

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Rocky Hills (RH) 15-19" Precipitation Zone

Site ID: R049XA134WY

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

Physiographic Features

This site occurs on nearly level to steeply sloping uplands.

Landform: Hill slopes and alluvial fans **Aspect:** N/A

| | <u>Minimum</u> | <u>Maximum</u> |
|------------------------------------|-----------------------|----------------|
| Elevation (feet): | 6500 | 8500 |
| Slope (percent): | 0 | 50 |
| 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: | slow | rapid |

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:

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

**Rocky Hills 15-19" P.Z.
 R049XA134WY**

| | <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

| <u>Wetland Description:</u> | <u>System</u> | <u>Subsystem</u> | <u>Class</u> | <u>Sub-class</u> |
|-----------------------------|---------------|------------------|--------------|------------------|
| None | None | None | None | None |

Stream Type: None (Rosgen System)

REPRESENTATIVE SOIL FEATURES:

The soils of this site are shallow to very deep and well drained. They formed on alluvium, colluvium and residuum and have moderate permeability.

Major soil series correlated to this site:

Other series correlated to this site:

Parent Material Kind: Alluvium, colluvium and residuum

Parent Material Origin: Calcareous sandstone and shale

Surface Texture: Loam, clay loam

Surface Texture Modifier: Cobbly, very channery, extremely channery

Subsurface Texture Group: Loam, clay loam

Surface Fragments <3"(% cover): 10 to 40

Surface Fragments >3"(% cover): 10 to 40

Subsurface <3"(% volume): 10 to 60

Subsurface >3"(% volume): 10 to 60

| | Minimum | Maximum |
|---|----------------|------------------|
| DRAINAGE CLASS: | well drained | well drained |
| PERMEABILITY CLASS: | moderate | moderately rapid |
| DEPTH: (inches) | <20 | >60 |
| EC: (mmhos/cm) <20" | 0 | 2 |
| SAR: <20" | 0 | 3 |
| SOIL REACTION(1:1 WATER) <20" | 6.6 | 8.4 |
| AWC: (inches) | 0.7 | 1.0 |
| CALCIUM CARB EQUIV(%) < 20" | 0 | 35 |

