

Ecological Site Description—Rangeland

Sands, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE018MT, R060BE573MT

Site Name: Sands (Sa), 10–14 inches Mean Annual Precipitation (MAP)

Site Number: R058AE018MT, R060BE573MT

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 nearly level to strongly sloping sedimentary plains, terraces, and fans. In places, a dune-like topography is formed. The slopes are 0–15%, but mainly are less than 8%. This site occurs on all exposures. Aspect is not significant.

Elevation (feet): 1,900–3,500

Landform: terraces, fans, dunes

Slope (percent): 0–15, but are mainly less than 8

Depth to Water Table (inches): greater than 60

Flooding: none

Ponding: none

Runoff Class: negligible to very low

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 (32⁰ F)-days: 105–145

Freeze-free period (28⁰ F)-days: 125–170

Mean annual precipitation (MAP): 10–14 inches

3. Influencing Water Features: None

4. Associated sites: Mainly Sandy and Sandy-Steep. Sometimes occurs with Shallow and Silty-Steep.

5. Similar sites: Sandy, Sandy-Steep.

The Sandy site differs mainly in texture.

The Sandy-Steep site occurs on slopes greater than 15%.

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R058AE018MT, R060BE573MT

6. Soils: Soils in this ecological site are coarse to fine sands and loamy sands more than 20 inches deep. These soils are very susceptible to wind erosion.

Parent material (kind): eolian deposits or sandy alluvium

Parent material (origin): sandstone

Surface textures: sand, loamy sand

Depth (inches): greater than 20

Soil surface permeability (inches per hour): rapid to very rapid (>6)

Available Water Holding Capacity to 40" (inches): 3–5

Drainage Class: somewhat excessively or excessively

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

Sodium Absorption Ratio (SAR): negligible

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

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	Tulloch loamy fine sand	Tu
Carter	Zeona loamy fine sand	119D
Custer	Yetull loamy fine sand	996A
Fallon	Zeona loamy fine sand	119D
Garfield	Yetull loamy fine sand	914D
McCone	Hanly loamy fine sand	78
Prairie	Yetull loamy fine sand	17, 18, 140
Rosebud	Yetull loamy fine sand	50, 51
Treasure	Dwyer fine sand	Dw

7. Plant Community and Species Composition: The physical aspect of this site is that of an undulating grassland that is dominated by tall to medium warm season grasses and sedges with scattered shrub cover. Approximately 70–75% of the annual production is from grasses and sedges, 10–15% from forbs, and 5–10% is from shrubs and half-shrubs. The canopy cover of shrubs is 1–3%.

