

# Ecological site group DX035X01IESG20

## Little Colorado River Basin-sandstone or sandy loam moderately deep or deeper soils (mid elevation)

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### Key Characteristics

- Little Colorado River Basin
- Sandstone or sandy loam
- Moderately deep and deeper soils
- Mid elevation, MAST < 54 degrees F

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

This site occurs in an upland position. It neither benefits significantly from run-in of moisture nor does it suffer from excessive loss of moisture from runoff, unless denuded of its vegetative cover. It is on gently sloping to rolling plains and slopes are mainly less than 12 percent.

### Climate

Area has a very dry and windy climate that is hot in the summer and cold in the winter. Average annual precipitation is from 6 to 10 inches. Soil moisture regime is typical 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 falls from December through February, but rarely lasts more than a few days. The driest period is from late May to 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 with the strongest most frequently in the spring.

### Soil features

The soils in this ecological site are deep and have no plant root restricting layer.

The surface horizon texture is sandy loam to loamy sand about 4 to 10 inches thick.

The subsurface horizons have textures ranging from sandy clay loam to loamy sand. There may be thin strata of finer or coarser material.

The permeability ranges from moderate to rapid and can absorb and hold all of the moisture the climate supplies.

### Vegetation dynamics

Sandstone uplands position moderately deep or deeper on stable positions supporting stable plant communities use and management have affected range vegetation.

The reference state plant community is composed primarily of warm season mid-grasses and short grasses with a small percentage of cool season grasses and half-shrubs. Dominant grasses include blue grama, black grama, sand dropseed and galleta. Dominant shrubs include fourwing saltbush and Greene's rabbitbrush. Natural climatic variation result in changes in the amount of and ratio of both individual plants and warm season versus cool season plants, especially grasses.

## Major Land Resource Area

MLRA 035X  
Colorado Plateau

### Subclasses

- DX035X01I117–Sandy Loam Upland 10-14" p.z.
- R035XB219AZ–Sandy Loam Upland 6-10" p.z.
- R035XC317AZ–Sandy Loam Upland 10-14" p.z.

### Correlated Map Unit Components

22341079, 22341112, 22341111, 22341123, 22341125, 22341130, 22353873, 22353875, 22353874, 22353894, 22353896, 22353919, 22353948, 22353953, 22353991, 22353344, 22354037, 22354036, 22353361, 22396739, 22396740, 22396831, 22396725, 22396726, 22396670, 22396729, 22484794, 22484789, 22484788, 22484762, 22484763, 22484722, 22484743, 22484774, 22484777, 22484780, 22484779, 22484748, 22484747, 22484771, 22484749, 23170287

### Stage

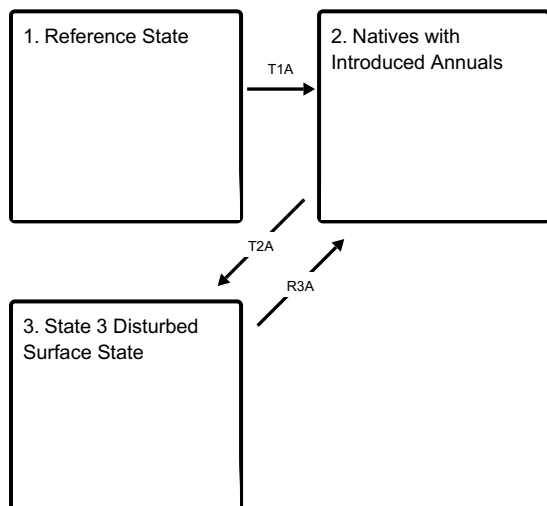
Provisional

### Contributors

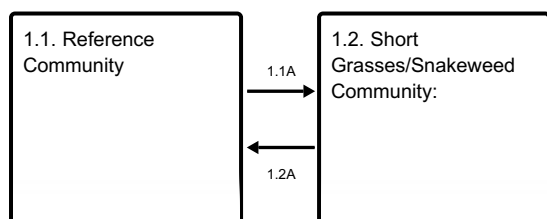
Curtis Talbot

### State and transition model

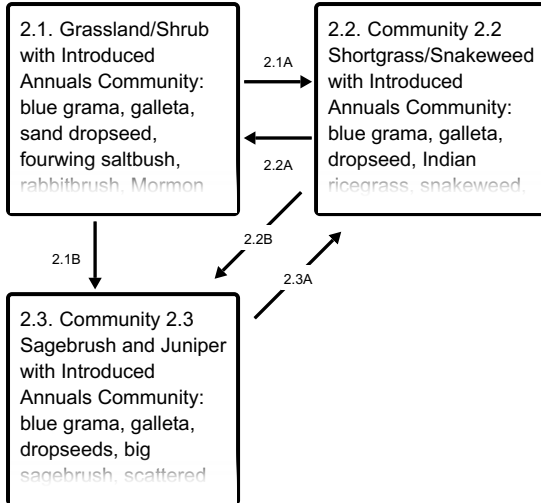
#### Ecosystem states



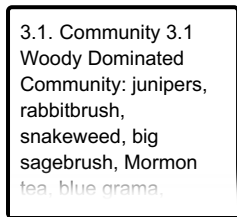
#### State 1 submodel, plant communities



