

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: Semidesert Sandy Loam (Fourwing Saltbush)

SITE NUMBER: 035XY215UT

MLRA: D-35

Original Site Description: Author: GSC

Date: 04/29/1983

Revised Site Description: Author: GSC

Date: 09/28/1993

Revised Site Description: Author: SM, TS

Date: 06/17/2004

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: moderately deep to very deep (20 inches to more than 60 inches)

Surface Textures: sandy loam, fine sandy loam, very fine sandy loam, and loamy fine sand

Surface Fragments ( $\leq 3''$  % cover  $> 3''$  % cover): 0 to 5%

Subsurface Textures: sandy loam, fine sandy loam, very fine sandy loam, loamy sand, loamy fine sand, and loam

Subsurface Fragments ( $\leq 3''$  % vol.  $> 3''$  % vol.): 0 to 15%

Geologic Parent Materials: Eolian and alluvium derived mainly from sandstone

(Geologic Formations: Entrada Sandstone; Upper, Winsor and Paria River members of Carmel Formation, Moenkopi Formation; Church Rock, Owl Rock, Petrified Forest, and Monitor Butte Members of Chinle Formation; Drip Tank member of Straight Cliffs Formation; Upper member of Wahweap Formation; Kaiparowits Formation)

Moisture Regime: Ustic Aridic

Temperature Regime: Mesic

Runoff: very low to low

Permeability (min-max): moderately rapid (2.0 to 6.0 in/hr)

Drainage Class (min-max): well drained

Water Erosion Hazard: slight

Wind Erosion Hazard: moderate

Electrical Conductivity (EC in mmhos/cm): 0 to 2 mmhos/cm (nonsaline)

Sodium Adsorption Ration (SAR): 0 (nonsodic)

Calcium Carbonate Equivalent (%): 0 to 40%

pH Range (1:1 water): 7.0 to 8.3

Available Water Capacity (inches): 5 to 8.3 inches

Soils are generally coarse-loamy with surface textures ranging from sandy loam to loamy fine sand. Average annual soil loss in potential is approximately 0.1 tons/acre from water. Permeability for loamier texture soils (Progresso – dry and Barx – dry) are moderately slow (0.2 to 0.6 in/hr) to moderate (0.6 to 2.0 in/hr). Anasazi – cool, Progresso – dry and Sazi are moderately deep soils with 0 to 25% rock fragments on the surface and in the control section with an available water capacity of 4.1 to 6.7 inches. Loamier textures (i.e. Barx in mapunits 5003 and 5055) have an available water capacity of 8.7 to 10.2 inches. The runoff for slopes of 15-30% is medium and over 30%, it is high.

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

Grand Staircase Escalante NM (686): **Anasazi – cool** in mapunit 5021; **Barx – dry** in mapunits 5003 & 5055; **Begay – dry** in mapunit 5130; **Milok – cool** in mapunits 5003, 5006, 5021 & 5040; **Mivida** in mapunits 5055, 5058, 5059 & 5122; **Progresso – dry** in mapunit 5112; **Sazi** in mapunit 5040; **Yarts** in mapunits 5013, 5025, 5033, 5052 & 5057.

Canyonlands Area (633): **Begay** in mapunits 7 & 10; Ignacio in mapunit 42; **Mivida** in mapunit 52; **Redbank** in mapunits 66 & 67; **Sazi** in mapunit 104; **Windwhistle** in mapunit 104.

Grand County – Central Part (624): **Begay** in mapunits 4, 5, 6, 51 & 78; **Sazi** in mapunits 4, 5 & 34.

Henry Mountains (631): **Bowdish Variant** in mapunit 19; **Begay** in mapunits 4, 5, 6, 7, 8 & 50; **Mivida** in mapunits 54 & 55; **Otero Family** in mapunit 69; **Palma** in mapunit 70; **Pando Family** in mapunit 71; **Shedado** in mapunit 97; **Windwhistle** in mapunit 120; **Yarts** in mapunits 121, 122, 123 & 124.

San Juan County – Central Part (638): **Mivida** in mapunit 24, 26 & 27.

San Juan County – Navajo Indian Reservation (643): **Begay** in mapunit BbD; **Whit** in mapunit WhB.

