MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE012MT, R060BE587MT

Site Name: Saline Lowland (SL), 10–14 inches Mean Annual Precipitation (MAP)

Site Number: R058AE012MT, R060BE587MT

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 on subirrigated or overflow lands where salt and/or alkali accumulation are apparent and salt-tolerant species dominate the plant community. This site can also occur around pond margins, particularly if the water recedes (e.g., drawdown zone). Slopes are mainly less than 4%, and aspect is not significant.

Elevation (feet): 1,900–3,500
Landform: swale, depression, drainageway, stream terrace, high floodplain steppes
Slope (percent): 0–4
Depth to Water Table (inches): 36–48 (subirrigated phase)
Flooding: none to rare
Ponding: rare
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 (32^0 F)-days: 105–145
Freeze-free period (28^0 F)-days: 125–170
Mean annual precipitation (MAP): 10–14 inches

3. Influencing Water Features:

WETLAND DESCRIPTION:	SYSTEM	SUBSYSTEM	CLASS
(Cowardin System)	Palustrine	N/A	Emergent

Stream Type: Ephemeral (flows only in response to snow melt or a precipitation event). The Rosgen System does not apply to ephemeral systems.

4. Associated sites: This ecological site typically occurs as a single taxa unit.

5. Similar sites: Saline Upland, Silty-Saline, Dense Clay.

The Saline Upland site may have similar plants, but is much more sparse and low producing.
The Silty-Saline site will have more non-salt tolerant plants present.
The Dense Clay site will be more similar to a Saline Upland in that the production is much lower and the plant community is very sparse.

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6. Soils: The soils associated with this ecological site are moderately to very strongly saline or sodic. Salt and/or sodium accumulations are apparent on the surface. Depth and texture are typically not determining factors. However, these soils are mainly over 20 inches deep. Surface textures are mainly silty clay loam and loam, but can also be silty clay, silt loam, sandy loam, clay loam, and clay. Permeability is variable, depending on surface texture and the amount of salt and/or sodium present.

These sites are affected by additional moisture, generally the result of a water table within 3.5 feet of the surface. They may also be in locations that benefit from surface run-in moisture.

Parent material (kind): alluvium
Parent material (origin): mixed sedimentary origins
Surface textures: mainly silty clay loam and loam
Depth (inches): greater than 20
Soil surface permeability (inches per hour): mainly moderate (0.6–2.0), moderately slow (0.2–0.6)
Available Water Holding Capacity to 40" (inches): 4–10
Drainage Class: moderately well to somewhat poorly (can be well drained in some overflow situations)
Salinity/Electrical Conductivity (mmhos/cm): moderately to strongly saline (≥8)
Sodium Absorption Ratio (SAR): ≥ 13
Reaction (pH) (1:1 water): moderately to very strongly alkaline (7.9–9.6)

6a. Representative Soils: Listed below are soils and map units which characterize this site in various counties. (Reference MT-165, Soil Interpretive Rating Report).

COUNTIES	TYPICAL SOILS	MAP UNIT
Big Horn	Frazer & Kyle silty clay loam	Fr, Kw
Carter	Glendive sandy loam	161B
Custer	Ismay silty clay loam	491A
Dawson	Saline Land silty clay loam	Sa
Fallon	Glendive & Havre loam	161B, 156A
Garfield	Glendive, saline sandy loam	161B
McCone	Alona, saline silt loam	6
Musselshell	Bullhook loam	7B
Powder River	Haverson loam	Hg
Prairie	Ismay silty clay loam	72
Richland	Typic haplaquents silty clay loam	TW
Rosebud	Zatoville silty clay loam	215
Treasure	Laurel clay loam, loam	La, Lb
Wibaux	Hoven silt loam	Ma

7. Plant Community and Species Composition: The physical aspect of this site is that of mixed grassland/shrubland dominated by salt-tolerant species. Approximately 75–80% of the annual production is from grasses and sedges, 5–15% from forbs, and 0–5% is from shrubs and half-shrubs. The canopy cover of shrubs is 5–20%.

