UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

STATE: Utah
SITE TYPE: Rangeland
ECOLOGICAL SITE NAME: Upland Very Steep Stony Loam (Pinyon-Juniper)
SITE NUMBER: 047CY340UT
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: 40-60 inches
Surface Textures:
Surface Fragments(<=3" % cover, >3" % cover): 10-60%
Subsurface Textures:
Subsurface Fragments(<=3" % vol, >3" % vol): >50%
Geologic Parent Materials: Residuum and Colluvium from Weber and Moenkopi Sandstone, and Shale
Moisture Regime: Ustic
Temperature Regime: Frigid
Runoff: Rapid
Permeability(min-max): Moderately Slow
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 $CaCl_2$):
pH Range:
Available Water Capacity (inches): 4-7

Major Soils Associated With This Site:

Soil Survey Area: 047
Towave Family STX-FSL, 50-80% Sheecal CN-L, 40-80%

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Mountain Sideslopes, Backslopes, and Shoulders
Aspect: S/S

	Minimum	Maximum
Slope:	40	80
Elevation:	6500	7800

Flooding:
- Frequency:
- Duration:

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

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 12-16
Mean Annual Air Temperature: 42-44
Mean Annual Soil Temperature: 45-47
Frost Free Period (days): 90-110
Freeze Free Period (days): 0-0

Temperature and Moisture Distribution:

Temp	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High												
Mean												
Low	20	26	32	40	50	58	65	63	55	45	32	23

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High												
Mean	1.00	0.80	0.70	1.00	1.30	1.40	1.00	1.70	1.40	1.30	1.00	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 dominant aspect of the plant community is pinyon pine and Utah juniper. The composition by air-dry weight of the potential plant community is 25 percent trees, 15 percent grasses, 5 percent forbs, and 30 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
Bluebunch wheatgrass	PSSP6		36	60	3	5
Indian ricegrass	ACHY		36	60	3	5
Needleandthread	HECO26		36	60	3	5
Prairie junegrass	KOMA	1	12	36	1	3
Nevada bluegrass	PONE3	1	12	36	1	3
Geyer sedge	CAGE2	1	12	36	1	3
Bottlebrush squirreltail	ELEL5	1	12	36	1	3
Sandberg bluegrass	POSE	1	12	36	1	3
Salina wildrye	LESAS	1	12	36	1	3
Other perennial grasses	PPGG	1	36	60	3	5
Other annual grasses	AAGG	1	36	60	3	5

Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Lesser rushy milkvetch	ASCO12	2	12	24	1	2
Sulphurflower wild buckwheat	ERUM	2	12	24	1	2
Western tansymustard	DEPI	2	12	24	1	2
Longleaf phlox	PHLO2	2	12	24	1	2
Grassy rockgoldenrod	PEPU7	2	12	24	1	2
Shaggy fleabane	ERPU2	2	12	24	1	2
Hoary tansyaster	MACA2	2	12	24	1	2
Other perennial forbs	PPFF	2	36	60	3	5
Other annual forbs	AAFF	2	36	60	3	5

Shrubs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Black sagebrush	ARNO4		120	180	10	15
Birchleaf mountainmahogany	CEMO2		36	60	3	5
Slender wild buckwheat	ERMI4	3	12	24	1	2
Bitterbrush	PUTR2	3	12	24	1	2
Mormontea	EPVI	3	12	24	1	2
Spineless horsebrush	TESP2	3	12	24	1	2
Central pricklypear	OPPO	3	12	24	1	2
Mountain big sagebrush	ARTRV	3	12	24	1	2
Gambel oak	QUGA	3	12	24	1	2
Broom snakeweed	GUSA2	3	12	24	1	2
Mountain low rabbitbrush	CHVIL4	3	12	24	1	2
Other shrubs	SSSS	3	36	60	3	5

Trees, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Pinyon pine	PIED	4	240	300	20	25
Utah juniper	JUOS	4	240	300	20	25

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	1300	1400
Average Year	1100	1200
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)	10	2	5
Forbs (perennial)	5	1	5
Shrubs	15	3	10
Trees	36	12	25
Cryptogams			

b. Other

Litter	
Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

As this site deteriorates due to grazing pressure perennial grasses decrease while shrubs and pinyon-juniper increase. Fire will eliminate or reduce pinyon-juniper while some perennial grasses and forbs 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	5	15	40	20	10	5	5	0	0	0
Name	PNC											
ID Number	UT3351											
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	UT3352											
Description	wheatgrass, needlegrass, shrub, pinyon-juniper											

7. Aspect Differences Near MLRA Boundaries

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

8. Associated Sites Within MLRA

047CY326UT
Upland Shallow Loam (Pinyon-Utah juniper)

047CY310UT
Upland 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 is unsuitable for grazing because of steep slopes.

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 provides food and cover for many species of wildlife.

b. List of Potential Species Present

Wildlife using this site include 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

The pinyon pine and Utah juniper are valuable for screening, camping, picnicking, and hiking. This site receives very limited recreational use because of steep slopes.

4. Wood Products

Site index for pinyon-juniper is 60.

5. Other Uses

E. THREATENED AND ENDANGERED SPECIES

1. Plants

2. Animals

F. MODAL LOCATION AND DOCUMENTATION

State: Utah County:
Latitude: Longitude:

Modal Soil: Towave Family STX-FSL, 50-80% Eroded — loamy-skeletal, mixed Aridic Haploborolls

Type Location: SE ¼, SW ¼, NE ¼, Section 23, Township 5S, 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:** Upland Very Steep Stony loam (47CY340UT) Pinyon-juniper, Black sagebrush, Indian ricegrass, 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 (6 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 by 30 to 70% 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): 60 to 70% of this site should have an erosion rating of 4 or 5. 30 to 40% may have a rating of 2 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 2 to 4 inches. Structure typically varies from weak coarse platy to medium sub-angular blocky. Color varies from dark brown (10YR3/3) to very dark reddish brown (2.5YR3/4). Soils typically have ochric or mollic epipedons ranging from 5 to 13 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. Significant increases in Pinyon-juniper canopy reduces understory vegetation and increases runoff.

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 29 to 39 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 grasses, non-sprouting shrubs > sprouting shrubs, annual forbs > invaders such as Cheatgrass & Annual forbs. Dominants: Indian ricegrass, Mountain big sagebrush; Sub-dominants: Black sagebrush, Bitterbrush & Needleandthread. The perennial grass/non-sprouting shrub functioning group is expected as understory 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 and overstory trees could occur near the end of the fire cycle.

14. Average percent litter cover (20-25%) and depth (.50-.75 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1100 - 1200 #/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. Understory reproduction is reduced as overstory canopy closes.