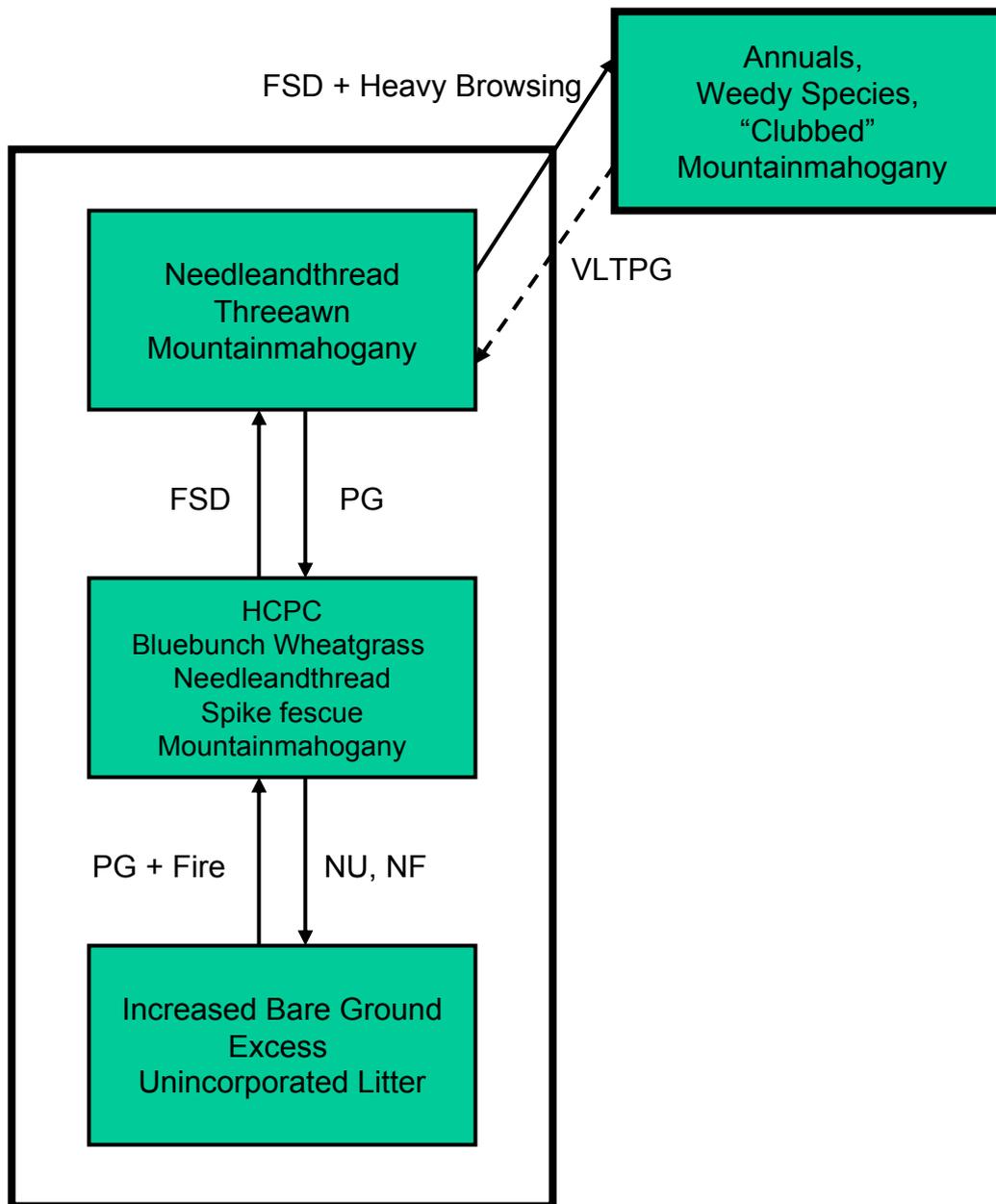
Plant Communities

Ecological Dynamics of the Site:

As this site begins to deteriorate from a combination of frequent and severe grazing during the growing season, grasses such as bluebunch wheatgrass and spike fescue will decrease in both frequency and production. Grasses such as Fendler's threeawn, Sandberg bluegrass and threadleaf sedge will increase. Under continued frequent and severe defoliation, with no rest periods, rhizomatous wheatgrasses and needleandthread will also begin to decrease. If continued, the plant community will become sparsely vegetated, and all mid to tall grasses can eventually be removed from the plant community. Continuous use in combination with high stock densities will result in areas of excessive bare ground and species such as cheatgrass, Japanese brome, pepperweed and broom snakeweed invading. Lack of fire on this site will cause the mountainmahogany to become decadent and the crude protein levels of the plant will drop. If this occurs, the stands of mountainmahogany will not provide adequate winter-feed for wildlife, such as mule deer and elk.

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.



FSD - Frequent and Severe Defoliation

HCPC - Historic Climax Plant Community

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season.)

VLTPG - Very Long-term Prescribed Grazing

NU, NF - No Use, No Fire.

