

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 Stony Loam (Mountain big sagebrush)

SITE NUMBER: 047AY461UT

MLRA: E47

Original Site Description: Author: DLT DJS

Date: 12/03/1992

Revised Site Description: Author:

Date:

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: 40-60 inches

Surface Textures:

Surface Fragments(<=3" % cover, >3" % cover):

Subsurface Textures: Sandy Loam to Clay with Very Gravelly, Very Stony or Very Cobbly

Subsurface Fragments(<=3" % vol, >3" % vol): >50%

Geologic Parent Materials: Alluvium and Colluvium from Sandstone, Shale, Limestone, Quartzite, Schist, Gneiss and Igneous Rock

Moisture Regime:

Temperature Regime:

Runoff: Slight

Permeability(min-max): Slow to Rapid

Drainage Class(min-max): Well Drained

Water Erosion Hazard: None-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):

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Major Soils Associated With This Site:

Soil Survey Area: 622

Gateview Family ST-L, 2-8%

Bradshaw CBV-VFSL, 40-60%

Etchen CBV-L, 25-70%

Bradshaw SiL, 30-60%

Datwyler CB-SiCL, 30-60%

Sheep Creek CB-L, 30-70%

Dagan GR-L, 25-40%

Horrocks GR-L, 6-10%

Mowebea CB-L, 6-10%

Yeates Hollow L, CBV-L, 2-25%

Utaba L, 0-3%

Hoskin CB-L, 1-70%

St. Marys GR-FSL, 30-60%

Yeates Hollow STE-SiL

Etchen CBV-L, 25-40%

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Stream and Fan Terraces, Outwash Plains, Ground Moraines, Mountainsides and Ridges

Aspect: All

	<u>Minimum</u>	<u>Maximum</u>
Slope:	5	70
Elevation:	5000	9400
Flooding:		
Frequency:		
Duration:		
Ponding:		
Depth (inches):		
Frequency:		
Duration:		
Water Table Depth:		

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 18-22

Mean Annual Air Temperature: 35-45

Mean Annual Soil Temperature: 37-47

Frost Free Period (days): 50-110

Freeze Free Period (days): 0-0

Temperature and Moisture Distribution:

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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

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1. Potential Plant Community Description and Ecological Factors

This site has a general but somewhat scattered aspect of shrubs. The vegetation is approximately 65 percent perennial grasses, 10 percent forbs, and 25 percent shrubs by air-dry weight.

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		450	525	30	35
Slender wheatgrass	ELTR7		75	150	5	10
Letterman needlegrass	ACLE9		45	75	3	5
Nevada bluegrass	PONE3		45	75	3	5
Great basin wildrye	LECI4	1	15	45	1	3
Geyer sedge	CAGE2	1	15	45	1	3
Sheep fescue	FEOV	1	15	45	1	3
Muttongrass	POFE	1	15	45	1	3
Prairie junegrass	KOMA	1	15	45	1	3
Needleandthread	HECO26	1	15	45	1	3
King fescue	LEKI2	1	15	45	1	3
Bottlebrush squirreltail	ELEL5	1	15	45	1	3
Sandberg bluegrass	POSE	1	15	45	1	3
Bulbous bluegrass	MEBU	1	15	45	1	3
Other perennial grasses	PPGG	1	75	150	5	10
Other annual grasses	AAGG	1	75	150	5	10

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Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Common yarrow	ACMI2	2	15	45	1	3
Wyoming Indian paintbrush	CALI4	2	15	45	1	3
Tolmie owllover	ORTO	2	15	45	1	3
Tapertip onion	ALAC4	2	15	45	1	3
Western mountain aster	ASOC	2	15	45	1	3
Shortstem wild buckwheat	ERBR5	2	15	45	1	3
Low beardtongue	PEHU	2	15	45	1	3
Whitestem globemallow	SPMU2	2	15	45	1	3
Sticky purple cranesbill	GEVI2	2	15	45	1	3
Longleaf hawksbeard	CRAC2	2	15	45	1	3
Northern mulesears	WYAM	2	15	45	1	3
Meadow thistle	CISC2	2	15	45	1	3
Louisiana wormwood	ARLU	2	15	45	1	3
Bastard toadflax	COUM	2	15	45	1	3
Rocky mountain dwarfsunflower	HUEN	2	15	45	1	3
Showy false goldeneye	HEMU3	2	15	45	1	3
Hairy false goldenaster	HEVI4	2	15	45	1	3
Spurred lupine	LUCAC3	2	15	45	1	3
Arrowleaf balsamroot	BASA3	2	15	45	1	3
White stoneseed	LIRU4	2	15	45	1	3
Silverleaf milkvetch	ASAR4	2	15	45	1	3
Carpet phlox	PHHO	2	15	45	1	3
Other perennial forbs	PPFF	2	75	225	5	15
Other annual forbs	AAFF	2	75	225	5	15

Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Mountain big sagebrush	ARTRV		150	225	10	15
Bitterbrush	PUTR2		45	75	3	5
Birchleaf mountain mahogany	CEMO2		45	75	3	5
Saskatoon serviceberry	AMAL2	3	15	60	1	4
Mountain snowberry	SYOR2	3	15	60	1	4
Creeping Oregon grape	MARE11	3	15	60	1	4
Stickyleaf low rabbitbrush	CHVIV4	3	15	60	1	4
Central pricklypear	OPPO	3	15	60	1	4
Slender wild buckwheat	ERMI4	3	15	60	1	4
Other shrubs	SSSS	3	75	150	5	10

Trees, %

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

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	1700	1800
Average Year	1400	1500
Unfavorable Year	850	950

4. Ground Cover and Structure

a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range (ft)	Percent Basal Area Cover
Grasses & Grass-like (perennial)	45	2	10
Forbs (perennial)	10	1	5
Shrubs	15	4	10
Trees			
Cryptogams			

b. Other

Litter	
Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

Plant species likely to invade this site upon deterioration are cheatgrass, annual forbs, knotweed, Utah juniper, pinyon pine, rubber rabbitbrush and snakeweed.

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	0	0	0	5	20	50	5	10	5	5	0	0

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Growth												
Name	PNC											
ID Number	UT4611											
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	UT4612											
Description	needlegrass, wheatgrass, and big sagebrush											

7. Aspect Differences Near MLRA Boundaries

(Give related range sites in MLRA's above and below)

8. Associated Sites Within MLRA

047AY430UT
 Mountain Loam (Mountain big sagebrush)

047AY402UT
 Mountain Clay (Northern mulesears)

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 provides summer and fall grazing for all classes of livestock.

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

Topography on this site is broken and provides good diversity of cover and food.

b. List of Potential Species Present

Resident wildlife on this site are: mule deer, elk and moose.

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 appearances and natural beauty. It has a variety of grasses, forbs and shrubs which add diversity and color to the landscape. Hunting for upland game birds, deer and elk is good to excellent.

4. Wood Products

Trees are not found on this site.

5. Other Uses

E. THREATENED AND ENDANGERED SPECIES

1. Plants
2. Animals

F. MODAL LOCATION AND DOCUMENTATION

State: Utah
 Latitude:

County:
 Longitude:

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Modal Soil: Yeates Hollow L, VCBL, 2-25% — clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Type Location: NW ¼, SW ¼, NE ¼, Section 13, Township 2N, Range 11E

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	8				
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 Stony Loam (047AY461UT) Mountain big sagebrush, Bitterbrush, Bluebunch wheatgrass, Slender wheatgrass 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 8 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. The presence of surface coarse fragments may reduce rill formation.

2. Presence of water flow patterns: Flow patterns wind around surface rock & 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 pedestaling 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): 10 - 30%. (Soil surface is typically covered by 35% to 80% rock).

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. The presence of surface rock may mask erosion indicators.

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 4 or 5. 20 to 30% may have a rating of 3 to 4. The average should be a 4. Litter accumulation and cryptogamic crusts reduce erosion. The presence of surface rock also reduces site 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 3 inches. Structure typically ranges from fine to medium granular. Color typically is grayish brown (10YR4/2). A mollic epipedon typically goes to a depth of 10 to 20 inches. Organic matter is 1 to 2%.

10. Effect of plant community composition (relative proportion of different functional

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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.

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 & annual forbs > invaders such as Cheatgrass, Peppergrass & Annual mustards. Dominants: Bluebunch wheatgrass & Mountain big sagebrush; Sub-dominants: Bitterbrush & Slender wheatgrass. 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 bunchgrasses 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 (.50-.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1400 - 1500 #/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": Cheatgrass, Green rabbitbrush, Snakeweed, Sandberg bluegrass & Annual forbs.

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