

UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

STATE: Utah

SITE TYPE: Rangeland

ECOLOGICAL SITE NAME: Mountain Loam (Mountain big sagebrush)

SITE NUMBER: 047CY430UT

MLRA: 047C

Original Site Description: Author: GWL, LLR

Date: 03/18/1992

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: >60 inches

Surface Textures:

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

Subsurface Textures:

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

Geologic Parent Materials: Colluvium and Residuum from Sedimentary Material

Moisture Regime: Ustic

Temperature Regime: Frigid

Runoff: Medium

Permeability(min-max): Moderately Slow to Moderate

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: 047

Morval L, 3-25%

Diagulch L, 3-15%

Zillion Family SL, 4-15%

Widstoe Family ST-L, 10-30%

Coberly Variant L, 4-25%

Breece Family FSL, 3-10%

Gourley Family SiC, 4-25%

Widham Family CN-SCL, 10-30%

**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 dominant aspect of the plant community is mountain big sagebrush and grass. The composition by air-dry weight of the potential plant community is 55 percent perennial grasses, 20 percent forbs, and 25 percent shrubs.

**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 |
| Western wheatgrass      | PASM            |       | 225             | 300  | 15                               | 20   |
| Columbia needlegrass    | ACNE9           |       | 75              | 150  | 5                                | 10   |
| Nevada bluegrass        | PONE3           |       | 75              | 150  | 5                                | 10   |
| Needleandthread         | HECO26          |       | 75              | 150  | 5                                | 10   |
| Prairie junegrass       | KOMA            | 1     | 45              | 75   | 3                                | 5    |
| Mountain brome          | BRCA5           | 1     | 45              | 75   | 3                                | 5    |
| Letterman needlegrass   | ACLE9           | 1     | 45              | 75   | 3                                | 5    |
| Geyer sedge             | CAGE2           | 1     | 45              | 75   | 3                                | 5    |
| Indian ricegrass        | ACHY            | 1     | 45              | 75   | 3                                | 5    |
| Sandberg bluegrass      | POSE            | 1     | 45              | 75   | 3                                | 5    |
| Other perennial grasses | PPGG            | 1     | 75              | 150  | 5                                | 10   |
| Other annual grasses    | AAGG            | 1     | 75              | 150  | 5                                | 10   |

Forbs, %

| Common Name | National | Group | Pounds per Acre | % by Weight of |
|-------------|----------|-------|-----------------|----------------|
|-------------|----------|-------|-----------------|----------------|

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Site Number: 047CY430UT

|                           | Symbol |   |     |      | Total Composition |      |
|---------------------------|--------|---|-----|------|-------------------|------|
|                           |        |   | Low | High | Low               | High |
| Arrowleaf balsamroot      | BASA3  |   | 45  | 75   | 3                 | 5    |
| Longleaf hawksbeard       | CRAC2  |   | 45  | 75   | 3                 | 5    |
| Spurred lupine            | LUCAC3 | 2 | 15  | 45   | 1                 | 3    |
| American purple vetch     | VIAM   | 2 | 15  | 45   | 1                 | 3    |
| Common yarrow             | ACMI2  | 2 | 15  | 45   | 1                 | 3    |
| Small leaf pussytoes      | ANMI3  | 2 | 15  | 45   | 1                 | 3    |
| White wild onion          | ALTE   | 2 | 15  | 45   | 1                 | 3    |
| Eastwood sandwort         | AREAE  | 2 | 15  | 45   | 1                 | 3    |
| Wyoming Indian paintbrush | CALI4  | 2 | 15  | 45   | 1                 | 3    |
| Shaggy fleabane           | ERPU2  | 2 | 15  | 45   | 1                 | 3    |
| Sticky purple geranium    | GEVI2  | 2 | 15  | 45   | 1                 | 3    |
| Hoary tansyaster          | MACA2  | 2 | 15  | 45   | 1                 | 3    |
| Low beardtongue           | PEHU   | 2 | 15  | 45   | 1                 | 3    |
| Carpet phlox              | PHHO   | 2 | 15  | 45   | 1                 | 3    |
| Longleaf phlox            | PHLO2  | 2 | 15  | 45   | 1                 | 3    |
| Showy cinquefoil          | POGR9  | 2 | 15  | 45   | 1                 | 3    |
| Lobeleaf groundsel        | SEMU3  | 2 | 15  | 45   | 1                 | 3    |
| Scarlet globemallow       | SPCO   | 2 | 15  | 45   | 1                 | 3    |
| Sulphurflower eriogonum   | ERUM   | 2 | 15  | 45   | 1                 | 3    |
| Other perennial forbs     | PPFF   | 2 | 75  | 150  | 5                 | 10   |
| Other annual forbs        | AAFF   | 2 | 75  | 150  | 5                 | 10   |

