

# Ecological site group DX035X01JESG02

## Paria and Kaibito Plateaus Saline Upland

Last updated: 09/01/2021  
Accessed: 04/19/2024

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### Key Characteristics

- Paria and Kaibito Plateaus
- Saline
- Upland

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

### Physiography

Colorado Plateau Physiographic Province and is characterized by a sequence of flat to gently dipping sedimentary rocks eroded into plateaus, valleys and deep canyons. Sedimentary rock classes dominate the plateau with volcanic fields occurring for the most part near its margin. This site is found on limestone and calcareous sandstone on benches and slopes of plateaus.

The soils are shallow (<20") to bedrock. The soil surface textures range from gravelly sandy loam to loams and are highly calcareous.

### Climate

The 35.2 Colorado Plateau Cold Desert Shrub - Grassland common resource area has a very dry and windy climate that is hot in the summer and cold in the winter. The annual precipitation averages between 6 and 10 inches but may range into the 10-14 inch precipitation range. The soil moisture regime is typical aridic or ustic aridic and the soil temperature regime is mesic. A slight majority of the precipitation arrives during the late fall, winter, and early spring. This winter season moisture originates in the Pacific Ocean and arrives as rain, or sometimes snow, during widespread frontal storms of generally low intensity. The majority of the snow (average range of 1 to 17 inches) falls from December through February, but rarely lasts more than a few days. A seasonal drought occurs from late May through early July. Summer rains occur from July through September during brief intense local thunderstorms. The rain is sporadic in intensity and location. Windy conditions are common year round, but the winds are strongest and most frequent during the spring.

### Soil features

Soils associated with this site have developed in mixed alluvium from marine sediments. Parent materials of Kaibab formation limestone and sandstone, and Moenkopi formation sandstone, shale and gypsum. The soils are very alkaline (PH > 8.8), slightly saline (EC = 5.2), slightly sodic, and are strongly effervescent at or near the surface. Surface textures range from gravelly sandy loam to loams. They are generally very shallow to shallow, but there can be small areas with deeper soils.

### Vegetation dynamics

The dominant aspect of this site is a shrub-grassland. Shadscale saltbush dominates both the visual aspect and the production in pounds of the site. Several other shrubs, including Ephedra and several cactus species are common, but make up only a small proportion of the aspect. Perennial grasses, both warm and cool season, are common, but sub-dominate to shadscale saltbush. Common warm season grasses include sand dropseed and galleta. Common cool season grasses include Indian ricegrass and squirreltail.

# Major Land Resource Area

MLRA 035X  
Colorado Plateau

## Subclasses

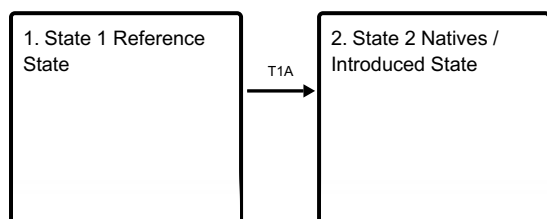
- R035XB233AZ–Limestone/Sandstone Upland 6-10" p.z. Saline

## Stage

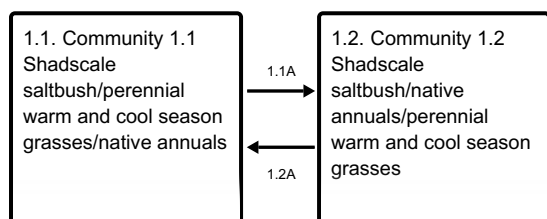
Provisional

## State and transition model

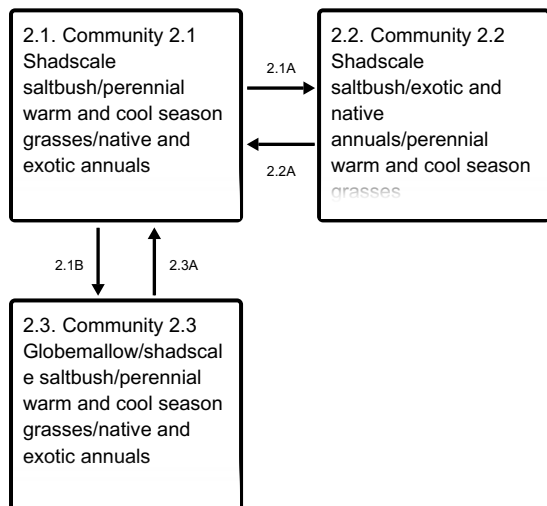
### Ecosystem states



### State 1 submodel, plant communities



### State 2 submodel, plant communities



## State 1

### State 1 Reference State

State 1 Reference State The reference state includes the historic climax plant community that evolved over time with the soil forming process and long term changes in climatic conditions of the area. It is the native plant community that is best adapted to the unique combination of environmental factors associated with the site.

