

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 Shallow Sand (Utah Juniper – Pinyon)

SITE NUMBER: 035XY227UT

MLRA: D-35

Original Site Description: Author: DJS

Date: 05/13/1992

Revised Site Description: Author: DJS

Date: 10/12/1993

Revised Site Description: Author: SM, TS

Date: 04/06/2004

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 shallow to shallow (4 to 20 inches)

Surface Textures: fine sand, loamy fine sand, extremely stony fine sand

Surface Fragments (<=3" % cover, >3" % cover): 0 to 70%

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

Subsurface Fragments (<=3" % vol. >3" % vol.): 0 to 70%

Geologic Parent Materials: Eolian, residuum, and alluvium from sandstone (Page Sandstone, Judd Hollow Tongue, Paria River Member of Carmel Formation; Navajo Sandstone; Morrison Formation; Dakota Sandstone; Entrada Formation, Middle Member; Wingate Sandstone)

Moisture Regime: Ustic Aridic

Temperature Regime: Mesic

Runoff: very low to rapid

Permeability (min-max): rapid to very rapid (6.0 to greater than 20 in/hr)

Drainage Class (min-max): somewhat excessively to excessively drained

Water Erosion Hazard: moderate

Wind Erosion Hazard: severe

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

Sodium Adsorption Ration (SAR): 0 (nonsodic)

Calcium Carbonate Equivalent (%): 0 to 20%

pH Range (1:1 water): 6.6 to 8.4

Available Water Capacity (inches): 0.2 to 1.5 inches

Average annual soil loss in potential is approximately 3 tons/acre, mostly from wind.

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

Grand Staircase Escalante NM (686): **Arches – dry** in mapunits 5017, 5019, 5050, 5057 & 5100; **Mident** in mapunit 5057; **Navigon** in mapunit 5092.
 Glen Canyon NRA: **Arches** in mapunit 164; **Mellenthin** in mapunit 119.
 Henry Mountains Area (631): **Arches** in mapunit 87; **Mellenthin** in mapunit 6 & 45.
 Capitol Reef NP: **Arches** in mapunits 235 & 285.

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

2. PHYSIOGRAPHIC FEATURES

Landform and Position: sand sheets, hillslopes & scree slopes on structural benches, hillsides, rolling hills and mesa tops adjacent to rock outcrops.
 Aspect: North (5,000 ft.) to south & west (7,000 ft.)

	<u>Minimum</u>	<u>Maximum</u>
Slope:	2%	60% but usually less than 25%
Elevation:	5,100 feet	7,200 feet
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

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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

(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

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.)

The dominant aspect of the plant community is Utah juniper and pinyon pine. The understory composition by air-dry weight is approximately 20% grasses, 10% forbs, 50% shrubs, and 20% trees. Elevation ranges from 5,100 ft. on northern aspects to 7,200 ft. on southern and western aspects. In average years, plants begin growth around March 1 and end growth around October 15.

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2. Plant Community Composition by Weight and Percentage

Grasses and Grasslike, 15-25%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Indian Ricegrass	ACHY	0	10	25	5	10
Galleta	PLJA	0	10	25	5	10
Needleandthread	HECOC8	0	6	13	3	5
Sand Dropseed	SPCR	1	2	5	1	2
Purple Threeawn	ARPU9	1	2	5	1	2
Blue Grama	BOGR2	1	2	5	1	2
Sandhill Muhly	MUPU2	1	2	5	1	2
Saline Wildrye	LESAS	1	2	5	1	2
Muttongrass	POFE	1	2	5	1	2
Desert Needlegrass	ACSP12	1	2	5	1	2
Other Perennial Grass	PPGG	1	6	13	3	5
Other Annual Grasses	AAGG	1	6	13	3	5

