

# Ecological site group DX035X01CESG13

## Mesas and Benches - Deep Rocky - mid elevation

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### Key Characteristics

- Mesa and Benches
- Deep Rocky 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 ecological site group is found on many landforms with deep stony soils, including; mountain slopes, slump blocks, structural benches, remnant alluvial fans, remnant stream terraces, landslides, and benches. Elevations range from 5500 to 7500 feet and slopes are typically between 2 and 50%.

### Climate

The climate of this group of ecological sites is characterized by warm summers and cold winters. Average annual precipitation is 12 to 16 inches. Much of the summer moisture occurs as convective thunderstorms from July through October. May and June are typically the driest months during the growing season. Large fluctuations in daily temperatures are common, and precipitation varies greatly from month to month and from year to year.

### Soil features

The soils of this group are deep, with greater than 50% rock fragments (by volume) throughout the profile. Large rock fragments are common on the soil surface as well. These soils formed in alluvium or colluvium derived from diorite or sedimentary rock, including sandstone, siltstone, limestone and shale. Textures range from loams to sandy loams, and rock fragments range from gravels to boulders. These soils are well drained with moderate permeability. The soil moisture regime is aridic ustic and the soil temperature regime is mesic. Available water-holding capacity ranges from 2.3 to 6.6 inches of water in the upper 40 inches of soil.

### Vegetation dynamics

This group of sites developed under Colorado Plateau climatic conditions and included natural influences of herbivory, and climate; however due to the remote location, broken topography, steep slopes (2-50%), and lack of perennial water sources this area rarely served as habitat for large herds of native herbivores. This site's plant species composition is generally dominated by two-needle pinyon and Utah juniper, with some perennial grasses. Some more open areas may be dominated by Wyoming big sagebrush.

There is no evidence to indicate that this site historically maintained a short burn frequency. However, due to modern disturbances such as brush treatments, invasive species, and OHV use, the resilience of the plant communities may be reduced. Disturbances that reduce the presence of perennial grasses result in an opportunity for invasive annuals to enter into the system.

Drought and insects appear to be the main driving factors in many of the Pinyon/Juniper communities of Utah. Betancourt et al. (1993), noted that Pinyon and Juniper woodlands in the southwest appear to be more susceptible to large die offs during droughts, than in other locations. As severe droughts persist, the Pinyon trees, being more susceptible to drought and insects, seem to die out, while the Utah juniper trees survive. Large die offs of pinyons due to insects and drought have not been recorded for this ecological site. However, given the tendency for pinyons

to be susceptible to insect and drought kill, managers should be aware of the possibility.

## Major Land Resource Area

MLRA 035X  
Colorado Plateau

## Subclasses

- R035XY136UT–Desert Stony Loam (Shadscale-Bud Sagebrush)
- R035XY303UT–Upland Gravelly Loam (Pinyon-Juniper)
- R035XY318UT–Upland Stony Loam (Wyoming Big Sagebrush, Indian Ricegrass)
- R035XY321UT–Upland Stony Loam (Pinyon-Utah Juniper)

## Correlated Map Unit Components

22934098, 22934111, 22934113, 22934021, 22592427, 22592658, 22592659, 22592664, 22592435, 22592547, 22592700, 22592484, 22598351, 22597898, 22601575, 22601056, 22964739, 22963836

## Stage

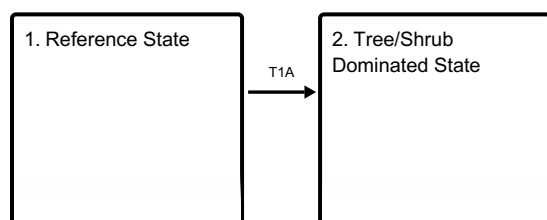
Provisional

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## State and transition model

### Ecosystem states



### State 1 submodel, plant communities

1.1. 1.1 Utah Juniper-Pinyon-Wyoming Big Sagebrush/Grasses  
Relatively open overstory of trees and shrubs with perennial grasses present in the

### State 2 submodel, plant communities

2.1. Utah Juniper-Pinyon-Wyoming Big Sagebrush Dominance

## **State 1**

### **Reference State**

The reference state is dominated by an overstory of trees and/or shrubs with perennial grasses present in the understory.

## **Community 1.1**

### **1.1 Utah Juniper-Pinyon-Wyoming Big Sagebrush/Grasses Relatively open overstory of trees and shrubs with perennial grasses present in the understory.**

Relatively open overstory of Utah juniper and pinyon and/or Wyoming big sagebrush with perennial grasses, typically blue gramma, galleta, or Indian ricegrass, present in the understory.

## **State 2**

### **Tree/Shrub Dominated State**

This state results when perennial grasses are lost from the system and trees increase and dominate. Soil erosion may become a hazard, and non-native invasive species, particularly cheatgrass, may be more likely to establish in this state.

## **Community 2.1**

### **Utah Juniper-Pinyon-Wyoming Big Sagebrush Dominance**

This community is dominated by Utah juniper, pinyon and/or Wyoming big sagebrush. Perennial herbaceous vegetation is greatly reduced. Soil erosion may result from the lack of herbaceous cover. This phase may be susceptible to invasion by non-native invasive species.

## **Transition T1A**

### **State 1 to 2**

This transition occurs when perennial grasses are reduced by improper livestock grazing (heavy stocking rates, continuous season-long grazing, etc.) followed by an increase in woody species. The resulting state is unable to regain perennial grasses without significant management inputs.

## **Citations**

Betancourt, J.L., E.A. Pierson, K.A. Rylander, J.A. Fairchild-Parks, and J.S. Dean. 1993. Influence of history and climate on New Mexico pinon-juniper woodlands.. Pages 42–62 in and , editors. Managing pinon-juniper ecosystems for sustainability and social needs. USDA Forest Service Technical Report RM-236..