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: 900 | | |
| GRASSES AND GRASS-LIKES | | | | | |
| GRASSES/GRASSLIKES | | | 1 | 225 - 630 | 25 - 70 |
| bluebunch wheatgrass | Pseudoroegneria spicata | PSSP6 | 1 | 135 - 270 | 15 - 30 |
| needleandthread | Hesperostipa comata | HECO26 | 1 | 90 - 180 | 10 - 20 |
| spike fescue | Leucopoa kingii | LEK12 | 1 | 90 - 180 | 10 - 20 |
| MISC. GRASSES/GRASSLIKES | | | 2 | 90 - 180 | 10 - 20 |
| Canby bluegrass | Poa canbyi (syn. P. secunda) | POCA (POSE) | 2 | 0 - 45 | 0 - 5 |
| Fendler's threeawn | Aristida purpurea var. fendleriana | ARPUF | 2 | 0 - 45 | 0 - 5 |
| Indian ricegrass | Achnatherum hymenoides | ACHY | 2 | 0 - 45 | 0 - 5 |
| mountain muhly | Muhlenbergia montana | MUMO | 2 | 0 - 45 | 0 - 5 |
| prairie junegrass | Koeleria macrantha | KOMA | 2 | 0 - 45 | 0 - 5 |
| Sandberg bluegrass | Poa secunda | POSE | 2 | 0 - 45 | 0 - 5 |
| threadleaf sedge | Carex filifolia | CAF1 | 2 | 0 - 45 | 0 - 5 |
| western wheatgrass | Pascopyrum smithii | PASM | 2 | 0 - 45 | 0 - 5 |
| other perennial grasses (native) | | 2GP | 2 | 0 - 45 | 0 - 5 |
| FORBS | | | 3 | 90 - 180 | 10 - 20 |
| buckwheats | Eriogonum spp. | ERIOG | 3 | 0 - 45 | 0 - 5 |
| fleabanes | Erigeron spp. | ERIGE2 | 3 | 0 - 45 | 0 - 5 |
| fringed sagewort | Artemisia frigida | ARFR4 | 3 | 0 - 45 | 0 - 5 |
| Hoods phlox | Phlox hoodii | PHHO | 3 | 0 - 45 | 0 - 5 |
| milkvetches | Astragalus | ASTRA | 3 | 0 - 45 | 0 - 5 |
| penstemons | Penstemon spp. | PENST | 3 | 0 - 45 | 0 - 5 |
| western yarrow | Achillea lanulosa | ACHIL | 3 | 0 - 45 | 0 - 5 |
| other perennial forbs (native) | | 2FP | 3 | 0 - 45 | 0 - 5 |
| TREES/SHRUBS | | | | | |
| true mountainmahogany | Cercocarpus montanus | CEMO2 | 4 | 180 - 360 | 20 - 40 |
| antelope bitterbrush | Purshia tridentata | PUTR2 | 5 | 9 - 90 | 1 - 10 |
| juniper | Juniperus scopulorum | JUSC2 | 6 | 0 - 45 | 0 - 5 |
| Ponderosa pine | Pinus ponderosa | PIPO | 7 | 0 - 45 | 0 - 5 |
| MISC. SHRUBS | | | 8 | 45 - 135 | 5 - 15 |
| big sagebrush | Artemisia tridentata | ARTR2 | 8 | 0 - 45 | 0 - 5 |
| black sagebrush | Artemisia nova | ARNO4 | 8 | 0 - 45 | 0 - 5 |
| currant | Ribes spp. | RIBES | 8 | 0 - 45 | 0 - 5 |
| green rabbitbrush | Chrysothamnus viscidiflorus | CHV18 | 8 | 0 - 45 | 0 - 5 |
| western snowberry | Symphoricarpos occidentalis | SYOC | 8 | 0 - 45 | 0 - 5 |
| other perennial shrubs (native) | | 2SHRUB | 8 | 0 - 45 | 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 that may occur on a given site, 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.

Bluebunch Wheatgrass, Needleandthread, Spike fescue, Mountainmahogany Plant Community

This plant community is the interpretive plant community for this site and is considered to be the Historic Climax Plant Community (HCPC). The site evolved with grazing by large herbivores and is suited to grazing by domestic livestock. Historically, fires likely occurred frequently. Suppression of fire in the last 100 years has caused a decrease in the quality of this site for wildlife winter range. This plant community can be found on areas that are grazed and where the grazed plants receive adequate periods of rest during the growing season in order to recover. The potential vegetation is about 55% grasses, 10% forbs, and 45% woody plants. Mid-grasses and woody plants co-dominate the site. The principal grasses are bluebunch wheatgrass, needleandthread and spike fescue. Secondary grasses are Canby bluegrass, Fendler’s threeawn and western wheatgrass. Other plants in the community are antelope bitterbrush, currant and western snowberry.

