

UNITED STATES DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE  
 SECTION II-E TECHNICAL GUIDE

ECOLOGICAL SITE DESCRIPTION  
 RANGELAND

\_\_\_\_\_, COLORADO FIELD OFFICE

Ecological Site Name: Brushy Loam #238

Ecological Site Number: R - 048AY238CO

Date: April 1994

Author's initials: JWK/LJJ

PART A: PHYSICAL CHARACTERISTICS

1. Soil Narrative:

- a. Soils of this site are dark brown to very dark brown sandy loams to light clay loams with acid reaction to 20 inches in depth. The subsoil is moderately to strong structured clay loam to light clay, one to four feet thick. It is moderately permeable with a lime carbonate zone at depth in the profile. There may be a number of stones or cobble throughout the profile. The soil is very favorable for plant growth.
- b. List of Soil Series or Mapping Units included in this site:

SSA	Soil Series	Surface Texture	Slope Range	Phase
655 MU 51	Gothic	loam	1-6	none
655 MU 52	Gothic	loam	6-25	none
655 MU 53	Gothic	loam	25-65	none
682 MU 84	Hesperus	loam	12-40	none
682 MU 88	Hesperus	loam	3-12	none
682 MU 61E	Hesperus	loam	35-55	none
660 MU 261	Delson	loam	25-65	none
660 MU 290	Delson	loam	5-25	none
686 MU 14F	Cochetopa	loam	25-65	none
686 MU 20F	Jerry	loam	25-65	none
686 MU 22	Jerry	loam	5-35	none
679 MU 12	Absarokee	loam	5-20	none
679 MU 13	Absarokee	loam	20-60	none
679 MU 31	Curecanti	st loam	3-30	none
685 MU 23	Cochetopa	loam	9-50	none
685 MU 44	Jerry	loam	12-45	none
685 MU 45	Jerry	loam	8-45	none
683 MU 61	Rhone	loam	30-70	none
648 MU X8F	Dunckley	loam	25-65	none

SSA	Soil Series	Surface Texture	Slope Range	Phase
648 MU 97	Foidel	loam	30-75	none
675 MU 55	Lillylands	loam	15-50	none
675 MU 64	Narraguinnep	cl loam	15-50	moist

## 2. Landscape Factors:

### a. Physiography:

1. Elevation: Low: 6000 ft High: 9000 ft
2. Percent Slope: Low: 1% High: 75%
3. Topography of this site is mostly rolling to very steep hillsides. Some small areas are nearly level.

## 3. Climate Factors:

- a. Hard freeze free period: 95 to 127 days (24°F)
- b. Freeze-free period: 70 to 100 days (28°F)
- c. Frost-free period: 47 to 75 days (32°F)
- d. Mean annual precipitation: 15 to 20 (inches)
- e. Mean annual air temperature: 40 to 42 (°F)
- f. Mean annual soil temperature: 44.5 to 46.5 (°F)
- g. Moisture and temperature distribution:

PPT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
HIGH	3.1	2.2	2.4	2.0	1.8	1.5	2.7	3.4	2.8	3.8	2.0	2.7
MEAN	1.9	1.4	1.6	1.4	1.2	.90	1.8	2.4	1.8	2.4	1.3	1.9
LOW	0.6	0.5	0.6	0.6	0.4	0.3	0.8	1.2	0.6	1.0	0.5	0.7
PERCENT	10	7	8	7	6	4	9	12	9	12	6	10

  

TEMP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
HIGH	38	42	49	59	68	78	83	81	74	64	50	40
MEAN	20	24	32	42	49	57	64	63	55	45	33	22
LOW	02	06	15	24	30	36	45	44	36	26	15	05

4. Vegetation Factors - Climax Plant Community:

a. Site Description Narrative:

The appearance of this site is a shrub dominated community. Saskatoon serviceberry and Gambel oak are the major woody species. Mountain snowberry, chokecherry, and Woods rose are other shrub species. Nodding brome, mountain brome, slender wheatgrass, western wheatgrass, Letterman needlegrass, Columbia needlegrass, and elk sedge are the major grass species on the site. Major forb species include aspen peavine, trailing fleabane, western yarrow, American vetch, and silvery lupine. Additional plants present on this site include oniongrass, mountain big sagebrush, Richardson geranium, and Nuttall larkspur.

b. Percent Cover:

1. Ground cover and structure:

	% Canopy cover vertical view	Average height (ft)	% Basal area cover
Grasses, Grasslikes	55	1.5	25
Forbs	10	1.0	1
Shrubs	15	4.0	2
Trees	20	8.0	2

c. Vascular plant community composition and production:

1. Herbaceous

a. Grasses and grasslike 50 to 70% of total

Symbol	Common name	Group	% composition by weight	Group % Allowable
ELCI2	BASIN WILDRYE	1	0 to 5	40 to 50
POAM	BIG BLUEGRASS	1	0 to 5	40 to 50
SIHY	BOTTLEBRUSH SQUIRRELTAIL	1	0 to 5	40 to 50
STOC2	COLUMBIA NEEDLEGRASS	1	5 to 10	40 to 50
CAGE2	ELK SEDGE	1	5 to 10	40 to 50
ORHY	INDIAN RICEGRASS	1	0 to 5	40 to 50
STLE4	LETTERMAN NEEDLEGRASS	1	5 to 10	40 to 50
MUMO	MOUNTAIN MUHLY	1	0 to 5	40 to 50
POFE	MUTTONGRASS	1	0 to 10	40 to 50
STCO4	NEEDLEANDTHREAD	1	5 to 10	40 to 50
MEBU	ONIONGRASS	1	0 to 5	40 to 50
KOPY	PRAIRIE JUNEGRASS	1	5 to 10	40 to 50
AGTR	SLENDER WHEATGRASS	1	5 to 15	40 to 50
AGSM	WESTERN WHEATGRASS	1	5 to 15	40 to 50

Symbol	Common name	Group	% composition by weight	Group % Allowable
FEAR2	ARIZONA FESCUE	2	0 to 10	0 to 10
FEID	IDAHO FESCUE	2	0 to 10	0 to 10
FETH	THURBER FESCUE	2	0 to 10	0 to 10
BRCA5	MOUNTAIN BROME	3	5 to 10	5 to 15
BRAN	NODDING BROME	3	5 to 10	5 to 15

b. Forbs 5 to 10% of total

Symbol	Common name	Group	% composition by weight	Group % Allowable
VIAM	AMERICAN VETCH	1	0 to 3	5 to 10
BASA3	ARROWLEAF BALSAMROOT	1	0 to 5	5 to 10
LALE2	ASPEN PEAVINE	1	0 to 2	5 to 10
HELA4	COWPARSNIP	1	0 to 4	5 to 10
THFE	FENDLER MEADOWRUE	1	0 to 1	5 to 10
ARFE3	FENDLER SANDWORT	1	0 to 1	5 to 10
OXLA3	LAMBERT CRAZYWEED	1	0 to 1	5 to 10
ARLU	LOUISIANA SAGEWORT	1	0 to 2	5 to 10
THRHM	MOUNTAIN THERMOPSIS	1	0 to 1	5 to 10
WYAM	MULESEAR WYETHIA	1	0 to 3	5 to 10
ERFL	TRAILING FLEABANE	1	0 to 3	5 to 10
AGUR	NETTLELEAF GIANTHYSSOP	1	0 to 2	5 to 10
DENU2	NUTTALL LARKSPUR	1	0 to 2	5 to 10
GERI	RICHARDSON GERANIUM	1	0 to 2	5 to 10
PEST2	ROCKY MOUNTAIN	1	0 to 1	5 to 10
LUAR3	SILVERY LUPINE	1	0 to 4	5 to 10
ERUM	SULFUR BUCKWHEAT	1	0 to 2	5 to 10
POGR9	NORTHWEST CINQUEFOIL	1	0 to 2	5 to 10
MEAR6	TALL BLUEBELLS	1	0 to 2	5 to 10
ASCO12	TIMBER POISONVETCH	1	0 to 1	5 to 10
ACMI2	WESTERN YARROW	1	0 to 2	5 to 10

