UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This draft ecological site description is approved for field use and testing for a one year period beginning MM, YYYY.
Additional information and comments on this site should be sent to the Utah State Range Management Specialist.

STATE: Utah
SITE TYPE: Rangeland
ECOLOGICAL SITE NAME: Mountain Loam (Mountain big sagebrush)
SITE NUMBER: 047AY430UT
MLRA: E47
Original Site Description: Author: DLT TW Date: 12/03/1991
Revised Site Description: Author: DLT TW Date: 12/23/1992
Approved by: Title: State Range Cons. Signed: Pat Shaver Date:

Ecological Site Definition - A distinctive kind of land, with specific physical characteristics, which differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation, and in its response to management.

A. PHYSICAL CHARACTERISTICS

(description narrative of this particular site)

1. SOILS

Depth: >60 inches
Surface Textures:
Surface Fragments(<=3" % cover, >3" % cover):
Subsurface Textures: Medium to Fine; Some Gravel and Cobbles
Subsurface Fragments(<=3" % vol, >3" % vol): <35%
Geologic Parent Materials: Sandstone, Shale, Limestone, Quartzite, Volcanic Ash, and Various Igneous Rock
Moisture Regime:
Temperature Regime:
Runoff: None to Slight if Managed Properly
Permeability(min-max): Moderate to Slow
Drainage Class(min-max): Well Drained
Water Erosion Hazard: None to Slight
Wind Erosion Hazard:
Electrical Conductivity (EC in mmhos/cm):
Sodium Adsorption Ration (SAR):
Soil Reaction (1:1 water):
Soil Reaction (0.1 M CaCl2):
pH Range:
Available Water Capacity (inches): 10-14

Major Soils Associated With This Site:

Soil Survey Area: 613

Ant Flat L 2-40%	Broadhead L 3-25%
Cloud Rim L 15-40%	Crume Family L 4-15%
Hades L 2-40%	Harter GR-L 8-15%
Henefer GR-L 15-40%	Manila L 2-35%
Richsom SiL Moist 4-15%	Rob Roy SiL 25-60%
Vicking GR-L 8-50%	Cloud Rim L, CB-L 10-60%
Henefer SiL, CB-SiL 1-50%	Manila SiL 3-20%
Rasband L, CB—SL 1-10%	Whipslock L, CB-L 6-40%
Broadhead CL 2-5%	Causey SiL 30-60%
Collinston SiL 15-30%	Guilder L 3-30%
Hades L 6-60%	Isbell L 6-60%
Manila L 0-40%	Parlo L 0-3%
Goring SiL 6-30%	Ant Flat L 6-20%
Despain GR-L 20-30%	Picayune GR-L 50-80%
Leatham SiL 30-50%	Nebeker SiL 10-40%

Additional information may be found in Section II of the Field Office Technical Guide.

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Gentle to Steep Mountain Slopes and on Stream and Fan Terraces
Aspect: All

	Minimum	Maximum
Slope:	15	60
Elevation:	4900	8400
Flooding:		
Frequency:		
Duration:		
Ponding:		
Depth (inches):		
Frequency:		
Duration:		
Water Table Depth:		

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 18-20
Mean Annual Air Temperature: 41-45
Mean Annual Soil Temperature: 43-47
Frost Free Period (days): 50-110
Freeze Free Period (days): 0-0

Temperature and Moisture Distribution:

Temp	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High	34	39	46	56	67	77	86	84	75	63	46	37
Mean												
Low	10	14	20	28	36	42	49	47	39	30	17	13

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High												
Mean	2.71	2.35	2.22	1.80	1.68	1.27	0.79	1.04	1.11	1.69	1.70	1.87
Low												

Climate Stations: St. ID.: Location: Period:
From: To:
(Includes factors such as storm intensity, precipitation dependability, origin and pattern of storms, driest and wettest months, orographic effects, etc.)