Panguitch Area (636): **Mivida** in mapunit 95; **Yarts** in mapunits 166, 167 & 168.

Loa-Marysvale Area (629): **Begay** in mapunit BYB; **Milok** in mapunits CKB & CLB.

Emery Area (623): **Mivida** in mapunit H54.

Glen Canyon NRA: **Begay** in mapunits 101 & 102; **Mivida** in mapunit 123; **Otero Family** in mapunit 145; **Shedado** in mapunit 179; **Yarts** in mapunit 120.

Capitol Reef NP: **Begay** in mapunits 200, 225 & 258; **Henrieville** in mapunit 220; **Mivida** in mapunits 210 & 227; **Redbank** in mapunit 215; **Yarts** in mapunits 150 & 285.

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

## **2. PHYSIOGRAPHIC FEATURES**

Landform and Position: Gently sloping plains, mesa tops, fan terraces, valley sides, stream terraces, alluvial flats, sand sheets, plains, interdunes, alluvial flats, and alluvial fans on structural benches, structural benches, dissected alluvial fans, alluvial fans, eolian areas on top of mesas, and valleys.

Aspect: All

	<u>Minimum</u>	<u>Maximum</u>
Slope:	1%	15%
Elevation:	4,300 ft.	6,600 ft.
Flooding:	none	rare
Frequency:		
Duration:		
Ponding:	none	rare
Depth (inches):		
Frequency:		
Duration:		
Water Table Depth:		

## **B. CLIMATIC FEATURES**

Mean Annual Precipitation (inches): 8 to 12 inches

Mean Annual Air Temperature: 45° to 52° F

Mean Annual Soil Temperature: 47° to 54° F

Frost Free Period (days): 120 to 160 days

Freeze Free Period (days): 120 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	4.79

Climate Stations: St. ID. : 421168      Location: Canyonlands The Needle, Utah      Period: From: 6/1965 To: 7/2003

Temperature	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
High Mean	40.9	49.0	58.8	67.4	78.2	89.2	95.2	92.5	83.4	69.7	54.0	42.4	68.4
Average Mean	28.6	35.8	44.4	51.9	62.0	72.1	78.5	76.5	66.8	53.7	40.4	30.1	53.4
Low Mean	16.3	22.7	30.1	36.6	45.8	55.1	61.9	60.3	50.3	37.8	26.9	17.8	38.5

Precipitation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Highest	1.56	1.34	2.59	1.99	2.61	2.03	2.27	3.03	2.42	4.43	1.58	1.59	11.19
Average Mean	0.53	0.42	0.74	0.69	0.62	0.38	0.87	1.04	0.86	1.09	0.68	0.54	8.45
Lowest	0.0	0.0	0.01	0.0	0.0	0.0	0.05	0.0	0.0	0.01	0.0	0.0	4.25

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(Includes factors such as storm intensity, precipitation dependability, origin and pattern of storms, driest and wettest months, orographic effects, etc.)

Approximately 70-75% occurs as rain from March through October. On the average, February, May, and June are the driest months and July 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.

Influencing Water Features (if any):

Wetland Description (Cowardin System)      System      Subsystem      Class  
 None

Stream Types (Rosgen System)      System  
 None

### **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.)

Dominant aspect of the potential natural plant community is Indian ricegrass and needleandthread. The air-dry composition weight is 65% perennial grasses, 5% forbs, and 30% shrubs. Plants begin growth around March 1 and end growth around October 15.

#### **2. Plant Community Composition by Weight and Percentage**

Grasses and Grasslike, 60-70%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Indian Ricegrass	ACHY	0	90	125	20	25
Needleandthread	HECOC8	0	45	75	10	15
Galleta	PLJA	0	23	50	5	10
Sand Dropseed	SPCR	0	23	50	5	10
Sixweek Fescue	VUOC	1	5	15	1	3
Blue Grama	BOGR2	1	5	15	1	3
Bottlebrush Squirreltail	ELEL5	1	5	15	1	3
Purple Threeawn	ARPU9	1	5	15	1	3
Mesa Dropseed	SPFL2	1	5	15	1	3
Spike Dropseed	SPCO4	1	5	15	1	3
Other Annual Grasses	AAGG	1	23	50	5	10
Other Perennial Grass	PPGG	1	23	50	5	10