Forbs, 10-15%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Wright's Bird's Beak	COWR2	0	6	13	3	5
Spotted Joepyeweed	EUMA6	0	4	8	2	3
Woolly Locoweed	ASMO7	2	2	5	1	2
Twisted Cleomella	CLPL2	2	2	5	1	2
Brenda's Yellow Cryptantha	CRFL5	2	2	5	1	2
Desert Trumpet	ERIN4	2	2	5	1	2
Stemless Four-nerve Daisy	TEAC	2	2	5	1	2
Mountain Pepperweed	LEMO2	2	2	5	1	2
Scarlet Globemallow	SPCOC	2	2	5	1	2
Skyblue Phacelia	PHCO	2	2	5	1	2
Utah Penstemon	PEUT	2	2	5	1	2
Other Perennial Forbs	PPFF	2	10	25	5	10
Other Annual Forbs	AAFF	2	10	25	5	10

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Shrubs, 45-55%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Bigelow Sagebrush	ARBI3	0	20	50	10	20
Torrey's Mormontea	EPTO	0	10	25	5	10
Roundleaf Buffaloberry	SHRO	0	10	25	5	10
Broom Snakeweed	GUSA2	0	4	13	2	5
Mexican Cliffrose	PUME	0	4	13	2	5
Rubber Rabbitbrush	ERNAN5	0	4	13	2	5
Fourwing Saltbush	ATCA2	3	2	5	1	2
Shadscale	ATCO	3	2	5	1	2
Desert Holly	MAFR3	3	2	5	1	2
Littleleaf Mountain Mahogany	CEIN7	3	2	5	1	2
Blackbrush	CORA	3	2	5	1	2
Thompson Indigobush	PSTH	3	2	5	1	2
Winterfat	KRLA2	3	2	5	1	2
Singleleaf Ash	FRAN2	3	2	5	1	2
Spiny Hopsage	GRSP	3	2	5	1	2
Desert Pepperweed	LEFR2	3	2	5	1	2
Spineless Horsebrush	TECA2	3	2	5	1	2
Narrowleaf Yucca	YUAN2	3	2	5	1	2
Other Shrubs	SSSS	3	10	38	5	15

Trees, 15-20%

Common Name	National Symbol	Group	Pounds per Acre		% by Weight of Total Composition	
			Low	High	Low	High
Utah Juniper	JUOS	0	24	38	12	15
Two-Needle Pinyon	PIED	0	6	13	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	300	350
Average Year	200	250
Unfavorable Year	100	150

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.	10
Forbs (perennial)	5	0.5-1 ft.	5
Shrubs	50	2-3 ft.	25
Trees	20	6-14 ft.	10
Cryptogams	0-1%	0.5-1 cm	0-1%

b. Other

Litter	0-3.2%
Coarse Fragments	0-70%
Bare Ground	20-50%

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, Indian ricegrass, Bigelow sagebrush and sometimes Torrey Mormontea decrease while galleta, bird's beak, locoweed, broom snakeweed, Utah juniper and pinyon pine increase. Fire does not appear to be an important factor in this ecosystem. Russian thistle, cheatgrass, ragweed and other annual forbs are most likely to invade this site.

The suitability for range seeding is very poor. The major limiting factors are the severe hazard of erosion by wind, low precipitation, areas of rock outcrop and low available water capacity.

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	15	45	35	0	0	0	0	0	0
Name	PNC											
ID Number	UT2271											
Description	Excellent Condition											

7. Similar Sites

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

Semidesert Sand (Utah Juniper)	028AY223UT
Semidesert Shallow Loam (Utah Juniper – Pinyon)	034XY233UT
Semidesert Shallow Loam (Utah Juniper – Pinyon)	035XY221UT

8. Associated Sites Within MLRA

(Give site name and number)

Semidesert Sand (Fourwing Saltbush)	035XY212UT
Semidesert Sandy Loam (Fourwing Saltbush)	035XY215UT
Semidesert Shallow Shale (Utah Juniper – Pinyon)	035XY234UT
Semidesert Shallow Loam (Utah Juniper – Pinyon)	035XY221UT

