United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Igneous (Ig) 15-19" Foothills & Mountains Southeast Precipitation Zone,

Site ID: 049XA116WY

Major Land Resource Area: 49XA - Southern Rocky Mountain Foothills, northern part

Physiographic Features

This site is found in an upland position on rolling to steep mountain slopes and ridges

Landform: Hill sides, ridges and escarpments **Aspect:** N/A

	Minimum	Maximum
Elevation (feet):	6500	8500
Slope (percent):	5	70
Water Table Depth (inches):	None within 60 inches	
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None
Runoff Class:	low	high

Climatic features

Annual precipitation ranges from 15-19 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Prevailing winds are from the southwest and strong winds are less frequent than over other areas of Wyoming. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph.

Growth of native cool season plants begins about May 1 and continues to about August 1.

The following information is from the "Hecla 1E" climate station:

	Minimum	Maximum	5 yrs. out of 10 between
Frost-free period (days):	93	151	May 20 – September 14
Freeze-free period (days):	106	184	May 9 – September 26
Annual Precipitation (inches):	9.56	24.23	

Mean annual precipitation: 16.04 inches
Mean annual air temperature: 44.7°F (32.1°F Avg. Min. to 57.2°F Avg. Max.)
For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include "Glenrock 14 SSE", "Foxpark" and "Horse Creek 2 NW".

Influencing Water Features

Wetland Description:	System	Subsystem	Class	Sub-class
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are very shallow (less than 10"to bedrock), well-drained to somewhat excessively drained, and formed in residuum. They are usually found on mountain sides.

Major Soil Series correlated to this site include:

Parent Material Kind: residuum
Parent Material Origin: granite, schist
Surface Texture: sandy loam, loamy sand
Surface Texture Modifier: cobbly, stony, bouldery
Subsurface Texture Group: Very cobbly sandy loam
Surface Fragments ≤ 3" (% Cover): 10 to 25
Surface Fragments > 3" (%Cover): 20-45
Subsurface Fragments ≤ 3" (% Volume): 15-30
Subsurface Fragments > 3" (% Volume): 30-45

	Minimum	Maximum
Drainage Class:	well	somewhat excessive
Permeability Class:	moderate	moderately rapid
Depth (inches):	4	10
Electrical Conductivity (mmhos/cm) ≤20":	0	0
Sodium Absorption Ratio ≤20":	0	0
Soil Reaction (1:1 Water) ≤20":	5.6	7.2
Soil Reaction (0.1M CaCl2) ≤20":	NA	NA
Available Water Capacity (inches) ≤30":	0.25	.50
Calcium Carbonate Equivalent (percent) ≤20":	0	0

