

Ecological site group DX035X01FESG16

Canyonlands - Deep Rocky - mid elevation

Last updated: 10/12/2022
Accessed: 05/02/2024

Key Characteristics

- Canyonlands
- 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

These sites are found on many landforms with deep stony soils, including; mountain slopes, hillslopes, escarpments, slump blocks, structural benches, remnant alluvial fans, remnant stream terraces, landslides, and benches. Elevations range from 4700 to 7500 feet and slopes are between 2 and 80 percent. Runoff is typically very high.

Climate

The climate of this group is characterized by warm summers and cold winters. Average annual precipitation is 9 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 are typically deep or very deep and well drained. They formed in slope alluvium and colluvium derived from sedimentary and igneous rocks; mainly sandstone, shale, limestone, and diorite. Surface textures are sandy loam or loam with 15 to 50 percent rock fragments. Subsurface textures are also loamy and average more than 35 percent rock fragments. Permeability is moderate and available water holding capacity ranges from 2 to 6 inches in the upper 40 inches of the soil profile. The soil moisture regime is ustic aridic or aridic ustic and the soil temperature regime is mesic.

Vegetation dynamics

These 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.

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.

The reference plant communities are dominated by two-needle pinyon and Utah juniper. Perennial grasses, especially blue grama, are present in the understory. Shrubs may also be abundant, but not in all areas.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY206UT–Semidesert Gravelly Loam (Utah Juniper-Pinyon)
- R035XY303UT–Upland Gravelly Loam (Pinyon-Juniper)
- R035XY318UT–Upland Stony Loam (Wyoming Big Sagebrush, Indian Ricegrass)
- R035XY321UT–Upland Stony Loam (Pinyon-Utah Juniper)
- R035XY323UT–Upland Stony Sand (Utah Juniper-Pinyon)

Correlated Map Unit Components

22594306, 22593834, 22594104, 22593841, 22594114, 22594122, 22598319, 22601600, 22966961, 22963654

Stage

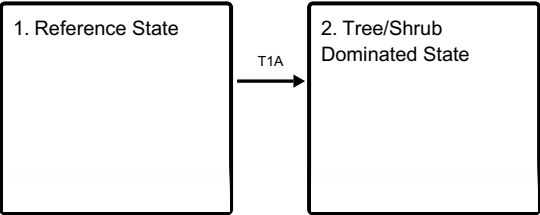
Provisional

Contributors

Vic Parslow
Keith Crossland
Curtis Talbot

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..