

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Subirrigated (Sb)15-19” Foothills and Mountains Southeast Precipitation Zone

Site ID: R049XA174WY

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

Physiographic Features

This site will usually occur on nearly level lands adjacent to perennial or intermittent streams and near springs, seeps, and sloughs.

Landform: alluvial fans and stream terraces

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	6500	8500
Slope (percent):	0	6
Water Table Depth (inches):	12	40
Flooding:		
Frequency:	rare	occasional
Duration:	very brief	very brief
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	negligible	low

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:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
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:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: C (Rosgen System)

Representative Soil Features

The soils of this site are deep to very deep (greater than 20" to bedrock) moderately well drained soils formed in alluvium. These soils have water tables below the surface for all of the growing season. The water table is non-saline and non-alkaline. These areas may have water over the surface from run-in but only for short periods of time. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick.

Major Soil Series correlated to this site include:

Other Soil Series correlated to this site include:

Parent Material Kind: alluvium

Parent Material Origin: sandstone, shale

Surface Texture: loam, clay loam, silt loam, fine sandy loam, sandy loam, clay, loamy sand

Surface Texture Modifier: none

Subsurface Texture Group: clay loam

Surface Fragments ≤ 3" (% Cover): 0

Surface Fragments > 3" (%Cover): 0

Subsurface Fragments ≤ 3" (% Volume): 0

Subsurface Fragments > 3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	poorly drained	moderately well drained
Permeability Class:	moderately slow	moderately rapid
Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤20":	0	8
Sodium Absorption Ratio ≤20":	0	10
Soil Reaction (1:1 Water) ≤20":	6.6	9.0
Soil Reaction (0.1M CaCl2) ≤20":	NA	NA
Available Water Capacity (inches) ≤30":	2.8	6.2
Calcium Carbonate Equivalent (percent) ≤20":	0	10