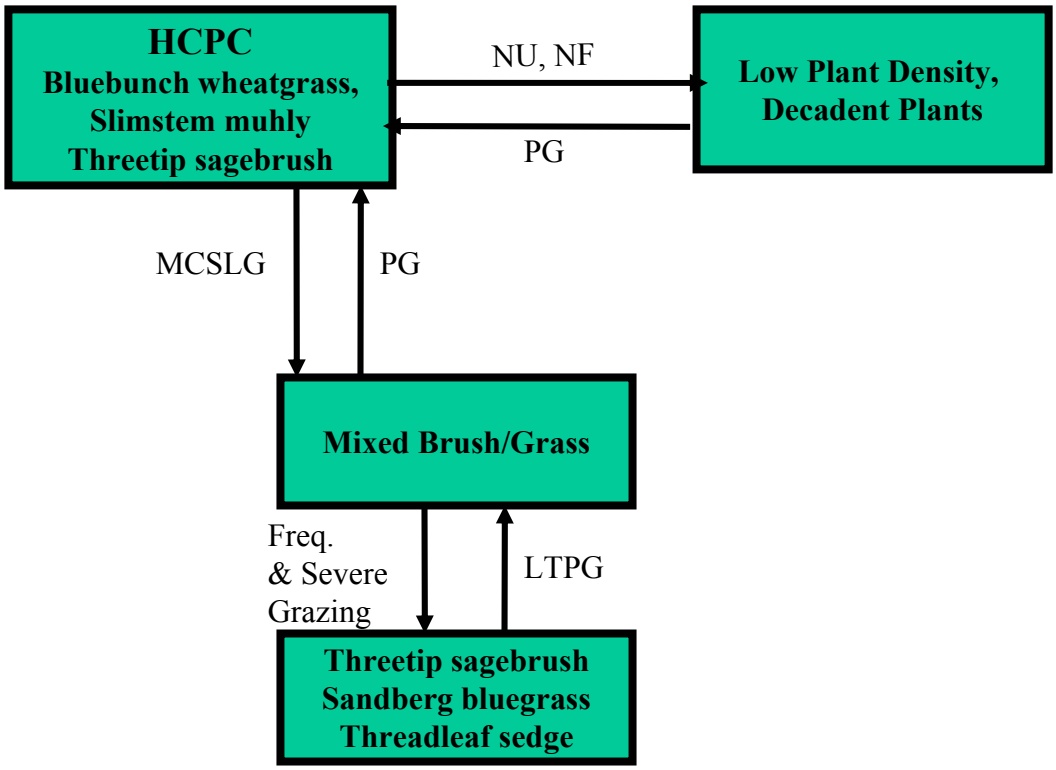
Plant Communities

Ecological Dynamics of the Site:

As this site deteriorates because of a combination of frequent and severe grazing, species such as Sandberg bluegrass, threadleaf sedge, prairie junegrass unpalatable forbs and threetip sagebrush will increase. Grasses such as bluebunch wheatgrass, Montana wheatgrass, and Parry's oatgrass will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season
LTPG - Long-tem Prescribed Grazing
MCSLG - Moderate, Continuous Season-long Grazing
NU, NF - No Use and No Fire
PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

Plant Community Composition and Group Annual Production

Reference Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME		Annual Production (Normal Year) Total: 550		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES			**1**	**138 - 275**	**25 - 50**
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	1	138 - 193	25 - 35
slimstem muhly	Muhlenbergia filiculmis	MUFI	1	28 - 83	5 - 15
MISC. GRASSES/GRASSLIKES			**2**	**165 - 220**	**30 - 40**
Canby bluegrass	Poa canbyi (syn. P. secunda)	POCA (POSE)	2	0 - 28	0 - 5
Columbia needlegrass	Achnatherum nelsonii	ACNE3	2	0 - 28	0 - 5
Idaho fescue	Festuca idahoensis	FEID	2	0 - 28	0 - 5
Indian ricegrass	Achnatherum hymenoides	ACHY	2	0 - 28	0 - 5
mat muhly	Muhlenbergia richardsonis	MURI	2	0 - 28	0 - 5
Montana wheatgrass	Elymus albicans	ELAL7	2	0 - 28	0 - 5
mountain muhly	Muhlenbergia montana	MUMO	2	0 - 28	0 - 5
muttongrass	Poa fendleriana	POFE	2	0 - 28	0 - 5
needleandthread	Hesperostipa comata	HECO26	2	0 - 28	0 - 5
Parry's oatgrass	Danthonia parryii	DAPA2	2	0 - 28	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	2	0 - 28	0 - 5
Sandberg bluegrass	Poa secunda	POSE	2	0 - 28	0 - 5
threadleaf sedge	Carex filifolia	CAFI	2	0 - 28	0 - 5
western wheatgrass	Pascopyrum smithii	PASM	2	0 - 28	0 - 5
other perennial grasses (native)		2GP	2	0 - 28	0 - 5
FORBS			**3**	**28 - 83**	**5 - 15**
buckwheats	Eriogonum spp.	ERIOG	3	0 - 28	0 - 5
cinquefoils, herbaceous	Potentilla spp.	POTEN	3	0 - 28	0 - 5
cudweed sagewort	Artemisia ludoviciana	ARLU	3	0 - 28	0 - 5
hairy goldenaster	Heterotheca villosa	HEVI4	3	0 - 28	0 - 5
Hoods phlox	Phlox hoodii	PHHO	3	0 - 28	0 - 5
larkspurs	Delphinium spp.	DELPH	3	0 - 28	0 - 5
milkvetches	Astragalus	ASTRA	3	0 - 28	0 - 5
penstemons	Penstemon spp.	PENST	3	0 - 28	0 - 5
western yarrow	Achillea lanulosa	ACHIL	3	0 - 28	0 - 5
other perennial forbs (native)		2FP	3	0 - 28	0 - 5
TREES/SHRUBS					
threetip sagebrush	Artemisia tripartita	ARTR4	4	6 - 55	1 - 10
black sagebrush	Artemisia nova	ARNO4	5	6 - 55	1 - 10
green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	6	0 - 28	0 - 5
rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 28	0 - 5
winterfat	Krascheninnikovia lanata	KRLA2	8	0 - 28	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush Plant Community