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. This 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 Sedges 70–75%					675	975	1350	1575	1800
Big bluestem	ANGE	1	20-40		180-360	260-520	360-720	420-840	480-960
Prairie sandreed	CALO	5	10-35		90-315	130-455	180-630	210-735	240-840
Sand bluestem	ANHA	1	10-25		90-225	130-325	180-450	210-525	240-600
Little bluestem	ANSC10	1	5-10		45-90	65-130	90-180	105-210	120-240
Needleandthread	HECOC8	10	5-10		45-90	65-130	90-180	105-210	120-240
Indian ricegrass	ACHY	2	5-10		45-90	65-130	90-180	105-210	120-240
Sun sedge	CAHE	3	5-10		45-90	65-130	90-180	105-210	120-240
Sand dropseed	SPCR	9	1-5		9-45	13-65	18-90	21-105	24-120
Thickspike wheatgrass	ELLAL	14	0-5		0-45	0-65	0-90	0-105	0-120
Threadleaf sedge	CAFI	12	1-5}	10	9-90 No more than 45 for any one	13-130 No more than 65 for any one	18-180 No more than 90 for any one	21-210 No more than 105 for any one	24-240 No more than 120 for any one
Prairie junegrass	KOMA	12	1-5}						
Sandberg bluegrass	POSE	12	1-5}						
Blue grama	BOGR2	15	1-5}						
Plains reedgrass	CAMO	16	0-5}						
Western wheatgrass	PASM	14	0-5}						
Other native grasses	2GP		1-5}						
Red threeawn	ARLO3	11	0-T	T	T	T	T	T	T
Forbs 10–15%					135	195	270	315	360
Black samson	ECAN2	21	1-5}	15	9-135 No more than 45 for any one	13-195 No more than 65 for any one	18-270 No more than 90 for any one	21-315 No more than 105 for any one	24-360 No more than 120 for any one
Scurfpea spp.	PSORA2	23	0-5}						
Purple prairieclover	DAPU5	21	1-5}						
White prairieclover	DACA7	21	1-5}						
Hairy goldenaster	HEVI4	23	0-5}						
Prairie thermopsis	THRH	20	0-5}						
Dotted gayfeather	LIPU	21	1-5}						
Milkvetch spp.	ASTRA	24	1-5}						
Hood's phlox	PHHO	28	0-5}						
Missouri goldenrod	SOMI2	19	0-5}						
Green sagewort	ARDR4	19	1-5}						
Stiff sunflower	HEPA	19	1-5}						
Rush skeletonplant	LYJU	19	0-5}						
Spiderwort	TRBR	26	0-5}						
American licorice	GLLE3	19	0-5}						
White milkwort	POAL4	23	0-5}						
Western wallflower	ERASC	24	0-5}						
Scarlet globemallow	SPCO	20	0-5}						
Buckwheat spp.	ERIOG	23	0-5}						
Other native forbs	2FP		0-5}						
Death camas	ZIGAD	32	0-T	T	T	T	T	T	T
White point loco	OXSE	24	0-T	T	T	T	T	T	T
Shrubs and Half-shrubs 5–10%					90	130	180	210	240
Winterfat	KRLA2	35	0-5}	10	9-90 No more than 45 for any one	13-130 No more than 65 for any one	18-180 No more than 90 for any one	21-210 No more than 105 for any one	24-240 No more than 120 for any one
Prairie rose	ROAR3	38	1-5}						
Silver sagebrush	ARCA13	36	0-5}						
Skunkbush sumac	RHTR	33	0-5}						
Fringed sagewort	ARFR4	38	1-5}						
Yucca	YUGL	37	1-5}						
Snowberry spp.	SYMPH	37	0-5}						
Other native shrubs	2SB		0-5}						
Plains pricklypear	OPPO	38	0-T	T	T	T	T	T	T
Brittle cactus	OPFR	38	0-T	T	T	T	T	T	T
Total Annual Production (lbs./ac)			100%		900	1300	1800	2100	2400

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R058AE018MT, R060BE573MT

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.

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	T – 1	0 – T	0.25
Grasses/sedges	15 – 20	50 – 60	24
Forbs	1 – 4	5 – 10	18
Shrubs	1 – 2	1 – 3	24
Litter	40 – 49		
Coarse fragments	0 – 4		
Bare ground	15 – 20		

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 only minor 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 the Historic Climax Plant Community.

Continual adverse impacts to this site over a period of years will result in the decrease of the taller grasses such as **big bluestem, sand bluestem, and prairie sandreed** to medium bunch and sod grasses including **needleandthread, dryland sedges, and prairie junegrass**. Medium shrubs, such as **yucca**, will increase with continued disturbance. Warm and cool season tall or medium grasses (prairie sandreed, Indian ricegrass, sand dropseed) and a medium shrub (yucca) will also occur in sand dunes.

Plants that are not a part of the climax community that are most likely to invade are **annual grasses and brittle cactus**.

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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 contains a good diversity of tall warm season grasses such as **big bluestem, sand bluestem, and prairie sandreed**. There is a good diversity of medium and short grasses and sedges (**little bluestem, Indian ricegrass, and needleandthread**). A variety of forbs occur in small percentages. Shrubs that occur on this site include mainly **yucca and prairie rose**.

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 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.

Good root systems and plant cover are critical for stability and erosion protection of this site due to the sandy soils. Removing the plant cover is the main reason areas of the Sands site are in dunes. Maintaining a healthy plant community provides for a properly functioning hydrologic cycle. Abundant plant litter is available for soil buildup and moisture retention.

Plant Community 2: Medium and Short Grasses/ Medium Shrubs: Slight degradation in the Historical Climax Plant Community usually results in a decrease of the larger bluestems and prairie sandreed and a slight increase in **needleandthread, sand dropseed and the short grasses and sedges**. **Yucca, prairie rose, and fringed sagewort** may increase in species composition. There are generally enough of the larger species remaining to allow the community to return to the HCPC/PPC fairly readily once management changes are implemented.

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: Shrubs/ Medium and Short Grasses/ Half-shrubs: With continued heavy disturbance on Plant Communities 1 or 2, the plant community tends to become dominated by species such as **yucca, needleandthread, threadleaf sedge, fringed and green sagewort, red threeawn, and annual grasses**. There may still be small amounts of some species such as little bluestem and Indian ricegrass.

