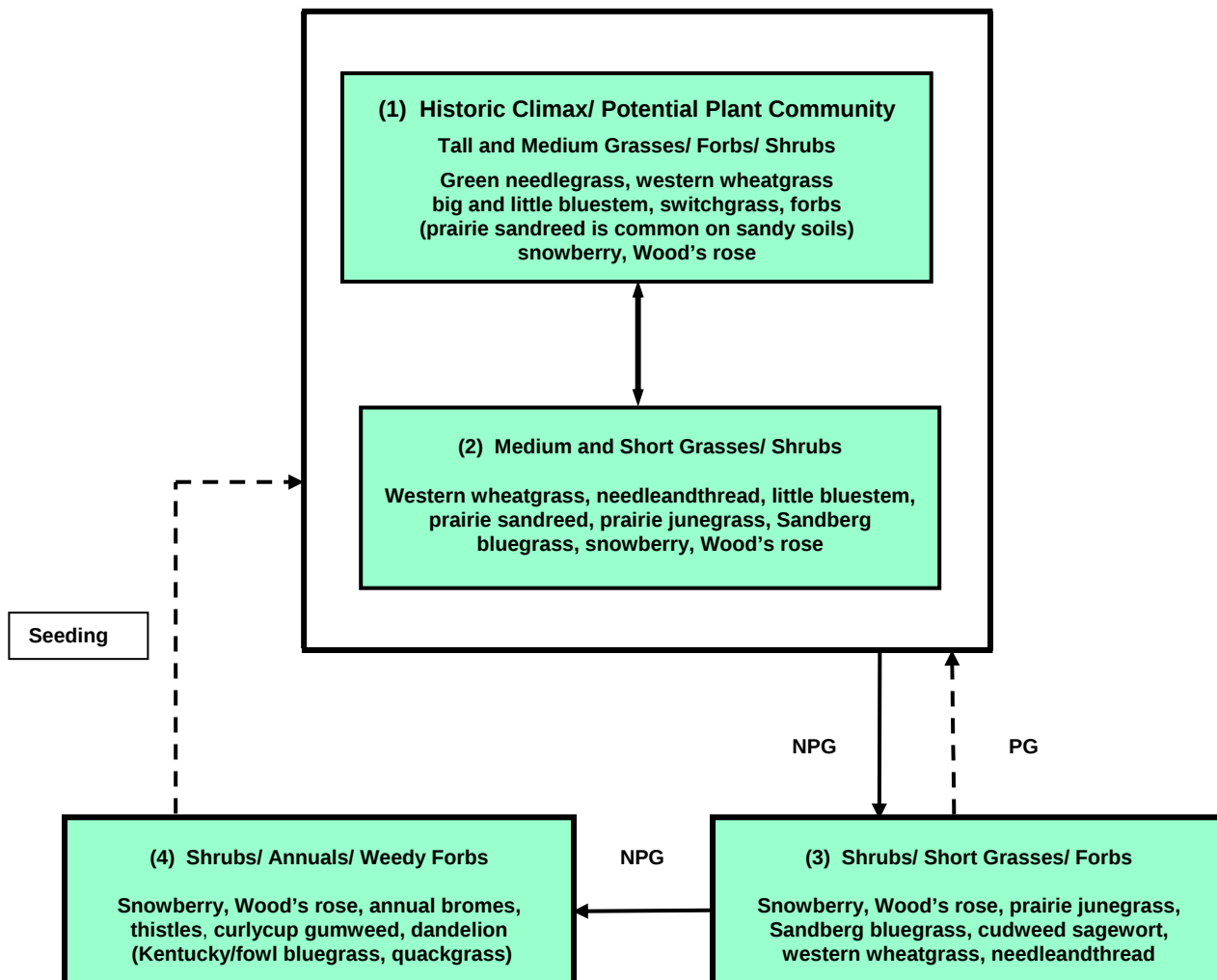
10b. Plant Communities and Transitional Pathways (State and Transition Model): Transitions in plant community composition occur along a gradient that is not linear. Many processes are involved in the changes from one community to another. Changes in climate, elevation, soils, landform, fire patterns and frequency, and grazing all play a role in determining which of the plant communities will be expressed. The following model outlines the various plant communities that may occur on this site and provides a diagram of the relationship between plant community and type of use or disturbance.

