

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 Clay (Northern mulesears)

SITE NUMBER: 047AY402UT

MLRA: E47

Original Site Description: Author: DLT TW

Date: 12/17/1991

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: 40-60 inches

Surface Textures: Fine or Moderately Fine

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

Subsurface Textures: Heavy Clay Loam and Clay

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

Geologic Parent Materials: Sedimentary and Fine Grained Igneous Rocks

Moisture Regime:

Temperature Regime:

Runoff:

Permeability(min-max):

Drainage Class(min-max): Well Drained

Water Erosion Hazard:

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):

Major Soils Associated With This Site:

Soil Survey Area: 609

Mondey Family C-L, 15-40%

Mondey CL, 8-30%

Obray SiC, 1-20%

Hawkins SiC, 3-30%

Ant Flat CL, 6-30%

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



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

The general view of this site is low sagebrush. The potential natural plant community is 55 percent perennial grasses, 5 percent forbs, and 40 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
Slender wheatgrass	ELTR7		270	360	15	20
Bluebunch wheatgrass	PSSP6		180	270	10	15
Nevada bluegrass	PONE3		180	270	10	15
Sheep fescue	FEOV		54	90	3	5
Prairie junegrass	KOMA		54	90	3	5
Letterman needlegrass	ACLE9		54	90	3	5
Bulbous oniongrass	MEBU	1	18	36	1	2
Mountain brome	BRCA5	1	18	36	1	2
Bottlebrush squirreltail	ELEL5	1	18	36	1	2
Great basin wildrye	LECI4	1	18	36	1	2
Western wheatgrass	PASM	1	18	36	1	2
Geyer sedge	CAGE2	1	18	36	1	2
Kentucky bluegrass	POPR	1	18	36	1	2
Other perennial grasses	PPGG	1	90	180	5	10
Other annual grasses	AAGG	1	90	180	5	10

Forbs, %

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Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Northern mulesears	WYAM		180	270	10	15
Longleaf hawksbeard	CRAC2	2	18	36	1	2
Western mountain aster	ASOC	2	18	36	1	2
Sticky purple cranesbill	GEVI2	2	18	36	1	2
Common yarrow	ACMI2	2	18	36	1	2
Lambstongue groundsel	SEIN2	2	18	36	1	2
Mountain desert parsley	LOGR	2	18	36	1	2
Brandegee onion	ALBR	2	18	36	1	2
Arrowleaf balsamroot	BASA3	2	18	36	1	2
Longleaf phlox	PHLO2	2	18	36	1	2
Silverleaf milkvetch	ASAR4	2	18	36	1	2
Thickleaf peavine	LALA3	2	18	36	1	2
White checkermallow	SICA3	2	18	36	1	2
Rocky mountain dwarf sunflower	HEUN	2	18	36	1	2
Other perennial forbs	PPFF	2	54	90	3	5
Other annual forbs	AAFF	2	54	90	3	5

Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Bitterbrush	PUTR2	3	18	54	1	3
Mountain snowberry	SYOR2	3	18	54	1	3
Mountain big sagebrush	ARTRV	3	18	54	1	3
Stickyleaf low rabbitbrush	CHVIV4	3	18	54	1	3
Saskatoon serviceberry	AMAL2	3	18	54	1	3
Low sagebrush	ARAR8	3	18	54	1	3
Slender wild buckwheat	ERMI4	3	18	54	1	3
Other shrubs	SSSS	3	54	90	3	5

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	2100	2200
Average Year	1700	1800
Unfavorable Year	900	1000

#### **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)	10	2	5
Shrubs	5	3	5
Trees			
Cryptogams			

##### b. Other

Litter	
Coarse Fragments	
Bare Ground	

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

As this site deteriorates due to grazing pressure the perennial grasses decrease while mulesears and sagebrush increase. With fire as the factor, the big sagebrush will decrease and mulesears will increase. Mulesears may become a solid stand.

#### **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	UT4021											
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	UT4022											
Description	Needlegrass, Bluegrass, 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)

047AY461UT  
 Mountain Stony 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 has high forage values primarily for spring and summer use. It has a relatively high yield and numerous species of grasses, forbs and shrubs. The dominant vegetation is grass, so this site has the highest values when grazed by cattle and horses. It is also good for sheep, but best for spring and early summer grazing by them.

#### 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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This site is fair to poor for openland habitat, good for woodland and rangeland habitat and very poor for wetland wildlife habitat.

**b. List of Potential Species Present**

This site is a good food producer for wildlife that feed on grasses and seeds, but poor for those requiring forbs or shrubs. It is a poor site for wildlife cover except for small mammals and birds.

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 fair values for aesthetics and natural beauty. It is primarily a grassland and does not have wide variety of plant species. It has good potential for snowmobiling. Recreation potential is fair for hunting.

**4. Wood Products**

None

**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: Mondey CL, 8-30% — fine, montmorillonitic, frigid Vertic Argixerolls

Type Location: SE ¼, SW ¼, SE ¼; Section 21, Township 3N, Range 6E

General Legal Description:

**Field Office Site Location**

Logan  
 Provo  
 Richfield  
 Murray  
 Price

**Data Collected and References**

Sampling Source	Number of Records	Range Similarity Index			
		> 76%	51-75%	26-50%	0-25%
NRCS - ECS - 417	10				
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: 6/23/04 MLRA: 047A Ecological Site: Mountain Clay (047AY402UT) Northern mulesears, Slender wheatgrass, Bluebunch 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: Very minor rill development in exposed areas. Any rills present should be short on flatter slopes but may become longer (3 to 6 feet) as slope steepens. They should be somewhat widely spaced (4 to 8 feet), and follow the surface micro-features. Old rills should be weathered and muted in appearance. Surface cracking should not be mistaken for rills.

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. Some surface cracking may be evident during dry periods.

3. Number and height of erosional pedestals or terracettes: None. Some minor frost heaving could be evident but should not be mistaken for pedestaling.

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% 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 litter 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): 80 to 90% of this site should have an erosion rating of 5 or 6. 10 to 20% 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 4 to 7 inches. Structure is subangular blocky. Color varies from dark grayish brown (10YR4/2) to very dark brown (10YR2/2). There is a mollic epipedon that ranges from 8 to more than 30 inches deep depending on soil type.

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 increase in clay content at about 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, perennial forbs, non-sprouting shrubs > sprouting shrubs, xeric perennial forbs > invaders such as Tarweed, Coneflower & Annual forbs. Dominants: Slender wheatgrass, Bluebunch wheatgrass & Mountain big sagebrush; Sub-dominants: Nevada bluegrass, Northern mulesears, Bitterbrush. 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 forbs should be present. Slight decadence in the principle shrubs could occur near the end of the fire cycle.

14. Average percent litter cover (30-40%) and depth (.75-1.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1700 - 1800 #/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": Northern mulesears, Green rabbitbrush, Kentucky bluegrass & Xeric perennial forbs.

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