USDA, Soil Conservation Service
Section II-E

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
_____, COLORADO FIELD OFFICE

Shaly Foothill #212
ECO - SITE DESCRIPTION
MLRA 49A and 49B
August 1984

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

This site is on break areas with short steep slopes that expose the raw shale parent material. Exposures are chiefly easterly with short steep slopes dipping to the west. Slope ranges up to 25 percent. Elevations range from 5,400 to 6,500 feet (1,646 to 1,981 meters).

2. Climatic Features

a. The climate is semi-arid with precipitation averaging 13 to 18 inches (33 to 45.7 centimeters). Total yearly snowfall is 63 inches (160 centimeters). The average monthly precipitation is as follows:

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
.57	.70	1.23	1.97	2.33	1.50	1.73	1.70	1.13	1.07	.80	.53

b. The mean growing season averages approximately 155 to 165 days from May 5 to October 11, and, in average years, there is sufficient moisture at the beginning of the growing season to initiate growth in such cool-season grasses as western wheatgrass and green needlegrass. Their optimum growth is early April through May. The warm season grasses have their optimum growing season through July and August, if adequate moisture is available. About 70 percent of the 15.25 inches (38.7 cm) of annual precipitation falls in the form of rain during the frostfree season. There are 39 days per year that the precipitation equals or exceeds 0.1 inches (.25 cm), 8 days that meet, equal or exceed 0.5 inches (1.3 cm), and 2 days that equal or exceed 1.0 inches (2.54 cm).

c. The average annual temperature is 52.8°F (11.6°C) with 32 days higher than 90°F (32.2°C) and 6 days lower than 0°F (17.8°C). Temperatures fall below the freezing mark much of the time in January.

d. High intensity thunderstorms are common from June through August. Wind velocities for the area average 1.2 to 2.9 miles (1.9 to 4.7 km) per hour and are prevailing from the north and northwest. Generally, March is the windiest month. Strong winds during the spring cause rapid drying of the soil surface. The sun shines approximately 72 percent of the time during the year.

3. Native (Climax Potential) Vegetation

a. The plant community is about 90 percent grasses, 5 percent forbs, and 5 percent shrubs air dry weight.

The production is predominantly made up of grasses, which give this site a distinctive mid-grass aspect.

The dominant grasses are western wheatgrass, green needlegrass, Griffith wheatgrass, needleandthread, sideoats grama, and little bluestem. Less abundant grasses are blue grama, prairie junegrass, bottlebrush squirreltail, big bluestem, and Indian ricegrass. Forbs that make up the plant community are orange arnica, purple prairieclover, scarlet globemallow, and slimflower scurfpea.

Shrubs that are most noticeable on this site are winterfat, fourwing saltbush, true mountainmahogany, and green plume rabbitbrush.

b. Relative percentage of total plant community by weight, air-dry:

Symbol	Common Name	Scientific Name	Percent
Grasses and Grasslike Plants			
ANGE	big bluestem	Andropogon hallii	0-7
BOGR2	blue grama	Bouteloua gracilis	5-10
SIHY	bottlebrush squirreltail	Sitanion hystrix (2)	1-4
BUDA	buffalograss	Buchloe dactyloides	0-1
STVI4	green needlegrass	Stipa viridula	15-20
AGALG*	Griffith wheatgrass	Agropyron albicans (2) griffithsii	10-15
ORHY	Indian ricegrass	Oryzopsis hymenoides	0-3
SCSC*	little bluestem	Schizachyrium scoparium	10-15
POFE	muttongrass	Poa fendleriana	0-3
STCO4	needleandthread	Stipa comata	10-15
KOCR	prairie junegrass	Koeleria cristata	2-5
ARLO3	red threeawn	Aristida longiseta (2)	0-1
POSA12*	Sandberg bluegrass	Poa sandbergii	0-3
BOCU	sideoats grama	Bouteloua curtipendula	10-15
CAHE5	sun sedge	Carex heliophila	1-3
AGSM	western wheatgrass	Agropyron smithii	15-30

