

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: Semidesert Sandy Loam (Wyoming big sagebrush)

SITE NUMBER: 028AY226UT

MLRA: 028A

Original Site Description: Author: DJS

Date: 11/01/1987

Revised Site Description: Author: DJS

Date: 06/22/1993

Approved by: Title: State Range Cons.

Signed: Pat Shaver

Date: 08/30/1993

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: Loamy Sand

Surface Fragments(<=3" % cover, >3" % cover): 5%

Subsurface Textures:

Subsurface Fragments(<=3" % vol, >3" % vol): 5-10%

Geologic Parent Materials: Alluvium and Sandy Beach from Sedimentary, Basic

Intermediate Igneous and Granitic Materials

Moisture Regime:

Temperature Regime:

Runoff: Slow

Permeability(min-max): Moderate to Moderately Rapid

Drainage Class(min-max): Well Drained

Water Erosion Hazard: Slight

Wind Erosion Hazard: Severe

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): 3-6

Major Soils Associated With This Site:

Soil Survey Area: Box Elder W

Okrist LS Thick Surface

Beryl SL

Crestline SL

Mosida SL

Medburn SL, FSL

Linoyer VFSL

Escalante SL

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



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

The dominant aspect of this plant community is Wyoming big sagebrush. The composition by air-dry weight is approximately 55 percent perennial grasses, 10 percent forbs, and 35 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
Indian ricegrass	ACHY		140	210	20	30
Needleandthread	HECO26		70	105	10	15
Bottlebrush squirreltail	ELEL5		21	35	3	5
Galleta	HIJA		21	35	3	5
Western wheatgrass	PASM		21	35	3	5
Purple threeawn	ARPU9	1	7	21	1	3
Sandhill muhly	MUPU2	1	7	21	1	3
Other perennial grasses	PPGG	1	21	35	3	5
Other annual grasses	AAGG	1	21	35	3	5

#### Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Scarlet globemallow	SPCO	2	7	21	1	3
Twolobe larkspur	DENU2	2	7	21	1	3
Holboell rockcress	ARHO2	2	7	21	1	3
Pacific aster	ASCH2	2	7	21	1	3
Utah milkvetch	ASUT	2	7	21	1	3
Longleaf phlox	PHLO2	2	7	21	1	3
Thorny wirelettuce	STSP6	2	7	21	1	3
Other perennial forbs	PPFF	2	35	70	5	10
Other annual forbs	AAFF	2	35	70	5	10

#### Shrubs/Vines, %

Common Name	National	Group	Pounds per Acre	% by Weight of
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	Symbol				Total Composition	
			Low	High	Low	High
Wyoming big sagebrush	ARTRW		35	70	5	10
Fourwing saltbush	ATCA2		35	70	5	10
Winterfat	KRLA2		35	70	5	10
Low rabbitbrush	CHVI8		21	35	3	5
Nevada jointfir	EPNE	3	7	21	1	3
Shadscale	ATCO	3	7	21	1	3
Spiny hopsage	GRSP	3	7	21	1	3
Nuttall horsebrush	TENU2	3	7	21	1	3
Broom snakeweed	GUSA2	3	7	21	1	3
Cushion wild buckwheat	EROV	3	7	21	1	3
Central pricklypear	OPPO	3	7	21	1	3
Other shrubs	SSSS	3	35	70	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**

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	850	900
Average Year	650	700
Unfavorable Year	450	500

### **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)	5	2	3
Shrubs	25	3	10
Trees			
Cryptogams			

#### b. Other

Litter	
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Coarse Fragments	
Bare Ground	

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

As ecological condition deteriorates due to overgrazing, Indian ricegrass, needleandthread, fourwing saltbush, and winterfat decrease, while Wyoming big sagebrush, low rabbitbrush and broom snakeweed increase.

When the potential natural plant community is burned, Wyoming big sagebrush, Indian ricegrass, and needleandthread decrease while low rabbitbrush increases.