2. Woody

a. Shrubs 20 to 30% of total

Symbol	Common name	Group	% composition by weight	Group % Allowable
PUTR2	ANTELOPE BITTERBRUSH	1	0 to 5	20 to 30
ARARN	BLACK SAGEBRUSH	1	0 to 5	20 to 30
PRVI	CHOCKECHERRY	1	0 to 3	20 to 30
ARVA2	MOUNTAIN BIG SAGEBRUSH	1	0 to 5	20 to 30
SYOR2	MOUNTAIN SNOWBERRY	1	3 to 5	20 to 30
BERE	OREGON-GRAPE	1	0 to 1	20 to 30
AMAL2	SASKATOON SERVICEBERRY	1	5 to 10	20 to 30
ARCA13	SILVER SAGEBRUSH	1	0 to 3	20 to 30
CEVE	SNOWBRUSH CEANOTHUS	1	0 to 5	20 to 30
CEMO2	TRUE MOUNTAINMAHOGANY	1	0 to 5	20 to 30
ROWO	WOODS ROSE	1	0 to 2	20 to 30

b. Trees 5 to 10% of total

Symbol	Common name	Group	% composition by weight	Group % Allowable
QUGA	GAMBEL OAK	1	5 to 10	5 to 10

5. Total annual production:

a. Annual production is distributed as follows:

Grasses and Grasslikes	50-70% of the total
Forbs	5-10% of the total
Shrubs	20-30% of the total
Trees	5-10% of the total

b. In excellent condition, the approximate total annual production (air-dry) is as follows:

Favorable	3000 lbs/acre
Average	2000 lbs/acre
Unfavorable	1500 lbs/acre

Of this production 20-50% will likely be unpalatable to grazing animals

c. Growth Curves for this site.

Curve Identity	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mountain zone	0	0	0	5	25	33	17	10	5	5	0	0

6. Guide to Initial Stocking Rates:

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., about 35 percent of the palatable forage produced is considered available for grazing by large herbivores.

Condition Class	Percent Climax Vegetation	AUM/Ac.	Ac./AUM	Ac./AU
Excellent	76-100	.56-.63	1.8-1.6	22-19
Good	51-75	.63-.44	1.6-2.3	19-28
Fair	26-50	.44-.35	2.3-2.9	28-35
Poor	0-25	.35-.28	2.9-3.6	35-43

Adjustments to the initial stocking rates should be made as needed to obtain proper use. With specialized grazing systems, large livestock breeds, uncontrolled big game, inaccessability, dormant season use, presence of introduced forage species, seeded rangeland etc., will require stocking rate adjustments.

#### 7. Wildlife Species List:

Wildlife that are common to this site during some season of the year can include:

tiger salamander	golden eagle
western rattle snake	mourning dove
western garter snake	black-headed grosbeak
rufous-sided towhee	Virginia's warbler
green-tailed towhee	black-capped chickadee
dusky flycatcher	coyote
downy woodpecker	black bear
band-tailed pidgeon	mule deer
wild turkey	Rocky Mountain elk
blue grouse	golden-mantled ground squirrel
Cooper's hawk	Nuttall's cottontail
red-tailed hawk	

#### 8. Site Degradation:

If site degradation is cattle induced, the more palatable grasses such as big bluegrass, elk sedge, indian ricegrass, letterman needlegrass, mountain muhly, muttongrass, needleandthread, oniongrass, slender wheatgrass, as well as the fescues and the bromes will decline in relative amounts. Some of the most palatable grasses will drop out of the plant community completely. The shrubs become more abundant as the grasses decline. If site degradation is sheep induced, most of the forbs and the palatable shrubs within reach of the sheep will decline in relative abundance. Plants which can invade and become a part of the plant community as degradation progresses include rubber rabbitbrush, canada thistle and japanese brome. Another invader of this site is Kentucky bluegrass which is very palatable to livestock, however, it produces much less vegetation than the plants native to the site.

#### 9. Typical Locations:

- a. SE 1/4, SEC 25, T4S, R87W. Eagle County.
- b. SEC 18, T4N, R85W. Routt County.
- c. NW 1/4 SW 1/4, SEC 12, T15S, R93W. Rio Blanco County.
- d. SEC 34, T5S, R83W. Eagle County.
- e. SEC 34, T9S, R94W. Mesa County.
- f. NW 1/4, SEC 32, T6N, R90N. Moffat County.
- g. West slope on P&M mine, north of mining area. Routt County.
- h. SEC 36, T6S, R88W. Garfield County.

PART B MAJOR USES AND INTERPRETATIONS FOR:

1. Grazing:

Grazing value of this site when it is near its potential plant community is excellent due to high production of palatable grasses and shrubs. There can be a problem with uniform grazing use due to steep slopes as well as thick brush limiting access. Brush management (usually by prescribed burning) may be considered for forage improvement but is only a temporary measure. This is generally done for improvement of the forage resource for wildlife. To maintain the benefits from prescribed burning, this practice needs to be repeated every three to eight years.

