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: Alkali Bottom (Alkali sacaton)
SITE NUMBER: 028AY001UT
MLRA: 028A
Original Site Description: Author: DJS Date: 02/01/1987
Revised Site Description: Author: DJS Date: 07/01/1993
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: Thin Loam or Silt
Surface Fragments(<=3" % cover, >3" % cover): 0
Subsurface Textures: Silt Loam, Silty Clay Loam, or Silty Clay
Subsurface Fragments(<=3" % vol, >3" % vol): 0
Geologic Parent Materials: Lacustrine from Mixed Sedimentary & Igneous
Moisture Regime:
Temperature Regime:
Runoff:
Permeability(min-max): Slow
Drainage Class(min-max): Poorly Drained
Water Erosion Hazard:
Wind Erosion Hazard:
Electrical Conductivity (EC in mmhos/cm): 8-16
Sodium Adsorption Ration (SAR):
Soil Reaction (1:1 water):
Soil Reaction (0.1 M CaCl2):
pH Range:
Available Water Capacity (inches): 7-10

Major Soils Associated With This Site:

Soil Survey Area: 611

Bramwell SiL	Kanosh L
Sonoma SiCL	Airport SiL
Arapien FSL	Benjamin SiCL
Chipman SiCL	Decker FSi
Dyrend	Ford L
Fridlo L	Jordon SiCL
Kirkham SiCL	Lasil SiL
Leland FSL, SiL	Payson SiL
Refuge L	Sunset L
Syracuse LFS	Terminal L
Trenton SiL	Warm Springs FSL

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: Low Lake Terraces and Terraced Lake Plains
Aspect:

	Minimum	Maximum
Slope:	0	3
Elevation:	4250	5900

Flooding:
- Frequency:
- Duration:

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

Water Table Depth:

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 6-12
Mean Annual Air Temperature: 45-52
Mean Annual Soil Temperature: 47-52
Frost Free Period (days): 0-0
Freeze Free Period (days): 90-120

Temperature and Moisture Distribution:

Temp	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High	42	48	56	63	75	86	93	90	82	70	50	43
Mean												
Low	14	19	23	30	38	45	53	52	42	31	21	15

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

ppt	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High												
Mean	0.61	0.53	1.01	0.97	0.84	0.53	0.83	0.74	0.63	0.69	0.72	0.50
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 salt and alkali tolerant grasses. The composition by air-dry weight is approximately 85 percent perennial grasses, 5 percent forbs, and 10 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
Coastal saltgrass	DISP		370	462.5	20	25
Alkali sacton	SPAI		277.5	370	15	20
Alkali bluegrass	POJU		185	277.5	10	15
Great basin wildrye	LECI4		92.5	185	5	10
Douglas sedge	CADO2		55.5	92.5	3	5
Baltic rush	JUBAM		55.5	92.5	3	5
Beardless wildrye	LETR5	1	18.5	55.5	1	3
Western wheatgrass	PASM	1	18.5	55.5	1	3
Nuttall alkaligrass	PUNU2	1	18.5	55.5	1	3
Bottlebrush squirreltail	ELEL5	1	18.5	55.5	1	3
Foxtail barley	HOJU	1	18.5	55.5	1	3
Mat muhly	MURI	1	18.5	55.5	1	3
Prairie cordgrass	SPGR	1	18.5	55.5	1	3
Other perennial grasses	PPGG	1	92.5	185	5	10
Other annual grasses	AAGG	1	92.5	185	5	10

Forbs, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Silverscale	ATAR2	2	18.5	55.5	1	3
Fireweed	KOSC	2	18.5	55.5	1	3
Slender seepweed	SUOC	2	18.5	55.5	1	3
Fivehorn smotherweed	BAHY	2	18.5	55.5	1	3
Hollyleaf clover	TRGY	2	18.5	55.5	1	3
Poverty weed	IVAX	2	18.5	55.5	1	3
King mousetail	IVKI	2	18.5	55.5	1	3
Seaside arrowgrass	TRMA4	2	18.5	55.5	1	3
Drummond goldenweed	ISDR	2	18.5	55.5	1	3
Fiddleleaf hawksbeard	CRRU3	2	18.5	55.5	1	3
Alkalimallow	MALE3	2	18.5	55.5	1	3
Smallflower annual Indian paintbrush	CAEX6	2	18.5	55.5	1	3
Other perennial forbs	PPFF	2	92.5	185	5	10
Other annual forbs	AAFF	2	92.5	185	5	10