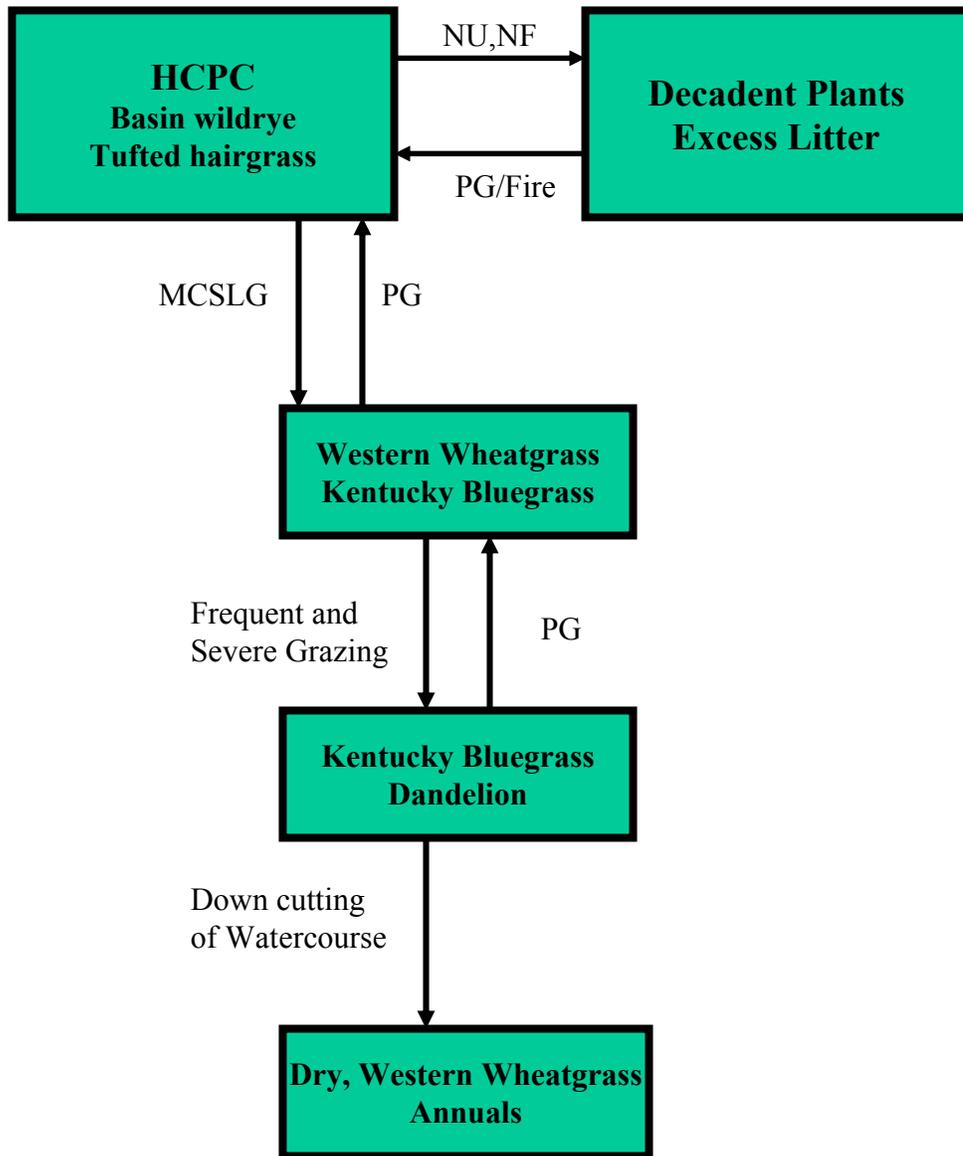
Plant Communities

Ecological Dynamics of the Site

As this site deteriorates from frequent and severe grazing, grasses such as basin wildrye and tufted hairgrass will decrease in frequency and production. Western wheatgrass tends to increase. Under continued frequent and severe defoliation, the plant community will eventually become sod-bound. Over the long-term this sod will ultimately become broken with areas of bare ground developing and species such as Kentucky bluegrass and annuals invading.

The historic climax plant community (description follows the State and Transition Model 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 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/grasslikes during the Growing Season

LTPG - Long-term Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

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	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			Total: 4000		
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES			1	2200 - 3000	55 - 75
basin wildrye	Leymus cinereus	LECI4	1	1000 - 1600	25 - 40
tufted hairgrass	Deschampsia caespitosa	DECA18	1	200 - 600	5 - 15
slender wheatgrass	Elymus trachycaulus	ELTR7	1	200 - 400	5 - 10
western wheatgrass	Pascopyrum smithii	PASM	1	200 - 400	5 - 10
MISC. GRASSES/GRASSLIKES			2	400 - 1000	10 - 25
big bluegrass	Poa ampla (syn. P. secunda)	POAM (POSE)	2	0 - 200	0 - 5
bluejoint reedgrass	Calamagrostis canadensis	CACA4	2	0 - 200	0 - 5
Canada wildrye	Elymus canadensis	ELCA4	2	0 - 200	0 - 5
Canby bluegrass	Poa canbyi (syn. P. secunda)	POCA (POSE)	2	0 - 200	0 - 5
mat muhly	Muhlenbergia richardsonis	MURI	2	0 - 200	0 - 5
Nebraska sedge	Carex nebraskensis	CANE2	2	0 - 200	0 - 5
northern reedgrass	Calamagrostis stricta	CAST13	2	0 - 200	0 - 5
slough sedge	Carex atherodes	CAAT2	2	0 - 200	0 - 5
tall mannagrass	Glyceria elata (syn. G. striata)	GLEL (GLST)	2	0 - 200	0 - 5
other perennial grasses (native)		2GP	2	0 - 200	0 - 5
FORBS			3	200 - 400	5 - 10
American bistort	Polygonum bistortoides	POBI6	3	0 - 200	0 - 5
arrowgrass	Triglochin spp.	TRIGL	3	0 - 200	0 - 5
cinquefoils	Potentilla spp.	POTEN	3	0 - 200	0 - 5
clovers	Trifolium spp.	TRIFO	3	0 - 200	0 - 5
iris	Iris spp.	IRIS	3	0 - 200	0 - 5
paintbrushes	Castilleja spp.	CAST	3	0 - 200	0 - 5
scouringrush	Equisetum spp.	EQUIS	3	0 - 200	0 - 5
violets	Allium textile	ALTE	3	0 - 200	0 - 5
waterleaf	Hydrophyllum	HYDRO4	3	0 - 200	0 - 5
other perennial forbs (native)		2FP	3	0 - 200	0 - 5
TREES/SHRUBS			4	200 - 600	5 - 15
rubber rabbitbrush	Ericameria nauseosa	ERNA10	4	0 - 200	0 - 5
shrubby cinquefoil	Dasiphora floribunda	DAFL3	4	0 - 200	0 - 5
wildrose	Rosa woodsii var. woodsii	ROWOW	4	0 - 200	0 - 5
willows	Salix spp.	SALIX	4	0 - 200	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 table shown above has 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 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.

