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: Upland Shallow Loam (Wyoming big sagebrush)
SITE NUMBER: 047AY320UT
MLRA: E47
Original Site Description: Author: DLT, TW Date: 01/0/1992
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: <20 inches
Surface Textures: Dark Brown with Medium to Moderately Fine Texture, Mostly Very Fine Sandy Loam to Silt Loam
Surface Fragments(<=3" % cover, >3" % cover):
Subsurface Textures:
Subsurface Fragments(<=3" % vol, >3" % vol): 0-40%
Geologic Parent Materials: Limestone, Sandstone, Quartzite, Basalt or Gneiss
Moisture Regime:
Temperature Regime:
Runoff:
Permeability(min-max):
Drainage Class(min-max):
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 CaCl2):
pH Range:
Available Water Capacity (inches):

Major Soils Associated With This Site:

Soil Survey Area: 613
Gridge GR-L 25-50%

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Mountainsides, Foothills and Ridges.
Aspect: SE

	Minimum	Maximum
Slope:	25	70
Elevation:	5500	7000

Flooding:
- Frequency:
- Duration:

Ponding:
- Depth (inches):
- Frequency:
- Duration:

Water Table Depth:

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 14-18
Mean Annual Air Temperature: 42-45
Mean Annual Soil Temperature: 44-47
Frost Free Period (days): 60-110
Freeze Free Period (days): 0-0

Temperature and Moisture Distribution:

Temp	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High	36	42	48	57	68	78	86	83	75	63	48	38
Mean												
Low	16	20	25	32	39	47	55	53	44	34	24	17

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High												
Mean	1.30	1.20	1.40	1.60	1.30	0.80	0.60	0.80	0.90	1.10	1.10	1.20
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

1. Potential Plant Community Description and Ecological Factors

The potential native plant community consists of 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		237.5	285	25	30
Nevada bluegrass	PONE3		47.5	95	5	10
Indian ricegrass	ACHY		47.5	95	5	10
Needleandthread	HECO26	1	9.5	47.5	1	5
Bottlebrush squirreltail	ELEL5	1	9.5	47.5	1	5
Sheep fescue	FEOV	1	9.5	47.5	1	5
Letterman needlegrass	ACLE9	1	9.5	47.5	1	5
Geyer sedge	CAGE2	1	9.5	47.5	1	5
Sandberg bluegrass	POSE	1	9.5	47.5	1	5
Other perennial grasses	PPGG	1	95	142.5	10	15
Other annual grasses	AAGG	1	95	142.5	10	15

Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Longleaf hawksbeard	CRAC2	2	9.5	19	1	2
Shortstem wild buckwheat	ERBR5	2	9.5	19	1	2
Longleaf Phlox	PHLO2	2	9.5	19	1	2
Western mountain aster	ASOC	2	9.5	47.5	1	5
Low beardtongue	PEHU	2	9.5	47.5	1	5
Arrowleaf balsamroot	BASA3	2	9.5	47.5	1	5
White stoneseed	LIRU4	2	9.5	47.5	1	5
Grassy rockgoldenrod	PEPU7	2	9.5	47.5	1	5
Other perennial forbs	PPFF	2	47.5	95	5	10
Other annual forbs	AAFF	2	47.5	95	5	10

Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Wyoming big sagebrush	ARTRW8		95	190	10	20
Bitterbrush	PUTR2		28.5	95	3	10
Sticklyleaf low rabbitbrush	CHVIV4	3	9.5	19	1	2
Spineless horsebrush	TECA2	3	9.5	19	1	2
Broom snakeweed	GUSA2	3	9.5	19	1	2
Slender wild buckwheat	ERMI4	3	9.5	19	1	2
Black sagebrush	ARNO4	3	9.5	19	1	2
Low sagebrush	ARARA	3	9.5	19	1	2
Other shrubs	SSSS	3	28.5	28.5	3	3

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	1000	1100
Average Year	850	950
Unfavorable Year	600	700

4. Ground Cover and Structure

a. Vegetative

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

b. Other

Litter	
Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

Species not a part of the climax that are most likely to invade this site if cover deteriorates are cheatgrass, annual forbs, peppergrass, rubber rabbitbrush and snakeweed. Big sagebrush, low sagebrush and yellowbrush increase considerably when this site is grazed too heavily. In poor condition, almost pure stands of one or more of these three species may occur.

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	20	10	5	5	0	0	0
Name	PNC											
ID Number	UT3201											
Description	Excellent Condition											

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Percent Growth	0	0	0	10	40	35	5	5	5	0	0	0
Name	Good Condition No.1											
ID Number	UT3202											
Description	Bluegrass, Squirreltail, Big sagebrush											

7. Aspect Differences Near MLRA Boundaries
(Give related range sites in MLRA's above and below)

8. Associated Sites Within MLRA

047AY308UT
Upland Loam (Basin big sagebrush)

047AY336UT
Upland Stony Loam (Pinyon-Juniper)

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 good grazing for cattle, sheep and horses for spring, summer, and fall use.

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

This is poor to very poor potential for openland habitat, fair to poor potential for woodland habitat, very poor potential for wetland habitat, and fair to poor potential rangeland habitat.

b. List of Potential Species Present

This site is fair to poor habitat for deer, antelope, jack rabbits, cottontails, coyotes, hawks and other small animals and birds. It frequently provides food for deer and antelope during the winter.

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 to good aesthetic appeal and natural beauty. It has a relatively large number of forbs and a few shrubs which bloom in the spring and early summer. It has very little value for screening because of the low growing nature of the plants. It has only fair to poor value for camping and picnicking. Hunting is good for upland game birds, particularly sage grouse, chukars, and for jack rabbits and cottontails, but poor for mule deer. Summer home opportunities are poor. Snowmobiling is a good recreation value on this on this site.

4. Wood Products

This site has no woodland values except three sagebrush species that may be used for campfires.

5. Other Uses

E. THREATENED AND ENDANGERED SPECIES

1. Plants

2. Animals

F. MODAL LOCATION AND DOCUMENTATION

State: Utah County:
Latitude: Longitude:

Modal Soil: loamy, mixed (calcareous), frigid Lithic Xerorthents

Type Location: NW ¼, NW ¼, NE ¼, Section 14, Township 1N, Range 5E

General Legal Description:

Field Office Site Location
Logan
Murray
Provo
Price
Richfield

Data Collected and References

Sampling Source	Number of Records	Range Similarity Index			
		> 76%	51-75%	26-50%	0-25%
NRCS - ECS - 417	2				
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:** Upland Shallow Loam (047AY320UT) Wyoming big sagebrush, Bluebunch wheatgrass, Bitterbrush) **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 12 feet) as slope steepens. They should be somewhat widely spaced (4 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 pedestialing 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 with 30% 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: Little evidence of wind generated soil movement. 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 0 to 6 inches. Structure is subangular blocky. Color is red (2.5YR4/6). An orhric epipedon goes to a depth of 6 inches.

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.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None. Bedrock occurs at approximately 17 inches.

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 & Wyoming big sagebrush; Sub-dominants: Bitterbrush & Indian ricegrass & Nevada bluegrass. 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 (10-20%) and depth (.50-.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 850 - 950 #/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.