NITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SECTION II-E

RANGE SITE DESCRIPTION
CRAIG, COLORADO FIELD OFFICE

Site Name: Silty Swale #433
Site Number: 034CY433CO
MLRA: 034C
Date Approved: October, 1987

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

This site occurs on broad, nearly level to moderately sloping fans and bottoms. Slopes range from 0 to 6 percent slopes. This site occurs on all aspects. Elevation for the site ranges from 6,200 to 7,200 feet above sea level.

2. Climatic Features

a. The climate of this site is arid to semi-arid with precipitation averaging between 9 and 11 inches annually. The average seasonal precipitation (in inches)* is as follows:

WINTER	SPRING	SUMMER	FALL
Oct 16-Apr 15	Apr 16-Jun 30	Jul 1-Aug 31	Sep 1-Oct 15
4.0	3.0	1.4	1.6

*Precipitation data organized by season because area is remote and data is checked on a seasonal basis.

b. The growing season for the native plants averages 160 to 180 days. Growth usually starts about mid-April and continues until the end of July. Cool season grasses start spring growth using moisture stored in the soil from snow melt and spring rains. Optimum growth occurs from mid-April through mid-June, and continues until the soil profile is depleted of usable soil moisture. A second growth period may occur in the fall months as a result of a fall moisture peak.

c. The average annual air temperature is about 42-45°F. Summer temperatures can reach 95°F, while winter temperatures can dip to -30°F. Temperatures fall below the freezing mark much of the time in October through May. The average frost-free period ranges from 75 to 95 days and occurs from mid-June through mid-September.

3. **Potential Plant Community (Climax Vegetation)**

a. The aspect of this site is a broad, open grassland in a bottom or fan position where it receives run-on moisture from adjacent sites. Shrubs are scattered across the site becoming dominant along narrow drainages. Because of their bunchgrass form and ability to grow rapidly in the early spring, Nevada and Sandberg bluegrass may appear to dominate this site. Later in the spring, western wheatgrass, thickspike wheatgrass, and streambank wheatgrass will dominate the site.

The plant community is about 60 percent grass, 5 percent forbs, and 35 percent shrubs (air-dry weight of current season's growth).

Dominant grasses are western wheatgrass, thickspike wheatgrass, and streambank wheatgrass. Less abundant grasses are Nevada bluegrass, Sandberg bluegrass, and basin wildrye.

Forbs present in the plant community are few and are scattered sparsely across the site.

Shurbs, half-shrubs, and trees that occur on this site include Wyoming big sagebrush, winterfat, Nuttall saltbush, and basin big sagebrush.

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

PLANT SYMBOL	COMMON NAME	SCIENTIFIC NAME 1/	COMP. PERCENT	
GRASS AND GRASSLIKE PLANTS				
AGDA	THICKSPIKE WHEATGRASS	AGROPYRON DASYSTACHYUM	15	20
AGSM	WESTERN WHEATGRASS	AGROPYRON SMITHII	15	20
AGDAR	STREAMBANK WHEATGRASS	AGROPYRON DASYSTACHYUM RIPARIUM	10	15
ELCI2	BASIN WILDRYE	ELYMUS CINEREUS	5	10
PONE3	NEVADA BLUEGRASS	POA NEVADENSIS	5	10
POSA12	SANDBERG BLUEGRASS	POA SANDBERGII	5	10
ORHY	INDIAN RICEGRASS	ORYZOPSIS HYMENOIDES	2	5
STCO4	NEEDLEANDTHREAD	STIPA COMATA	2	5
SIHY	BOTTLEBRUSH SQUIRRELTAIL	SITANION HYSTRIX	1	3