### State 2 submodel, plant communities



### State 3 submodel, plant communities



## State 1 Reference State

The reference state includes the reference plant community that evolved with the soils and climate in the area. In this state, the plant communities are dominated by warm and cool season grasses with scattered shrubs and trees. With drought, long term winter dominated moisture patterns, grazing and other disturbances, perennial grasses will decrease and shrubs will increase on the site. Introduced annuals are present in this common resource area, and very minor amounts of these may occur in the plant communities in this state.

### Community 1.1 Reference Community

The Reference Plant Community is dominated by mid and short warm and cool season grasses with a relatively small percentage of forbs and scattered shrubs and half shrubs. Plant species most likely to increase on this site when it is disturbed are broom snakeweed, rabbitbrush and annuals. There will be an increase in juniper on this site in the higher elevation and rainfall areas of this common resource area.

### Community 1.2 Short Grasses/Snakeweed Community:

This plant community is characterized by increase of shrubs such as broom snakeweed and Greene's rabbitbrush. There is a decline of perennial grasses as shrubs increase. Other shrubs that increase include Wyoming big sagebrush at higher precipitation and/or mormon tea on dry sites.

### Pathway 1.1A Community 1.1 to 1.2

Repetitive, high utilization of palatable species cause a shift in composition. Drought and disease may be drivers as well.

### Pathway 1.2A Community 1.2 to 1.1

Management to improve ecosystem health.

## **State 2**

### **Natives with Introduced Annuals**

The plant communities in this state include the same species and plant community structures as the reference state. Introduced herbaceous species are now part of those plant communities and compete with native species for available moisture. Disturbances over time, such as fire, drought, and uncontrolled grazing, will now have the potential to allow an increase the introduced species on the site.

#### **Community 2.1**

##### **Grassland/Shrub with Introduced Annuals Community: blue grama, galleta, sand dropseed, fourwing saltbush, rabbitbrush, Mormon tea, native and introduced annuals**

This plant community is very similar to the historic climax plant community, but it includes introduced exotic annual grasses and forbs that are affecting the biotic integrity of the site.

#### **Community 2.2**

##### **Community 2.2 Shortgrass/Snakeweed with Introduced Annuals Community: blue grama, galleta, dropseed, Indian ricegrass, snakeweed, rabbitbrush, Mormon tea, big sagebrush**

Introduced annual grasses and forbs are present in the plant community, but the amount and proportions of native plants is similar to that found in plant community 1.2, Shortgrass/Snakeweed.

#### **Community 2.3**

##### **Community 2.3 Sagebrush and Juniper with Introduced Annuals Community: blue grama, galleta, dropseeds, big sagebrush, scattered juniper**

This plant community is characterized by a dominance of shrubs and a increase of junipers. Introduced annual grasses and forbs are present in minor amounts in the plant community. Common shrubs include snakeweed, big sagebrush, rabbitbrush, Mormon tea and yucca.

#### **Pathway 2.1A**

##### **Community 2.1 to 2.2**

Shift in species composition

#### **Pathway 2.1B**

##### **Community 2.1 to 2.3**

Shrub and Juniper encroachment

#### **Pathway 2.2A**

##### **Community 2.2 to 2.1**

Shift to more palatable species

#### **Pathway 2.2B**

##### **Community 2.2 to 2.3**

Shrub and juniper encroachment

#### **Pathway 2.3A**

##### **Community 2.3 to 2.2**

A set back of Juniper

## **State 3**

### **State 3 Disturbed Surface State**

State 3 Disturbed Surface State Shrubs such as snakeweed and/or rabbitbrush dominate the understory along with junipers. Wind and water caused soil erosion is prevalent creating rills and/or hummocks.

## **Community 3.1**

### **Community 3.1 Woody Dominated Community: junipers, rabbitbrush, snakeweed, big sagebrush, Mormon tea, blue grama, galleta, native and introduced annuals**

Community 3.1 Woody Dominated Community Junipers and shrubs crowds and competes with understory species. Some grasses and forbs remain with annuals. Accelerated erosion occurs with wind and water erosion is prevalent creating rills and/or hummocks.

## **Transition T1A**

### **State 1 to 2**

A decline in ecosystem health along with invasion of introduced species. Once introduced species have invaded it is unlikely the site can be restored to reference.

## **Transition T2A**

### **State 2 to 3**

Excessive disturbance and soil erosion

## **Restoration pathway R3A**

### **State 3 to 2**

Slow soil and plant recovery

## **Citations**