Shrubs, %

| 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   |
| Slender wild buckwheat   | ERMI4           |       | 45              | 75   | 3                                | 5    |
| Longflower rabbitbrush   | CHDE2           | 3     | 15              | 30   | 1                                | 2    |
| Mountain low rabbitbrush | CHVIL4          | 3     | 15              | 30   | 1                                | 2    |
| Winterfat                | KRLA2           | 3     | 15              | 30   | 1                                | 2    |
| Broom snakeweed          | GUSA2           | 3     | 15              | 30   | 1                                | 2    |
| Spineless horsebrush     | TECA2           | 3     | 15              | 30   | 1                                | 2    |
| Mountain snowberry       | SUOR2           | 3     | 15              | 30   | 1                                | 2    |
| Squaw apple              | PERA4           | 3     | 15              | 30   | 1                                | 2    |
| Bitterbrush              | PUTR2           | 3     | 15              | 30   | 1                                | 2    |
| Other shrubs             | SSSS            | 3     | 45              | 75   | 3                                | 5    |

**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   | 1900 | 2000 |
| Average Year     | 1400 | 1500 |
| 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) | 40                   | 2                  | 15                       |
| Forbs (perennial)                | 15                   | 1                  | 5                        |
| Shrubs                           | 15                   | 4                  | 10                       |
| Trees                            |                      |                    |                          |
| Cryptogams                       |                      |                    |                          |

##### b. Other

|                  |  |
|------------------|--|
| Litter           |  |
| Coarse Fragments |  |
| Bare Ground      |  |

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

As this site deteriorates due to grazing pressure Columbia needlegrass, bluegrass, bitterbrush, and palatable forbs decrease while mountain big sagebrush, lupine, rabbitbrush, western wheatgrass and letterman needlegrass increase. Fire will kill mountain big sagebrush, Columbia needlegrass and sometimes bitterbrush, however, western wheatgrass, rabbitbrush and lupine will increase.

#### **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 | 0   | 0   | 0   | 0   | 30  | 50  | 0   | 10  | 10  | 0   | 0   | 0   |

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|             |                                       |  |  |  |  |  |  |  |  |  |  |  |
|-------------|---------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| Growth      |                                       |  |  |  |  |  |  |  |  |  |  |  |
| Name        | Good Condition No.1                   |  |  |  |  |  |  |  |  |  |  |  |
| ID Number   | UT4302                                |  |  |  |  |  |  |  |  |  |  |  |
| 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**

047CY462UT  
 Mountain Stony Loam (Mountain big sagebrush)

047CY460UT  
 Mountain Stony Loam (Browse)

047CY475UT  
 Mountain Windswept Ridge (Black 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 grazing for cattle and sheep in the spring, summer and fall.

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

Site Type: Rangeland  
 Ecological Site Name: Mountain Loam (Mountain big sagebrush)  
 Site Number: 047CY430UT

This site provides food and cover for many species of wildlife.

**b. List of Potential Species Present**

Wildlife using this site include sage grouse, rabbit, coyote, mule deer, and elk.

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 offers colors and aesthetic appeal during the growing season.

**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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 Site Number: 047CY430UT

Modal Soil: Morval L, 3-25% — fine-loamy, mixed Aridic Argiborolls

Type Location: NW ¼, SE ¼, NW ¼, Section 35, Township 2S, Range 25E

General Legal Description:

**Field Office Site Location**

Roosevelt

**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**

## Attachment 1

|                                |
|--------------------------------|
| Ecological Reference Worksheet |
|--------------------------------|

Author(s)/participant(s): V. Keith Wadman  
 Contact for lead author: \_\_\_\_\_ Reference site used? Yes/No  
 Date: 6/28/04 MLRA: 047C Ecological Site: Mountain Loam (047CY430UT) Mountain big sagebrush, Western wheatgrass, Columbia needlegrass 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.

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 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 50% 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 4 to 6 inches. Structure varies widely from fine granular to medium prismatic and moderate subangular blocky. Color is typically dark brown (10YR4/2). There is a mollic epipedon that ranges to 12 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.

Site Type: Rangeland

10

Ecological Site Name: Mountain Loam (Mountain big sagebrush)

Site Number: 047CY430UT

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 forbs > invaders such as Cheatgrass & Annual forbs. Dominants: Western wheatgrass, Columbia needlegrass & Mountain big sagebrush; Sub-dominants: Nevada bluegrass, Needleandthread. 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): **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": **Mountain big sagebrush, Green rabbitbrush, Sandberg bluegrass, Cheatgrass, & Annual forbs.**

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