

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 Fan (Castlevalley Saltbush)

SITE NUMBER: 035XY006UT

MLRA: D-35

Original Site Description: Author:

Date: 01/25/1984

Revised Site Description: Author:

Date: 08/10/1993

Revised Site Description: Author: SM

Date: 07/30/2004

Approved by: Title: Signed:

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

1. SOILS

Depth: very deep (greater than 60 inches) except Littleman which is moderately deep (20-40 inches)

Surface Textures: fine sandy loam, gravelly loam, gravelly clay loam, and clay

Surface Fragments (<=3" % cover, >3" % cover): 0 to 25%

Subsurface Textures: extremely gravelly sandy loam, clay loam, gravelly clay loam, silty clay loam, silty clay and clay.

Subsurface Fragments (<=3" % vol. >3" % vol.): 0 to 35%

Geologic Parent Materials: alluvium and residuum derived from shale, sandstone, and diorite. (Geologic Formations: Tropic Shale)

Moisture Regime: Typic Aridic and Ustic Aridic

Temperature Regime: Mesic

Runoff: medium

Permeability (min-max): slow (0.06 to 0.2 in/hr)

Drainage Class (min-max): well

Water Erosion Hazard: moderate

Wind Erosion Hazard: moderate

Electrical Conductivity (EC in mmhos/cm): 0 to 16 (nonsaline to moderately saline)

Sodium Adsorption Ration (SAR): 0 to 10 (nonsodic to slightly sodic)

Calcium Carbonate Equivalent (%): 15 to 30%

pH Range(1:1 water): 8.2 to 9.0

Available Water Capacity (inches): 6 to 10 inches

Soils are sodium and saline affected. Average annual soil loss is potential is less than 0.5 tons/acre. Littleman and Baldfield – saline has cracks in that extend to the surface during the period June through November. Littleman has a rapid permeability (6 in/hr to 20 in/hr) and an available water capacity of 4 to 7 inches). Baldfield and Baldfield – saline have an available water capacity of 10 to 11 inches due to the heavy clay textures. Control section has usually 35 to 50% clay in it.

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Major Soils Associated With This Site (*Soil Survey Area + Series Name*):

Henry Mountains Area (631): **Leebench** in mapunits 16, 43 & 44.
 Glen Canyon NRA: **Leebench** in mapunit 103.
 San Juan County – Central Part (638): **Littlenan** in mapunits 18, 19 & 47.
 Panguitch Area (636): **Baldfield** in mapunits 10 & 11.
 Grand Staircase Escalante NM (686): **Baldfield – saline** in mapunit 5090.

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: upland terraces, fan terraces, alluvial fans, dissected alluvial fans and usually found near outcroppings of shale bedrock
 Aspect: all

	<u>Minimum</u>	<u>Maximum</u>
Slope:	0%	20%
Elevation:	4,600 ft	6,600 ft
Flooding:	None	
Frequency:		
Duration:		
Ponding:	None	
Depth (inches):		
Frequency:		
Duration:		
Water Table Depth:		

B. CLIMATIC FEATURES

Mean Annual Precipitation (inches): 5 to 12 inches
 Mean Annual Air Temperature: 45°F to 55°F
 Mean Annual Soil Temperature: 47°F to 57°F
 Frost Free Period (days): 120 to 180 days
 Freeze Free Period (days): 100 to 160 days

Temperature and Moisture Distribution:

Climate Stations: St. ID. : 422592 Location: Escalante, Utah Period: From: 5/1901 To: 7/2003

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
High Mean	40.4	45.6	54.4	63.2	72.8	83.6	88.7	85.6	78.4	66.8	52.6	41.9	64.5
Average Mean	27.2	32.9	40.3	47.9	56.3	65.4	71.4	69.0	61.3	50.8	38.4	29.0	49.2
Low Mean	13.9	20.2	26.2	32.5	39.9	47.2	54.2	52.4	44.2	34.8	24.2	16.1	33.8

Precipitation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Highest	4.44	3.06	3.46	3.30	2.50	2.50	5.41	4.50	5.70	5.57	4.65	3.76	21.70
Average Mean	0.95	0.79	0.84	0.57	0.60	0.47	1.20	1.83	1.16	1.06	0.65	0.80	10.91
Lowest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.7	0.00	0.00	0.00	0.00	4.79

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Climate Stations: St. ID. : 420688 Location: Big Water, Utah Period: From: 5/1986 To: 7/2003