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.

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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 Grasslikes 70–75%					**1125**	**1500**	**1875**	**2250**	**2625**
Alkali sacaton	SPAI	1	15-20		225-300	300-400	375-500	450-600	525-700
Alkali cordgrass	SPGR	5	10-25		150-375	200-500	250-625	300-750	350-875
Western wheatgrass	PASM	14	10-15		150-225	200-300	250-375	300-450	350-525
Inland saltgrass	DISP	15	5-10		75-150	100-200	125-250	150-300	175-350
Nuttall alkaligrass	PUNU	2	5-10		75-150	100-200	125-250	150-300	175-350
Slender wheatgrass	ELTR	2	0-5		0-75	0-100	0-125	0-150	0-175
Alkali bluegrass	POJU	4	1-5}	10	15-150 No more than 75 for any one	20-200 No more than 100 for any one	25-250 No more then 125 for any one	30-300 No more than 150 for any one	35-350 No more than 175 for any one
Mat muhly	MURI	15	1-5}						
Sandberg bluegrass	POSE	12	1-5}						
Bottlebrush squirreltail	ELEL5	10	1-5}						
Clustered field sedge	CAPR	14	1-5}						
Baltic rush	JUBA	14	1-5}						
Other tall sedges	CAREX	6	1-5}						
Other tall rushes	JUNCU	6	1-5}						
Other native grasses	2GP		1-5}						
Foxtail barley	HOJU	10	0-T	T	T	T	T	T	T
Forbs 1–5%					**75**	**100**	**125**	**150**	**175**
Poverty sumpweed	IVAX	23	1-5}	5	15-75	20-100	25-125	30-150	35-175
Red glasswort	SARU	23*	1-5}						
Buckwheat spp.	ERIOG	23	1-5}						
Pursh seepweed	SUCA2	23*	1-5}						
Knotweed spp.	POLYG4	23	1-5}						
Other native forbs	2FP		1-5}						
Shrubs and Half-shrubs 15–20%					**300**	**400**	**500**	**600**	**700**
Nuttall's saltbush	ATNU2	34	1-10}	20	15-300 No more than 150 for any one	20-400 No more than 200 for any one	25-500 No more than 250 for any one	30-600 No more than 300 for any one	35-700 No more than 350 for any one
Greasewood	SAVE4	37	1-10}						
Other native shrubs	2SB		1-10}						
Broom snakeweed	GUSA2	37	0-T	T	T	T	T	T	T
Total Annual Production (lbs./acre)			**100%**		**1500**	**2000**	**2500**	**3000**	**3500**

* Annual species.

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 aboveground 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 of TABLE 7a.–Major Plant Species Composition. Average production values are listed for each incremental inch of precipitation for the site.

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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	8 – 13	40 – 70	24
Forbs	1 – 2	T – 5	18
Shrubs	1 – 5	5 – 20	24
Litter	15 – 25		
Coarse fragments	0 – 1		
Bare ground	55 – 75		

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 described 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 moderately resilient to disturbance as it has moderate soil limitations for plant growth. Changes may occur to the Historic Climax Plant Community due to management actions and/or climatic conditions. Under continued adverse impacts, a moderate decline in vegetative vigor and composition will occur. Under favorable vegetative management treatments, this site can more readily return to a community that resembles the Historic Climax Plant Community.

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 **alkali cordgrass, alkali sacaton, alkali bluegrass, Nuttall's alkaligrass, western wheatgrass, and Nuttall's saltbush**. These plants will be replaced by **inland saltgrass, bottlebrush squirreltail**, other less palatable grasses, sedges, forbs, and **greasewood**.