This plant community is the interpretive plant community for this site and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed with grazing, and sometimes on areas receiving occasional short periods of rest. The potential vegetation is about 65% grasses or grass-like plants, 15% forbs, and 25% woody plants.

The major grasses include bluebunch wheatgrass, and slimstem muhly. Other grasses occurring on the state include threadleaf sedge, Sandberg bluegrass, Canby bluegrass and Parry's oatgrass. A variety of forbs also occur. Threetip sagebrush can be a conspicuous element of this state. Plant diversity is high.

The total annual production (air-dry weight) of this state is about 550 lbs./acre, but it can range from about 350 lbs./acre in unfavorable years to about 700 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number:
Growth curve name:
Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	45	20	5	5	0	0	0

(Monthly percentages of total annual growth)

This plant community is extremely stable and well adapted to the climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

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

- No use and no fire for 20 years or more will convert this plant community to the *Low Plant Density, Decadent Plants Community*.
- Moderate, continuous season-long grazing will convert the plant community to the *Mixed Brush/Grass Plant Community.*

Mixed Brush/Grass Plant Community
Historically, this plant community evolved under grazing and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock. Cool-season grasses make up the majority of the understory with the balance made up of annual cool-season grasses, and miscellaneous forbs.

Dominants include threadleaf sedge, western wheatgrass, and Sandberg bluegrass. Forbs commonly found in this plant community include Hoods phlox and western yarrow.

When compared to the Historic Climax Plant Community, threetip sagebrush has increased but does not produce the thick canopy cover found on sites with moderately deep to deep soils. Production of cool-season grasses has been reduced. The mixture of sagebrush, grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The total annual production (air-dry weight) of this state is about 450 pounds per acre, but it can range from about 300 lbs./acre in unfavorable years to about 600 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number:
Growth curve name:
Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	45	20	5	5	0	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

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

- Prescribed grazing, will convert this plant community to the *Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush Plant Community*. The probability of this occurring is high.

- Frequent and severe grazing, will convert the plant community to the *Threetip sagebrush, Sandberg bluegrass, Threadleaf sedge Plant Community*. The probability of this occurring is high. If bare areas exist, along with no recovery periods from grazing, annuals can invade and plants not as resistant to grazing will be reduced.

Low Plant Density, Decadent Plants Community
This plant community is the result of long-term protection from grazing and fire. At first, excessive litter builds up shading out some of the grasses and forbs. Other plants become decadent with low vigor. Bunch grasses often develop dead centers. Eventually, the interspaces between plants increase in size leaving more soil surface exposed. Organic matter oxidizes in the air rather than being incorporated into the soil.

The dominant plants tend to be somewhat similar to those found in the Historic Climax Plant Community. Weedy species and sedges have increased. Noxious weeds may invade the state if a seed source is present. Plant diversity is moderate to high.

The total annual production (air-dry weight) of this state is about 500 pounds per acre, but it can range from about 350 lbs./acre in unfavorable years to about 650 lbs./acre in above average years.

The following is the growth curve of the plant community expected during a normal year:
Growth curve number:
Growth curve name:
Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	45	20	5	5	0	0	0

(Monthly percentages of total annual growth)

This plant community is not resistant to change and is more vulnerable to severe disturbance than the HCPC. The introduction of grazing quickly changes the plant community.

Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestaling are obvious. Infiltration is reduced and runoff is increased.

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

- Prescribed grazing, will return this plant community to at or near the *Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush Plant Community*.