PLANT SYMBOL	COMMON NAME	SCIENTIFIC NAME 1/	COMP. PERCENT	
******	**********	**********	*******	
FORBS				
LOGR	GRAYS BISCUITROOT	LOMATIUM GRAYI	1	3
PHHO	HOODS PHLOX	PHLOX HOODII	1	3
PHLO2	LONGLEAF PHLOX	PHLOX LONGIFOLIA	1	3
CYAC	STEMLESS SPRING PARSLEY	CYMOPTERUS ACAULIS	1	3
ALAC4	TAPERTIP ONION	ALLIUM ACUMINATUM	1	3
SHRUBS AND HALF-SHRUBS				
ARTRW*	WYOMING BIG SAGEBRUSH	ARTEMISIA TRIDENTATA WYOMINGENSIS	10	15
ATGA	NUTTALL SALTBUSH	ATRIPLEX GARDNERI	5	10
ARTR2	BASIN BIG SAGEBRUSH	ARTEMISIA TRIDENTATA	5	10
EULA5	WINTERFAT	EUROTIA LANATA	5	10
ATCO	SHADSCALE	ATRIPLEX CONFERTIFOLIA	2	5
SAVE4	BLACK GREASEWOOD	SARCOBATUS VERMICULATUS	1	5
ARSP5	BUD SAGEBRUSH	ARTEMISIA SPINESCENS	1	5
TENU	NUTTALL HORSEBRUSH	TETRADYMIA NUTTALLII	1	5
ATCA2	FOURWING SALTBUSH	ATRIPLEX CANESCENS	1	3
OPPO	PLAINS PRICKLYPEAR	OPUNTIA POLYACANTHA	1	3
CHVIP2*	SMALL LOW RABBITBRUSH	CHRYSOTHAMNUS VISCIDIFLORUS PUMILUS	1	3
TESP2	SPINY HORSEBRUSH	TETRADYMIA SPINOSA	1	3
CHNAC2	THREADLEAF RUBBER RABBITBRUSH	CHRYSOTHAMNUS NAUSEOSUS CONSIMILIS	1	3

1/ Names according to National List of Scientific Plant Names SCS-TP-159.

* Symbol not listed in National List of Scientific Plants.

c. If ecological retrogression is cattle induced, the percentage and production of desirable plants such as western wheatgrass, Nevada bluegrass, needleandthread, Indian ricegrass, tapertip onion, winterfat, Nuttall saltbush, and fourwing saltbush will decrease. If ecological retrogression is sheep induced, the percentage and production of desirable plants such as Indian ricegrass, Nevada bluegrass, tapertip onion, Wyoming big sagebrush, Nuttall saltbush, winterfat, shadscale, threadleaf rabbit rubberbrush, and fourwing saltbush will decrease. With the decrease in desirable plants, there will be an increase in plants such as black greasewood, plains pricklypear, spiny horsebrush, and basin big sagebrush. Annuals such as halogeton, perfoliated pepperweed, and cheatgrass will invade. If the site is ungrazed for several years, there will be an increease in shrub species.

Further evidence of retrogression may include sheet or rill erosion, pedestaling of bunchgrasses, bare areas, an increase in annuals, an absence of litter, new seedlings, or sprouts; and highly unstable forage production from year to year.

During winters of severe temperatures and snow, this site will receive heavy use in local areas on plants such as Wyoming big sagebrush, basin big sagebrush, winterfat, Nuttall saltbush, fourwing saltbush, and threadleaf rubber rabbitbrush, by deer, antelope, livestock, and elk which may occupy the site. To avoid starvation, livestock and wildlife will make use of low palatable species on this site.

In general, there is inadequate fuel to carry a fire across the site. Should a fire burn across the site, the wheatgrasses will be benefited, bunchgrasses will be slightly affected, and shrubs severely affected. Grass and forb production will decline the first year and then increase for several years. Non-sprouting shrubs will be reduced immediately following fire, but will slowly increase until they dominate the site or are reduced by another fire. Sprouting species such as rabbitbrush or horsebrush will increase rapidly following a fire, but will slowly decline as other species are able to return.

Due to the low precipitation of the area, this site will recover slowly from prolonged and/or severe drought. It's recovery may be enhanced if run-on moisture is received from adjacent sites. In general, grasses and forbs will show signs of stress and recovery earlier than shrubs due to their shallow root systems.

d. Basal area (the area of ground surface covered by the perennial vegetation measured one inch above the soil) is approximately 20 percent when near the potential plant community.

e. Annual Production

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

Favorable Years	1,000	pounds/AC
Normal Years	850	pounds/AC
Unfavorable Years	700	pounds/AC

Of this production, 25 percent will likely be unpalatable or out of reach to grazing animals.

4. Wildlife

This range site provides habitats which support a resident animal community that is characterized by desert and Nuttall's cottontail, white-tailed jackrabbit, white-tailed prairie dog, sage thrasher, western bluebird, western meadowlark, brewer's sparrow, mourning dove, red-tailed hawk, golden eagle, and midget-faded prairie rattlesnake. This site is particularly important for sage grouse and antelope. It also serves as muledeer habitat when in proximity to mountains, and it may also provide critical habitat for elk in the winter.