Symbol	Common Name	Scientific Name	Percent
Forbs			
LIPU	dotted gayfeather	Liatris punctata	0-1
ASDR3	Drummond milkvetch	Astragalus drummondii	0-2
VIVI	hairy goldaster	Heterotheca villosa	0-T
HASP2	ironplant goldenweed	Haplopappus spinulosus	0-1
ARFU 3	orange arnica	Arnica fulgens	1-3
DAPU4	purple prairieclover	Dalea purpurea (2)	1-2
SPCO	scarlet globemallow	Sphaeralcea coccinea (3)	1-3
PSTE3	Slimflower scurfpea	Psoralea tenuiflora	1-2
SELO	threadleaf groundsel	Senecio longilobus	0-T
RACO3	upright (Mexican Hat) prairie coneflower	Ratibida columnifera	0-1
ARDR4	wormwood	Artemisia dracunculus	0-1
Shrubs and Half-Shrubs			
XASA*	broom snakeweed	Xanthocephalum sarothrae	0-T
ATCA2	fourwing saltbush	Atriplex canescens	0-4
ARFR4	fringed sagebrush	Artemisia frigida	1-3
CHNAG2*	green plume rabbitbrush	Chrysothamnos nauseosus (6) graveolens	1-2
OPPO	plains pricklypear	Opuntia polyacantha (4)	0-1
RHTR	skunkbush sumac	Rhus trilobata (4)	0-2
CEMO2	true mountainmahogany	Cercocarpus montanus	1-3
OPIM*	walkingstick cholla	Opuntia imbricata	0-1
CELA2*	winterfat	Ceratoides lanata	2-5

*Symbol not listed in National List of Scientific Plant Names.

c. If ecological retrogression is cattle-induced, desirable grasses will decrease. However, if retrogression is sheep-induced, desirable forbs and shrubs may be reduced. Deterioration of this site caused by overgrazing of cattle will decrease the percentage of grasses such as green needlegrass, Griffith wheatgrass, needleandthread, sideoats grama, little bluestem, western wheatgrass, Indian ricegrass, and big bluestem. With the decrease of above mentioned plants blue grama, prairie junegrass, bottlebrush squirreltail, and buffalograss will increase initially. Forbs will increase such as hairy goldaster and wormwood; and shrubs such as fringed sagebrush and broom snakeweed will also increase. With continued ecological destruction, plants such as sleepygrass, ring muhly, Texas tumblegrass, cheatgrass, Kochia, and Russian thistle will invade the site.

d. Vegetation density[1/] is approximately 20-25 percent.

4. Annual Production

If the range is in excellent condition, the approximate total annual production (air-dry) is:

favorable years	700 pounds/Ac	794 Kg/Ha
normal years	450 pounds/Ac	510 Kg/Ha
unfavorable years	300 pounds/Ac	340 Kg/Ha

Of this production 10 percent will likely be unpalatable or out of reach to grazing animals.

5. Soils

The soils on this site are shallow and well drained. They occur on upland ridges, escarpments, and hillsides. The parent material source is residual and the parent rock is calcareous and noncalcareous shale. The surface textures vary from clays to silty clay loams and cobbly silt clay loams. The surface layers vary in reaction from a pH of 6.1 to 9.0.

Permeability is slow and the available water capacity is low. The surface runoff is medium to rapid and the hazard of erosion is moderate to severe.

Soil Unit	Percent Slope
Louviers clay, silty clay loam	3-25
Louviers cobbly silty clay loam	5-40
Midway silty clay loam	5-30

B. MAJOR USES AND INTERPRETATIONS FOR:

1. Grazing

The site produces fair forage for cattle and horses during years of average precipitation. It provides fair to good forage for sheep, antelope, and deer. Care should be exercised so that this site is not overgrazed because of the hazard of severe water erosion on steep slopes.

1/ Vegetation density = basal area. This is the area of ground surface covered by the perennial stem or stems. Usually, this is measured one inch (2.54 cm) above the soil in contrast to the full spread of perennial foliage.

The animal forage preference changes as the growing season progresses. Continuous year-long grazing or grazing from April to October by cattle cause green needlegrass, needleandthread, sideoats grama, and little bluestem to be replaced by blue grama, buffalograss, and red threeawn. A system of deferred grazing, which varies the season of grazing use in pastures during successive years, is needed to maintain a healthy well-balanced plant community. Rest during different seasons of the year benefits different plants. Summer rest (June-August) benefits warm-season plants such as sideoats grama and little bluestem. Spring rest (April-June) benefits cool-season plants such as green needlegrass, Griffith wheatgrass, and needleandthread. Deferment during late winter and spring reduces competition between grazing animals for palatable shrubs and forbs.

2. Wood Products

Not applicable to this site.

3. Habitat for Wildlife

This range site provides habitats which support a resident animal community that is characterized by antelope, mule deer, cottontail, jackrabbit, and coyote. There is seasonal use by upland game birds and various raptors.