Plants that are not a part of the climax community that are most likely to invade are **foxtail barley, annual grasses, and annual and biennial forbs: red glasswort, Pursh seepweed, lambsquarter, kochia and Russian thistle.**

10a. Major Plant Community Types: 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 is a mixture of cool and warm season grasses, including **alkali sacaton, alkali cordgrass, Nuttall's alkaligrass, alkali bluegrass, western wheatgrass, and Nuttall's saltbush**. There are also several short grasses and sedges, and forbs in small percentages. This is a very highly productive site due to the extra moisture it receives from run-in or a water table.

This plant community is well adapted to the Northern Great Plains climatic conditions. The diversity in plant species and the presence of tall, deep-rooted perennial grasses allows for moderately high drought tolerance. Individual species can vary greatly in production depending on growing conditions (timing and amount of precipitation and temperature). Plants on this site have strong, healthy root systems that allow production to increase significantly with favorable precipitation. 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. This plant community provides for soil stability and a functioning hydrologic cycle.

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Plant Community 2: Medium and Short Grasses/ Tall Shrubs: Slight variations affecting the Historic Climax or Potential Plant Community can result in a community that is dominated more by the medium and short grass components, such as the **Nuttall's alkaligrass and alkali bluegrass. Inland saltgrass and greasewood** may also take on more of a dominance.

Grass 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: Short Grasses: With continued heavy disturbance the site will become dominated by short grasses, such as **inland saltgrass, western wheatgrass, and Sandberg bluegrass. Foxtail barley** also becomes prevalent on the site. This plant community is still highly productive due to the extra moisture it receives, but the taller grasses are generally absent. Undesirable weeds often begin to invade onto the site.

Plant Community 4: Tall Shrubs/ Short Grasses/ Annual forbs: With prolonged disturbance on this site, excessive soil erosion occurs, and the plant community consists of large areas of bare ground (with exposed salts) between the plants. This site is less productive, and is dominated by **inland saltgrass and greasewood,** along with undesirable forbs such as **seepweed, kochia, and Russian thistle, and annual grasses**.

Plant Communities 3 and 4 have lost many of the attributes of a healthy rangeland, including good infiltration, minimal erosion and runoff, nutrient cycling and energy use.

