

# Ecological site group DX035X01AESG17

## Grand Staircase-Deep Rocky-Low Elevation

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### Key Characteristics

- Grand Staircase-Kaiparowits
- 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 site most commonly occurs on fan remnants, plateaus, and terraces; but it can also be found on canyon bottoms, hills, and structural benches. Slopes range from 2 to 50% (sometimes greater) and elevations are 4000-5900 feet. Runoff is variable, depending primarily on slope.

### Climate

Soil temperature moisture regimes range from mesic, typic aridic to mesic, aridic ustic.

### Soil features

The characteristic soils in this site are deep loams that are high in rock fragments and well-drained. They formed in alluvium and/or colluvium derived mainly from diorite, sandstone, shale, and igneous rock. Soils are loamy-skeletal with more than 50 percent rock fragments throughout the soil profile. Water holding capacity ranges from 2 to 5 inches of water in the upper 40 inches of soil.

### Vegetation dynamics

This site developed under Colorado Plateau ecological conditions and the natural influences of herbivory and climate. Blackbrush dominates all documented plant communities. Some shadscale can occur on loamier textured soils. The amount of James galleta and Indian ricegrass present is dependent on weather patterns (summer or winter precipitation). Blackbrush appears to act as a paleo-endemic species on some sites in this MLRA and may not be able to reestablish itself after significant disturbance.

### Major Land Resource Area

MLRA 035X  
Colorado Plateau

### Subclasses

- R035XY018UT–Talus Slope (Blackbrush-Shadscale)
- R035XY139UT–Desert Stony Loam (Blackbrush)
- R035XY243UT–Semidesert Stony Loam (Blackbrush)

### Correlated Map Unit Components

22601051, 22728234, 22965600, 22965747, 22965125, 22965761, 22965256, 22963383

Stage

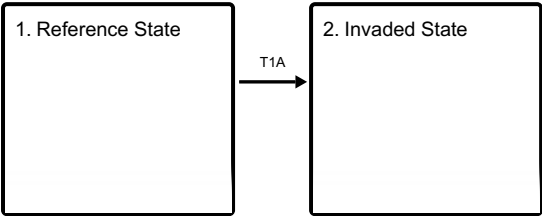
Provisional

Contributors

Curtis Talbot

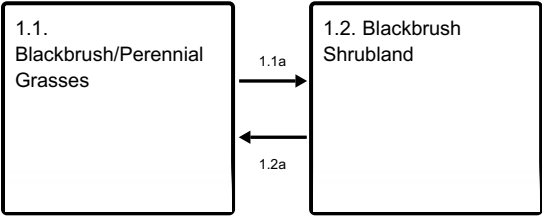
State and transition model

Ecosystem states



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

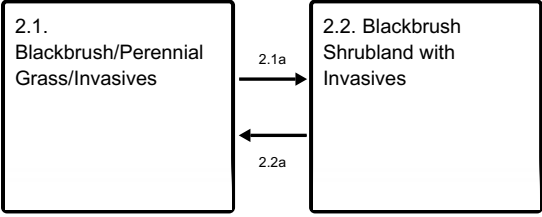
State 1 submodel, plant communities



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 resilience 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**