Shrubs/Vines, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Greasewood	SAVE4		92.5	185	5	10
Basin saltbrush	ATTR3	3	18.5	55.5	1	3
Greenmolly	KOAM	3	18.5	55.5	1	3
Iodinebush	ALOC2	3	18.5	55.5	1	3
Fourwing saltbush	ATCA2	3	18.5	55.5	1	3
Threadleaf rubber rabbitbrush	CHNAC2	3	18.5	55.5	1	3
Basin big sagebrush	ARTRT	3	18.5	55.5	1	3
Gardner saltbrush	ATGA	3	18.5	55.5	1	3
Whiteflower rabbitbrush	CHAL9	3	18.5	55.5	1	3
Ill scented sumac	RHTRT	3	18.5	55.5	1	3
Other shrubs	SSSS	3	55.5	92.5	3	5

Trees, %

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High

3. Plant Community Annual Production

Site Type: Rangeland
Ecological Site Name: Alkali Bottom (Alkali sacaton)
Site Number: 028AY001UT
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	2400	2600
Average Year	1650	1850
Unfavorable Year	900	1100

4. Ground Cover and Structure

a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range (ft)	Percent Basal Area Cover
Grasses & Grass-like (perennial)	60	2	50
Forbs (perennial)	5	1	1
Shrubs	5	2.5	1
Trees			
Cryptogams			

b. Other

Litter	
Coarse Fragments	
Bare Ground	

5. Ecological Dynamics of the Site

Alkali sacaton produces an abundant supply of exceptionally long-lived seed, which enables this species to extend its stand rather vigorously on favorable areas.

As ecological condition deteriorates due to overgrazing, alkali sacaton, alkali bluegrass, and wildrye decrease while annual forbs and rabbitbrush increase.

When the potential natural plant community is burned, perennial grasses decrease while annual forbs and rabbitbrush increase.

Cheatgrass and halogeton 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	25	50	10	0	0	5	5	0	0
Name	PNC											
ID Number	UT0011											
Description	Excellent Condition											

7. Aspect Differences Near MLRA Boundaries

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

8. Associated Sites Within MLRA

028AY004UT
Alkali Flat (Greasewood)

028AY004UT
Loamy Bottom (Great basin wildrye)

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 cattle and sheep grazing during spring, summer, fall, or winter and grazing suitability is good.

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

Wildlife food and cover are satisfactory on this site.

b. List of Potential Species Present

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

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 hunting.

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: Bramwell SiL—fine-silty, mixed, mesic Aquic Calciorthids

Site Type: Rangeland
Ecological Site Name: Alkali Bottom (Alkali sacaton)
Site Number: 028AY001UT

Type Location: Section 3, Township 1N, Range 1W; Section 24, Township 16S, Range 7W; NW ¼ Section 21, Township 5N, Range 2W; Section 23, Township 6N, Range 3W

General Legal Description:

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	12				
UTAH - RANGE - 2	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: 6/15/04 **MLRA:** 028A **Ecological Site:** Alkali Bottom (028AY001UT)Alkali sacaton, Saltgrass, Greasewood **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 very few. Any rills present should be short in length (less than 4 feet long) 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 plants bases and show little 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 little or no pedestialing. Terracettes should be absent or rare.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bareground):** 10 – 20%.

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

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):** Most litter resides in place with minor redistribution caused by water movement. Minor litter removal may occur in flow channels with deposition occurring at points of obstruction.

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):** 80 to 90% of this site should have an erosion rating of 5 or 6. 10 to 20% may have a rating of 3 to 5. The average should be a 5.

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 8 to 10". Structure is platy to subangular blocky. Color is light grey (10YR6/1). An ochric epipedon extends to about 10 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 can increase and infiltration 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.

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. Large perennial bunchgrasses, sprouting shrubs > Small perennial grasses non-sprouting shrubs, annual forbs & grasses > invaders such as Cheatgrass & Halogeton. Dominants: Alkali sacaton, Greasewood; Sub-dominants: Coastal saltgrass, Alkali bluegrass, Saltbush species. The perennial grass/sprouting shrub (Greasewood) 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 (25-35%) and depth (.50-1.0 inch).

15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1650 - 1850 #/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, Halogeton, Green rabbitbrush, & Annual forbs.

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