

Ecological site group DX035X01GESG09

Chinle Valley Limy

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

Key Characteristics

- Chinle Valley
- Limy

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 occurs on abandoned stream terraces and summits and dipslopes of structural benches and cuestas, river terraces, plateaus, and mesas. The soils on this site are moderately deep to very deep and well drained with sandy loam surface textures. Slopes range from 0 to 40 percent.

This group occurs in an upland position. It neither benefits significantly from run-in moisture nor does it suffer from excessive loss of moisture from runoff. It occurs on all exposures.

Elevations range from 4,800 to 6,400 feet above sea level.

Climate

The 35.2 Colorado Plateau Cold Desert Shrub - Grassland common resource area has a very dry and windy climate that is hot in the summer and cold in the winter. The annual precipitation averages between 6 and 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 (average range of 1 to 17 inches) falls from December through February, but rarely lasts more than a few days. A seasonal drought occurs from late May through early July. Summer rains occur from July through September during brief intense local thunderstorms. The rain is sporadic in intensity and location. The moisture originates from the Gulf of Mexico in the early summer and the Gulf of California in the late summer/early fall.

Temperatures vary from a monthly mean of 75 degrees F in July to 27 degrees F in January, and from an annual maximum of 106 degrees F to an annual minimum of -35 degrees F. The average last killing frost in the spring is May 8, and the average first killing frost in the fall is October 10. The frost-free season is approximately 160 days. Temperatures are conducive for native grass and forb growth from April through September. Maximum shrub growth occurs in the spring months.

Windy conditions are common year round, but the winds are strongest and most frequent during the spring.

Soil features

The soils on this group are moderately deep to very deep and well drained. These soils are highly calcareous throughout the profile. Surface textures range from fine sandy loam to gravelly and channery sandy loam. The subsoil textures range from sandy loam to sandy clay loam. This site is characterized as having sufficient soil development to have accumulations of carbonates or clays at shallow depths within the soil profile. This helps the site hold available water within the rooting depths of the vegetation.

The hazard of water erosion is slight to moderate and the hazard of soil blowing is moderate.

Vegetation dynamics

The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The historical climax plant community represents the natural potential plant communities found on relict or relatively undisturbed sites. Other plant communities described here represent plant communities that are known to occur when the site is disturbed by factors such as grazing, fire, or drought.

Production data provided in this site description is standardized to air-dry weight at the end of the summer growing season. The plant communities described in this site description are based on near normal rainfall years.

NRCS uses a Similarity Index to compare existing plant communities to the plant communities described here. Similarity Index is determined by comparing the production and composition of a plant community to the production and composition of a plant community described in this site description. To determine Similarity Index, compare the production (air-dry weight) of each species to that shown in the plant community description. For each species, count no more than the maximum amount shown for the species, and for each group, count no more than the maximum shown for the group. Divide the resulting total by the total normal year production shown in the plant community description. If rainfall has been significantly above or below normal, use the total production shown for above or below normal years. If field data is not collected at the end of the summer growing season, then the field data must be corrected to the end of the year production before comparing it to the site description. The growth curve can be used as a guide for estimating production at the end of the summer growing season.

The State and Transition model shows the most common occurring plant communities likely to be encountered on this ecological site. This model may not show every possible plant community, but only those that are most prevalent and observed through field inventory. As more data is collected these plant communities may be revised, removed, and some added to reflect the ecological dynamics of this site.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- DX035X03E003–Limy
- R035XB267AZ–Sandy Loam Upland 6-10" p.z. Limy
- R035XB277AZ–Siltstone Upland 6-10" p.z. Limy

Correlated Map Unit Components

22397193, 22999401, 22999463, 22999460, 22999554, 22999563, 22999802

Stage

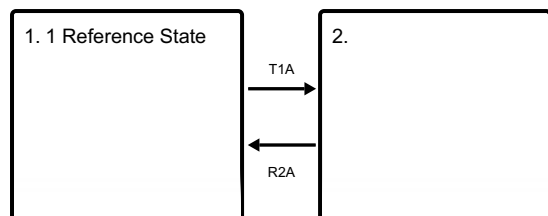
Provisional

Contributors

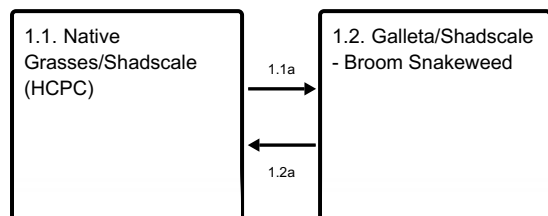
Curtis Talbot

State and transition model

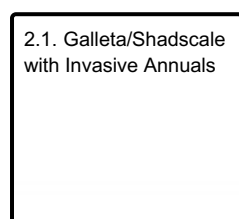
Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities



State 1

1 Reference State

This site has a plant community made up primarily of mid and short grasses, short shrubs and a small percentage of 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 cheat grass, russian thistle, galleta and broom snakeweed. Continuous grazing during the winter and spring will decrease the cool season grasses, which are replaced by lower forage value grasses and shrubs.

Community 1.1

Native Grasses/Shadscale (HCPC)

This site has a plant community made up primarily of mid and short grasses, short shrubs and a small percentage of 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 cheat grass, russian thistle, galleta and broom snakeweed. Continuous grazing during the winter and spring will decrease the cool season grasses, which are replaced by lower forage value grasses and shrubs.

Community 1.2

Galleta/Shadscale - Broom Snakeweed

This plant community is characterized by a mix of grasses and shrubs with dominant plants like galleta, sand dropseed, alkali sacaton. shadscale and broom snakeweed. There is a decline or absence of cool season grasses.

Pathway 1.1a

Community 1.1 to 1.2

Drought, improper continuous grazing

Pathway 1.2a

Community 1.2 to 1.1

Prescribed grazing or no grazing, favorable precipitation

State 2

Community 2.1

Galleta/Shadscale with Invasive Annuals

This plant community is characterized by a mix of grasses and shrubs with invasive annuals. Dominant grasses are galleta, sand dropseed and alkali sacaton. There is a decline or absence of cool season grasses. Dominate shrubs are shadscale and broom snakeweed. Native and non-native annuals are present and well established. Annuals can make up to 25% composition by weight in the plant community.

Transition T1A

State 1 to 2

Invasion of non-native annuals, drought, continuous heavy grazing.

Restoration pathway R2A

State 2 to 1

This return pathway may not be feasible due to cost and significant inputs needed. Possible herbicide treatment to reduce invasive annuals, prescribed grazing or no grazing, possible reseeding of favorable grasses to accelerated site recovery.

Citations