

Ecological site group DX035X01FESG09

Canyonlands - Saline Uplands and Flats - moderately deep and deeper soils

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

Key Characteristics

- Canyonlands
- Saline Uplands and Flats
- Soils are moderately deep or deeper

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 group of ecological sites occur on alluvial fans, fan terraces, valley flats, hills, stream terraces, and structural benches at elevations between 4,800 and 6,800 feet. Slopes typically range from 2 to 15%, but can be as high as 50%.

Climate

The climate is characterized by hot summers and cool winters. Large fluctuations in daily temperatures are common. Approximately 65–70% of moisture occurs as rain from March through October. On the average, April, May, and June are the driest months and August, September, and October are the wettest months. Precipitation is extremely variable from month to month and from year to year but averages between 6-12 inches. Much of the precipitation occurs as convection thunderstorms.

Soil features

The soils are moderately deep to very deep and well drained. Surface textures are loam, sandy loam, sandy clay loam, or silty clay loam. Rock fragments may or may not occur on the soil surface, ranging from 0 to 35 percent cover. Subsurface textures range fine sandy loam to silty clay loam with 0 to 50 percent rock fragments. These soils formed in alluvium, slope alluvium, or colluvium from sedimentary and igneous rocks. The soils are typically slightly saline. Available water-holding capacity ranges from 2 to 7 inches in the upper 40 inches of the soil. Soil moisture regime is typic aridic or ustic aridic and soil temperature regime is mesic.

Vegetation dynamics

These sites plant species composition is generally dominated by James' galleta and shadscale. Torrey's tea, snakeweed, prickly pear and yellow rabbitbrush are common shrubs, and Indian ricegrass, blue grama, mesa dropseed, and sand dropseed are common grasses.

These ecological sites have been grazed by domestic livestock since they were first introduced into the area around 1860. The common season of use is winter. These sites are resistant in that use. However, improper grazing may stress the plants and allow nutrients to become available for invasive species to flourish; as may other modern disturbances such as recreation and OHV use.

There is no evidence that these sites historically burned on a regular basis due to very large and persistent gaps between plants. However, areas that have been invaded by annuals have increased fine fuel loads and may make fire more prevalent. Cheatgrass, Russian thistle and halogeton have all been documented on these sites.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY109UT–Desert Loam (Shadscale)
- R035XY242UT–Semidesert Gravelly Loam (Shadscale)

Correlated Map Unit Components

22593733, 22598384

Stage

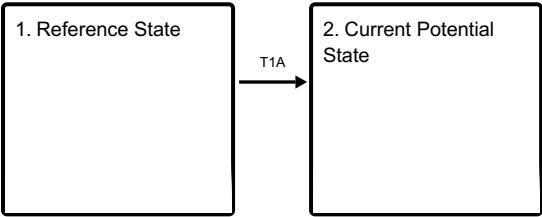
Provisional

Contributors

Vic Parslow, Keith Crossland
Curtis Talbot

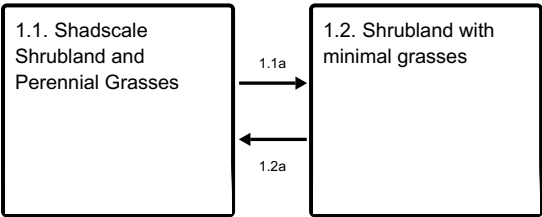
State and transition model

Ecosystem states



T1A - E = Establishment of non-native plant species

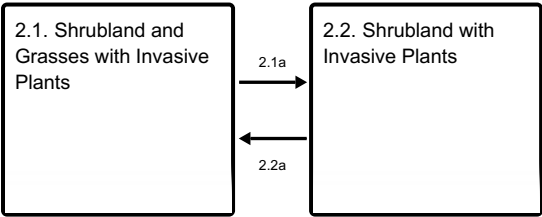
State 1 submodel, plant communities



1.1a - CLd = Climate, dry I = Insect Herbivory

1.2a - CLw = Climate, wet

State 2 submodel, plant communities



2.1a - CLd = Climate, dry G = Continuous, season-long grazing of perennial grasses I = Insect Herbivory

State 1

Reference State

Reference State: Community phases disturbed by climate fluctuations and insect herbivory. The ecological sites in this group are dominated by native shrubs, usually shadscale, with perennial grasses, commonly, galleta. Indian ricegrass and sand dropseed.

