

Ecological site group DX035X01BESG16

Circle Cliffs - Deep Rocky - low elevation

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

Key Characteristics

- Circle Cliffs
- Deep Rocky Soils
- Low 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 occurs on alluvial fans, fan remnants, plateaus, structural benches, stream terraces, escarpments, and hillslopes. Run off is low to high. Slopes typically range from 2 to 50 percent. Elevations ranges from 4000-6000 feet.

Climate

The climate is characterized by hot summers and cool to warm winters. Large fluctuations in daily temperatures are common. Average annual precipitation is 7 to 13 inches. Approximately 70 percent of the precipitation occurs as rain from March through October. On the average, February, 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. Much of the summer precipitation occurs as convection thunderstorms.

Soil features

The characteristic soils in this ecological site group range from moderately deep to very deep and are well drained. They formed in alluvium, slope alluvium, colluvium and residuum derived mainly from sandstone, shale, and igneous rocks. Soils are loamy-skeletal with more than 50 percent rock fragments throughout the soil profile. The soil surface rock fragment cover ranges from gravelly to very stony. Water holding capacity ranges from 2 to 5 inches of water in the upper 40 inches of soil. Soils are nonsaline to slightly saline. The soil moisture regime is aridic or ustic aridic and the soil temperature regime is mesic.

Vegetation dynamics

Typically, blackbrush forms the dominant visual aspect of this group. Mormon tea, fourwing saltbush, shadscale, and winterfat commonly occur. Indian ricegrass and James galleta are the major herbaceous species.

The natural disturbance regime consisted of infrequent fires with a fire return interval of 35 to 100 + years on the less sloping sites to only spotty occurrences on the steeper and bouldery sites. Blackbrush appears to act as a paleo-endemic species and once removed, may not be able to reestablish itself.

The more accessible ecological sites have been grazed by domestic livestock since they were first introduced into the area. This livestock introduction, with its the use of fencing and the development of reliable water sources influenced the disturbance regime historically associated with these ecological sites. Improperly managed livestock grazing, where it occurred, may have caused these sites to depart from the reference plant community. Continued improper domestic livestock grazing likely removed the native perennial grasses and palatable shrubs from the system which created opportunities for invasive plants to establish. Cheatgrass, red brome, and Russian thistle are

the non-native species most likely to invade.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY139UT–Desert Stony Loam (Blackbrush)
- R035XY243UT–Semidesert Stony Loam (Blackbrush)

Correlated Map Unit Components

22966904

Stage

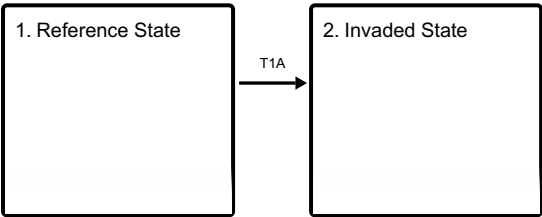
Provisional

Contributors

Vic Parslow
Keith Crossland
Curtis Talbot

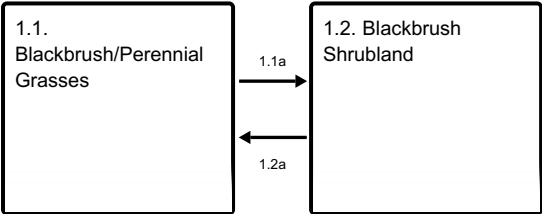
State and transition model

Ecosystem states



T1A - D = Drought E = Establishment of non-native invasive species ILG = Improper livestock grazing SD = Surface disturbances

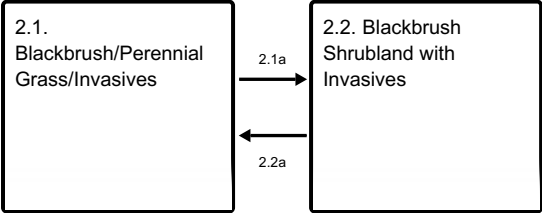
State 1 submodel, plant communities



1.1a - D = Drought ILG = Improper livestock grazing SD = Surface disturbances

1.2a - PLG = Proper livestock grazing T = Time without disturbances W = Wet weather periods

State 2 submodel, plant communities



2.1a - D = Drought ILG = Improper livestock grazing SD = Surface disturbances

2.2a - PLG = Proper livestock grazing T = Time without disturbances W = Wet weather periods

State 1

Reference State

The reference state is dominated by blackbrush and perennial grasses among stones and boulders. Scattered Utah juniper and two-needle pinyon occurs in some areas. Due to sparse fuels, fire does not appear to be a driving ecological factor in the reference state. Plant communities vary in response to climatic fluctuations and herbivory.

Community 1.1

Blackbrush/Perennial Grasses

The dominant aspect of the plant community is blackbrush and perennial warm and cool season grasses.

Community 1.2

Blackbrush Shrubland

This community phase is characterized by a blackbrush shrub canopy, where perennial grasses are mostly absent. Minor amounts of Indian ricegrass, James galleta, needle-and-thread, six weeks fescue, and dropseeds, may be present often solely located within the shrub canopy. Broom snakeweed and Utah juniper, if present, may also increase.

Pathway 1.1a

Community 1.1 to 1.2

This community pathway occurs when any combination of season long grazing providing little rest and recovery for preferred grazed plants during critical growing periods coupled with high utilization, drought or surface disturbance reduces the amount of herbaceous vegetation on the site.

Pathway 1.2a

Community 1.2 to 1.1

This community pathway occurs when proper livestock grazing, wet weather periods and time allow for the recovery of surface disturbance which increases the amount of perennial herbaceous vegetation on the site.

State 2

Invaded State

The invaded state is similar to the reference state in plant community structure and function, however the presence of invasive species decreases the resistance and resiliency of the sites to further degradation. This state is generally dominated by blackbrush. Primary disturbance mechanisms include climate fluctuations, native herbivore grazing, domestic livestock grazing, and surface disturbances such as road and pipeline development and off road vehicle (OHV) use.

Community 2.1

Blackbrush/Perennial Grass/Invasives

This community phase is characterized by a blackbrush shrub canopy, where perennial grasses are also present. Invasive plants, primarily Cheatgrass, Red brome and/or Russian thistle are present.

Community 2.2

Blackbrush Shrubland with Invasives

This community phase is characterized by a blackbrush shrub canopy, where perennial grasses are mostly absent. Minor amounts of Indian ricegrass, James galleta, needle-and-thread, six weeks fescue, and dropseeds, may be

present often solely located within the shrub canopy. Cheatgrass, Red brome and/or Russian thistle are present.

Pathway 2.1a

Community 2.1 to 2.2

This community pathway occurs when any combination of season long grazing providing little rest and recovery for preferred grazed plants during critical growing periods coupled with high utilization, drought or surface disturbance reduces the amount of perennial herbaceous vegetation on the site. This may allow for non-native invasive plants to take advantage of unused resources, further degrading the function of the site.

Pathway 2.2a

Community 2.2 to 2.1

This community pathway occurs when proper livestock grazing, wet weather periods and time allow for the recovery of surface disturbance which increases the amount of perennial herbaceous vegetation on the site.

Transition T1A

State 1 to 2

This transition occurs with the establishment of non-native invasive species. Disturbances that promote this transition include season long continuous grazing of perennial grasses, prolonged drought, recreation or other surface disturbances. However, invasive species such as Russian thistle can invade intact perennial plant communities with little to no disturbance. Once invasive plants are found in the plant community, a return to the reference state is not likely.

Citations