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Plant Communities and Transitional Pathways (diagram)



Smaller boxes within a larger box indicate that these communities will normally shift among themselves with slight variations in precipitation and other disturbances. Moving outside the larger box indicates the community has crossed a threshold (heavier line) and will require intensive treatment to improve or change the plant community. Dashed lines returning to a state (within the heavy lines) indicates a reduced probability of success, and will usually require major economic inputs, or a more intensive grazing strategy.

Note: Not all species present in the community are listed in this table. Species listed are representative of the plant functional groups that occur in the community.

PG = Prescribed Grazing: Use of a planned grazing strategy to balance animal forage demand with available forage resources. Timing, duration, and frequency of grazing are controlled and some type of grazing rotation is applied to allow for plant recovery following grazing.

NPG = Non-Prescribed Grazing: Grazing which has taken place that does not control the factors as listed above, or animal forage demand is higher than the available forage supply.

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11. Plant Growth Curves: Growth of native cool-season plants begins in April. Native warm-season plants begin growth about mid May. The following tables show the approximate percentage of total growth by month that is expected to occur in various plant communities on this site for a "typical" moisture year.

Growth Curve Number: MT0815

Growth Curve Description: Includes all overflow sites dominated by cool season grass with warm season grasses also present.

Totals for Each Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	5	20	40	20	10	5	0	0	0

Cumulative Totals by Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	5	25	65	85	95	100	0	0	0

12. Livestock Grazing Interpretations: Managed livestock grazing is suitable on this site as it has the potential to produce an abundance of high quality forage. This is often a preferred site for grazing by livestock due to the succulent forage, and animals tend to congregate in these areas. In order to maintain the productivity of this site, stocking rates must be managed carefully on adjoining sites with less production to be sure livestock drift onto the Overflow site is not excessive. Management objectives should include maintenance or improvement of the plant community. Shorter grazing periods and adequate re-growth after grazing are recommended for plant maintenance and recovery. Heavy stocking and season-long use of this site can be detrimental and will alter the plant community composition and production over time.

Grazing this site early when the upper part of the soil may be wet can sometimes cause compaction. Hummocking (frost heaving) is often a common feature of this site. The hummocking can be exacerbated if grazing impact becomes excessive.

Whenever Plant Community 2 (medium and short grasses and shrubs) occurs, grazing management strategies need to be implemented to avoid further deterioration. This community is still stable, productive, and healthy provided it receives proper management. This community will respond fairly quickly to improved grazing management including increased growing season rest of key forage plants. Grazing management alone can usually move this community back to one more similar to potential since a good seed source of the taller grasses should still exist.

Plant Communities 3 and 4 have severely reduced forage production, and contain a high percentage of non-palatable species. Once this site is occupied by these communities, it will be significantly more difficult to restore it to a community that resembles the potential with grazing management alone. Snowberry and/or rose often develop dense thickets that are stable and can be very difficult to remove or reduce.

The potential for using seeding and/or mechanical treatment to improve site health may be limited, due mainly because of the landscape position and potential for increased soil erosion from streamflow events.

12a. Calculating Safe Stocking Rates: Proper stocking rates should be incorporated into a grazing management strategy that protects the resource, maintains or improves rangeland health, and is consistent with management objectives. Safe stocking rates will be based on useable forage production, and should consider ecological condition and trend of the site, and past grazing use history.

Calculations used to determine an initial stocking rate are based on the amount of useable forage available, taking into account the harvest efficiency of the animal and the grazing strategy to be implemented. Average annual production must be measured or estimated to properly assess useable forage production and stocking rates.