Rest and/or seeding will be required to bring this site back across the ecological stability threshold. Because the soils associated with this site are very susceptible to blowing, special precautions will be needed when seeding. Using a cover crop, generally large seeded, warm season annuals (e.g., foxtail millet, sorghum-sudan grass) is usually necessary when trying to reseed these sandy soils.

Plant Community 4: Shrubs and Half-shrubs/ Short Grasses/ Cacti: With continued heavy disturbance on Plant Community 3, the community often becomes dominated by **yucca, green sagewort, red threeawn, Japanese brome, brittle cactus, plains pricklypear, and other annual grasses and forbs**. This community is very unstable and sand dunes often develop.

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R058AE018MT, R060BE573MT

Plant Communities 3 and 4 are 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 high evaporation. This community has lost many of the attributes of a healthy rangeland, including good infiltration, minimal erosion and runoff, nutrient cycling and energy flow.

These communities have extremely reduced production. Significant economic inputs and time would be required to move this plant community toward a higher successional stage and a more productive plant community.

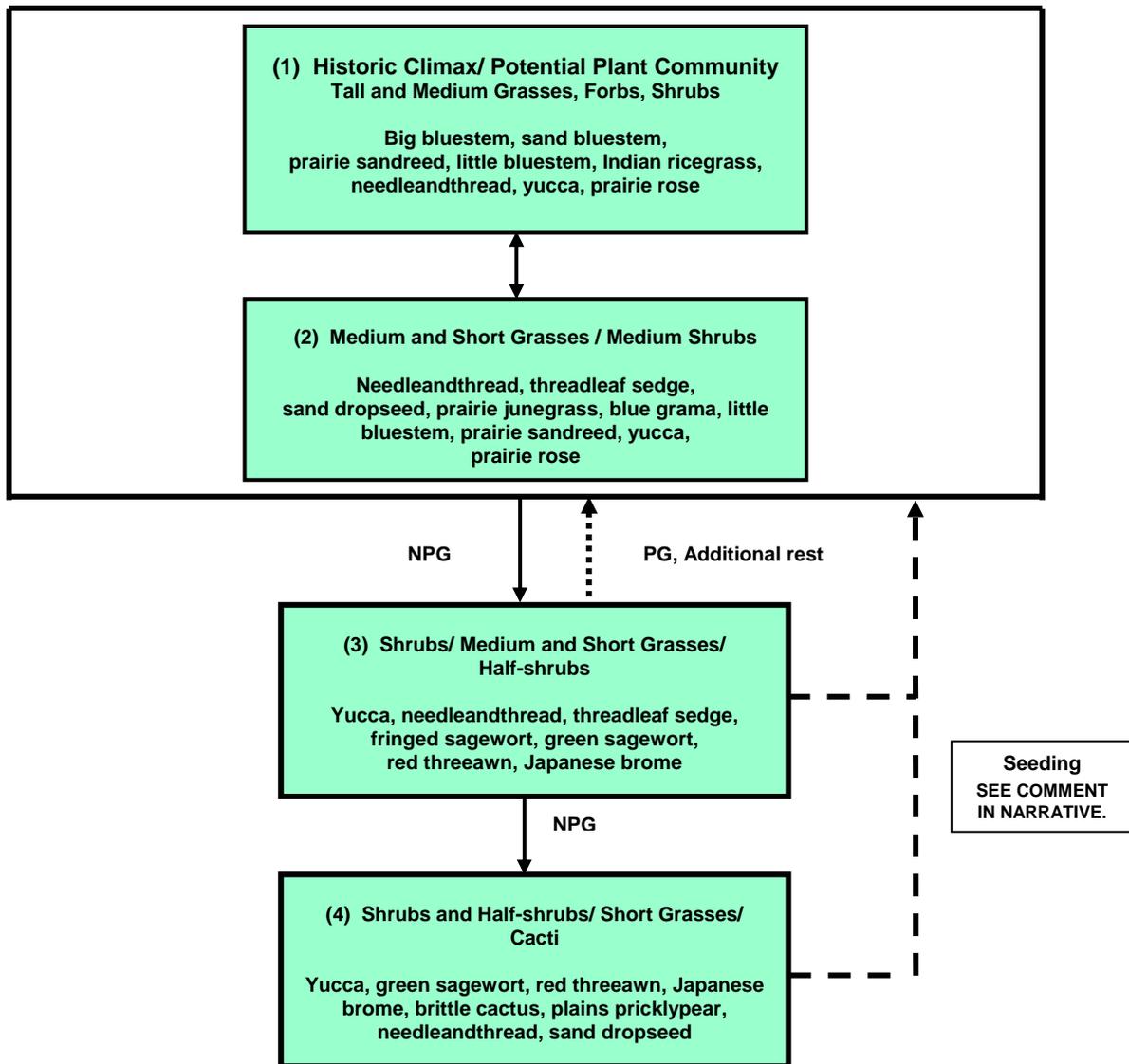
10b. Plant Communities and Transitional Pathways (State and Transition Model): Transitions in plant community composition occur along a gradient that is not linear. Many processes are involved in the changes from one community to another. Changes in climate, elevation, soils, landform, fire patterns 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 return to Community 1 or 2. Dotted lines indicate a reduced probability for success.