Influencing Water Features (if any):

Wetland Description(Cowardin System) System Subsystem Class

Stream Types(Rosgen System) System

C. PLANT COMMUNITY CHARACTERISTICS

1. Potential Plant Community Description and Ecological Factors

The potential plant community is dominated by cool-season bunchgrasses. The aspect of the site is that of a grassland with scattered mountain shrubs. Grasses make up approximately 80 percent of the plant community with bluegrass wheatgrass being the dominant. Shrubs are dominated by mountain big sagebrush and make up approximately 15 percent of the plant community. Forbs make up approximately 5 percent of the plant community.

2. Plant Community Composition by Weight and Percentage

Grasses and Grasslike, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Bluebunch wheatgrass	PSSP6		1100	1200	55	60
Great basin wildrye	LECI4		100	200	5	10
Nevada bluegrass	PONE3		60	100	3	5
Slender wheatgrass	ELTR7	1	20	60	1	3
Geyer sedge	CAGE2	1	20	60	1	3
Columbia needlegrass	ACNE9	1	20	60	1	3
Needleandthread	HECO26	1	20	60	1	3
Bottlebrush squirreltail	ELEL5	1	20	60	1	3
Sheep fescue	FEOV	1	20	60	1	3
Western wheatgrass	PASM	1	20	60	1	3
King fescue	LEKI2	1	20	60	1	3
Indian ricegrass	ACHY	1	20	60	1	3
Mountain brome	BRCA5	1	20	60	1	3
Letterman needlegrass	ACLE9	1	20	60	1	3
Prairie junegrass	KOMA	1	20	60	1	3
Sandberg bluegrass	POSE	1	20	60	1	3
Bulbous oniongrass	MEBU	1	20	60	1	3
Other perennial grasses	PPGG	1	100	200	5	10
Other annual grasses	AAGG	1	100	200	5	10

Forbs, %

Common Name	National Symbol	Group	Pounds per Acre	% by Weight of Total Composition

			Low	High	Low	High
Common yarrow	ACMI2	2	0	40	0	2
Low beardtongue	PEHU	2	0	40	0	2
Tolmie owlclover	ORTO	2	0	40	0	2
Western mountain aster	ASOC	2	0	40	0	2
Rocky Mountain dwarfsunflower	HEUN	2	0	40	0	2
Louisiana wormwood	ARLU	2	0	40	0	2
Whitestem globemallow	SPMU2	2	0	40	0	2
Shortstem wild buckwheat	ERBR5	2	0	40	0	2
Arrowleaf balsamroot	BASA3	2	0	40	0	2
American purple vetch	VIAM	2	0	40	0	2
Northern mulesears	WYAM	2	0	40	0	2
Eaton fleabane	EREA	2	0	40	0	2
Northwestern Indian paintbrush	CAAN7	2	0	40	0	2
Thickleaf peavine	LALA3	2	0	40	0	2
Sticky purple cranesbill	GEVI2	2	0	40	0	2
Longleaf hawksbeard	CRAC2	2	0	40	0	2
Silverleaf milkvetch	ASAR4	2	0	40	0	2
Meadow goatsbeard	TRDU	2	0	40	0	2
Spurred lupine	LUCAC3	2	0	40	0	2
White stoneseed	LIRU4	2	0	40	0	2
Woollyweed	HISC2	2	0	40	0	2
Northern bedstraw	GABO2	2	0	40	0	2
Other perennial forbs	PPFF	2	100	200	5	10
Other annual forbs	AAFF	2	100	200	5	10

Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Mountain big sagebrush	ARTRV		100	200	5	10
Mountain snowberry	SYOR2	3	20	60	1	3
Saskatoon serviceberry	AMAL2	3	20	60	1	3
Bitterbrush	PUTR2	3	20	60	1	3
Stickyleaf low rabbitbrush	CHVIV4	3	20	60	1	3
Slender wild buckwheat	ERMI4	3	20	60	1	3
Creeping Oregon grape	MARE11	3	20	60	1	3
Spineless horsebrush	TECA2	3	20	60	1	3
Broom snakeweed	GUSA2	3	20	60	1	3
Birchleaf mountainmahogany	CEMO2	3	20	60	1	3
Other shrubs	SSSS	3	100	200	5	10

