

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 Gravelly Loam (Oak)

SITE NUMBER: 047AY410UT

MLRA: E47

Original Site Description: Author: DLT TW

Date: 12/16/1991

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: 60 inches

Surface Textures: Very Dark Brown Very Gravelly or Cobbly Loams

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

Subsurface Textures: Very Gravelly and Cobbly Loams to Very Gravelly and Cobbly Clay Loams

Subsurface Fragments(<=3" % vol, >3" % vol): 35-50%

Geologic Parent Materials: Mixed Sedimentary and Igneous Rocks

Moisture Regime:

Temperature Regime:

Runoff: Little

Permeability(min-max):

Drainage Class(min-max): Well Drained

Water Erosion Hazard: Slight to None

Wind Erosion Hazard:

Electrical Conductivity (EC in mmhos/cm):

Sodium Adsorption Ration (SAR):

Soil Reaction (1:1 water):

Soil Reaction (0.1 M CaCl<sub>2</sub>):

pH Range:

Available Water Capacity (inches): 5-7

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Major Soils Associated With This Site:

Soil Survey Area: 613

Ayoub CB-L Org-Sur, 15-40%	Dunford CB-L Org-Sur, 25-40
Horrocks CBV-L, 40-60%	Burgi GR-L, 25-60%
Gappmay, GRFSL&VCBFSL, 15-65%	Mcphie FSL
Burgi L, 40-70%	Durfee ST-L, 30-70%
Henhoit L, 30-60%	Horrocks GR-L, 40-70%
Kilfoil L, 25-60%	Lamondi ST-L, 3-30%
Smarts L, 40-70%	Toncana L, 40-60%

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

## **2. PHYSIOGRAPHIC FEATURES**

Landform and Position: Sloping to Very Steep Mountainsides and Terminal Moraines

Aspect: All

	<u>Minimum</u>	<u>Maximum</u>
Slope:	15	70
Elevation:	5100	8400
Flooding:		
Frequency:		
Duration:		
Ponding:		
Depth (inches):		
Frequency:		
Duration:		
Water Table Depth:		

## **B. CLIMATIC FEATURES**

Mean Annual Precipitation (inches): 16-22

Mean Annual Air Temperature: 39-45

Mean Annual Soil Temperature: 41-47

Frost Free Period (days): 50-90

Freeze Free Period (days): 0-0

Temperature and Moisture Distribution:



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### **1. Potential Plant Community Description and Ecological Factors**

The vegetation of this site is 40 percent grasses, 10 percent forbs, and 50 percent shrubs by air-dry weight with general oak brush aspect.

### **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
Slender wheatgrass	ELTR7		95	190	5	10
Bluebunch wheatgrass	PSSP6		95	190	5	10
Mountain brome	BRCA5		57	95	3	5
Geyer sedge	CAGE2		57	95	3	5
Letterman needlegrass	ACLE9	1	19	57	1	3
Western wheatgrass	PASM	1	19	57	1	3
Columbia needlegrass	ACNE9	1	19	57	1	3
Muttongrass	POFE	1	19	57	1	3
King fescue	LEKI2	1	19	57	1	3
Great basin wildrye	LECI4	1	19	57	1	3
Indian ricegrass	ACHY	1	19	57	1	3
Kentucky bluegrass	POPR	1	19	57	1	3
Other perennial grasses	PPGG	1	95	190	5	10
Other annual grasses	AAGG	1	95	190	5	10

Forbs, %

Common Name	National	Group	Pounds per Acre	% by Weight of
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	Symbol				Total Composition	
			Low	High	Low	High
Thickleaf peavine	LALA3		57	95	3	5
Fendler meadowrue	THFE	2	19	38	1	2
Northwestern Indian paintbrush	CAAN7	2	19	38	1	2
Tolmie owllover	ORTO	2	19	38	1	2
Showy false goldeneye	HEMU3	2	19	38	1	2
Western mountain aster	ASOC	2	19	38	1	2
Coast goldenrod	SOSP	2	19	38	1	2
Hollyleaf clover	TRGY	2	19	38	1	2
Low beardtongue	PEHU	2	19	38	1	2
Common yarrow	ACMI2	2	19	38	1	2
Lobeleaf groundsel	SEMU3	2	19	38	1	2
American purple vetch	VIAM	2	19	38	1	2
Rocky mountain dwarf sunflower	HEUN	2	19	38	1	2
Feathery false solomonsseal	MARAR	2	19	38	1	2
Littleleaf alumroot	HEPA11	2	19	38	1	2
Mountain desert parsley	LOGR	2	19	38	1	2
Spurred lupine	LUCAC3	2	19	38	1	2
Silverleaf milkvetch	ASAR4	2	19	38	1	2
Other perennial forbs	PPFF	2	95	190	5	10
Other annual forbs	A AFF	2	95	190	5	10

### Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Gambel oak	QUGA		475	570	25	30
Mountain snowberry	SYOR2		95	190	5	10
Saskatoon serviceberry	AMAL2		57	95	3	5
Creeping Oregon grape	MARE11	3	19	57	1	3
Bitterbrush	PUTR2	3	19	57	1	3
Birchleaf mountainmahogany	CEMO2	3	19	57	1	3
Mountain big sagebrush	ARTRV	3	19	57	1	3
Stickyleaf low rabbitbrush	CHVIV4	3	19	57	1	3
Slender wild buckwheat	ERMI4	3	19	57	1	3
Chokecherry	PRVI	3	19	57	1	3
Woods rose	ROWO	3	19	57	1	3
Other shrubs	SSSS	3	95	190	5	10

### Trees, %

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

### 3. Plant Community Annual Production

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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	2200	2300
Average Year	2000	1900
Unfavorable Year	1400	1500

#### **4. Ground Cover and Structure**

##### a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range (ft)	Percent Basal Area Cover
Grasses & Grass-like (perennial)	25	2	10
Forbs (perennial)	10	1	5
Shrubs	40	8	15
Trees			
Cryptogams			

##### b. Other

Litter	
Coarse Fragments	
Bare Ground	

#### **5. Ecological Dynamics of the Site**

Species that are not a part of the climax that are most likely to invade this site under excessive grazing use are cheatgrass, annual forbs, curlycup gumweed, houndstongue, flannel mullein, tarweed, rubber rabbitbrush and snakeweed. Gambel oak will increase and may become almost a pure stand under excessive grazing use or repeated range fires.

#### **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
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Percent Growth	0	0	0	5	20	50	5	10	5	5	0	0
Name	PNC											
ID Number	UT4101											
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 No. 1											
ID Number	UT4152											
Description	Needlegrass, Bluegrass, Oak											

### **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)

047AY430UT  
 Mountain Loam (Mountain big sagebrush)

### **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 a fairly good balance of nutritious forage. Sheep, cattle, and horses do well grazing during the spring, summer, and fall seasons.

#### 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

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Wildlife potential is fair to poor for openland, good to fair for woodland, very poor for wetland and good to fair for rangeland.

#### b. List of Potential Species Present

It is good habitat for chukars, quail, mule deer, elk, songbirds, squirrels, snowshoe hares, cottontails, bobcat, and coyotes. It is fair habitat for cougars, bear, golden eagle, hawks and small mammals.

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 excellent potential for aesthetics and natural beauty. It has a large number of forbs and shrubs which have flowers in bloom from early spring throughout the summer and late into the fall. It has shrubs which offer screening for camping and picnicking. Hunting is good for upland game birds, snowshoe hares, elk and mule deer. Fishing is opportune on streams through and adjacent to this site. This site has values for snowmobiling and skiing during a fairly long period of the winter season.

### 4. Wood Products

Fence posts and stays can be harvested from the Gambel oak. This species also supplies fireplace wood, campfire wood and materials for knick-knacks and novelties.

### 5. Other Uses

## E. THREATENED AND ENDANGERED SPECIES

1. Plants

2. Animals

Both the American peregrine falcon and prairie falcon may occasionally seek their prey on this site.

## F. MODAL LOCATION AND DOCUMENTATION

State: Utah

County:

Latitude:

Longitude:

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Modal Soil: Ayoub CB-L, Organic Surface 15-40% – fine-loamy, mixed, frigid Typic Argixerolls

Type Location: SW ¼; NW ¼; NW ¼; Section 36, Township 1N, Range 4E

About three miles SW of Wanship; 900 feet south and 500 feet east of NW corner of Section 36, Township 1N, Range 4E

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					
UTAH - RANGE - 2					
Permanent Transect Location					

### **Other References**

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## Attachment 1

Ecological Reference Worksheet
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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 Gravelly Loam (047AY410UT)  
Slender wheatgrass, Bluebunch wheatgrass, Gambel oak, Mountain snowberry 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. Surface rock may reduce rill formation.

2. Presence of water flow patterns: Flow patterns wind around surface rock and 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): 20 - 30%. (Soil surface is typically covered by 35% to 65% 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.

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 5 to 11 inches. Structure varies from medium granular to subangular blocky. Color varies from brown (7.5YR5/3) to very dark brown (10YR4/2). There is a mollic epipedon that extends from 10 to 20 inches deep.

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. Some soils have an argillic horizon at about 6 to 20 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, large sprouting shrubs > sprouting shrubs, perennial forbs > invaders such as Cheatgrass, curlycup gumweed & Annual forbs. Dominants: Gambel oak, Slender wheatgrass, Bluebunch wheatgrass & Mountain big sagebrush; Sub-dominants: Letterman needlegrass, Bitterbrush. The perennial bunchgrass/ large 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): 1900 - 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": Gambel oak, Green rabbitbrush, curlycup gumweed, Kentucky bluegrass & Xeric perennial & Annual forbs.

17. Perennial plant reproductive capability: All perennial plants should have the ability to reproduce in all years, except in extreme drought years. Gambel oak sprouts vigorously following fire and with repeated fire may completely dominate the site.