The diversity of plant species allows for high dry tolerance and a sustainable plant community. Soil erosion and runoff is moderate due to texture and topography. Infiltration is moderate because of soil texture and topography. Areas having lost all vegetation, such as livestock and vehicle trails are subject to high erosion rates and extreme runoff.

The total annual production (air-dry weight) of this state is about 900 lbs./acre, but it can range from about 650 lbs./acre in unfavorable years to about 1,150 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)

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

- Frequent and severe defoliation of mid-grasses will move this plant community to the *Needleandthread, Threeawn, Mountainmahogany Plant Community*. The highly palatable plants are removed causing a decrease in diversity and productivity.

- No Use and No Fire will move this plant community to the *Increased Bare Ground, Excess Unincorporated Litter Plant Community*. Lack of use causes the plants to become less vigorous, crowns of plants begin to die, and plant canopy begins to open up with more bare ground apparent.

Needleandthread, Threeawn, Mountainmahogany Plant Community

This plant community developed with frequent and severe defoliation during the growing season. The dominant grasses include needleandthread and Fendler’s threeawn. Threadleaf sedge and Sandberg bluegrass begin to increase. Bluebunch wheatgrass is still present as a secondary grass in the community. Significant forbs include phlox, buckwheats, and western yarrow. The dominant shrub is mountainmahogany. Other plants are fringed sagewort and pricklypear cactus. Compared to HCPC, bluebunch wheatgrass and spike fescue have decreased. Needleandthread, Fendler’s threeawn and undesirable forbs have increased.

Management changes cannot easily move this plant community toward HCPC. Soil erosion is moderate. Infiltration is minimal because runoff is high. Areas that are devoid of vegetation are subject to extreme erosion and runoff.

The total annual production (air-dry weight) is about 700 pounds per acre during an average year, but it can range from about 550 pounds per acre in unfavorable years to about 850 pounds per 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)

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

- Frequent and severe defoliation of mid-grasses + heavy browsing of mountainmahogany will move this plant community to the *Annuals, Weedy Species, and “Clubbed” Mountainmahogany Plant Community*. Weedy species are starting to invade, and almost all mid-grasses are removed resulting in a decrease in palatable forage. Fire has been removed and shrubs are becoming decadent.
- Prescribed Grazing will shift this plant community towards the *Bluebunch Wheatgrass, Needleandthread, Spike fescue, Mountainmahogany Plant Community (HCPC)*. The advantage of having this plant community at HCPC is increased desirable plant diversity, production and soil organic matter.

Increased Bare Ground, Excess Unincorporated Litter Plant Community

This plant community developed under many years with no defoliation and no fire. Plant litter accumulates in large amounts when this community first develops. Eventually, litter levels become high enough to crowd out plants and more of the area becomes bare ground. Bunchgrasses develop dead centers and rhizomatous wheatgrasses form small communities because of a lack of stimulation by grazers. The dominant grasses/grasslikes include needleandthread, Fendler’s threeawn and western wheatgrass. Compared to the HCPC bluebunch wheatgrass, spike fescue, and perennial forbs have

decreased and noxious weeds have started to invade. The lack of fire causes the mountainmahogany to become decadent and crude protein levels to decrease.

Management changes can easily shift this plant community. Soil erosion is low when the surface litter is high, but increases when the litter disappears. Areas that are devoid of vegetation are subject to high erosion by wind and water.

The total annual production (air-dry weight) is about 750 pounds per acre during an average year, but it can range from about 600 pounds per acre in unfavorable years to about 900 pounds per 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)

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

- Prescribed Grazing + Fire will shift this plant community towards the *Bluebunch Wheatgrass, Needleandthread, Spike fescue, Mountainmahogany Plant Community (HCPC)*. The advantage of having this Plant Community at HCPC is increased desirable plant diversity, production, plant vigor and soil organic matter.