Community 1.1

Shadscale Shrubland and Perennial Grasses

This plant community phase is dominated by shadscale, Torrey mormontea, and perennial grasses. Grasses may include but are not limited to, Indian ricegrass and galleta. Galleta is typically the dominant perennial grass species in this plant community phase. Other perennial grasses may or may not be present. Other perennial shrubs, and forbs may be present and cover is variable.

Dominant plant species

- shadscale saltbush (*Atriplex confertifolia*), shrub
- Torrey's jointfir (*Ephedra torreyana*), shrub
- James' galleta (*Pleuraphis jamesii*), grass
- Indian ricegrass (*Achnatherum hymenoides*), grass

Community 1.2

Shrubland with minimal grasses

This plant community phase is dominated by shadscale and Torrey mormontea, where warm and cool season perennial grasses are minimally present. Grasses may include but are not limited to, Indian ricegrass and galleta. Galleta is typically the dominant perennial grass species in this plant community phase. Other perennial grasses, shrubs, and forbs may or may not be present and cover is variable.

Dominant plant species

- shadscale saltbush (*Atriplex confertifolia*), shrub
- Torrey's jointfir (*Ephedra torreyana*), shrub
- James' galleta (*Pleuraphis jamesii*), grass

Pathway 1.1a

Community 1.1 to 1.2

This pathway occurs when climatic events, such as drought disfavor the establishment and persistence of perennial grasses.

Pathway 1.2a

Community 1.2 to 1.1

This pathway occurs when climatic events, such as years with normal to above average precipitation favor the establishment of perennial grasses.

State 2

Current Potential State

This state is similar to state one, however there are invasive species established in the understory—cheatgrass and halogeton being the most common. The primary disturbance mechanism is climate fluctuations; however livestock grazing may influence the ecological dynamics of the site.

Community 2.1

Shrubland and Grasses with Invasive Plants

This plant community phase is dominated by shadscale, Torrey mormontea, and perennial grasses. Grasses may include but are not limited to, Indian ricegrass and galleta. Galleta is typically the dominant perennial grass species in this plant community phase. Other perennial or invasive grasses, shrubs, and forbs may or may not be present and cover is variable. This plant community is very similar to plant community 1.1 in production and cover. The main difference is that invasive species are present in this phase.

Dominant plant species

- shadscale saltbush (*Atriplex confertifolia*), shrub
- Torrey's jointfir (*Ephedra torreyana*), shrub
- James' galleta (*Pleuraphis jamesii*), grass
- Indian ricegrass (*Achnatherum hymenoides*), grass
- cheatgrass (*Bromus tectorum*), grass

Community 2.2

Shrubland with Invasive Plants

This plant community phase is dominated by shadscale and Torrey mormontea, where warm and cool season perennial grasses are minimally present. Grasses may include but are not limited to, Indian ricegrass and galleta. Galleta is typically the dominant perennial grass species in this plant community phase. Other perennial or invasive grasses, shrubs, and forbs may or may not be present and cover is variable. This plant community is very similar to plant community 1.2 in production and cover. The main difference is that invasive species are present in this phase.

Dominant plant species

- shadscale saltbush (*Atriplex confertifolia*), shrub
- Torrey's jointfir (*Ephedra torreyana*), shrub
- James' galleta (*Pleuraphis jamesii*), grass
- cheatgrass (*Bromus tectorum*), grass

Pathway 2.1a

Community 2.1 to 2.2

This pathway occurs when events, such as drought or continuous season long grazing providing little rest and recovery for preferred grazed plants during critical growing periods coupled with high utilization of perennial grasses, disfavor the persistence of perennial grasses.

Pathway 2.2a

Community 2.2 to 2.1

This pathway occurs when events, such as years with normal to above average precipitation favor the establishment of perennial grasses, and when grazing regimes are used that promote the establishment and persistence of perennial grasses.

Transition T1A

State 1 to 2

This transition occurs as invasive species become established in the plant community. Common invasive species include cheatgrass, halogeton, and Russian thistle. Disturbances that may accelerate this transition include season long grazing providing little rest and recovery for preferred grazed plants during critical growing periods coupled with high utilization and extended drought. Invasive species such as cheatgrass have also been known to invade intact perennial plant community where no disturbance has occurred.

Citations