5. Soils

a. Soils of this site are deep and well-drained. They formed in alluvium derived dominantly from interbedded sedimentary rocks. The upper 1 inch of the surface layer is pale brown loam. The lower 2 inches is grayish brown loam. This surface layer is underlain by loams to 48 inches, and then a sandy loam to a depth of 60 inches.

b. Major soils which are associated with site

Soil	Texture	Percent Slope	Phase
Talamantes	loam	0-6	-
Talamantes	loam	0-8	Alkaline

6. Location of Typical Example of the Site

a. SW 1/4 NW 1/4 Section 17, T9N, R99W, Moffat County, Colorado.

b. NE 1/4 NE 1/4 SW 1/4 Section 19, T12N, R97W. Moffat County, Colorado.

8. MAJOR USES AND INTERPRETATIONS FOR

1. Grazing

a. This site is used almost exclusively as winter range for sheep. Due to its broad, open, and relatively flat topography, it receives heavy use by livestock and wildlife which congregate on it. In order to maintain the productivity of this site, care must be taken to avoid over-grazing. Herding of sheep and movement of cattle is necessary during early spring growth to avoid depletion of stored carbohydrates and photosynthetic material by continual spring grazing.

A system of deferred grazing which varies the season of grazing 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. Fall and winter rest (Oct-Mar) benefits shrubs such as winterfat, Nuttall saltbush, fourwing saltbush, shadscale, and Wyoming big sagebrush. Spring rest (Mar-May) benefits cool-season plants such as western wheatgrass, Nevada bluegrass, needleandthread, Indian ricegrass, and tapertip onion. Deferment during late winter and spring reduces competition between grazing animals for palatable shrubs and forbs.

Plants of particularly high grazing value on this site include Indian ricegrass, Nevada bluegrass, needleandthread, western wheatgrass, tapertip onion, fourwing saltbush, winterfat, and Wyoming big sagebrush.

Brush management may be accomplished by application of herbicides. Fire is an alternative, but when an abundance of rabbitbrush exists, it is not recommended. Mechanical control is a possibility, as the disturbance of rhizomes will cause wheatgrasses to flourish and stabilize the soil to prevent further erosion.

If this site has been severely damaged by overgrazing and is producing a high percentage of undesirable shrubs, range seeding may be necessary to restore this site. Seedling establishment is difficult due to low precipitation, fall seeding is highly recommended. Species selected should meet the needs of livestock and wildlife.

b. Guide to Initial Stocking Rates

(1) Stocking rates given below are based on continuous use for the entire growing season, and are intended only as an initial guide. Forage needs are calculated on the basis of 900 lbs of air-dry forage per animal unit month (AUM). To maintain proper use and allow for forage that disappears through trampling, small herbivore use, weathering, etc., 35 percent of the palatable forage produced is considered available for grazing by large herbivores.

Condition Class	Percent Climax Vegetation	Ac/AUM	AUM/Ac
Excellent	76-100	2.2	.50
Good	51-75	4.0	.25
Fair	26-50	6.0	.17
Poor	0-25	10.0	.10

(2) Adjustment to the initial stocking rates should be made as needed to obtain proper use. With specialized grazing systems, large livestock breeds, uncontrolled big game herbivores, inaccessability, dormant season use, presence of introduced species, etc., stocking rate adjustments will be required.

c. Vegetation Palatability by Animal Class 2/

COMMON NAME	ANIMAL PREFERENCE C	S	H	E	D	A	GB	SB	SM
GRASS AND GRASSLIKE PLANTS									
BASIN WILDRYE	M	L	M	M	L	L	M	M	M
BOTTLEBRUSH SQUIRRELTAIL	M	M	M	M	M	M	M	M	M
INDIAN RICEGRASS	H	H	H	H	M	M	M	H	H
NEEDLEANDTHREAD	H	M	H	H	M	M	L	M	M
NEVADA BLUEGRASS	H	H	H	H	M	M	M	M	M
SANDBERG BLUEGRASS	M	M	M	H	H	H	H	M	M
STREAMBANK WHEATGRASS	M	M	M	M	M	M	M	M	M
THICKSPIKE WHEATGRASS	M	M	M	M	M	M	M	M	M
WESTERN WHEATGRASS	H	M	H	M	M	M	L	M	M
FORBS									
GRAYS BISCUITROOT	U	U	U	U	U	U	U	U	U
HOODS PHLOX	L	L	L	L	L	L	L	L	L
LONGLEAF PHLOX	L	L	L	L	L	L	L	L	L
STEMLESS SPRING PARSLEY	L	L	L	L	L	L	L	L	L
TAPERTIP ONION	H	H	L	M	L	L	L	L	L

