Ecological site group DX035X01GESG16
Chinle Valley Loamy Moderately Deep to Very Deep Hills, Escarpments, and Steep Slopes

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

Key Characteristics

- Chinle Valley
- Loamy
- Upland
- Moderately deep to very deep
- Hills, escarpments, steep slopes

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 upland group occurs on the talus slopes, escarpments, landslides, steep hillslopes, mountain slopes, and ledges. It is subject to significant amounts of runoff. Slopes range from 15 to 60%. Elevations range from 3,700 to 7,500 feet.

Climate

Mean annual precipitation varies from 5 to 14 inches with about 60% of it coming as rain from April through October. May and June are the driest months. Most of the precipitation from November through March comes as snow. Summer rains fall from June through September; moisture originates in the Gulf of Mexico and creates convective, usually brief, intense thunderstorms. Cool season moisture from October through May tends to be frontal; it originates in the Pacific and the Gulf of California and falls in widespread storms with longer duration and lower intensity. Precipitation generally comes as snow from December through February. Accumulations above 12 inches are not common but can occur. Snow usually lasts for 3-4 days, but can persist much longer.

Mean temperatures for the hottest month, July, are about 83 degrees F. The coldest month is January, when the mean temperature is about 27 degrees F. Extreme temperatures of 104 and -17 degrees F have been recorded. The frost-free period ranges from 140 to 160 days. Winter air temperatures can regularly go below 10 F and have been recorded below - 20 F.

High-velocity winds are common in late winter and early spring.

The cool-season plants start growth in March and end with plant maturity and seed dissemination about mid-June. Warm-season plants grow from June through September, taking advantage of the moisture and warmth from tropical air out of the Gulf of Mexico. About 40 percent of the total precipitation is received during these summer months. The other 60 percent, received from fall through spring, influences cool-season plants.

Soil features

The soils are moderately deep to very deep and well drained. They are formed in alluvium derived from residuum derived from siltstone or mixed sources. Surface textures include very cobbly fine sandy loam. The subsoil has textures of gravelly fine sandy loam, clay loam, very cobbly fine sandy loam, silt loam, and gravelly sandy clay loam. Permeability is moderately slow. Available water holding capacity is low. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. The soils are moderately to strongly alkaline (pH 7.9-

9.0). Soil moisture regime is typic aridic or ustic aridic. Soil temperature regime is mesic.

Vegetation dynamics

This ecological group has a plant community made up primarily of grasses, shrubs, and minor amounts of forbs. In the reference plant community there is a mixture of cool-season and warm-season grasses.

Plant species most likely to invade or increase on this group when it deteriorates are cheatgrass, Russian thistle and other annual forbs, shadscale, and valley saltbush (Castle Valley clover). Continuous livestock grazing during winter and spring decreases the cool-season species and increases lower forage value plants.

The reference plant community has been determined by study of relict areas or areas protected from excessive grazing. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The dry phase has little or no Utah juniper or two-needle pinyon. Primary shrubs include blackbrush, shadscale, castle valley saltbush and Mormon tea. Herbaceous species are rare with minor amounts of Indian ricegrass and James galleta usually present. On sandy soils, spike and mesa dropseed may be present. As with the wet phase, wide species variation appears to be a natural part of this ecological site.

Livestock grazing is very limited on this site because of its steep slopes and rough topography. Some use was observed, however, where roads or trails crossed this site. Heavy wildlife browsing by deer and rabbits was observed at several locations.

Widespread fire is not an influencing factor on this community due to natural fire barriers in the form of bedrock and outcrops. Minor fire impact has been observed, however, from lightening caused spot fires which are small in nature but that can cause the sites understory to shift from one dominated by shrubs to one with a more herbaceous aspect.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB017NM–Cobbly Slopes 6-10"
- R035XB236AZ–Colluvial Slopes 6-10" p.z. Warm
- R035XC325AZ–Cobbly Slopes 10-14" p.z. Saline
- R035XC328AZ–Cobbly Slopes 10-14" p.z.
- R035XY018UT–Talus Slope (Blackbrush-Shadscale)

Correlated Map Unit Components

22397472, 22397353, 22397287, 22397288, 22397355, 22397229, 22999398, 22999567, 22999632, 22999648, 22999682, 22999694, 22598360, 22598063, 22600876

Stage

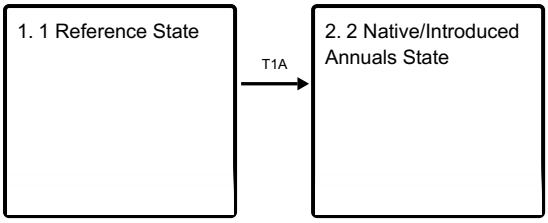
Provisional

Contributors

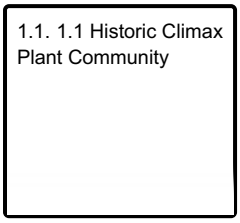
Curtis Talbot

State and transition model

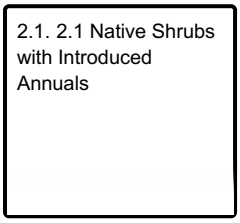
Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities



State 1
1 Reference State

Community 1.1
1.1 Historic Climax Plant Community

The plant community is made up of mid and short grasses with a significant percentage of desert shrubs and a few forbs. In the original plant community there is a mixture of both cool and warm season grasses. Plant species most likely to invade or increase on this site when it deteriorates are blackbrush annuals.

State 2
2 Native/Introduced Annuals State

This state is dominated by blackbrush with lesser amounts of shadscale, galleta and Indian ricegrass. There is an invasion of annual grasses, such as red brome, cheatgrass and Russian thistle. Climatic fluctations, especially during cooler months, have the potential to produce high amounts of annuals.

Community 2.1
2.1 Native Shrubs with Introduced Annuals

This plant community is dominated by blackbrush with few perennial grasses. Red brome, cheatgrass and Russian thistle are present and well established.

Transition T1A
State 1 to 2

Introduced annuals.

Citations