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: MT0810

Growth Curve Description: Includes all upland sites in eastern sedimentary plains having deep, sandy soils and mainly warm season plants.

Totals for Each Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	5	15	40	25	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	20	60	85	95	100	0	0	0

Growth Curve Number: MT0813

Growth Curve Description: Includes all low condition sites in eastern sedimentary plains sites, dominated by short grasses.

Totals for Each Month

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

Cumulative Totals by Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	25	50	75	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. The abundance of warm season species makes this site especially valuable for use during mid-summer when the cool season species are past their optimum period of quality forage.

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 occurs (medium and short grasses), 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.

Plant Communities 3 or 4 have extremely limited forage production (< 600 pounds per acre), and a high percentage of non-preferred species for cattle and sheep. Once this site is occupied by these communities, 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. Seeding may be necessary to restore desirable native perennial species. (SEE NOTE ON PAGE 5 REGARDING SEEDING.)

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R058AE018MT, R060BE573MT

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.

12b. Guide to Safe Stocking Rates: The following charts provide a guide for determining a 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.

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R058AE018MT, R060BE573MT

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>Big bluestem, sand bluestem, prairie sandreed, little bluestem, Indian ricegrass, needleandthread, yucca, prairie rose</i> (S.I. >70%)	13–14"	2100-2400	1800-2100+	.55-.65+	1.5-1.8	1900-2200+	.60-.70+	1.4-1.7
	10–12"	900-1800	800-1600+	.25-.50+	2.0-4.0	850-1650+	.27-.52+	1.9-3.7
2. Medium and Short Grasses/ Medium Shrubs <i>Needleandthread, threadleaf sedge, sand dropseed, prairie junegrass, blue grama, little bluestem, prairie sandreed, yucca, prairie rose</i> (S.I. 45–70%)	13–14"	1400-1800	1100-1500	.35-.45	2.2-2.9	1150-1600	.36-.50	2.0-2.8
	10–12"	750-1500	600-1300	.20-.40	2.5-5.0	650-1350	.21-.43	2.3-4.8
3. Shrubs/ Medium and Short Grasses/ Half-shrubs <i>Yucca, needleandthread, threadleaf sedge, fringed sagewort, green sagewort, red threeawn, annual grasses</i> (S.I. 25–45%)	10–14"	600-1200	400-900	.13-.28	3.6-7.7	450-950	.14-.30	3.3-7.1
4. Shrubs and Half-shrubs/ Short Grasses/ Cacti <i>Yucca, green sagewort, red threeawn, annual grasses, brittle cactus, plains pricklypear, needleandthread, sand dropseed</i> (S.I. < 25%)	10–14"	400-1000	200-500	.04-.10	10.0-25.0	300-550	.07-.12	8.3-14.3

Stocking rates are calculated from average forage production values using a 25% Harvest Efficiency factor for preferred and 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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MLRA: 60B – Pierre Shale Plains, East

R058AE018MT, R060BE573MT

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.