Cheatgrass and annual forbs are most likely to invade this site.

## **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	5	15	40	30	5	5	0	0	0	0
Name	UT2261											
ID Number	PNC											
Description	Excellent Condition											

## **7. Aspect Differences Near MLRA Boundaries**

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

## **8. Associated Sites Within MLRA**

028AY227UT

Semidesert Gravelly Sandy Loam (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 is suited for grazing by cattle and sheep during fall, winter, and spring.

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

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

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

**2. Wildlife**

a. Site Factors Influencing Management

This site provides food and cover for wildlife.

b. List of Potential Species Present

Wildlife using this site include rabbit, coyote, fox, badger, pronghorn antelope, mule deer, and dove.

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**

Resources that have special aesthetic and landscape values are wildflowers. Some recreation uses of this site are hiking and horseback riding.

**4. Wood Products**

None

**5. Other Uses**

**E. THREATENED AND ENDANGERED SPECIES**

1. Plants
2. Animals

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### **F. MODAL LOCATION AND DOCUMENTATION**

State: Utah                      County: Box Elder  
 Latitude:                      Longitude:

Modal Soil: Okrist LS Thick Surface – sandy, mixed, mesic Durixerollic Calciorthids

Type Location: SW ¼, SW ¼, Section 17, Township 6N, Range 18W

General Legal Description: Box Elder County, Utah, Pilot Mountains, East Foot Slopes      SW  
 ¼ SW ¼ Section 17, Township 6N, Range 18W

#### **Field Office Site Location**

Logan  
 Provo  
 Cedar City  
 Murray  
 Richfield

#### **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	4				
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: 6/19/04 MLRA: 028A Ecological Site: Semidesert Sandy Loam(28AY226UT) Indian ricegrass, Wyoming big sagebrush, Fourwing saltbush 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: None to few. Any rills present should be somewhat short in length (less than 8 feet long). 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. An increase in rill formation may be seen after disturbance events such as recent fire or thunderstorms.

2. Presence of water flow patterns: Flow patterns wind around perennial plant bases and show minor evidence of erosion. They are short and stable and there is little evidence of deposition.

3. Number and height of erosional pedestals or terracettes: Plants should show only minor pedestaling. Terracettes should be absent or few.

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bareground): 30 - 50%.

5. Number of gullies and erosion associated with gullies: None to few. Any gullies present should show little sign of active erosion and should be stabilized with vegetation.

6. Extent of wind scoured, blowouts and/or depositional areas: Some minor evidence of wind generated soil movement may be present. Wind caused blowouts and deposition are minor in extent or not present. Minor depositional mounding may be present around perennial plants.

7. Amount of litter movement (describe size and distance expected to travel): Some redistribution caused by both wind and water. Minor litter removal may occur in flow channels with deposition occurring at points of obstruction. Fine litter may be removed from the site by wind action.

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 5. 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 3 to 6 inches. Structure is weak platy to loose granular. Color is from yellowish brown (10YR5/4) to light brown (7.5YR6/4). An ochric epipedon extends to about 6 inches.

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

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groups) & spatial distribution on infiltration & runoff: When perennial grasses and shrubs decrease, reducing ground cover and increasing bare ground, runoff will increase and infiltration can be reduced. A reduction in vegetative structure can reduce snow capture.

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 a silica cementation layer at 15 to 25 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 50-70 years. Perennial grasses, non-sprouting shrubs > sprouting shrubs, annual forbs > invaders such as Cheatgrass & Russian thistle. Dominants: Indian ricegrass & Needleandthread; Sub-dominants: Wyoming big sagebrush, Fourwing saltbush & Winterfat. The perennial grass/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 (5-15%) and depth (.50-.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 650 - 700 #/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, Threeawn & Annual forbs.

17. Perennial plant reproductive capability: All perennial plants should have the ability to reproduce in all years, except in extreme drought years. Green rabbitbrush sprouts vigorously following fire.