COMMON NAME	ANIMAL PREFERENCE C	S	H	E	D	A	GB	SB	SM
SHRUBS AND HALF-SHRUBS									
BASIN BIG SAGEBRUSH	L	M	L	M	M	M	H	M	H
BLACK GREASEWOOD	L	L	L	L	L	L	L	L	L
BUD SAGEBRUSH	M	H	M	M	M	H	M	M	H
FOURWING SALTBUSH	H	H	M	H	H	H	H	H	H
NUTTALL HORSEBRUSH	L	L	L	L	L	L	L	L	L
NUTTALL SALTBUSH	H	H	M	H	H	H	M	M	M
PLAINS PRICKLYPEAR	L	L	L	L	L	M	M	M	H
SHADSCALE	M	H	L	M	H	H	M	M	H
SMALL LOW RABBITBRUSH	L	M	L	L	M	M	M	M	M
SPINY HORSEBRUSH	L	L	L	M	M	M	H	H	H
THREADLEAF RUBBER RABBITBRUSH	M	H	M	H	H	H	M	M	M
WINTERFAT	H	H	H	H	H	M	M	M	H
WYOMING BIG SAGEBRUSH	L	H	L	M	H	H	H	M	H

2/ Vegetation palatability by animal class is based on the attractiveness 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 nutrient value, stage of growth, and season of use.

Animal class symbols:

C - Cows
S - Sheep
H - Horses
E - Elk
D - Deer
A - Antelope

GB Upland Gamebirds
SM Songbirds
SM Small Mammals

Animal preference symbols:

H - High
M - Medium
L - Low

d. Major Poisonous Plants to Livestock 3/

PLANT COMMON NAME	LIVESTOCK AFFECTED	TYPE POISONING	SEASON SERIOUS
black greasewood	sheep, cattle	sodium & potassium oxalates	spring
halogeton	sheep,cattle	calcium oxalates	spring
Nuttall horsebrush	sheep	organic resins	spring
spiny horsebrush	sheep	organic resins	spring

3/ For additional information regarding poisoning by specific plants, see range Technical Note.

2. Wood Products

There is no real potential for commercial wood products on this site. However, this site lends itself to tree and shrub plantings for windbreaks, wildlife, and controlling soil erosion. Species which may be included are Russian olive, honey locust, Rocky Mountain juniper, and pinyon. Sites should be engineered to provide supplemental moisture to promote seedling establishment.

3. Wildlife Values

The site supports a wide variety of animals. Management should be geared to provide cover and food for the wildlife present. If range seeding is done, mixtures should meet the needs of the wildlife and livestock present. When applying brush control, care should be taken not to destroy sage grouse strutting areas.

4. Hydrological Interpretations

The abundance of grasses on this site provides a good canopy cover which will protect the soil surface. The presence of sod-forming wheat grasses provides good protection from soil erosion if they are maintained in a healthy condition. Efforts to maintain or improve plant cover are highly recommended, and may require seeding to do so in order to prevent water erosion.

Soils in this site are grouped into "B" hydrologic group, as outlined in the Soils of Colorado Loss Factors and Erodibility Hydrologic Groupings handbook. Field investigations are needed to determine hydrologic cover conditions and hydrologic curve numbers. Refer to Peak Flows in Colorado handbook, and SCS National Engineering Handbook, Section 4, for hydrologic curve numbers in determining runoff quantities.

5. Recreation and Natural Beauty

This site has native forbs and shrubs that bloom from early spring to early summer which are aesthetically pleasing. Hunting for upland game birds, rabbits, coyotes, and antelope provide recreation.

6. Endangered Plants and Animals

If there are any prairie dog towns on the site they are potential habitat for the black-footed ferret.

7. Counties in Which this Range Site Occurs

081 Moffat