

Ecological site group DX035X01GESG23

Chinle Valley Sandstone Moderately Deep to Very Deep, MAST > 54 degrees F

Last updated: 10/12/2022
Accessed: 04/19/2024

Key Characteristics

- Chinle Valley
- Sandstone or sandy loam
- Moderately deep to very deep
- 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

Group is deep soils that occurs on summits and risers of fan terraces and structural benches of plateaus. This group does not benefit from run-in moisture, nor does it suffer from excessive runoff. The slopes is generally 1 to 15%, but may be steeper in spots. Elevations range from 3800-5600 ft.

Climate

Area has a very dry and windy climate that is hot in the summer and cold in the winter. Average annual precipitation is from 6 to 10 inches. A slight majority of the precipitation arrives during the late fall, winter, and early spring. This winter season moisture originates in the Pacific Ocean and arrives as rain, or sometimes snow, during widespread frontal storms of generally low intensity. The majority of the snow falls from December through February, but rarely lasts more than a few days. The driest period is from late May to early July. Summer rains occur from July through September during brief intense local thunderstorms. The rain is sporadic in intensity and location.

Mean annual high temperatures range from 67-71 degrees Fahrenheit and mean annual low temperatures range from 40-45 degrees Fahrenheit.

Windy conditions are common year round with the strongest most frequently in the spring.

Soil features

Soils on this site are deep and very deep. Surface textures are loamy sand to sandy loam. Subsurface textures are loamy fine sand to fine sandy loam. They are formed in alluvium and eolian from sandstone. Soil moisture regime is typic aridic and the soil temperature regime is mesic.

Vegetation dynamics

This site developed under Colorado Plateau ecological conditions and the natural influences of herbivory and climate. In average years, plants begin growth around February 20 and end growth around October 30. This site's plant species composition is generally dominated by blackbrush. Shadscale is found on loamier textured soils. Galleta and Indian ricegrass are typically present; however, their dominance is dependant on the climate patterns. There is no evidence to indicate that this site historically maintained a short burn frequency. Large gaps between plants in relic areas indicate that this site may not have historically burned. Until further research indicates that fire played a role in the ecosystem processes of this site, this ecological site description will not include fire as a disturbance in the reference state. 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 blackbrush 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 in the current potential state. However the occurrence of this process has not been observed on this site and therefore is mentioned here only as a predicted occurrence. Cheatgrass, red brome Russian thistle are most likely to invade this site.

This ecological group has been grazed by domestic livestock since they were first introduced into the area (~1860). It is highly resistant to grazing due to the unpalatable nature of blackbrush and lack of a significant grass component. Continuous season long grazing and/or heavy stocking rates may cause perennial grasses and *Mormontea* to decrease while yellow cryptantha, locoweed, desert trumpet, blackbrush, and snakeweed increase. This type of grazing may also increase the chance of invasion by cheatgrass and invasive annual forbs. On the Colorado Plateau these species can invade in the absence of grazing, and rarely increase to a point where they dominate blackbrush communities.

As vegetation communities respond to changes in management or natural influences, return to previous states may not be possible. The ability to affect vegetative shifts depends on present biotic and abiotic features and the desired results. The following diagram may not depict all the transitions and states that are possible, but it does show some of the most commonly occurring plant communities. These plant communities may not represent every possibility, but they are the most prevalent and repeatable. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. This model was developed using range data collected over the last 40 years in MLRA D35 in southeastern Utah. Both estimated and measured data was collected and utilized.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB236AZ–Colluvial Slopes 6-10" p.z. Warm
- R035XY121UT–Desert Sandy Loam (Blackbrush)

Correlated Map Unit Components

22999844, 22598326, 22598217, 22597894, 22598073, 22600884, 22601332, 22601533, 22601111, 22600887, 22601335, 22600892

Stage

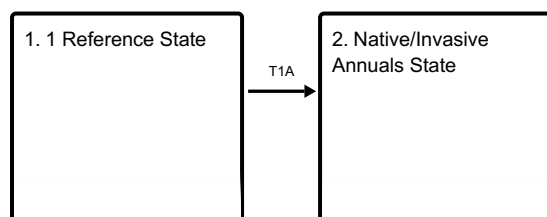
Provisional

Contributors

Curtis Talbot

State and transition model

Ecosystem states



State 1 submodel, plant communities

1.1. 1.1 Blackbrush -
Fourwing saltbrush

State 2 submodel, plant communities

2.1. 2.1 Blackbrush -
Mormon tea with
Annuals

State 1 1 Reference State

Community 1.1 1.1 Blackbrush - Fourwing saltbrush

The dominant aspect of this site is a low shrub (blackbrush and fourwing saltbush), mixed with grasses (Indian ricegrass, galleta and sand dropseed).

State 2 Native/Invasive Annuals State

Community 2.1 2.1 Blackbrush - Mormon tea with Annuals

This plant community is dominated by blackbrush, mormon tea with rabbitbrush and/or snakeweed. Perennial grasses are sparse and only present in small amounts. Common grasses found are galleta, sand dropseed and Indian ricegrass. Annuals grasses and forbs, both native and non-native, are present in small to moderate amounts. There are moderate amounts of bare ground (60-85%) due to reduce perennial herbaceous cover. Annuals can make up to 25% of the the total plant communities composition.

Transition T1A State 1 to 2

Introduction of invasive annuals

Citations