Trees, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High

Utah juniper	JUOS		200	300	10	15

3. Plant Community Annual Production

At the highest potential similarity index, this site will produce approximately the following amount of air-dry herbage, expressed as pounds/acre:

	Low	High
Favorable Year	1800	2200
Average Year	1600	2000
Unfavorable Year	1200	1500

4. Ground Cover and Structure

a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range (ft)	Percent Basal Area Cover
Grasses & Grass-like (perennial)	60	2	15
Forbs (perennial)	5	1	5
Shrubs	10	3	5
Trees			
Cryptogams			

b. Other

Litter	
Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

As the site deteriorates increased big sagebrush, low rabbitbrush and annual grasses such as cheatgrass and annual forbs replace the valuable soil-holding plants. Bluebunch wheatgrass, basin wildrye, and Nevada bluegrass will decrease in density and vigor. As deterioration continues soil erosion accelerates.

Plant Communities & Transitional Pathways

(Show a steady state diagram with influences to move from one steady state to another)

6. Plant Growth Curves

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Percent Growth	0	0	0	5	20	50	5	10	5	5	0	0
Name	PNC											

ID Number	UT4301
Description	Excellent Condition

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Percent Growth	0	0	0	0	30	50	0	10	10	0	0	0

Name	Good Condition
ID Number	UT4302
Description	needlegrass, bluegrass, sagebrush

7. Aspect Differences Near MLRA Boundaries
(Give related range sites in MLRA's above and below)

8. Associated Sites Within MLRA

047AY432UT
Mountain Loam (Oak)

047AY434UT
Mountain Loam (Shrub)

9. Correlated Sites in Other States
(Give site name and number)

D. MAJOR USES OF THIS SITE

1. Livestock

a. Site Factors Influencing Management

This site has excellent summer grazing for cattle, sheep, and horses.

b. Guide to Forage Quality(Plant preference by season)

Species	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep

VG = Very Good G = Good F = Fair P = Poor

2. Wildlife

a. Site Factors Influencing Management

It is poor to fair potential for openland habitat, good potential for woodland habitat, very poor for wetland habitat and good potential for rangeland habitat. This site is extremely valuable for wildlife habitat because of the great variety and abundance of grasses, forbs and other shrubs produced and the

interspersion of this site among other types of habitat – uplands and dry croplands, woodlands and stream-bottoms with the associated riparian vegetation. This site is located between upland range sites and woodlands.

b. List of Potential Species Present

Resident wildlife on this site include: mule deer, elk, moose and sage grouse.

This is a short list of the more common species found. Many other species are present as well and migratory birds are present at times.

c. Guide to Forage Preference of Managed Wildlife Species

Wildlife Species →				
Plant Species ↓	Use	Season	Use	Season

Use - A = preferred or desirable
B = some use, but less important
C = little use or used occasionally

Season - F = Fall (Oct-Nov)
W = Winter (Dec-Feb)
Sp. = Spring (Mar-May)
Su. = Summer (Jun-Sep)

3. Recreational Uses

This site has good aesthetic appearance and natural beauty. It has a large number of forbs and shrubs which have flowers in bloom from early spring throughout the summer and into the fall. It has a combination of grasses, forbs, small shrubs and large shrubs which offer good snowshoe hare, elk and mule deer is good to excellent on this site. Fishing opportunities are good on streams, lakes and reservoirs through and adjacent to this site. Snowmobiling has high value potential on this site.

4. Wood Products

None

5. Other Uses

E. THREATENED AND ENDANGERED SPECIES

1. Plants

2. Animals
Both the American peregrine falcon and the prairie falcon occasionally use this site, but populations are scarce and widely dispersed.

