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 Stony Loam (Black sagebrush)
SITE NUMBER: 047AY332UT
MLRA: E47
Original Site Description: Author: JHB Date: 02/18/1992
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: Stony, Gravelly, and Silty Loams
Subsurface Fragments(<=3" % vol, >3" % vol): >50%
Geologic Parent Materials:
Moisture Regime:
Temperature Regime:
Runoff: Medium to Rapid
Permeability(min-max): Moderately Slow to Moderately Rapid
Drainage Class(min-max): Well Drained
Water Erosion Hazard: Moderate to High
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): 2-5

Major Soils Associated With This Site:

Soil Survey Area: 604

Lonjon SiL, 2-10%, 10-30%	Ramshorn GR-L, 2-15%, 15-40%
Highams L, 2-15%, 15-40%	Searla GRV-SiL, 8-25%
Sumine ST-L, 25-50%	

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Foothills, Alluvial Fans, Ridges, and Cinder Cones
Aspect: Low Elevation-East / High Elevation-South

	Minimum	Maximum
Slope:	2	50
Elevation:	6200	7700

Flooding:
- Frequency:
- Duration:

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

Water Table Depth:

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 12-16
Mean Annual Air Temperature: 38-44
Mean Annual Soil Temperature: 0-0
Frost Free Period (days): 60-85
Freeze Free Period (days): 70-100

Temperature and Moisture Distribution:

Temp	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High	33	35	41	53	65	74	83	81	73	60	44	35
Mean	22	23	29	40	50	57	65	63	55	44	33	25
Low	11	11	16	26	34	40	47	45	37	29	21	14

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High	3.90	2.00	2.30	2.70	3.20	3.00	1.60	3.40	3.00	2.30	3.60	5.40
Mean	1.80	1.00	1.20	1.40	1.60	1.50	0.80	1.70	1.50	1.10	1.80	2.70
Low	0.10	0.10	0.20	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00

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 general view of this site is grass-shrub. The potential natural plant community is 50 percent perennial grasses, 10 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
Bluebunch wheatgrass	PSSP6		90	150	15	25
Nevada bluegrass	PONE3		30	60	5	10
Western wheatgrass	PASM		18	30	3	5
Sandberg bluegrass	POSE		12	30	2	5
Bottlebrush squirreltail	ELEL5		6	30	1	5
Needleandthread	HECO26	1	6	30	1	5
Indian ricegrass	ACHY	1	6	30	1	5
Letterman needlegrass	ACLE9	1	6	30	1	5
Prairie junegrass	KOMA	1	6	30	1	5
Muttongrass	POFE	1	6	30	1	5
Other perennial grasses	PPGG	1	18	30	5	15
Other annual grasses	AAGG	1	18	30	3	5

Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Arrowleaf balsamroot	BASA3		12	30	2	5
Carpet phlox	PHHO		6	30	1	5
Shortstem wild buckwheat	ERBR5	2	0	30	0	5
Silverleaf milkvetch	ASAR4	2	0	30	0	5
Common yarrow	ACMI2	2	0	30	0	5
Wavyleaf thistle	CIUN	2	0	30	0	5
Blue flax	LIPE2	2	0	30	0	5
Salsify	TRPO	2	0	30	0	5
Mountain desert parsley	LOGR	2	0	30	0	5
Mountain pepperweed	LEMO2	2	0	30	0	5
Other perennial forbs	PPFF	2	30	90	5	15
Other annual forbs	AAFF	2	18	30	3	5

Shrubs/Vines, %

Common Name	National	Group	Pounds per Acre	% by Weight of

	Symbol				Total Composition	
			Low	High	Low	High
Black sagebrush	ARNO4		165	195	27	33
Stickyleaf low rabbitbrush	CHVIV4		17	30	3	5
Bitterbrush	PUTR2		12	30	2	5
Saskatoon serviceberry	AMAL2		6	30	1	5
Wyoming big sagebrush	ARTRW8	3	6	30	1	5
Slender wild buckwheat	ERMI4	3	6	30	1	5
Creeping Oregon grape	MARE11	3	6	30	1	5
Central pricklypear	OPPO	3	6	30	1	5
Other shrubs	SSSS	3	30	90	5	15

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	750	950
Average Year	550	650
Unfavorable Year	250	400

4. Ground Cover and Structure

a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range (ft)	Percent Basal Area Cover
Grasses & Grass-like (perennial)	15	1	10
Forbs (perennial)	5	1	5
Shrubs	30	1	10
Trees			
Cryptogams			

b. Other

Litter	

Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

As this site deteriorates due to grazing pressure, beardless bluebunch wheatgrass, muttongrass, and Nevada bluegrass decrease while stickyleaf low rabbitbrush and Sandberg bluegrass increase. Fire will kill or reduce black sagebrush but stickyleaf low rabbitbrush will increase. Cheatgrass and thistle will invade as range condition diminishes.

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	UT3321											
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	UT3322											
Description	needlegrass, bluegrass, black sagebrush											

7. Aspect Differences Near MLRA Boundaries

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

8. Associated Sites Within MLRA

047AY338UT
Upland Stony Loam (Wyoming big sagebrush)

047AY316UT
Upland Shallow 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 used by cattle and sheep during 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

This site has high values for rangeland and openland but low values for woodland and wetland.

b. List of Potential Species Present

Wildlife species that may be found on this site are sage grouse, pronghorn, 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 has high values for aesthetic and natural beauty. The flowers of forbs and shrubs are colorful in the spring. Recreation activities engaged in are hiking, hinting, and motorbiking.

4. Wood Products

None

5. Other Uses

E. THREATENED AND ENDANGERED SPECIES

1. Plants

2. Animals

F. MODAL LOCATION AND DOCUMENTATION

State: Utah County:
Latitude: Longitude:

Modal Soil: Lonjon SiL, 2-10%, 10-30% — loamy-skeletal, carbonatic, frigid Typic Calcixerolls

Type Location: NW ¼; Section 9, Township 13N, Range 5E. South of Bear Lake Along Otter Creek Northwest of Randolph, Utah and Black Mountain North of South Eden Canyon. Utah North

General Legal Description:

Field Office Site Location
Logan
Provo
Murray
Price
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	9				
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 Stony loam (047AY332UT) Black sagebrush, 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: 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 (3 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 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. 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 3 to 10 inches. Structure is fine platy. Color is typically varies from light grayish brown (10YR6/2) to brown (10YR4/3). Soils typically have a mollic epipedon that extends from 8 to 17 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.

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 bedrock at approximately 10 to 30 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 40-70+ years. Perennial grasses, non-sprouting shrubs > sprouting shrubs, perennial & annual forbs > invaders such as Cheatgrass & Annual forbs. Dominants: Bluebunch wheatgrass & Black sagebrush; Sub-dominants: Nevada bluegrass, Western wheatgrass, Bitterbrush. 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 long fire cycle.

14. Average percent litter cover (10-15%) and depth (.50-.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 900 - 1000 #/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": Green rabbitbrush, Bottlebrush squirreltail & Annual forbs.

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