4. Hydrological Interpretations

Soils in this site are grouped in "D" hydrologic group, as outlined in the "Soils of Colorado Loss Factors and Erodibility Hydrologic Groupings 1979" handbook. Field investigations are needed to determine hydrological cover conditions and hydrologic curve numbers. The hydrologic curve number for Group D soils is about 80 when hydrologic conditions are good, as shown in "Peak Flows in Colorado" handbook.

Refer to SCS National Engineering Handbook, Section 4, to determine runoff quantities from the curves.

5. Recreation and Natural Beauty

This site has medium value regarding recreational uses and natural beauty. During favorable rainfall years, numerous flowering plants give this site an aesthetically pleasing appearance.

6. Endangered Plants and Animals

(Species names to be included as reliable information becomes available.)

7. Major Poisonous Plants to Livestock That May Cause Poisoning

Common Name	Scientific Name	Season Dangerous	Animals Affected
Drummond milkvetch	Astragalus drummondii	Drummond milkvetch has not been confirmed as being poisonous to livestock. However, it is listed as being suspected of toxicity.	Potentially cattle, horses and sheep

Common Name	Scientific Name	Season Dangerous	Animals Affected
broom snakeweed	Xanthocephalum sarothrae	when forage is scarce	cattle-sheep

Effect and symptoms

Poisoning is not common but will occur on overgrazed ranges. Causes abortion in cattle or may produce weak underweight calves. Losses are sporadic and will occur when 10 to 20 percent of the body weight of green material is consumed in 1/2 to 20 weeks.

Common Name	Scientific Name	Season Dangerous	Animals Affected
threadleaf groundsel	Senecio longilobus	early spring when forage is short or on over grazed ranges	cattle & horses Normally will not affect sheep if a supplement is fed on dry range during the spring.

Effect and symptoms

Signs may not appear until 6 months or more after plant is eaten. The best prevention is proper range use. Symptoms are progressive and effects are cumulative. Losses are sporadic. Degeneration of the liver results. Depression, weakness, diarrhea, darkly stained urine may be observed. Animals may die quickly or wander aimlessly.

8. Location of Typical Examples of the Site

a. Four miles north and three miles east of Calhan, El Paso County
b. Along Skyline Drive just outside of Canon City, Fremont County

9. Guide to Initial Stocking Rates 2/

Condition Class	Percent Climax Vegetation	AUM/ac	Ac/AUM	AUM/ha	ha/AUM
excellent	76-100	.13-.17	5.9-8.1	.32-.43	2.3-3.2
good	51-75	.09-.12	8.2-12.4	.20-.31	3.3-5.2
fair	26-50	.05-.08	12.5-24.9	.10-.19	5.3-11.0
poor	0-25	-.04	25.0+	-.09	11.1+

10. Field Offices

Canon City
Colorado Springs
Fort Collins
Kiowa
Longmont
Pueblo
Simla
Trinidad

2/ Stocking rates are based on an average growing season. Based on 1200 pounds (540 kg) of forage (air-dry) per animal unit month. (This figure does not take into account the vegetation that disappears through trampling, small herbivores, etc., which amounts to approximately 7.9 pounds (3.6 kg) per day under normal conditions.)