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Forbs, 5-10%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Gooseberryleaf Globemallow	SPGR2	0	14	25	3	5
Woolly Locoweed	ASMO7	2	5	15	1	3
Pacific Aster	SYCHC	2	5	15	1	3
Desert Trumpet	ERIN4	2	5	15	1	3
Woolly Bluestar	AMTOS	2	5	15	1	3
James' Buckwheat	ERJA	2	5	15	1	3
Tufted Evening-Primrose	OECE2	2	5	15	1	3
Utah Penstemon	PEUT	2	5	15	1	3
Snowball Sand Verbena	ABFR2	2	5	15	1	3
Steve's Dustymaiden	CHST	2	5	15	1	3
Thorn Skeletonweed	STSP6	2	5	15	1	3
Prairie Sunflower	HEPE	2	5	15	1	3
Other Annual Forbs	AAFF	2	14	25	3	5
Other Perennial Forbs	PPFF	2	14	25	3	5

Shrubs, 25-35%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Fourwing Saltbush	ATCA2	0	45	50	10	15
Cutler Mormontea	EPCU	0	23	50	5	10
Winterfat	KRLA2	0	14	25	3	5
Yellow Rabbitbrush	CHVI8	3	5	15	1	3
Broom Snakeweed	GUSA2	3	5	15	1	3
Crispleaf Buckwheat	ERCO14	3	5	15	1	3
Fremont Indigobush	PSFR	3	5	15	1	3
Desert Pepperweed	LEFR2	3	5	15	1	3
Littleleaf Horsebrush	TEGL	3	5	15	1	3
Pillar False Gumweed	VAST3	3	5	15	1	3
Plains Pricklypear	OPPO	3	5	15	1	3
Rubber Rabbitbrush	ERNAN5	3	5	15	1	3
Sand Sagebrush	ARFI2	3	5	15	1	3
Shadscale	ATCO	3	5	15	1	3
Slender Buckwheat	ERMI4	3	5	15	1	3
Spiny Hopsage	GRSP	3	5	15	1	3
Other Shrubs	SSSS	3	14	25	3	5

### **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	650	700
Average Year	450	500
Unfavorable Year	250	300

### **4. Ground Cover and Structure**

#### a. Vegetative

Vegetation Type	Percent Canopy Cover	Height Range	Percent Basal Area Cover
Grasses & Grass-like (perennial)	40	1-2 ft.	15
Forbs (perennial)	5	1-2 ft.	2
Shrubs	15	2-4 ft.	5
Trees	-	-	-
Cryptogams	0-5	0.5-1 cm	0-5

#### b. Other

Litter	0-10%
Coarse Fragments	0-25%
Bare Ground	35-60%

### **5. Ecological Dynamics of the Site**

(includes a discussion of seral stages; fire influence and effects; effects of prolonged wet or dry periods; resistance to change; the influence of such things as grazing, rodent concentrations, insects, diseases, introduced species, and soil erosion or deposition; other stable vegetative states associated with this site as a result of extreme disturbance)

As ecological condition deteriorates due to overgrazing, perennial bunch grasses decrease while broom snakeweed, yellow rabbitbrush, and pricklypear increase. Cutler Momontea may also increase. When the potential natural plant community is burned, Fourwing Saltbush will decrease while broom snakeweed, galleta, and other perennial grasses increase. Cheatgrass, bird's beak, and Russian thistle are most likely to invade this site.

Suitability for rangeland seeding is good to fair. The major limiting factor is low precipitation. There is a severe hazard of erosion by wind when soil textures are loamy fine sand or loamy sand, and thus makes the seeding suitability poor for with these textures.

### **Plant Communities & Transitional Pathways**

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

See attached Diagram.