2. Guide to Forage Palatability: 1/

ANIMAL PREFERENCE

PLANT SYMBOL	COMMON NAME	C S H	E D P	G S S B B M
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GRASSES AND GRASSLIKES

ELC12	BASIN WILDRYE	D U D	D U U	D D D
POAM	BIG BLUEGRASS	P P P	P D D	D D D
SIHY	BOTTLEBRUSH SQUIRRELTAIL	D D D	D D D	D D D
STOC2	COLUMBIA NEEDLEGRASS	D D D	D U U	U D D
CAGE2	ELK SEDGE	D D P	P D U	D D D
ORHY	INDIAN RICEGRASS	P P P	P D D	D P P
STLE4	LETTERMAN NEEDLEGRASS	D U D	U U U	U U U
MUMO	MOUNTAIN MUHLY	P P P	P P D	U D D
POFE	MUTTONGRASS	P P P	P P P	D D D
STCO4	NEEDLEANDTHREAD	P D P	P D D	U D D
MEBU	ONIONGRASS	P D P	D U U	U D D
KOPY	PRAIRIE JUNEGRASS	P P P	D D D	D D D
AGTR	SLENDER WHEATGRASS	P P P	P D D	D D D
AGSM	WESTERN WHEATGRASS	P D P	D D D	U D D
FEAR2	ARIZONA FESCUE	P D P	P D U	U D D
FE1D	IDAHO FESCUE	P P P	P P D	D D P
FETH	THURBER FESCUE	D D P	D D U	D D P
BRCA5	MOUNTAIN BROME	P P P	P D U	D D P
BRAN	NODDING BROME	P P P	P D D	P P P

FORBS

VIAM	AMERICAN VETCH	P P P	P P P	P P P
BASA3	ARROWLEAF BALSAMROOT	U P D	D P U	D P P
LALE2	ASPEN PEAVINE	D D D	P P D	P P P
HELA4	COWPARSNIP	D D U	U D D	U D U
THFE	FENDLER MEADOWRUE	U D U	D D U	D D D
ARFE3	FENDLER SANDWORT	U U U	U U U	U U U

FORBS (CONT)

OXLA3	LAMBERT CRAZYWEED	U U U	U D D	D D D
ARLU	LOUISIANA SAGEWORT	D P D	D D P	D D D
THRHM	MOUNTAIN THERMOPSIS	U D U	D D D	D D D
WYAM	MULESEAR WYETHIA	U D D	P P P	D P P
ERFL	TRAILING FLEABANE	U D U	U D D	U U U
AGUR	NETTLELEAF GIANTHYSSOP	D P U	D P P	U U U
GABO2	NORTHERN BEDSTRAW	U D U	U D D	U U U
DENU2	NUTTALL LARKSPUR	U D U	D D D	D D D
GER1	RICHARDSON GERANIUM	U P U	P P D	D D D
PEST2	ROCKY MOUNTAIN PENSTEMON	D D U	D D D	D D D
LUAR3	SILVERY LUPINE	U D U	P P D	P P P
ERUM	SULFUR BUCKWHEAT	U D U	D D D	D D D
POGR9	NORTHWEST CINQUEFOIL	U D U	D D U	D D D
MEAR6	TALL BLUEBELLS	D P D	P P P	P P P
ASCO12	TIMBER POISONVETCH	U U U	U U U	U U U
ACH12	WESTERN YARROW	U D U	D D D	D D D

SHRUBS AND HALF SHRUBS

PUTR2	ANTELOPE BITTERBRUSH	P P D	P P P	D P P
ARARN	BLACK SAGEBRUSH	D P D	P P P	P D D
PRV1	CHOKECHERRY	U U U	U U U	D D D
ARVA2	MOUNTAIN BIG SAGEBRUSH	U D U	D P P	P D P
SYOR2	MOUNTAIN SNOWBERRY	D P U	P P P	P P P
BERE	OREGON-GRAPE	U U U	U U U	D D U
AMAL2	SASKATOON SERVICEBERRY	D D U	P P U	P P P
ARCA13	SILVER SAGEBRUSH	U P U	D P P	D D D
CEVE	SNOWBRUSH CEANOTHUS	U U U	U U U	U U U
CEMO2	TRUE MOUNTAINMAHOGANY	D P D	P P D	D D P
ROWO	WOODS ROSE	U U U	U U U	P P P