Basin wildrye, Tufted hairgrass Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs and 10% woody plants. The major grasses include basin wildrye, tufted hairgrass, slender wheatgrass and western wheatgrass. Grasses of lesser importance are big bluegrass, bluejoint reedgrass, northern reedgrass, and Canada wildrye. Woody plants are mainly shrubby cinquefoil and willows.

The total annual production (air-dry weight) of this state is about 4000 pounds per acre, but it can range from about 3500 lbs./acre in unfavorable years to about 4500 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	0	15	30	35	10	5	5	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the climatic conditions. The diversity in plant species and the reliable water table, allow for high drought resistance. 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:

- Moderate, continuous season-long grazing will convert this plant community to the *Western wheatgrass/Kentucky bluegrass Vegetation State*.
- Frequent and Severe grazing will convert this plant community to *Kentucky bluegrass/Dandelion Vegetation State*.
- Downcutting the watercourse will convert this state to a *Dry Western wheatgrass/Annuals Plant Community*.
- Non-use and no fire will convert this plant community to the *Decadent Plants, Excessive Litter Plant Community*. Initially, excess litter begins to build-up. Eventually native plants can show signs of mortality and decadence.

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Western wheatgrass/Kentucky bluegrass Plant Community

This plant community evolved under moderate grazing by domestic livestock. Dominant grasses include rhizomatous wheatgrasses and Kentucky bluegrass. Forbs commonly found in this plant community include cudweed sagewort, cinquefoil, and western yarrow. Willows are common in the overstory.

The total annual production (air-dry weight) of this state is about 2100 pounds per acre, but it can range from about 1800 lbs./acre in unfavorable years to about 2500 lbs./acre in above average years.

When compared to the Historical Climax Plant Community, basin wildrye and tufted hairgrass have decreased. Kentucky bluegrass has invaded and western wheatgrass has increased. The abundant production and proximity to water make this state important for livestock and wildlife such as birds, mule deer and antelope.

The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. The watershed is usually functioning.

The following is the growth curve 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	0	20	35	25	10	5	5	0	0

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing over the long-term will result in a plant community very similar to the *Historic Climax Plant Community* although Kentucky bluegrass will remain a part of the plant community.
- Frequent and Severe grazing will convert this plant community to *the Kentucky bluegrass/Dandelion Vegetation State*.
- Downcutting of the watercourse will convert this state to a *Dry Western wheatgrass/Cheatgrass Plant Community*.

Kentucky bluegrass/Dandelion Plant Community

This plant community is the result of long-term improper grazing use. Kentucky bluegrass, dandelion, and cheatgrass dominate this state. Noxious weeds may invade. Willows are reduced.

The total annual production (air-dry weight) of this state is about 1050 pounds per acre, but it can range from about 900 lbs./acre in unfavorable years to about 1200 lbs./acre in above average years.

The following is the growth curve expected during an average 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	0	20	35	25	10	5	5	0	0

(Monthly percentages of total annual growth)

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Bare ground has increased. The soil of this state is not well protected. Degraded stream banks may erode. The watershed is functioning but may produce excessive runoff. The biotic community is at risk due to invasive plants.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing over the long-term will return this state to near *Historic Climax Plant Community*.
- Downcutting of the watercourse will convert this state to a *Dry Western wheatgrass/Annuals Plant Community*.

Dry, Western wheatgrass/ Cheatgrass

This plant community is the result of down cutting of watercourses adjacent to the site. This results in a lowering of the water table to the point it is no longer available to grass plants.

Compared to the Historic Climax Plant Community this state has changed drastically. The water table is lowered and production is decreased. Basin wildrye and tufted hairgrass have decreased. Western wheatgrass has increased. Annuals have invaded. Noxious weeds also may invade the state. The soil is being eroded by severe bank erosion.

The total annual production (air-dry weight) of this state is about 750 pounds per acre, but it can range from about 600 lbs./acre in unfavorable years to about 900 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	15	30	30	10	5	5	5	0	0

(Monthly percentages of total annual growth)

The watershed is not functional due to erosion and bare ground. The biotic community has lost much of its value due to the loss of the water table.

Transitional pathways leading to other plant communities are as follows:

- Changing this state to the *Historical Climax Plant Community* is not practical due to the loss of the water table.