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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	15	43	35	0	0	0	0	0	0
Name	PNC											
ID Number	UT2151											
Description	Excellent Condition											

### **7. Similar Sites**

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

Desert Sandy Loam (Fourwing Saltbush)

035XY118UT

### **8. Associated Sites Within MLRA**

(Give site name and number)

Loamy Bottom (Basin Big Sagebrush)	035XY011UT
Sandy Bottom (Fourwing Saltbush)	035XY015UT
Desert Shallow Gypsum (Torrey Mormontea)	035XY126UT
Desert Loam (Shadscale)	035XY109UT
Desert Shallow Sandy Loam (Blackbrush)	035XY133UT
Desert Very Shallow Gypsum (Torrey Mormontea)	035XY142UT
Semidesert Alkali Sandy Loam (Alkali Sacaton)	035XY201UT
Semidesert Loam (Wyoming Big Sagebrush)	035XY209UT
Semidesert Sand (Fourwing Saltbush)	035XY212UT
Semidesert Sandy Loam (Wyoming Big Sagebrush)	035XY216UT
Semidesert Sandy Loam (Blackbrush)	035XY218UT
Semidesert Shallow Sand (Cutler Mormontea)	035XY225UT
Semidesert Shallow Sand (Utah Juniper-Pinyon)	035XY227UT
Semidesert Shallow Sandy Loam (Shadscale)	035XY230UT
Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon)	035XY236UT
Semidesert Shallow Sandy Loam (Blackbrush)	035XY233UT
Semidesert Stony Loam (Shadscale)	035XY242UT
Semidesert Very Steep Stony Loam (Salina Wildrye)	035XY260UT
Upland Loam (Basin Big Sagebrush)	035XY306UT
Mountain Shallow Loam (Black Sagebrush)	048AY433UT

### **9. Correlated Sites in Other States**

(Give site name and number)

## **D. MAJOR USES OF THIS SITE**

### **1. Livestock**

#### a. Site Factors Influencing Management

The suitability for livestock grazing is good. This site provides proper grazing for cattle and sheep during fall, winter and spring.

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

Species – Cattle	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep
Indian Ricegrass	F, G	VG	VG	VG
Needleandthread	P	F, G	VG	F, G
Galleta	VG	F, G	VG	VG
Sand Dropseed	P	P	F, G	F, G
Gooseberryleaf Globemallow	F, G	P	F, G	F, G
Fourwing Saltbush	F, G	VG	F, G	F, G
Cutler Mormontea	F, G	F, G	P	P
Winterfat	VG	VG	F, G	F, G

Species – Sheep	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep
Indian Ricegrass	F, G	VG	VG	VG
Needleandthread	P	F, G	VG	P
Galleta	F, G	F, G	VG	F, G
Sand Dropseed	P	P	F, G	F, G
Gooseberryleaf Globemallow	F, G	P	VG	F, G
Fourwing Saltbush	VG	VG	VG	VG
Cutler Mormontea	F, G	F, G	P	P
Winterfat	VG	VG	VG	VG

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

### **2. Wildlife**

#### a. Site Factors Influencing Management

This ecological site provides food and limited cover for wildlife.

#### b. List of Potential Species Present

Wildlife using this site includes coyote, bobcat, jackrabbit, snake, hawk, mule deer, and desert bighorn.

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 →	Mule deer		Elk	
	Use	Season	Use	Season
Indian Ricegrass	A	F, W, Sp, Su	A	F, W, Sp, Su
Needleandthread	B	F, W, Sp, Su	B	F, W, Sp, Su
Galleta	B	F, W, Sp, Su	B	F, W, Sp, Su
Sand Dropseed	C	F, W, Sp, Su	C	F, W, Sp, Su
Gooseberryleaf Globemallow	B	F, W, Sp, Su	B	F, W, Sp, Su
Fourwing Saltbush	A	F, W, Sp, Su	B	F, W, Sp, Su
Cutler Mormontea	B	F, W, Sp, Su	C	F, W, Sp, Su
Winterfat	A	F, W, Sp, Su	A	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**

Recreational uses are hiking, hunting, horseback riding, ATV and motorcycle riding.

**4. Wood Products**

None

**5. Other Uses**

The soils for this ecological site are in hydrologic group B. The runoff curve numbers are 61 through 79 depending on the condition of the watershed.

**E. THREATENED AND ENDANGERED SPECIES**

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



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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**