TREES

QUGA	GAMBEL OAK	U D U	D D D	P P P
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1/ 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	P - Pronghorn
G - Upland	S - Songbirds	S - Small
B - Gamebirds	B - Mammals	

Animal preference symbols

P - Preferred  
D - Desirable  
U - Undesirable  
N - Not Determined

### 3. Major Poisonous Plants to Livestock:

PLANT COMMON NAME	LIVESTOCK AFFECTED	SYMPTOMS	SEASON SERIOUS
Nuttall larkspur	cattle, horses, rarely sheep	loss of appetite, salivation, muscular twitching, general uneasiness, staggering gait	spring and early summer when other green forage is not available
chokecherry	sheep cattle	extreme salivation, labored breathing, muscle tremors, incoordination, bloating, convulsions, symptoms within 5 minutes, death within 15 minutes	spring and early summer when leaves contain large amounts of toxins as well as period of short forage and freezing weather
silvery lupine	all livestock	dry nose, stilted walk, lethargy, depression, hard dry feces, rough dry hair, quivering, extreme weakness, irregular heart beat, coma and convulsions	when forage is scarce & if hay contains immature lupine seed
Gambel oak	cattle sheep	constipation, feces dry and appear as small pellets, and surrounded with mucous and blood, may become watery later but always scanty and dark color, animal appears gaunt, coat becomes rough, nose dry and cracked, may die in two weeks to a month	early spring, during budding and leafing and after a frost, less toxic as leaves mature
Lambert crazyweed	all	abortion, congenital skeletal malformations, constipation, incoordination of muscles & peculiar gait, crazed actions, loss of flesh, loss of sense of direction, nervousness	all especially spring
princesplume	sheep cattle	animals walk into objects, blind staggers, hoofs grow abnormally, hair falls out	when other feed is scarce

timber poisonvetch	cattle, occasion- ally sheep and horses	chronic symptoms- sluggishness, weakness, defective nutrition, impaired vision, wander aimlessly, partial paralysis, especially in hind legs. acute symptoms-nervousness, frequent urination, irregular gait causing heels to knock together, inability to stand, white coloration of the lining of mouth and eyes, rapid weak pulse, difficult breathing, coma, convulsions.	when forage is short during flowering or seeding periods
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**4. Wood Products:**

This site has limited value for production of firewood, fence posts and stays.

**5. Wildlife Values:**

Practices such as prescribed burning, roller beating and chaining are recommended for areas that contain old decadent shrubs. For wildlife that prefer edges such as deer and elk, treatments should be less than 40 acres in size and long and narrow in shape. Treatments for wildlife that prefer interior habitats should be large and square or circular in shape. Diversity of wildlife can be promoted by maintaining a variety of large and small areas in various stages of maturity throughout this site.

**6. Hydrological Interpretations:**

Soils in this site are grouped into the "C" hydrologic group, as outlined in the Soils of Colorado Loss Factors and Erodibility Hydrologic Groupings 1979 Handbook. Field investigations are needed to determine hydrologic cover conditions and hydrologic curve numbers. Refer to SCS National Engineering Handbook, Section 4, and Peak Flows in Colorado Handbook for more information.

**7. Recreation and Natural Beauty:**

This site is in the mountain zone and has adequate precipitation to support a lush growth of vegetation. With a wide variety of herbaceous and shrub vegetation along with interspersed oak many individuals consider this site as scenic areas. Spring brings flowering forbs.

Summers are cool so the area is attractive for summer activities such as picnicking, sightseeing, photography, wildlife watching, hiking, and camping. The site is good wildlife habitat and generally is a good area for hunting deer and elk. Good fall color occurs on the shrubs in most years adding to the attractiveness of this site.

#### 8. Endangered Plants and Animals:

When this site is in a complex with rock outcrops or adjacent to cliffs, the rock outcrops and cliff areas frequently were historical peregrine falcon nesting sites.