11. Vegetation Palatability per Animal Class 3/

Plant Symbol	Common Name	Scientific Name	Animal Classes 4/ C	S	H	E	D	A	G/B	S/B	S/M
Grass & Grasslike Plants			**Animal Preference 5/**								
ANGE	big bluestem	Andropogon gerardii	H	H	H	M	M	M	M	M	M
BOGR2	blue grama	Bouteloua gracilis	H	H	H	M	M	M	M	H	M
SIHY	bottlebrush squirreltail	Sitanion hystrix (2)	M	M	M	M	M	M	M	M	M
BUDA	buffalograss	Buchloe dactyloides	H	H	H	L	L	M	M	M	M
STVI4	green needlegrass	Stipa viridula	H	H	H	M	M	M	M	H	H
AGALG*	Griffith wheatgrass	Agropyron albicans(2)griffithsii	H	M	H	M	M	M	L	M	M
ORHY	Indian ricegrass	Oryzopsis hymenoides	H	H	H	H	M	M	M	H	H
SCSC*	little bluestem	Schizachyrium scoparium	H	M	H	L	M	L	M	M	M
POFE	muttongrass	Poa fendleriana	H	H	H	H	H	H	M	M	M
STCO4	needleandthread	Stipa comata	H	M	H	H	M	M	L	M	M
KOCR	prairie junegrass	Koeleria cristata	H	H	H	M	M	M	M	M	M
ARLO3	red threeawn	Aristida longiseta (2)	L	L	L	L	L	L	M	M	M
POSA12*	Sandberg bluegrass	Poa sandbergii	M	M	M	H	H	H	H	M	M
BOCU	sideoats grama	Bouteloua curtipendula	H	H	H	M	M	M	M	M	M
CAHE5	sun sedge	Carex heliophila	H	M	H	H	M	M	L	L	L
AGSM	western wheatgrass	Agropyron smithii	H	M	H	M	M	M	L	M	M
Forbs											
LIPU	dotted gayfeather	Liatris punctata	L	L	L	L	L	L	L	L	L
ASDR3	Drummond milkvetch	Astragalus drummondii	L	L	L	L	L	M	M	M	M
HEVI4*	hairy goldaster	Heterotheca villosa	L	M	L	L	M	M	M	M	M
HASP2	ironplant goldenweed	Haplopappus spinulosus	L	L	L	L	M	M	L	L	L
ARFU3	orange arnica	Arnica fulgens	L	M	L	M	M	L	M	M	M
DAPU4*	purple prairieclover	Dalea purpurea (2)	L	L	L	L	L	L	L	L	L
SPCO	scarlet globemallow	Sphaeralcea coccinea (3)	M	M	M	H	H	H	M	H	H
PSTE3	slimflower scurfpea	Psoralea tenuiflora	L	M	L	L	L	M	M	M	L
SELO	threadleaf groundsel	Senecio longilobus	M	M	L	M	M	M	L	M	M
RACO3	upright (Mexican Hat) prairie coneflower	Ratibida columnifera	L	M	L	L	M	M	M	M	M
ARDR4	wormwood	Artemisia dracunculus	L	L	L	L	L	L	L	L	L

Note: *Symbol not listed in National List of Scientific Plant Names.

3/ Vegetation palatability by animal class is based on the attractivness of the plant to animals as forage. Grazing preference changes from time to time and place to place depending on the animal class, plant palatability and nutritive value, stage of growth and season of use.

4/ Animal class symbols:
C - Cows
S - Sheep
H - Horses
E - Elk
D - Deer
A - Antelope
G/B - Upland Gamebirds
S/B - Songbirds
S/M - Small Mammals

5/ Animal preference symbols:
H - High
M - Medium
L - Low

11. Vegetation Palatability per Animal Class 3/

Plant Symbol	Common Name	Scientific Name	Animal Classes 4/ C	S	H	E	D	A	G/B	S/B	S/M
Shrubs and Half-Shrubs											
XASA*	broom snakeweed	Xanthocephalum sarothrae	L	L	L	L	L	M	L	L	L
ATCA2	fourwing saltbush	Atriplex canescens	H	H	M	H	H	H	H	H	H
ARFR4	fringed sagebrush	Artemisia frigida	M	H	M	H	H	H	M	M	M
CHNAG2*	green plume rabbitbrush	Chrysothamnos nauseosus (6) graveolens	M	M	M	H	H	M	M	M	H
OPPO	plains pricklypear	Opuntia polyacantha (4)	L	L	L	L	L	M	M	M	H
RHTR	skunkbush sumac	Rhus trilobata (4)	L	M	L	M	M	M	H	H	H
CEMO2	true mountainmahogany	Cercocarpus montanus	M	H	M	H	H	M	M	M	H
OPIM*	walkingstick cholla	Opuntia imbricata	L	L	L	L	L	L	L	L	L
CELA2*	winterfat	Ceratoides lanata	H	H	H	H	H	M	M	M	H

Note: *Symbol not listed in National List of Scientific Plant Names.

3/ Vegetation palatability by animal class is based on the attractivness of the plant to animals as forage. Grazing preference changes from time to time and place to place depending on the animal class, plant palatability and nutritive value, stage of growth and season of use.

4/ Animal class symbols:
C - Cows
S - Sheep
H - Horses
E - Elk
D - Deer
A - Antelope
G/B - Upland Gamebirds
S/B - Songbirds
S/M - Small Mammals

5/ Animal preference symbols:
H - High
M - Medium
L - Low

References

Gay, Charles W. and Don D. Dwyer. Poisonous Range Plants. Cooperative Extension Service, Circular 391, New Mexico State University, pp. 1-21, June 1967.

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