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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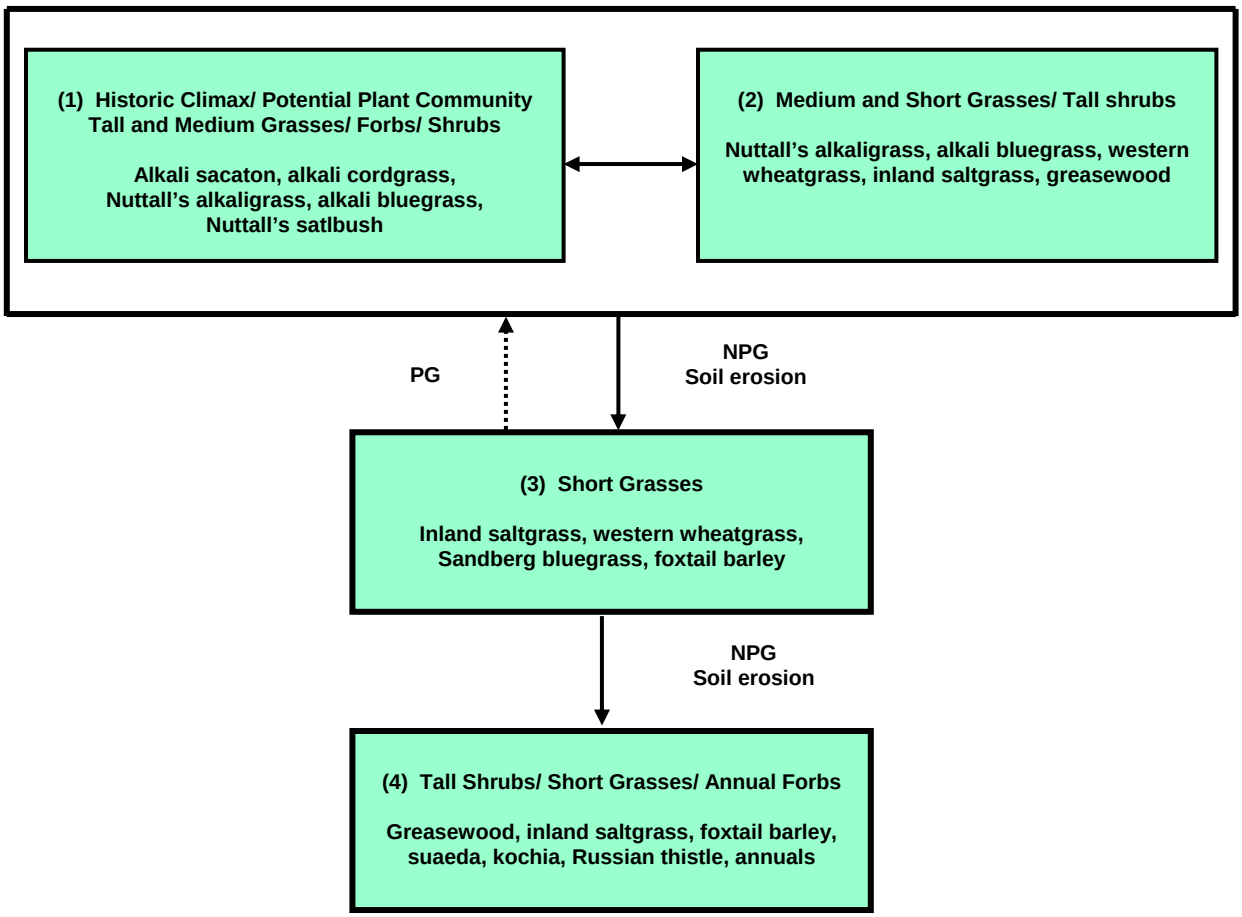
Plant Communities and Transitional Pathways (diagram)



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 and continues to the end of June. Native warm-season plants begin growth about mid May and continue to about the end of August. Green up of cool-season plants can occur in September through October when adequate soil moisture is present. 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: MT0816
Growth Curve Description: Includes all salt affected sites in eastern sedimentary plains having extra water available for the plants, either from run-in or high water table.

Totals for Each Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	5	20	25	20	20	10	0	0	0

Cumulative Totals by Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	5	25	50	70	90	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 extra moisture, 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 Saline Lowland 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.

Whenever Plant Community 2 (medium and short grasses) 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. Improved grazing management alone can usually move this community back towards one resembling the potential community.

Plant Community 3 may still produce an abundance of forage due to the extra moisture, but the forage quality is not nearly as high as that in Community 1 or 2.

Plant Community 4 has extremely reduced forage value, as many of the dominant species are unpalatable to livestock.

Once this site is occupied by Plant Community 3 or 4, it will be more difficult to restore it to a community that resembles the potential with grazing management alone. Additional growing season rest is often necessary for re-establishment of the desired species and to restore the stability and health of the site. Brush management and range seeding may be necessary to restore native grasses.