## Community 1.1

### Community 1.1 Shadscale saltbush/perennial warm and cool season grasses/native annuals

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of this site is a shrub-grassland. Shadscale saltbush dominates both the visual aspect and the production in pounds of the site. Several other shrubs, including Ephedra and several cactus species are common, but make up only a small proportion of the aspect. Perennial grasses, both warm and cool season, are common, but sub-dominate to shadscale saltbush. Common warm season grasses include sand dropseed and galleta. Common cool season grasses include Indian ricegrass and squirreltail. The occurrence and production of sand dropseed may be expected to decrease in years of below average warm season precipitation and increase in years of above average warm season precipitation. The same can be expected of squirreltail except a decrease would be the result of below average cool season precipitation and an increase due to above average cool season precipitation. Cool season annuals may increase as a result of above average cool season precipitation and decrease as a result of below average cool season precipitation.

## **Community 1.2**

### **Community 1.2 Shadscale saltbush/native annuals/perennial warm and cool season grasses**

Community 1.2 Shadscale saltbush/native annuals/perennial warm and cool season grasses The dominant aspect of this site is a shrub-grassland. Shadscale saltbush dominates both the visual aspect and the production in pounds of the site. Several other shrubs, including Ephedra and several cactus species are common, but make up only a small proportion of the aspect. Perennial grasses, both warm and cool season, are common, but sub-dominate to shadscale saltbush. Annuals and unpalatable perennial plants have become a major component, possibly more common than perennial grasses.

## **Pathway 1.1A**

### **Community 1.1 to 1.2**

Severe extended drought or/and extreme herbivory combined with severe soil surface disturbance weakens perennial plants providing annuals and unpalatable and drought tolerant perennial plants a competitive edge.

## **Pathway 1.2A**

### **Community 1.2 to 1.1**

Return to more normal precipitation amounts or/and removal of any extreme herbivory and severe soil surface disturbance allows perennial plant populations reduced due to drought or extreme herbivory to regain vigor and, over time, increase to "normal" amounts.

## **State 2**

### **State 2 Natives / Introduced State**

State 2 Natives / Introduced State This state is very similar to the reference state, but exotic annuals have been introduced into the site. Observations to date indicate once these exotic annuals have been introduced into the plant community they cannot be removed completely, for an extended period of time, from the plant community.

## **Community 2.1**

### **Community 2.1 Shadscale saltbush/perennial warm and cool season grasses/native and exotic annuals**

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## **Community 2.2**

### **Community 2.2 Shadscale saltbush/exotic and native annuals/perennial warm and cool season grasses**

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## **Community 2.3**

### **Community 2.3 Globemallow/shadscale saltbush/perennial warm and cool season grasses/native and exotic annuals**

Community 2.3 Globemallow/shadscale saltbush/perennial warm and cool season grasses/native and exotic annuals Globemallow, acting as a pioneer plant, has filled the void left by the shrubs and perennial warm and cool season grasses killed by prolonged drought.

## **Pathway 2.1A**

### **Community 2.1 to 2.2**

Severe extended drought or/and extreme herbivory combined with severe soil surface disturbance weakens perennial plants providing annuals and unpalatable and drought tolerant perennial plants a competitive edge.

## **Pathway 2.1B**

### **Community 2.1 to 2.3**

Severe, prolonged drought results in substantial death of shrubs and perennial warm and cool season grasses, followed by normal or above normal precipitation that allows the pioneer plant globemallow to establish.

## **Pathway 2.2A**

### **Community 2.2 to 2.1**

Return to more normal precipitation amounts or/and removal of any extreme herbivory and severe soil surface disturbance allows perennial plant populations reduced due to drought or extreme herbivory to regain vigor and, over time, increase to "normal" amounts.

## **Pathway 2.3A**

### **Community 2.3 to 2.1**

Return to normal precipitation in the absence of severe disturbance.

## **Transition T1A**

### **State 1 to 2**

Exotic annuals are introduced into the ecosystem.

## **Citations**