PLANT NAME	Cattle				Sheep			
	W	SP	SU	F	W	SP	SU	F
Prairie sandreed	D	D	D	D	D	D	D	D
Indian ricegrass	P	P	P	P	P	P	P	P
Big bluestem	P	P	P	P	P	P	P	P
Sand bluestem	P	P	P	P	P	P	P	P
Sand dropseed	D	D	D	D	D	D	D	D
Thickspike wheatgrass	P	P	P	P	P	P	P	P
Little bluestem	P	P	P	P	U	D	D	U
Bluebunch wheatgrass	P	D	P	P	D	D	D	D
Needleandthread ^{1/}	D	D	D	D,T	D	D	D	D
Sandberg bluegrass	D	D	D	D	D	D	D	D
Threadleaf and Needleleaf sedge	D	P	P	D	D	P	P	D
Prairie junegrass	D	D	D	D	D	P	D	D
Plains muhly	D	D	D	D	D	D	D	D
Blue grama	D	D	D	D	D	P	P	D
Plains reedgrass	D	D	D	D	U	U	U	U
Sun sedge	D	P	D	P	D	D	D	D
Red threeawn	N	U	N	N	N	U	N	N
Cheatgrass / Japanese brome ^{2/}	U	D	N	N	U	P	U	U
Black samson	N	D	D	D	D	P	P	D
Prairieclover spp.	N	D	D	D	D	D	D	D
Dotted gayfeather	N	P	P	P	D	P	D	D
Milkvetch spp. ^{3/}	N	D,T	D,T	D,T	D,T	P,T	D,T	D,T
American vetch	N	P	P	D	N	P	P	D
Prairie coneflower	N	D	D	D	D	D	D	D
Wild onion	N	P	P	N	N	P	P	N
Hood's phlox	N	N	N	N	U	U	U	U
Pussytoes spp.	N	N	N	N	U	U	U	U
Wild parsley	N	D	D	U	N	D	D	U
Green sagewort	N	N	N	N	N	N	N	N
Scarlet globemallow	N	D	D	D	N	D	D	D
Two-grooved poisonvetch	N	T	T	T	N	T	T	T
White point loco	N	T	T	T	T,N	T,N	T,N	T,N
Low larkspur	N	N,T	N,T	N	N	D,T	D,T	N
Death camas	N	T	T	N	N	T	T	N
Winterfat	P	P	P	P	P	D	D	P
Prairie rose	N	N	N	N	D	D	D	D
Silver sagebrush	D	D	D	D	D	D	D	D
Green and Rubber rabbitbrush	U	U	U	U	U	U	U	U
Wyoming big sagebrush	N	N	N	N	P	D	D	P
Fringed sagewort	N	N	N	N	U	U	U	U
Snowberry	D	D	D	D	D	D	D	P
Yucca	N	N	N	N	U	D	D	U
Broom snakeweed ^{4/}	N	N	N	U	U	U	U	U
Plains and brittle pricklypear ^{5/}	N	N	N	N	U	U	U	U

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

^{2/} Not a native plant, but a common invader.

^{3/} Some species of milkvetch are poisonous.

^{4/} 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.

^{5/} The spines can be injurious to livestock.

Ecological Site Description—Rangeland

Sands, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East

MLRA: 60B – Pierre Shale Plains, East

R058AE018MT, R060BE573MT

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 predominance of grasses and sedges plus a diversity of forbs and half-shrubs in this community favors grazers and mixed feeders such as bison, pronghorn and elk. An abundance of warm season grasses extends the availability of nutritious forage throughout the summer. Suitable escape cover for mule deer is limited because of low shrub cover unless topographic features provide this habitat. The mix of tall and medium height grass residual cover along with abundant litter production creates favorable habitat for ground nesting birds including sharp-tailed grouse, upland sandpipers, vesper sparrows and grasshopper sparrows. Raptors are attracted to the diverse prey populations. A variety of forbs, grasses and half-shrubs attracts seed-eating small mammals like deer mice and pocket mice while heavy litter production favors herbivorous voles.

Plant Community 2: Medium and Short Grasses/ Medium Shrubs: A reduction of warm-season grasses shortens the green feed period for grazers. Habitat value for ground-nesting birds and herbivorous small mammals is reduced as litter and residual grass production declines. Reduction of vegetative structural complexity decreases general habitat value for a variety of wildlife species.

Plant Community 3: Shrubs/ Medium and Short Grasses/ Half-shrubs: Habitat value is poor for most wildlife species. Further reduction of litter and residual grass production limits ground-nesting bird habitat, although species favoring sparse cover, including long-billed curlews, McCown's longspur and horned larks may nest in this community. Annual grass and forb production may support populations of deer mice.

Plant Community 4: Shrubs and Half-shrubs/ Short Grasses/ Cacti: Unstable dunes provide poor habitat values for the majority of wildlife species. After stabilization by tall and medium warm and cool season grasses, habitat values may be similar to Plant Community 1, above.