Decadent Plants, Excessive Litter Plant Community

This plant community occurs after an extended period of non-use, and where fire has been eliminated. The dominant plants tend to be similar to those found in the Historic Climax Plant Community, however in advanced stages, frequency and production can be lower.

Litter amounts have increased causing plants to become decadent. Much of the plant nutrients are tied up in excessive litter. Organic matter oxidizes in the air rather than being incorporated into the soil due to the absence of animal impact. Typically, bunchgrasses (basin wildrye) develop dead centers and rhizomatous grasses (western wheatgrass) form small colonies because of a lack of tiller stimulation.

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Total annual production (air-dry weight) is about 3,800 pounds per acre during an average year, but it can range from about 3,400 pounds per acre in unfavorable years to about 4,200 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average 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	0	10	30	35	15	5	5	0	0

(monthly percentages of total annual growth)

This plant community is not resistant to change. Grazing or fire can easily move it toward the HCPC. Soil erosion is not a concern due to increased litter levels and landscape position.

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

- Prescribed grazing or fire will shift this plant community towards the *Basin wildrye, Tufted hairgrass Plant Community (HCPC)*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. 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.

Western wheatgrass/Kentucky bluegrass: 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. Good grasshopper habitat equals good foraging for birds.

Kentucky bluegrass/dandelion: 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. Good grasshopper habitat equals good foraging for birds.

Dry wheatgrass/Cheatgrass: 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. Good grasshopper habitat equals good foraging for birds.

Decadent Plants, Excess Litter Community: This community has low habitat value for most wildlife species.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring 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	PSP6	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
Idian 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 alibanicus	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	CAS113	PPPP	DDDD	PPPP	UUUU	UUUU
onespike oatgrass	Danthonia unispicata	DAUN	DDDD	PPPP	DDDD	PPPP	DDDD
Parry's oatgrass	Danthonia parryi	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
cutweed 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	CHV18	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	ARCA5	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 tables list suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions; however, *continuous grazing is not typically recommended*. 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 the following stocking rate 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.

Plant Community 15-19” Precipitation	Production (lbs./acre)	Carrying Capacity (AUM/acre)
Basin wildrye, Tufted hairgrass	4000	2.0
Western wheatgrass/Kentucky bluegrass	2100	1.2
Kentucky bluegrass/dandelion	1050	1.0
Dry, western wheatgrass/Cheatgrass	750	.25
Decadent Plants, Excess Litter	3800	1.30

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangelands in this area provide seasonal forage under prescribed grazing for cattle, sheep, horses and other herbivores. During the dormant period, livestock may need supplementation based on reliable forage analysis.

Hydrology Functions

Climate 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 moderately slow to moderately rapid. Runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. 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).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

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

Wood Products

No appreciable wood products are present on the site.

Site Type: Rangeland
MLRA: 49XA – Southern Rocky Mountain Foothills, northern part

**Subirrigated 15-19” P.Z.
R049XA174WY**

Other Products

None noted.

Supporting Information

Associated Sites

Wetland	R049XA178WY
Loamy Overflow	R049XA126WY

Similar Sites

Wetland, R049XA178WY 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 were also used.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
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: R049XAY174WY Subirrigated (Sb)

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

<p>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.</p>
<p>1. Number and extent of rills: Rills should not be present</p>
<p>2. Presence of water flow patterns: Barely observable</p>
<p>3. Number and height of erosional pedestals or terracettes: Essentially non-existent</p>
<p>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground): Bare ground is less than 5%</p>
<p>5. Number of gullies and erosion associated with gullies: Active gullies should not be present</p>
<p>6. Extent of wind scoured, blowouts and/or depositional areas: None</p>
<p>7. Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.</p>
<p>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 95% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 5 or greater.</p>
<p>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</p>
<p>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. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is moderately slow to moderately rapid.</p>
<p>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.</p>
<p>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): Tall and Mid stature Cool Season Grasses > Short stature Grasses/Grasslike > Shrubs > Forbs</p>
<p>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low</p>
<p>14. Average percent litter cover and depth : Average litter cover is 50-55% with depths of 0.75 to 1.5 inches</p>
<p>15. Expected annual production (this is all above-ground production, not just forage production): 4000 lbs/ac</p>
<p>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”: Kentucky Bluegrass, Baltic Rush, Dandelion and Species found on Noxious Weed List</p>
<p>17. Perennial plant reproductive capability: All species are capable of reproducing</p>