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 a safe 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 a safe 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) ***Alkali sacaton, alkali cordgrass, Nuttall's alkaligrass, alkali bluegrass, Nuttall's saltbush*** **(S.I. >70%)**	13-14"	3000 – 3500	2550 – 3000	.80 – .95	1.1 – 1.25	2700 – 3100	.85 – 1.0	1.0 – 1.2
	10-12"	1500 – 2500	1300 – 2100	.40 – .65	1.5 – 2.5	1350 – 2200	.43 - .70	1.4 – 2.3
2. Medium and Short Grasses, Tall shrubs ***Nuttall's alkaligrass, alkali bluegrass, western wheatgrass, inland saltgrass, greasewood*** **(S.I. 50–70%)**	13-14"	2500 – 3000	1750 – 2400	.55 – .75	1.3 – 1.8	1800 – 2500	.57 – .79	1.3 – 1.8
	10-12"	1300 – 2100	900 – 1700	.28 –.54	1.8 – 3.6	1000 – 1800	.32 – .57	1.8 – 3.1
3. Short Grasses ***Inland saltgrass, western wheatgrass, Sandberg bluegrass, foxtail barley*** **(S.I. 30–50 %)**	10-14"	1100 – 2600	650 – 1800	.20 –.57	1.7 – 5.0	700 – 1900	.22 – .60	1.7 – 4.5
4. Tall Shrubs, Short Grasses, Annuals ***Greasewood, inland saltgrass, foxtail barley, suaeda, kochia, Russian thistle, annuals*** **(S.I. < 30%)**	10-14"	800 – 1800	400 – 900	.09 – .20	5.0 – 11.1	500 – 1100	.11 – .24	4.2 – 9.1

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; Spring (SP) = April, May, June;
Summer (SU) = July, Aug., Sept.; Fall (F) = Oct., Nov., Dec.

	Cattle				Sheep			
PLANT NAME	**W**	**SP**	**SU**	**F**	**W**	**SP**	**SU**	**F**
Alkali sacaton	P	D	D	D	D	D	D	D
Alkali cordgrass	U	D	D	U	U	D	D	U
Western wheatgrass	P	D	D	P	D	D	D	D
Inland saltgrass	N,E	N	N,E	N,E	U	U	U	U
Nuttall's alkaligrass	P	P	P	P	P	P	P	P
Slender wheatgrass	P	P	P	P	D	P	P	D
Alkali bluegrass	P	P	D	P	P	P	D	P
Sandberg bluegrass	D	D	D	D	D	D	D	D
Bottlebrush squirreltail	D	D	D	D	U	D	D	U
Clustered field sedge	D	D	D	D	D	D	D	D
Baltic rush	N	N	N	N	N	N	N	N
Large sedges	D	D	D	D	D	D	D	D
Other rushes	D	D	D	D	D	D	D	D
Other grasses	N	N	N	N	N	N	N	N
Foxtail barley [1/]	N	U	N	N	N	U	N	N
Poverty sumpweed	U	U	U	U	U	U	U	U
Buckwheats	N	N	N	N	D	U	U	D
Red glasswort	U	U	U	U	U	D	D	U
Pursh seepweed	U	U	U	U	U	U	U	U
Knotweeds	N	N	N	N	U	U	U	U
Other forbs	N	N	N	N	N	N	N	N
Nuttall's saltbush	P	P	P	P	P	P	P	P
Greasewood [2/]	N	N	N,E	N,E	D,T	D,T	D,T	D,T
Broom snakeweed [3/]	N	N	N	U	U	U	U	U
Kochia [4/]	E, T	E,T	E,T	E,T	E,T	E,T	E,T	E,T
Plains pricklypear [5/]	N	N	N	N	U	U	U	U

[1/] Foxtail barley has moderate forage quality when green, however the long sharp awns can cause injury to animals' mouths when dried.

[2/] Greasewood can be toxic to sheep in spring if large quantities are ingested.

[3/] Broom snakeweed can be poisonous, but this is not usually a problem in Montana because plants die back in winter and do not have green leaves in early spring.

[4/] Kochia can cause nitrate poisoning and photosensitivity.

[5/] The spines can be injurious to livestock.

