

Ecological site group DX035X01CESG09

Mesas and Benches - Shallow Shrublands and Woodlands - loam to clay

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Key Characteristics

- Mesa and Benches
- Shallow Shrublands and Woodlands
- Soils are loams to clays

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

The ecological sites in this group occur on structural benches, hillslopes, escarpments and dipslopes of cuerdas. Run off is high (due to the shallow depth). Slopes typically range from 2-25%, but can be as steep as 70%. Elevations are generally 4800-8000 ft but range as low as 4200 ft.

Climate

The climate is characterized by hot summers and cool to warm winters. Large fluctuations in daily temperatures are common. Mean annual high temperatures range from 60-70 degrees Fahrenheit and mean annual low temperatures range from 32-40 degrees Fahrenheit. Approximately 70-75% of moisture 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 but averages between 9-16 inches. Much of the summer precipitation occurs as convection thunderstorms.

Soil features

The soils of this group are very shallow to shallow and well drained or somewhat excessively drained. They usually form in residuum derived from sandstone and siltstone, but may also form in colluvium, slope alluvium or eolian deposits over sandstone residuum. Textures range from loamy sands to loams and may have few to many rock fragments on the soil surface and throughout the profile. The soil temperature and moisture regimes are mesic and ustic aridic (torric) or aridic ustic respectively. Soils are nonsaline to slightly saline, and the water holding capacity ranges from 0.4 to 2.5 inches of water for the entire profile. These soils are often in complex with rock outcrop.

Vegetation dynamics

The sites in this group are generally dominated by Utah juniper and twoneedle pinyon. There is no evidence to indicate that these sites 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 at risk. Disturbances that reduce the presence of perennial grasses result in an opportunity for invasive annuals to enter into the system and may produce a fuel load for fire to become an ecological driver.

Drought and insects appear to be the main driving factors in many of the Pinyon/Juniper communities of Utah. Currently there is no documentation to indicate that this ecological site is affected by drought and/or insects, however, managers should be aware of the possible impacts of drought and insects on this ecological site. 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.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY221UT–Semidesert Shallow Loam (Utah Juniper-Pinyon)
- R035XY315UT–Upland Shallow Loam (Pinyon-Utah Juniper) AWC <3

Correlated Map Unit Components

22960053, 22856705, 22857868, 22934173, 22933799, 22933803, 22934206, 22933849, 22933864, 22933866, 22933996, 22934117, 22934001, 22592654, 22592705, 22592703, 22592730

Stage

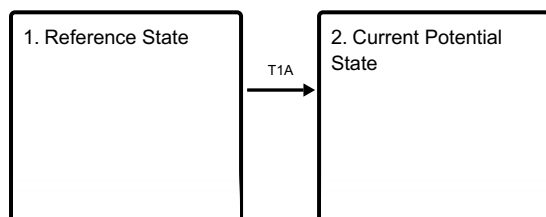
Provisional

Contributors

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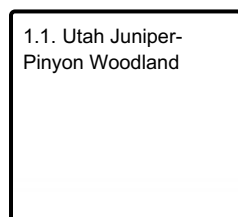
State and transition model

Ecosystem states

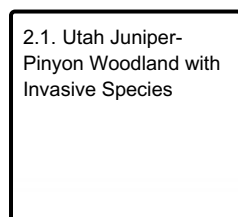


T1A - E = Establishment of non-native species

State 1 submodel, plant communities



State 2 submodel, plant communities



State 1 Reference State

This state includes the biotic communities that become established on the ecological site if all successional

sequences are completed under the natural disturbance regimes. The reference state is generally dominated by twoneedle pinyon and Utah juniper, however depending on disturbance history, native grasses, forbs, or other shrubs may occupy significant composition in the plant community. Typically, in the reference state this site is self-sustainable; however once invasive plants establish, return to this community may not be possible.

Characteristics and indicators. A community dominated by twoneedle pinyon and Utah juniper, where shrubs, and native perennial grasses and forb production is variable.

Community 1.1

Utah Juniper-Pinyon Woodland

This community phase is characterized by a twoneedle pinyon and Utah juniper upper canopy. In the lower canopy, commonly seen grasses include Indian ricegrass and galleta. Other perennial grasses, shrubs, and forbs may or may not be present and cover is variable. Bare ground is variable (6-16%) depending on surface rock cover, which is also variable (8-54%).

State 2

Current Potential State

The current potential state is similar to the reference state; however invasive species are present. This state is generally dominated by Utah juniper and twoneedle pinyon, however depending on disturbance history, native grasses, forbs, or other shrubs may dominate the site. Primary disturbance mechanisms include insect herbivory, domestic livestock grazing, and surface disturbances such as road and pipeline development and off road vehicle (OHV) use.

Community 2.1

Utah Juniper-Pinyon Woodland with Invasive Species

This community phase is characterized by a twoneedle pinyon and Utah juniper upper canopy. In the lower canopy, commonly seen grasses include Indian ricegrass and galleta. Other perennial grasses, shrubs, and forbs may or may not be present and cover is variable. Invasive species, typically cheatgrass, are present. Bare ground is variable (6-16%) depending on surface rock cover, which is also variable (8-54%).

Transition T1A

State 1 to 2

This transition occurs when non-native invasive species, particularly cheatgrass, establish on the site.

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..