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
High Mean	47.4	54.1	65.0	75.3	84.3	95.2	99.8	96.4	88.3	75.3	58.7	47.0	73.9
Average Mean	35.7	41.4	50.1	59.0	67.3	77.3	82.8	80.5	72.0	59.5	45.3	35.1	58.8
Low Mean	24.1	28.7	35.2	42.6	50.2	59.4	65.9	64.6	55.6	43.7	32.0	23.3	43.8

Precipitation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Highest	3.16	1.66	2.93	2.14	1.18	0.67	1.33	2.29	2.66	3.53	1.33	0.93	9.00
Average Mean	0.52	0.66	0.64	0.43	0.33	0.14	0.52	0.72	0.74	0.85	0.43	0.29	6.27
Lowest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	3.22

Approximately 70-75% occurs as rain from March through October. On the average, April, May, and June are the driest months and August through October are the wettest months. Precipitation is extremely variable from month to month and from year to year. Much of the summer precipitation occurs as convection thunderstorms. This site receives some run-in moisture from associated shale outcrops during high intensity convection storms.

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

(Includes dominant vegetative aspect, cool-season and warm-season components, typical plant spacing, etc.)

The dominant aspect of the plant community is Castlevalley Saltbush and Shadscale. The composition by annual air-dry weight is approximately 35% perennial grasses, 10% forbs, and 55% shrubs. In average years, plant growth begins growth around March 1 and ends growth around October 15.

2. Plant Community Composition by Weight and Percentage

Grasses and Grasslike, 30-40%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Galleta	PLJA	0	20	45	15	20
Indian Ricegrass	ACHY	0	7	23	5	10
Bottlebrush Squirreltail	ELEL5	0	3	7	2	3
Alkali Sacaton	SPAI	1	1	5	1	2
Sand Dropseed	SPCR	1	1	5	1	2
Sixweeks Fescue	VUOC	1	1	5	1	2
Other Perennial Grasses	PPGG	1	1	7	1	3
Other Annual Grasses	AAGG	1	1	7	1	3

Forbs, 10-15%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Desert Trumpet	ERIN4	0	4	11	3	5
Gooseberryleaf Globemallow	SPGR2	2	1	7	1	3
Woolly Locoweed	ASMO7	2	1	7	1	3
Largeflower Skeletonplant	LYGR	2	1	7	1	3
Sego Lily	CANU3	2	1	7	1	3
Other Perennial Forbs	PPFF	2	7	23	5	10
Other Annual Forbs	AAFF	2	7	23	5	10

Shrubs, 50-60%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Castlevalley Saltbush	ATCU	0	26	56	20	25
Shadscale	ATCO	0	13	34	10	15
Green Molly	KOAM	0	7	23	5	10
Torrey Mormontea	EPTO	3	1	7	1	3
Broom Snakeweed	GUSA2	3	1	7	1	3
Bud Sagebrush	ARSP5	3	1	7	1	3
Crispleaf Buckwheat	ERCO14	3	1	7	1	3
Fourwing Saltbush	ATCA2	3	1	7	1	3
Common Pepperweed	LEDE	3	1	7	1	3
Spineless Horsebrush	TECA2	3	1	7	1	3
Plains Pricklypear	OPPO	3	1	7	1	3
Other Shrubs	SSSS	3	7	23	5	10

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	225	300
Average Year	130	225
Unfavorable Year	50	130

4. Ground Cover and Structure

a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range	Percent Basal Area Cover
Grasses & Grass-like (perennial)	20	0.5-2 ft.	1
Forbs (perennial)	5	0.5-1 ft.	2
Shrubs	40	0.5-1 ft	20
Trees	-	-	-
Cryptogams	0-3	0.1-1 cm	0-3

b. Other

Litter	1-5%
Coarse Fragments	5-15%
Bare Ground	35-45%

5. Ecological Dynamics of the Site

As ecological condition deteriorates due to overgrazing, perennial grasses, Castlevalley saltbush, and Green Molly decrease while desert trumpet, and locoweed increase. Cheatgrass, Russian thistle, halogeton, and other annual weeds are most likely to invade this site.

Suitability for rangeland seeding is poor to very poor. The main seeding limitations are low precipitation; heavier textured (i.e. clay) soils; and the alkali and saline condition of the soils. To control erosion native plants can be seeded.