Threetip sagebrush, Sandberg bluegrass, Threadleaf sedge Plant Community
This plant community is created when the Mixed Brush/Grass Plant Community is subjected to frequent and severe grazing. Threetip sagebrush, Sandberg bluegrass, herbaceous cinquefoils, hairy goldenaster, and threadleaf sedge will dominate the state.

Compared to the HCPC, threetip sagebrush has increased. Virtually all cool-season mid-grasses are severely decreased. Plant diversity is low.

The total annual production (air-dry weight) of this state is about 250 pounds per acre, but it can range from about 200 lbs./acre in unfavorable years to about 350 lbs./acre in above average years.

The following is the growth curve of the plant community expected during a normal year:
Growth curve number:
Growth curve name:
Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	45	20	5	5	0	0	0

(Monthly percentages of total annual growth)

This plant community is relatively stable and somewhat resistant to overgrazing. The low growing grasses, sedges and threetip sagebrush effectively compete against the establishment of perennial cool-season grasses.

The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community.

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

- Prescribed grazing will eventually return this plant community to the *Mixed Brush/Grass Plant Community.*

- Long-term, prescribed grazing will eventually return this plant community to at or near the *Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush Plant Community*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush Plant Community (HCPC): The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison and elk. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. Birds that would frequent this plant community include Western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Mixed Brush/Grass Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule may use this state for foraging and cover year-round, as would cottontail and jack rabbits. Brewer's sparrows' nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Low Plant Density, Decadent Plants Community: This plant community can provide important winter foraging for elk and mule deer, as sagebrush can approach 15% protein and 40-60% digestibility during that time.

Threetip sagebrush, Sandberg bluegrass, Threadleaf sedge Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 49XA, 15-19 inch Foothills & Mtns. Southeast