#### 9. Scientific Names of Plants Listed According to SCS TP-159:

Plant Symbol	Common Name	Scientific Name
<b>GRASSES AND GRASSLIKES</b>		
ELC12	BASIN WILDRYE	ELYMUS CINEREUS
POAM	BIG BLUEGRASS	POA AMPLA
SIHY	BOTTLEBRUSH SQUIRRELTAIL	SITANION HYSTRIX
STOC2	COLUMBIA NEEDLEGRASS	STIPA OCCIDENTALIS
CAGE2	ELK SEDGE	CAREX GEYERI
ORHY	INDIAN RICEGRASS	ORYZOPSIS HYMENOIDES
STLE4	LETTERMAN NEEDLEGRASS	STIPA LETTERMANII
HUMO	MOUNTAIN MUHLY	MUHLENBERGIA MONTANA
POFE	MUTTONGRASS	POA FENDLERIANA
STCO4	NEEDLEANDTHREAD	STIPA COMATA
MEBU	ONIONGRASS	MELICA BULBOSA
KOPY	PRAIRIE JUNEGRASS	KOELERIA PYRAMIDATA
AGTR	SLENDER WHEATGRASS	AGROPYRON TRACHYCAULUM
AGSM	WESTERN WHEATGRASS	AGROPYRON SMITHII
FEAR2	ARIZONA FESCUE	FESTUCA ARIZONICA
FE1D	IDAHO FESCUE	FESTUCA IDAHOENSIS
FETH	THURBER FESCUE	FESTUCA THURBERI
BRCAS	MOUNTAIN BROME	BROMUS CARINATUS
BRAN	NODDING BROME	BROMUS ANOMALUS
<b>FORBS</b>		
VIAM	AMERICAN VETCH	VICIA AMERICANA
BASA3	ARROWLEAF BALSAMROOT	BALSAMORHIZA SAGITTATA
LALE2	ASPEN PEAVINE	LATHYRUS LEUCANTHUS
HELA4	COWPARSNIP	HERACLEUM LANATUM
THFE	FENDLER MEADOWRUE	THALICTRUM FENDLERI
ARFE3	FENDLER SANDWORT	ARENARIA FENDLERI
OXLA3	LAMBERT CRAZYWEED	OXYTROPIS LAMBERTII
ARLU	LOUISIANA SAGEWORT	ARTEMISIA LUDOVICIANA
THRHM	MOUNTAIN THERMOPSIS	THERMOPSIS RHOMBIFOLIA MONTANA
WYAM	MULESEAR WYETHIA	WYETHIA AMPLEXICAULIS
ERFL	TRAILING FLEABANE	ERIGERON FLAGELLARIS

Plant Symbol	Common Name	Scientific Name
FORBS (CONT)		
AGUR	NETTLELEAF GIANTHYSSOP	AGASTACHE URTICIFOLIA
GABO2	NORTHERN BEDSTRAW	GALIUM BOREALE
DENU2	NUTTALL LARKSPUR	DELPHINIUM NUTTALLIANUM
GER1	RICHARDSON GERANIUM	GERANIUM RICHARDSONII
PEST2	ROCKY MOUNTAIN PENSTEMON	PENSTEMON STRICTUS
LUAR3	SILVERY LUPINE	LUPINUS ARGENTEUS
ERUM	SULFUR BUCKWHEAT	ERIOGONUM UMBELLATUM
POGR9	NORTHWEST CINQUEFOIL	POTENTILLA GRACILIS
MEAR6	TALL BLUEBELLS	MERTENSIA ARIZONICA
ASCO12	TIMBER POISONVETCH	ASTRAGALUS CONVALLARIUS
ACM12	WESTERN YARROW	ACHILLEA MILLEFOLIUM

SHRUBS AND HALF SHRUBS

PUTR2	ANTELOPE BITTERBRUSH	PURSHIA TRIDENTATA
ARARN	BLACK SAGEBRUSH	ARTEMISIA ARBUSCULA NOVA
PRV1	CHOKECHERRY	PRUNUS VIRGINIANA
ARVA2	MOUNTAIN BIG SAGEBRUSH	ARTEMISIA VASEYANA
SYOR2	MOUNTAIN SNOWBERRY	SYMPHORICARPOS OREOPHILUS
BERE	OREGON-GRAPE	BERBERIS REPENS
AMAL2	SASKATOON SERVICEBERRY	AMELANCHIER ALNIFOLIA
ARCA13	SILVER SAGEBRUSH	ARTEMISIA CANA
CEVE	SNOWBRUSH CEANOTHUS	CEANOTHUS VELUTINUS
CEMO2	TRUE MOUNTAINMAHOGANY	CERCOCARPUS MONTANUS
ROWO	WOODS ROSE	ROSA WOODSII

TREES

QUGA	GAMBEL OAK	QUERCUS GAMBELII
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10. Counties in which this Ecological Site is Located:

- |           |            |
|-----------|------------|
| Archuleta | Montezuma  |
| Delta     | Montrose   |
| Eagle     | Pitkin     |
| Garfield  | Rio Blanco |
| La Plata  | Routt      |
| Mesa      | San Miguel |
| Moffat    |            |

# Ecological Reference Sheet

MLRA: 48A    Ecological Site: Brushy Loam

Date: 12/8/04    Author(s)/participant(s): J. Murray, C. Holcomb, L. Santana, F. Cummings, A. Jones, P. Billig, S. Jaouen

Contact for lead author: \_\_\_\_\_

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

Composition (indicators 10 and 12) based on:  Annual Production,  Cover Produced During Current Year  Biomass

<b>Indicators.</b> 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 and natural disturbance regimes for <b>each</b> community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.
1. <b>Number and extent of rills:</b> None
2. <b>Presence of water flow patterns:</b> None
3. <b>Number and height of erosional pedestals or terracettes:</b> None
4. <b>Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground):</b> Expect < 10% bare ground. Extended drought can cause bare ground to increase.
5. <b>Number of gullies and erosion associated with gullies:</b> None
6. <b>Extent of wind scoured, blowouts and/or depositional areas:</b> None
7. <b>Amount of litter movement (describe size and distance expected to travel):</b> Movement expected to be short and minimal.
8. <b>Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values):</b> Stability class rating anticipated to be 5-6 in the interspaces at soil surface.
9. <b>Soil surface structure and SOM (soil organic matter) content (include type and strength of structure, and A-horizon color and thickness):</b> Soils are typically deep with a very dark color. Soil surface texture is medium to fine clay loam, well drained.
10. <b>Effect of plant community composition (relative proportion of different functional groups) &amp; spatial distribution on infiltration &amp; runoff:</b> Diverse grass, forb, shrub canopy and root structure reduces raindrop impact and slows overland flow providing increased time for infiltration to occur.
11. <b>Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):</b> None
12. <b>Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify) using symbols: &gt;&gt;, &gt;, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and “others” on separate lines):</b> Dominants: shrubs > Sub-dominants: cool season bunchgrass > forbs > sedges > Other: cool season rhizomatous grass
13. <b>Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):</b> Typically minimal, except for weather related (late spring freezes on oak brush).
14. <b>Average percent litter cover ( _____ %) and depth ( _____ inches).</b> 70-80% litter cover at 1-2 inch depth.
15. <b>Expected annual production (this is TOTAL above-ground production, not just forage production):</b> 2000 lbs./ac. low precip years; 2500 lbs./ac. average precip years; 4000 lbs./ac. above average precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 600 – 800 lbs./ac. or more.
16. <b>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”:</b> Kentucky bluegrass and noxious weeds.
17. <b>Perennial plant reproductive capability:</b> The only limitations are weather-related, wildfire, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability.

## Functional/Structural Groups Sheet

State: \_\_\_\_\_ Office: \_\_\_\_\_ Ecological Site: **Brushy Loam** Site ID: **R048AY238CO**

Observers: \_\_\_\_\_ Date: \_\_\_\_\_

Functional/Structural Groups			Species List for Functional/Structural Groups
Name	Potential <sup>1</sup>	Actual <sup>2</sup>	Plant Names
Shrubs	D		Chokecherry, snowberry, serviceberry, Gambel oak, Wood's rose
Cool season bunchgrass	S		Idaho, Thurbers, and/or Arizona fescue, needlegrasses, native blue grasses, nodding brome, mountain brome, prairie junegrass
Forbs	S		Western yarrow, lupine, bluebells, buckwheat, Indian paintbrush, balsamroot, cinquefoil, bedstraw, aspen peavine, asters, daisy, geranium, American vetch
Sedges	S		Elk sedge, threadleaf sedge
Cool season rhizomatous grass	M		Western wheatgrass
Noxious Weeds			
Invasive Plants			
Biological Crust <sup>3</sup>			

Indicate whether each “structural/functional group” is a **Dominant (D)** (roughly 40-100 % composition), a **Sub-dominant (S)** (roughly 10-40% composition) a **Minor Component (M)** (roughly 2-5% composition), or a **Trace Component (T)** (<2% composition) based on weight or cover composition in the area of interest (e.g., “Actual<sup>2</sup>” column) relative to the “Potential<sup>2</sup>” column derived from information found in the ecological site/description and/or at the ecological reference area.

**Biological Crust<sup>3</sup>** dominance is evaluated solely on **cover** not composition by weight.