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13. WILDLIFE INTERPRETATIONS:. 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): The diverse mixture of warm and cool season grasses and shrubs, combined with relatively high productivity, provides habitat for numerous wildlife species. Grazers and mixed feeders find good nutrition levels over a long time period. Big game animals have thermal and escape cover (shrubs) interspersed with feeding areas. Nuttall's saltbush and other shrubs provide winter browsing for mule deer and pronghorn. Litter cover and residual grasses provide good habitat for ground-nesting birds and a variety of small mammals. Lark buntings, Brewer's sparrow, meadowlarks and dabbling ducks, such as mallards and blue-winged teal, may nest in this community. Raptors, particularly the northern harrier, find abundant prey here. Example small mammals include seeders like the harvest mouse, olive-backed pocket mouse and deer mouse as well as herbivores like the prairie vole. Raccoons may search for ground nests in this type.

Plant Community 2: Medium and Short Grasses/ Tall Shrubs: Loss of warm season grasses (alkali sacaton, cordgrass) shortens the period of high nutrition for grazers and mixed feeders. A reduction in plant species and life form diversity generally results in less overall wildlife species richness. A decline in litter cover reduces habitat value for ground-nesting birds. Small mammal species composition shifts toward seed eaters like the deer mouse. Brewer's sparrows and lark buntings are examples of breeding birds that may use this ecological stage.

Plant Community 3 and 4: Tall Shrubs/ Short Grasses/ Annuals: Wildlife habitat values are generally quite low. Ring-necked pheasants may feed on annual weed seeds when this community occurs near cropland. Ground-nesting bird habitat is very poor. Small mammal populations consist mainly of deer mice, which make use of abundant seed production.

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.

	Antelope				Deer			
PLANT NAME	**W**	**SP**	**SU**	**F**	**W**	**SP**	**SU**	**F**
Perennial grasses	P	P	P	P	D	P,D	D	D
Foxtail barley *	E	E	T	T	E	E	T	T
Annual grasses	N	P,D	N	D	N	P,D	N	D
Sedges	D	P	P	P	D	P	P	P
Poverty sumpweed	U	U	U	U	U	U	U	U
Buckwheats	D	D	D	D	D	D	D	D
Pursh seepweed	U	U	U	U	U	U	U	U
Red glasswort	U	U	U	U	U	U	U	U
Knotweeds	N	N	N	N	N	N	N	N
Other forbs	N	N	N	N	N	N	N	N
Nuttall's saltbush	P	P	P	P	D	P	P	D
Greasewood	P	P	D	D	P	P	D	D
Broom snakeweed	N	N	D	N	D	D	P	P
Plains pricklypear	N	N	N	N	N	N	N	N

* Foxtail barley has moderate forage quality when green, however the long sharp awns can cause injury to animals' mouths when dried.

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE012MT, R060BE587MT

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

Good hydrologic conditions exist on rangelands if plant cover (grass, litter, and brush canopy) is greater than 70 percent. Fair conditions exist when cover is between 30 and 70 percent, and poor conditions exist when cover is less than 30 percent. 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.

Sites in low similarity (Plant Communities 3 and 4) are generally considered to be in poor hydrologic condition as the majority of plant cover is from more shallow-rooted species and shrubs.

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): 3
BLM–Soil & Vegetation Inventory Method (SVIM) Data: 6
NRCS–Range Condition Record (ECS-2): 30
NRCS–Range/Soil Correlation Observations & Soil 232 notes: 15

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 06/30/03
State Rangeland Management Specialist **Date**

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE012MT, R060BE587MT

Saline Lowland 10-14,
Sedimentary Plains, east
Plant Community 1
HCPC /PPC

Saline Lowland 10-14,
Sedimentary Plains, east
Plant Community 1
HCPC /PPC

Saline Lowland 10-14,
Sedimentary Plains, east
Plant Community 2
Prairie County

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE012MT, R060BE587MT

Saline Lowland 10-14, Sedimentary Plains, east Plant Community 2

Saline Lowland 10-14, Sedimentary Plains, east Plant Community 3

Saline Lowland 10-14, Sedimentary Plains, east Plant Community 2

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE012MT, R060BE587MT

Saline Lowland 10-14, Sedimentary Plains, east Plant Community 4