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 fair. 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
Galleta	VG	F, G	VG	VG
Needleandthread	P	F, G	VG	F, G
Bigelow Sagebrush	F, G	P	P	P
Torrey's Mormontea	F, G	F, G	P	P
Roundleaf Buffaloberry	P	P	P	P
Broom Snakeweed	P	P	P	P
Mexican Cliffrose	F, G	VG	F, G	P
Rubber Rabbitbrush	P	P	P	P
Utah Juniper	P	P	P	P
Two-Needle Pinyon	P	P	P	P

Species – Sheep	Oct-Nov	Dec-Feb	Mar-May	Jun-Sep
Indian Ricegrass	F, G	VG	VG	VG
Galleta	F, G	F, G	VG	F, G
Needleandthread	P	F, G	VG	P
Bigelow Sagebrush	P	F, G	F, G	F, G
Torrey's Mormontea	F, G	F, G	P	P
Roundleaf Buffaloberry	F, G	F, G	P	F, G
Broom Snakeweed	P	P	P	P
Mexican Cliffrose	VG	VG	F, G	F, G
Rubber Rabbitbrush	P	P	P	P
Utah Juniper	P	P	P	P
Two-Needle Pinyon	P	P	P	P

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

2. Wildlife

a. Site Factors Influencing Management

This site provides food and cover for wildlife.

b. List of Potential Species Present

Wildlife using this ecological site includes coyote, bobcat, jackrabbit, snake, hawk, mule deer, woodrat, and pinyon jay.

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
Galleta	B	F, W, Sp, Su	B	F, W, Sp, Su
Needleandthread	B	F, W, Sp, Su	B	F, W, Sp, Su
Bigelow Sagebrush	B	F, W, Sp, Su	C	F, W, Sp, Su
Torrey's Mormon tea	B	F, W, Sp, Su	C	F, W, Sp, Su
Roundleaf Buffaloberry	B	F, W, Sp, Su	B	F, W, Sp, Su
Broom Snakeweed	C	F, W, Sp, Su	C	F, W, Sp, Su
Mexican Cliffrose	A	F, W, Sp, Su	A	F, W, Sp, Su
Rubber Rabbitbrush	C	F, W, Sp, Su	C	F, W, Sp, Su
Utah Juniper	C	F, W, Sp, Su	C	F, W, Sp, Su
Two-Needle Pinyon	C	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

Recreational Uses included are hiking, hunting, and horseback riding.

4. Wood Products

Site index is 35-45. Wood production is approximately four cords per acre/per year.

5. Other Uses

The soil series are in hydrological group D. The hydrologic curve number is 80 when the vegetation is in good condition.

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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F. MODAL LOCATION AND DOCUMENTATION

State: Utah County:
 Latitude: Longitude:
 Section: Township: Range:
 General Legal Description:

Capitol Reef: **Arches** – model not in this site in arches moist.
 Grand Staircase: **Arches, dry** – SE of Escalante, along the Hole in the Rock Road, on Sunset Flat, Seep Flat, Tenmile Flat, Dave Canyon, and Red Breaks; southwest of Escalante on Wiggler Bench; and E of Boulder, along the Burr Trail Road, in the Circle Cliffs area. (Modal – Latitude; 37° 34' 18.70" N Longitude: 111° 27' 37.95" W) **Mident** – SE of Escalante, along the Hole in the Rock Road, in the area of Tenmile Flat, Dave Canyon and Sunset Flat. (Modal – Latitude; 37° 39' 37.93" N Longitude: 111° 31' 31.35" W) **Navigon** – near Escalante, along the Pine Creek drainage and S of Boulder along Durfey Mesa. (Modal – Latitude; 37° 50' 52.40" N Longitude: 111° 36' 45.70" W)

Township 28 S., Range 16 E., Section 31, SE ¼, NW ¼, Robber's Roost

Field Office Site Location

Price Field Office - Panguitch Field Office - Richfield Field Office – Monticello Field Office

Legal Description:

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