F. MODAL LOCATION AND DOCUMENTATION

State: Utah County:
Latitude: Longitude:

Modal Soil: Ant Flat Loam 2-40% — fine, montmorillonitic, frigid Calcic Argixeroll

Site Type: Rangeland
Ecological Site Name: Mountain Loam (Mountain big sagebrush)
Site Number: 047AY430UT
Type Location: SW ¼; NW ¼; NW ¼; Section 19, Township 1S, Range 4E Summit Co.

General Legal Description:

Field Office Site Location

Logan
Murray
Provo
Price
Richfield
Cedar City

Data Collected and References

Sampling Source	Number of Records	Range Similarity Index			
		> 76%	51-75%	26-50%	0-25%
NRCS - ECS - 417	63				
UTAH - RANGE - 2					
Permanent Transect Location					

Other References

Attachment 1

Ecological Reference Worksheet

Author(s)/participant(s): V. Keith Wadman
Contact for lead author: _____ **Reference site used? Yes/No**
Date: 6/24/04 **MLRA:** 047A_ **Ecological Site:** Mountain Loam (047AY430UT) Bluebunch wheatgrass, Great basin wildrye, Mountain big sagebrush) **This must be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.**

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.**

1. Number and extent of rills: Minor rill development in exposed areas. Rills present should be short on flatter slopes but may become longer (4 to 6 feet) as slope steepens. They should be somewhat widely spaced (3 to 6 feet), and follow the surface micro-features. Old rills should be weathered and muted in appearance.

2. Presence of water flow patterns: Flow patterns wind around perennial plant bases and show minor evidence of erosion. They are somewhat short and stable and there is only minor evidence of deposition. Evidence of flow will increase somewhat with slope.

3. Number and height of erosional pedestals or terracettes: Plants may show minor pedestialing on their down slope side. Terracettes should be few and stable.

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bareground): 30 – 40%.

5. Number of gullies and erosion associated with gullies: Few. Gullies should show only minor signs of active erosion and should be mostly stabilized with vegetation. Gullies may show slightly more indication of erosion as slope steepens.

6. Extent of wind scoured, blowouts and/or depositional areas: None. Wind caused blowouts and deposition are not present.

7. Amount of litter movement (describe size and distance expected to travel): Some down slope redistribution caused by water. Some litter removal may occur in flow channels with deposition occurring at points of obstruction. Litter movement will increase with slope.

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): 70 to 80% of this site should have an erosion rating of 5 or 6. 20 to 30% may have a rating of 3 to 4. The average should be a 5. Litter accumulation and cryptogamic crusts reduce erosion.

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): Soil surface varies from 2 to 7 inches. Structure varies from fine to medium granular. Color varies from grayish brown (10YR5/2) to very dark brown (7.5YR4/2). There is a mollic epipedon that ranges from 11 to 14 inches deep.

10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: When perennial grasses decrease, reducing ground cover and increasing bare ground, runoff will increase and infiltration will be reduced.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None. Some soils have an argillic horizon at 11 to 14 inches that could be mistaken for a compaction layer.

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): Assumed fire cycle of 40-60 years. Perennial bunchgrasses, non-sprouting shrubs > sprouting shrubs, perennial forbs > invaders such as Cheatgrass & Annual forbs. Dominants: Bluebunch wheatgrass, Great basin wildrye & Mountain big sagebrush; Sub-dominants: Nevada bluegrass, Mountain snowberry. The perennial bunchgrass/non-sprouting shrub functioning group is expected on this site.

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): All age classes of perennial grasses should be present. Slight decadence in the principle shrubs could occur near the end of the fire cycle.

14. Average percent litter cover (20-25%) and depth (.75-1.25 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1600 - 2000 #/acre on an average year.

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": Mountain big sagebrush, Green rabbitbrush, Cheatgrass, Bottlebrush squirreltail & Annual forbs.

17. Perennial plant reproductive capability: All perennial plants should have the ability to reproduce in all years, except in extreme drought years.