COMMON NAME/	SCIENTIFIC NAME	SCI. SYMBOL	*Cattle*	*Sheep*	*Horses*	*Mule Deer*	*Antelope*
GRASSES/GRASSLIKES							
Baltic rush	Juncus balticus	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
basin wildrye	Leymus cinereus	LECI4	PPPP	PPPP	PPPP	DDDD	DDDD
big bluegrass	Poa ampla (syn. to Poa secunda)	POAM (POSE)	PPPP	PPPP	PPPP	DDDD	DDDD
blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
bluejoint reedgrass	Calamagrostis canadensis	CACA4	PPPP	DDDD	PPPP	UUUU	UUUU
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Canby bluegrass	Poa canbyi (syn. to Poa secunda)	POCA (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
Columbia needlegrass	Achnatherum nelsonii	ACNE3	PPPP	PPPP	DDDD	DDDD	DDDD
Fendler's threeawn	Aristida purpurea var. fendleriana	ARPUF	UUUU	UUUU	UUUU	UUUU	UUUU
golden sedge	Carex aurea	CAAU3	DDDD	DDDD	DDDD	UUUU	UUUU
Idaho fescue	Festuca idahoensis	FEID	PPPP	PPPP	PPPP	PPPP	PPPP
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
Letterman needlegrass	Achnatherum lettermanii	ACLE9	PPPP	PPPP	DDDD	DDDD	DDDD
mat muhly	Muhlenbergia richardsonis	MURI	UUUU	UUUU	UUUU	UUUU	UUUU
Montana wheatgrass	Elymus albicans	ELAL7	DDDD	DDDD	DDDD	DDDD	DDDD
mountain brome	Bromus marginatus	BRMA4	PPPP	PPPP	DDDD	DDDD	UUUU
mountain muhly	Muhlenbergia montana	MUMO	DDDD	DDDD	DDDD	DDDD	UUUU
muttongrass	Poa fendleriana	POFE	PPPP	PPPP	PPPP	PPPP	PPPP
Nebraska sedge	Carex nebraskensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
nodding brome	Bromus anomalus (syn. B. porteri)	BRAN13 (BRPO2)	PPPP	PPPP	DDDD	DDDD	UUUU
northern reedgrass	Calamagrostis stricta	CAST13	PPPP	DDDD	PPPP	UUUU	UUUU
onespike oatgrass	Danthonia unispicata	DAUN	DDDD	PPPP	DDDD	PPPP	DDDD
Parry's oatgrass	Danthonia parryii	DAPA2	DDDD	PPPP	DDDD	DDDD	DDDD
plains reedgrass	Calamagrostis montanensis	CAMO	DDDD	DDDD	DDDD	DDDD	DDDD
prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
slender wheatgrass	Elymus trachycaulus	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
slimstem muhly	Muhlenbergia filiculmis	MUFI	DDDD	DDDD	DDDD	UUUU	UUUU
slough sedge	Carex atherodes	CAAT2	DDDD	DDDD	DDDD	DDDD	DDDD
spike fescue	Leucopoa kingii	LEKI2	PPPP	DDDD	PPPP	PPPP	DDDD
spike sedge	Carex nardina	CANA2	DDDD	DDDD	DDDD	UUUU	UUUU
spike trisetum	Trisetum spicatum	TRSP2	PPPP	DDDD	PPPP	PPPP	DDDD
squirreltail	Elymus elymoides	ELELE	DDDD	DDDD	DDDD	UUUU	UUUU
tall mannagrass	Glyceria elata (syn. G. striata)	GLEL (GLST)	DDDD	UUUU	DDDD	UUUU	UUUU
threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP
tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
American bistort	Polygonum bistortoides	POBI6	DDDD	DDDD	DDDD	DDDD	DDDD
arrowgrass	Triglochin spp.	TRIGL	T	T	T	T	T
biscuitroots	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
blue-eyed grass	Sisyrinchium spp.	SISYR	DDDD	PPPP	DDDD	DDDD	DDDD
buckwheats	Eriogonum spp.	ERIOG	UUUU	UUUU	UUUU	UUUU	UUUU
cinquefoils, herbaceous	Potentilla spp.	POTEN	UUUU	UUUU	UUUU	UUUU	UUUU
clovers	Trifolium spp.	TRIFO	PPPP	PPPP	PPPP	PPPP	PPPP
cudweed sagewort	Artemisia ludoviciana	ARLU	UUUU	UUUU	UUUU	UUUU	UUUU
fleabanes	Erigeron spp.	ERIGE2	DDDD	DDDD	DDDD	DDDD	DDDD
fringed sagewort	Artemisia frigida	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU
hairy goldenaster	Heterotheca villosa	HEVI4	UUUU	UUUU	UUUU	UUUU	UUUU
hawksbeard	Crepis acuminata	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD
Hoods phlox	Phlox hoodii	PHHO	UUUU	UUUU	UUUU	UUUU	UUUU
horsetails	Equisetum spp.	EQUIS	UUUU	UUUU	UUUU	UUUU	UUUU
iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
larkspurs	Delphinium spp.	DELPH	T	T	T	T	T
lupines (toxic at certain times)	Lupinus spp.	LUPIN	DDDD	DDDD	DDDD	DDDD	DDDD
milkvetches	Astragalus	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
paintbrushes	Castilleja spp.	CAST	DDDD	DDDD	DDDD	DDDD	DDDD
penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
rosy pussytoes	Antennaria rosea	ANRO2	UUUU	UUUU	UUUU	UUUU	UUUU
scarlet globemallow	Sphaeralcea coccinea	SPCO	DDDD	DDDD	DDDD	DDDD	DDDD
stonecrop	Sedum spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
violets	Viola spp.	VIOLA	DDDD	DDDD	DDDD	DDDD	DDDD
water hemlocks	Cicuta spp.	CICUT	T	T	T	T	T
waterleaf	Hydrophyllum	HYDRO4	DDDD	PPPP	DDDD	PPPP	DDDD
western yarrow	Achillea lanulosa	ACHIL	UUUU	UUUU	UUUU	UUUU	UUUU
TREES, SHRUBS & HALF-SHRUBS							
Antelope bitterbrush	Purshia tridentata	PUTR2	PPPP	PPPP	DDDD	PPPP	PPPP
big sagebrush	Artemisia tridentata	ARTR2	UUUU	DDDD	UUUU	DDDD	DDDD
black sagebrush	Artemisia nova	ARNO4	UUUU	PPPP	UUUU	PPPP	PPPP
bog kalmia	Kalmia microphylla	KAMI	T	T	T	T	T
currant	Ribes spp.	RIBES	DDDD	DDDD	DDDD	PPPP	DDDD
junipers	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	DDDD	DDDD	DDDD	DDDD	DDDD
ponderosa pine (abortion in cattle)	Pinus ponderosa	PIPO	UUUU	UUUU	UUUU	UUUU	UUUU
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD
serviceberry	Amelanchier alnifolia	AMAL2	DDDD	PPPP	DDDD	PPPP	DDDD
shrubby cinquefoil	Dasiphora floribunda	DAFL3	UUUU	UUUU	UUUU	UUUU	UUUU
silver sagebrush	Artemisia cana	ARCAC5	DDDD	DDDD	DDDD	PPPP	PPPP
snowbrush ceanothus	Ceanothus velutinus	CEVE	PPPP	DDDD	DDDD	DDDD	UUUU
threetip sagebrush	Artemisia tripartita	ARTR4	UUUU	DDDD	UUUU	UUUU	DDDD
true mountainmahogany	Cercocarpus montanus	CEMO2	DDDD	PPPP	DDDD	PPPP	DDDD
water birch	Betula occidentalis	BEOC2	UUUU	UUUU	UUUU	UUUU	UUUU
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU
wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
willows	Salix L.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP

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

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (lb./ac)	Carrying Capacity* (AUM/ac)
Bluebunch wheatgrass, Slimstem muhly, Threetip sagebrush	550	.2
Mixed Brush/Grass	450	.15
Low Plant Density, Decadent Plants	500	.15
Threetip sagebrush, Sandberg bluegrass, Threadleaf sedge	250	.08

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderate to moderately rapid. Runoff potential for this site varies from moderate to high because of the shallow soils and low available water capacity. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff, however , with AWC of 0.25-0.5 inch and soil depth of 4-10 inches , runoff potential will still be quite high. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

Shallow Igneous 049XA160WY

Similar Sites

Shallow Igneous, 049XA160WY has higher production

Inventory Data References (narrative)

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used.

Inventory Data References

Data Source	Number of Records	Sample Period	State	County
SCS-RANGE-417	24	1963 -1987	WY	Albany & others

State Correlation

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Wyoming: Baggs, Casper, Cheyenne, Douglas, Lander, Laramie, Riverton, Saratoga, and Wheatland

Relationship to Other Established Classifications

Other References

Other sources used as references include: High Plains Regional Climate Center, USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Site Description Approval

_____ _____

State Range Management Specialist Date

Ecological Reference Worksheet

Author(s)/participant(s):_____

Contact for lead author: _____ **Reference site used? Yes/No**

Date: __3/05_ ___ **MLRA:** _ __49_ **Ecological Site:** R049XA116WY Igneous (Ig)

__ This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.
1. Number and extent of rills: Rills should not be present
2. Presence of water flow patterns: Barely observable
3. Number and height of erosional pedestals or terracettes: Essentially non-existent
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground): Bare ground is 50-60% occurring in small areas throughout site
5. Number of gullies and erosion associated with gullies: Active gullies should be restricted to areas of concentrated water flow patterns on steeper slopes
6. Extent of wind scoured, blowouts and/or depositional areas: Small scoured sites may be observed
7. Amount of litter movement (describe size and distance expected to travel): Litter movement is little to none based on topography and water flow patterns
8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different): Plant cover and litter is at 50% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.
9. Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different): Use Soil Series description for depth and color of A-horizon
10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Infiltration is moderate.
11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to): Mid stature Cool Season Grasses > Shrubs > Forbs
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low
14. Average percent litter cover and depth : Average litter cover is 15-25% with depths of 0.25 to 0.5 inches
15. Expected annual production (this is all above-ground production, not just forage production): 550 lbs/ac
16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site": Threadleaf sedge, Threetip sagebrush, Unpalatable Forbs, Species found on Noxious Weed List
17. Perennial plant reproductive capability: All species are capable of reproducing