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12b. Guide to Safe Stocking Rates: The following charts provide a guide for determining an initial safe stocking rate. Animal Unit Month (AUM) figures are based on averages of forage production from data collected for this site over several years. The characteristic plant communities and production values listed may not accurately reflect the productivity of a specific piece of land, hence this table should not be used without on-site information as to current forage productivity of the site. Adjustments to stocking rates for each range unit must be made based on topography, slope, distance to livestock water, and other factors which effect livestock grazing behavior.

12c. Stocking Rate Guide:

Major Plant Community Dominant Plant Species	MAP	Total Production (pounds/ac)	Cattle			Sheep		
			Forage Production	AUM/ac	Ac/AUM	Forage Production	AUM/ac	Ac/AUM
1. Tall and Medium Grasses, Forbs, Shrubs (HCPC/PPC) <i>Green needlegrass, big & little bluestem, prairie sandreed, switchgrass, forbs, snowberry, rose</i> (S.I. > 70%)	13–14"	3000 - 3500	2700 – 3200+	.85 – 1.0+	1.0 – 1.2	2700 – 3200+	.85 – 1.0+	1.0 – 1.2
	10–12"	1500 - 2500	1350 – 2250+	.43 – .71+	1.4 – 2.3	1350 – 2250+	.43 – .71+	1.4 – 2.3
2. Medium & Short Grasses/ Shrubs <i>Western wheatgrass, needleandthread, prairie junegrass, Sandberg bluegrass, snowberry, rose</i> (S.I. 50–70%)	13–14"	2550 - 3000	2150 – 2550	.68 – .81	1.2 – 1.5	2300 – 2700	.73 – .85	1.2 – 1.4
	10–12"	1300 - 2100	1100 – 1800	.35 – .57	1.75 – 2.9	1200 – 1900	.38 – .60	1.7 – 2.6
3. Shrubs/ Short Grasses & Forbs <i>Snowberry, rose, prairie junegrass, Sandberg bluegrass, cudweed sagewort</i> (S.I. 30–50%)	10–14"	900 - 2100	700 – 1700	.22 – .54	1.8 – 4.5	750 – 1800	.24 – .57	1.75 – 4.2
4. Shrubs/ Annuals/ Weedy Forbs <i>Snowberry, rose, annual bromes, curlycup gumweed, Kentucky bluegrass</i> (S.I. < 30 %)	10–14"	750 - 1800	525 – 1250	.14 – .34	2.9 – 7.1	550 – 1350	.15 – .36	2.8 – 6.7

Stocking rates are calculated from average forage production values using a 25% Harvest Efficiency factor for preferred & desirable plants, and 10% Harvest Efficiency for less desirable species. AUM calculations are based on 790 pounds per animal unit month (AUM) for a 1,000 pound cow with calf up to 4 months. No adjustments have been made for site grazability factors, such as steep slopes, site inaccessibility, or distance to drinking water.

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12d. Plant Forage Preferences for Cattle and Sheep

Legend: P=Preferred D=Desirable U=Undesirable E=Emergency
N=Nonconsumed T=Toxic Blank=Unknown or no data

Winter (W) = Jan., Feb., March;

Summer (SU) = July, Aug., Sept.;

Spring (SP) = April, May, June;

Fall (F) = Oct., Nov., Dec.