Ecological Site Description—Rangeland

Sands, 10–14" MAP

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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
Red threeawn	N	N	N	N	N	N	N	N
Annual grasses	N	P,D	N	D	N	P,D	N	D
Sedges	D	P	P	P	D	P	P	P
Black samson	P	P	P	P	D	D	D	D
Prairieclover spp.	P	P	P	P	P	P	P	P
Dotted gayfeather	D	P	D	D	D	P	P	P
Milkvetch spp.	D	P	P	D	D	D	D	D
Scurfpea spp.	N	D	D	D	D	D	D	D
Hairy goldenaster	E	E	E	E	E	E	E	E
Goldenrod spp.	D	P	P	P	D	D	D	D
American licorice	P	P	D	D	D	P	D	D
Prairie coneflower	D	P	P	D	D	P	D	D
American vetch	P	P	P	P	D	P	P	P
Hood's phlox	U	U	U	U	U	U	U	U
Eriogonum spp	D	D	D	D	D	D	D	D
Stiff sunflower	P	P	P	P	P	P	P	P
Remaining forbs	E,N	E,N	E,N	E,N	E,N	E,N	E,N	E,N
Winterfat	P	P	P	P	P	D	D	P
Snowberry	D	D	D	D	D	D	D	P
Yucca	N	N	N	N	N	N	N	N
Silver sagebrush	D	D	P	D	P	P	D	P
Prairie rose	U	U	U	U	E	D	E	E
Skunkbush sumac	E	E	E	E	P	P	D	P
Fringed & green sageworts	N	N	N	N	N	N	N	N
Broom snakeweed	N	N	D	N	D	D	P	P

14. Hydrology Data: The soils associated with this ecological site are generally in Hydrologic Soil Group A. The infiltration rates for these soils will normally be rapid to very rapid. The runoff potential for this site is very low. Runoff curve numbers generally range from 47 to 77.

Good hydrologic conditions exist on rangelands if plant cover (grass, litter, and brush canopy) 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.

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 shallow-rooted annuals 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).

Ecological Site Description—Rangeland

Sands, 10–14" MAP

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R058AE018MT, R060BE573MT

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. Travel across this site can be difficult because of the loose sand.

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): 6
BLM–Soil & Vegetation Inventory Method (SVIM) Data: 10
NRCS–Range Condition Record (ECS-2): 8
NRCS–Range/Soil Correlation Observations & Soil 232 notes: 11

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

Sands, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
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**Sands, 10–14”
Sedimentary Plains, east
Plant Community 1
HCPC/ PPC**



**Sands, 10–14”
Sedimentary Plains, east
Plant Community 1
HCPC/ PPC
Big bluestem, Little bluestem**



**Sands, 10–14”
Sedimentary Plains, east
Plant Community 1
HCPC/ PPC**

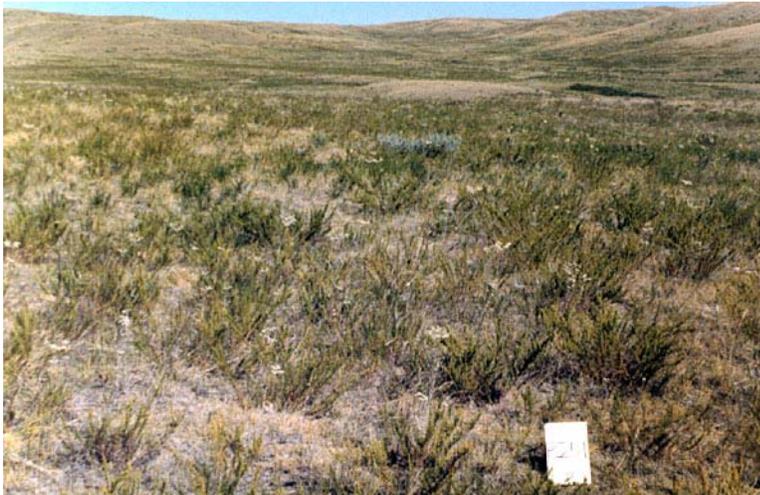
Ecological Site Description—Rangeland

Sands, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
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R058AE018MT, R060BE573MT



**Sands, 10–14”
Sedimentary Plains, east
Plant Community 2
Prairie County**



**Sands, 10–14”
Sedimentary Plains, east
Plant Community 3
Green sagewort**



**Sands, 10–14”
Sedimentary Plains, east
Plant Community 3
Prairie County**

Ecological Site Description—Rangeland

Sands, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE018MT, R060BE573MT



Sands, 10–14"
Sedimentary Plains, east
Plant Community 4
Red threawn & Green sagewort



Sands, 10–14"
Sedimentary Plains, east
Plant Community 4