Plant Communities & Transitional Pathways

(Show a steady state diagram with influences to move from one steady state to another)

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6. Plant Growth Curves

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Percent Growth	0	0	5	25	65	5	0	0	0	0	0	0
Name	PNC											
ID Number	UT0061											
Description	Excellent Condition											

7. Similar Sites

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

Alkali Fan (Castlevalley Saltbush)	034XY003UT
Desert Clay (Castlevalley Saltbush)	034XY103UT

8. Associated Sites Within MLRA

(Give site name and number)

Desert Clay (Castlevalley Saltbush)	034XY103UT
Alkali Flat (Greasewood)	035XY009UT
Desert Shallow Sandy Loam (Shadscale)	035XY130UT
Desert Stony Loam (Shadscale-Bud Sagebrush)	035XY136UT
Semidesert Loam (Wyoming Big Sagebrush)	035XY209UT
Semidesert Shallow Loam (Utah Juniper – Pinyon)	035XY221UT
Semidesert Shallow Clay (Utah Juniper - Pinyon)	Unassigned

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 proper grazing for sheep and cattle during winter and spring. Practices needed to maintain or improve the vegetation include: proper grazing use, a planned grazing system, good water distribution, and proper season of use. Grazing when the soil is moist results in compaction of the surface layer, poor tilth, and excessive runoff with Baldfield soil in the Panguitch area.

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

Species – Cattle	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep
Galleta	VG	F, G	VG	VG
Indian Ricegrass	F, G	VG	VG	VG
Bottlebrush Squirreltail	P	F,G	VG	P
Desert Trumpet	-	-	P	P
Castlevalley Saltbush	F, G	P	VG	F,G
Shadscale	F, G	F, G	F, G	F, G
Green Molly	F, G	F, G	F, G	F, G

Species – Sheep	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep
Galleta	F, G	F, G	VF	F, G
Indian Ricegrass	F, G	VG	VG	VG
Bottlebrush Squirreltail	P	P	VG	P
Desert Trumpet	-	-	F	P
Castlevalley Saltbush	F, G	F, G	VG	F,G
Shadscale	VG	VG	VG	F, G
Green Molly	VG	VG	VG	VG

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

2. Wildlife

a. Site Factors Influencing Management

This site provides food and limited cover for wildlife.

b. List of Potential Species Present

Wildlife using this site includes jackrabbit, coyote, bobcat, ferruginous hawk, kangaroo rat, mice and snake.

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 ↓	Mule deer		Elk	
	Use	Season	Use	Season
Galleta	B	F, W, Sp, Su	B	F, W, Sp, Su
Indian Ricegrass	A	F, W, Sp, Su	A	F, W, Sp, Su
Bottlebrush Squirreltail	B	F, W, Sp, Su	A	F, W, Sp, Su
Desert Trumpet	B	F, W, Sp, Su	C	F, W, Sp, Su
Castlevalley Saltbush	B	F, W, Sp, Su	C	F, W, Sp, Su
Shadscale	B	F, W, Sp, Su	C	F, W, Sp, Su
Green Molly	B	F, W, Sp, Su	C	F, W, Sp, Su

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 recreation uses of this site are hiking, camping, and hunting. Natural beauty lies in the botanical diversity of the plant diversity. Trafficability over unsurfaced roads is poor due to soil textures.

4. Wood Products

None

5. Other Uses

The soils are in hydrologic group D. The hydrologic number is 80 to 89 depending on the hydrologic conditions of the watershed.

E. THREATENED AND ENDANGERED SPECIES

1. Plants – This section will be added as information is available.
2. Animals – This section will be added as information is available.

F. LOCATION AND DOCUMENTATION

State: County:
Latitude: Longitude:
Section: Township: Range:

General Legal Description: Consult the Henry Mountains soil survey.

San Juan – Central: **Littleman** – 1.5 miles W of Nancy Canyon; 700 ft. N and 2,200 ft. E of the SW corner of sec. 32, T. 37S. R. 25E.

Glen Canyon NRA: **Leebench** – 9 miles S of Hanksville, in the SE ¼ NW ¼ of sec. 20 T. 29S. R. 11E.

Henry Mountains: **Leebench** – 9 miles S of Hanksville, in the SE ¼ NW ¼ of sec. 20 T. 29S. R. 11E.

Panguitch Area: **Baldfield** – 2.5 miles N of Henrieville, 2,640 ft. S and 1,320 ft. W of NE corner of sec. 11, T. 37S. R. 2W.

Grand Staircase: **Baldfield, saline** – SE of Escalante, along the Hole in the Rock Road, up Left Hand Collet Canyon; around Escalante; SW of Escalante at the mouth of Alvey Wash; and between Cannonville and Henrieville along Hwy 12. (Modal – Latitude: 37° 39' 37.93" N Longitude: 111° 31' 31.35" W)

Field Office Site Location

Monticello and Panguitch Field Offices

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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					

4. Other References