PLANT NAME	Cattle				Sheep			
	W	SP	SU	F	W	SP	SU	F
Prairie cordgrass	N	D	U	U	N	D	U	U
Switchgrass	P	P	P	P	P	P	P	P
Slender wheatgrass	P	P	P	P	D	P	P	D
Bearded wheatgrass	P	P	P	P	D	P	P	D
Western wheatgrass	P	D	D	P	D	D	D	D
Green needlegrass	P	P	P	P	P	P	P	P
Big bluestem	P	P	P	P	P	P	P	P
Little bluestem	P	P	P	P	U	D	D	U
Prairie sandreed	D	P	D	D	D	D	D	D
Canada wildrye	D	P	P	D	D	D	D	D
Needleandthread ^{1/}	D	D	D,T	D,T	D	D	D,T	D,T
Prairie junegrass	D	D	D	D	D	P	D	D
Sandberg bluegrass	D	D	D	D	D	D	D	D
Blue grama	D	D	D	D	D	P	D	D
Buffalograss	D	D	D	D	D	D	D	D
Other grasses	D	D	D	D	D	D	D	D
Kentucky and fowl bluegrass ^{2/}	P	P	P	P	D	P	D	D
Sedges	D	D	D	D	D	D	D	D
Baltic rush	U	D	U	U	N	N	N	N
Scurfpea spp.	N	N	N	N	N	N	N	N
Prairie coneflower	D	P	P	D	D	P	P	D
Maximilian sunflower	D	P	P	D	D	P	P	D
Stiff sunflower	D	P	P	D	D	P	P	D
Canada goldenrod	N	N	N	N	N	U	U	N
Missouri goldenrod	N	U	U	N	N	U	U	N
Horsemint	U	U	U	U	U	D	D	U
American licorice	U	U	U	U	D	D	D	D
Cudweed sagewort	N	N	N	N	N	U	U	N
Other native forbs	N	N	N	N	N	U	U	N
Snowberry	D	D	D	D	D	D	D	P
Wood's rose	U	D	D	U	D	D	D	D
Silver sagebrush	D	D	D	D	D	D	D	D
Golden currant	D	D	D	D	D	P	D	D
Silver buffaloberry	N	N	N	N	N	U	U	N
Chokecherry ^{3/}	D,T	D,T	D,T	D,T	D,T	D,T	D,T	D,T
Other native shrubs	N	N	N	N	N	N	N	N

^{1/} The awns and sharp seeds of needleandthread can harm livestock when dry.

^{2/} Kentucky bluegrass is a common invader grass to this site.

^{3/} Chokecherry can cause cyanide poisoning if other forage is scarce. Cattle, sheep and horses may be susceptible.

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13. Wildlife Interpretations: This ecological site is a “hotspot” of biodiversity as a result of extra moisture availability in ephemeral drainageways. The run-in moisture provides more wildlife habitat complexity because of greater plant species and structural diversity compared to surrounding semi-arid uplands. The linear, meandering drainage pattern common to this site connects a wide variety of upland types and provides secure travel corridors for big game and many other wildlife species as they move between required seasonal habitats. Moisture availability and resulting habitat structural diversity provide for the food, cover and nesting needs of resident and transitory neotropical migratory birds. Invasive plant species are common on this site under non-use as well as season-long livestock and big game grazing. Canada thistle, leafy spurge, houndstongue and burdock are often found here. Prescribed grazing strategies can keep native vegetation more competitive with these invasive weeds. Wildlife habitat diversity is often degraded on this site under season-long grazing strategies because livestock are attracted to the green forage, particularly during the dry season. Seeps and springs common in association with this site provide drinking water for many wildlife species as well as habitat for less common invertebrates, reptiles and amphibians, birds and small mammals.

The following is a description of habitat values for the different plant communities that may occupy the site:

Plant Community 1: Tall and Medium Grasses/ Forbs/ Shrubs (HCPC or PPC): This moist site supports a variety of grasses and succulent forbs which provide feeding substrate for many pollinating insects and other invertebrates. The insect food source, in combination with available moisture and habitat complexity, supports amphibians and reptiles such as Woodhouses’s toad and the common garter snake. Amphibians can be considered a “keystone species” because of their susceptibility to environmental degradation and resulting indicator value. The combination of tall and medium grasses, forbs and shrub patches provides high value nesting and escape cover for many breeding bird species. Gray catbirds, brown thrashers and spotted towhees rely on chokecherry, silver buffaloberry and rose/snowberry patches. Northern harriers hunt over, and nest within, low shrub and mesic grassland habitats. Sage grouse broods depend on invertebrate foods and succulent forbs available in overflow areas and associated springs and seeps. Sharp-tailed grouse use shrub patches for winter cover and feeding. Habitat complexity extra moisture provide habitat for a variety of small mammals including herbivorous meadow voles and seed-eating western harvest mice. The diversity of grasses, forbs and shrubs supports grazers and mixed feeders such as bison and elk as well as selective feeders such as mule deer and white-tailed deer.