Annuals, Weedy Species, “Clubbed’ Mountainmahogany Plant Community

This plant community developed under frequent and severe defoliation during the growing season. The dominant grasses include mountainmahogany, annual grasses such as cheatgrass and Japanese brome, annual forbs and other weedy species. At this time the plant community is highly prone to invasion by noxious weeds. Mid-grasses have been almost completely removed from the understory. The dominant forbs are western yarrow, phlox, and broom snakeweed. Other plants are fringed sagewort and pricklypear cactus. Compared to HCPC, nearly all mid-grasses are gone and weedy species have invaded the area. Undesirable grasses, forbs and other plants have increased.

Management changes cannot easily move this plant community toward HCPC. Soil erosion is severe. Infiltration is minimal because runoff is high. Areas that are devoid of vegetation are subject to extreme erosion and runoff.

The total annual production (air-dry weight) is about 400 pounds per acre during an average year, but it can range from about 300 pounds per acre in unfavorable years to about 500 pounds per 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)

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

- Very Long Term Prescribed Grazing will move this plant community towards the *Needleandthread, Threawn, Mountainmahogany Plant Community*. Moving towards HCPC will increase production, desirable plant diversity and reduce soil erosion.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Bluebunch wheatgrass, Needleandthread, Spike fescue, Mountainmahogany Community (HCPC): The predominance of high grass and forb diversity plus mountainmahogany in this community favors large browsers and grazers such as deer and elk. The shrub cover provides suitable thermal and escape cover for mule deer. White-tailed and black-tailed jackrabbit, badger, and coyote commonly use this community. This community also provides habitat for a wide array of smaller mammals, so diverse prey populations are available for raptors such as ferruginous and Swainson's hawks. Birds such as western kingbird, western meadowlark, lark bunting, and grasshopper sparrow will utilize this community for nesting and foraging. This community is especially favorable for ground-nesting birds because of the abundant residual vegetation available in the spring for nesting, escape and thermal cover.

Needleandthread, Threawn, Mountainmahogany Community: The reduction in taller grasses in this community results in decreased use by lark buntings and western meadowlarks. Killdeer, horned larks, and McCown's longspurs will also make significant use of this community. Mule deer forage in this community.

Increased Bare Ground, Excess Unincorporated Litter Community: This community provides foraging for deer and other browsers. Ground-nesting birds favoring sparse vegetation may use this community. Generally, this is not a target vegetative community for wildlife habitat management.

Annuals, Weedy Species, "Clubbed" Mountainmahogany Community: Sparse vegetation and greater amounts of bare ground provide suitable habitat for horned larks and McCown's longspurs. However, a lack of complex vegetation structure and residual cover makes this community poor habitat in general for most ground nesting birds and big game species. Deer and elk may find limited forage in this community.

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 | PPPP |
| 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 | Production (lbs./acre) | Carrying Capacity (AUM/acre) |
|--|---------------------------|---------------------------------|
| Bluebunch, Needleandthread, Spike fescue, Mountainmahogany | 900 | 0.3 |
| Needleandthread, Threeawn, Mountainmahogany | 700 | 0.2 |
| Increased Bare Ground, Excess Unincorporated Litter | 750 | 0.25 |
| Annuals, Weedy Species, "Clubbed" Mountainmahogany | 400 | 0.15 |

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangelands in this area provide yearlong 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

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 moderately slow to moderate. Runoff potential for this site varies from moderate to moderately 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.

Other Products

None noted.

Supporting Information

Associated Sites

- (R049XA162WY) – Shallow Loamy 15-19 " P.Z.
- (R049XA122WY) – Loamy 15-19" P.Z.
- (R049XA176WY) – Very Shallow 15-19" P.Z.

Similar Sites

- (R049XA122WY) – Loamy 15-19" P.Z. is more productive
- (R049XA162WY) – Shallow Loamy 15-19" P.Z. has far less mountainmahogany
- (R049XA176WY) – Very Shallow 15-19" P.Z. has far less mountainmahogany and less 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