Plant Community 2: Medium and Short Grasses/ Medium Shrubs: Invertebrate abundance and species diversity declines with the reduction in forbs, which reduces the attractiveness of this site to a variety of insectivorous wildlife species. Amphibian and reptile habitat value declines with the reduction in ground cover and invertebrate diversity. Breeding bird habitat value declines along with plant species diversity. Sage grouse still find critical foods in the form of succulent forbs (i.e. dandelion and salsify), and insects. Cover value for small mammals and big game declines with the loss of taller grasses and forbs, although the potential increase in snowberry and rose compensates somewhat. An increase in invasive weeds often simplifies habitat structure even more.

Plant Community 3: Shrubs/ Short Grasses/ Forbs: Long-term continuous grazing simplifies the plant community significantly so the site provides fewer wildlife habitat niches as compared to Plant Communities 1 and 2, above. Insect populations are less diverse and productive. Ground level temperature rises and soil moisture levels decrease with loss of litter cover to the detriment of amphibian and reptile populations. Breeding and migratory birds find less cover and food resources; species favoring drier sites may increase although bird species diversity decreases significantly. Sage grouse broods still find some succulent forbs (dandelions, salsify) but sharp-tailed grouse winter habitat is all but eliminated. Small mammal diversity declines and big game species suffer loss of cover, food and travel corridor quality. Springs and seeps may partially dry up as less water is stored in the soil following loss of ground cover.

Ecological Site Description—Rangeland

Overflow, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE007MT, R060BE570MT

Plant Community 4: Shrubs/ Annuals/ Weedy Forbs: Wildlife habitat quality is very low in this greatly simplified community characterized by annual grasses, Kentucky bluegrass, dense patches of low shrubs and invasive weeds. Insect populations (grasshoppers) may be abundant in some years but no longer represent a reliable, diverse food resource for insectivorous wildlife. Amphibian habitat quality is very low as the site has dried out significantly. Reptiles are now represented by dry site tolerant species. Bird habitat is suitable for only a handful of species such as horned larks and longspurs. Big game find little cover and food in this potential travel corridor. Small mammal diversity is very low. Deer mice and pocket gophers may be fairly abundant.

13a. Plant Preferences for Antelope and Deer:

Legend: P=Preferred D=Desirable U=Undesirable E=Emergency
N=Nonconsumed T=Toxic Blank=Unknown or no data
Winter (W) = Jan., Feb., March; Spring (SP) = April, May, June;
Summer (SU) = July, Aug., Sept.; Fall (F) = Oct., Nov., Dec.

PLANT NAME	Antelope				Deer			
	W	SP	SU	F	W	SP	SU	F
Perennial grasses	P	P	P	P	D	P,D	D	D
Annual grasses	N	P,D	N	D	N	P,D	N	D
Sedges	D	P	P	P	D	P	P	P
Baltic rush	U	D	U	U	N	U	U	U
Kentucky/ fowl bluegrass ^{1/}	P	P	P	P	D	P	D	D
Scurfpea spp.	U	P,D	P,D	U	U	P,D	D	U
Prairie coneflower	D	P	P	D	D	D	D	D
Maximilian sunflower	D	P	P	D	D	D	D	D
Stiff sunflower	D	P	P	D	D	D	D	D
Canada goldenrod	N	D	D	N	N	U	U	N
Missouri goldenrod	N	D	D	N	N	U	U	N
Horsemint	U	U	U	U	N	U	N	N
American licorice	D	P	D	D	D	P	D	D
Cudweed sagewort	U	U	U	U	U	U	U	U
Other native forbs	U	U	U	U	N	U	N	N
Snowberry	D	P	P	P	P	P	P	P
Wood's rose	U	U	U	U	E	D	E	E
Silver sagebrush	D	D	P	D	P	P	D	P
Golden currant	D	P	D	D	D	P	P	P
Buffaloberry	U	N	N	U	D	D	U	D
Chokecherry	N	N	N	N	D	D	D	D
Other native shrubs	U	U	U	U	D	D	D	D

^{1/} Kentucky and fowl bluegrasses are common invader grasses to this site.

14. Hydrology Data: The runoff potential for this site is moderate. Runoff curve numbers generally range from 64 to 89. The soils associated with this ecological site are generally in Hydrologic Soil Group B or C. The infiltration rates for these soils will normally be moderate.

Good hydrologic conditions exist on rangelands if plant cover (grass, forb, and shrub, and litter) is greater than 70%. Fair conditions exist when cover is between 30 and 70%, and poor conditions exist when cover is less than 30%. Sites in high similarity to HCPC (Plant Communities 1 and 2) generally have enough plant cover and litter to optimize infiltration, minimize runoff and erosion, and have a good hydrologic condition. The deep root systems of the potential vegetation help maintain or increase infiltration rates and reduce runoff.

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Sites in low similarity (Plant Communities 3 and 4) are generally considered to be in poor hydrologic condition and are susceptible to excessive erosion from stream overflow.

Erosion is minor for sites in high similarity. Rills and gullies should not be present. Water flow patterns, if present, will be barely observable. Plant pedestals are essentially non-existent. Plant litter remains in place and is not moved by erosion. Soil surfaces should not be compacted or crusted. Plant cover and litter helps retain soil moisture for use by the plants. Maintaining a healthy stand of perennial vegetation will optimize the amount of precipitation that is received. (Reference: Engineering Field Manual, Chapter 2 and Montana Supplement 4).

15. Recreation and Natural Beauty: This site provides recreational opportunities for big game and upland bird hunting, and hiking. The forbs have flowers that appeal to photographers. This site provides valuable open space and visual aesthetics.

16. Wood Products: None

17. Site Documentation:

Authors: Original: REL, AJN, 1983 Revised: JVF, REL, RSN, MJR, SKW, SVF, POH, 2003

Supporting Data for Site Development:

NRCS–Production & Composition Record for Native Grazing Lands (Range-417): 1
BLM–Soil & Vegetation Inventory Method (SVIM) Data: 3
NRCS–Range Condition Record (ECS-2): 10
NRCS–Range/Soil Correlation Observations & Soil 232 notes: 5

Relationship to other classification systems:

Classification and Management of Montana's Riparian & Wetland Sites:
Agropyron smithii (western wheatgrass) Habitat Type,
Symphoricarpos albus (common snowberry) or *S. occidentalis* (western snowberry)
community type,
Rosa woodsii (woods rose) community type

Field Offices where this site occurs within the state:

Baker	Ekalaka	Hysham	Sidney
Billings	Forsyth	Jordan	Terry
Broadus	Glendive	Miles City	Wibaux
Circle	Hardin	Roundup	

Site Approval: This site has been reviewed and approved for use:

Rhonda Sue Noggles
State Rangeland Management Specialist

06/30/03
Date

Ecological Site Description—Rangeland

Overflow, 10–14" MAP

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Overflow 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC



Overflow 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC
Big bluestem



Overflow 10-14",
Sedimentary Plains, east
Plant Community 2
Western wheatgrass,
prairie sandreed

Ecological Site Description—Rangeland

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Overflow 10-14",
Sedimentary Plains, east
Plant Community 3
Western wheatgrass,
blue grama, dandelion,
silver sagebrush