

# Ecological site group DX035X01GESG18

## Chinle Valley Clayey Washes and Swales

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### Key Characteristics

- Chinle Valley
- Shale or clayey
- Washes and Swales

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 in a bottom position of drainageways, flood plains, and washes with gentle slopes ranging from 0-5%. It benefits significantly from run-in moisture.

### Climate

The 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.

The climate is characterized by hot summers and cool to warm winters. Large fluctuations in daily temperatures are common. Mean annual high temperatures range from 51-70 degrees Fahrenheit and mean annual low temperatures range from 46-52 degrees Fahrenheit. Approximately 65–70% of moisture occurs as rain from March through October. On the average, April, May, and June are the driest months and August, September, and October are the wettest months.

Strong winds are common during the winter and spring.

### Soil features

Soils in this site are deep and very deep, and well drained. The surface horizons have textures ranging from clay loam to vertic clays. The subsurface textures are clay, silty clay, clay loam, or silty clay loam and contain very little gravel. Permeability is very slow.

### Vegetation dynamics

An ecological site is not a precise assemblage of species for which the proportions are the same from place to place or from year to year. In all plant communities, variability is apparent in productivity and occurrence of individual species. Spatial boundaries of the communities; however, can be recognized by characteristic patterns of species composition, association, and community structure. The historic climax plant community for this ecological site has been described by sampling relict or relatively undisturbed sites and/or reviewing historic records. The historic climax plant community is the plant community that evolved over time with the soil forming process and long term changes in climatic conditions of the area. It is the plant community that was best adapted to the unique

combination of environmental factors associated with the site.

Natural disturbances, such as drought, fire, grazing of native fauna, and insects, are inherent in the development and maintenance of these plant communities. The effects of these disturbances are part of the range of characteristics of the ecological site. Fluctuations in plant community structure and function caused by the effects of natural disturbances help establish the boundaries and characteristics of an ecological site. They are accounted for as part of the range of characteristics of the ecological site. Recognizable plant community phases are identified in the reference state of the ecological site. Some sites may have a small range of variation, while others have a large range. Some plant community phases may exist for long periods of time, while others may only occur for a couple of years after a disturbance.

Deterioration of the plant community, hydrology, or soil site stability on an ecological site can result in crossing a threshold or potentially irreversible boundary to another state, or equilibrium. This can occur as a result of the loss of soil surface through erosion, the loss of the stability of the site due to disturbances that cause active erosion on the site, increases in the amounts and/or patterns or runoff from rainstorms, changes in availability of surface and subsurface water, significant changes in plant structural and functional types, or the introduction of non-native species. When these thresholds are crossed, the potential of the ecological site to return to the historic climax plant community can be lost, or restoration will require significant inputs. There may be multiple states possible for an ecological site, determined by the type and or severity of disturbance.

The known states and transition pathways for this ecological site are described in the state and transition model. Within each state, there may be one or more known plant community phases. These community phases describe the different plant community that can be recognized and mapped across this ecological site. The state and transition model is intended to help land users recognize the current plant community on the ecological site, and the management options for improving the plant community to the desired plant community.

Plant production data provided in this site description is standardized to the air-dry weight of one year's growth. The plant communities described in this site description are based on near normal rainfall years.

## **Major Land Resource Area**

MLRA 035X  
Colorado Plateau

## **Subclasses**

- R035XB202AZ–Clayey Wash 6-10" p.z.

## **Correlated Map Unit Components**

22397437, 22397427

## **Stage**

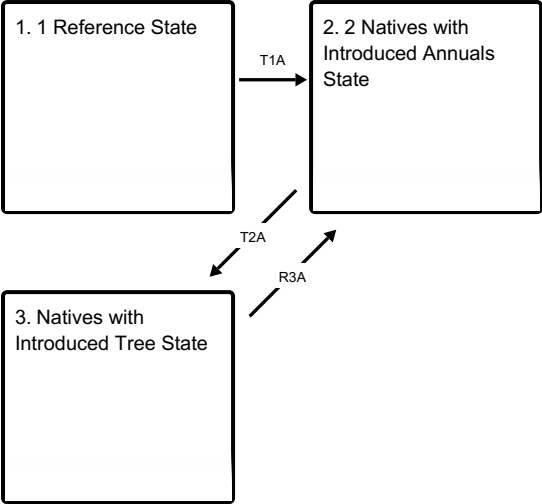
Provisional

## **Contributors**

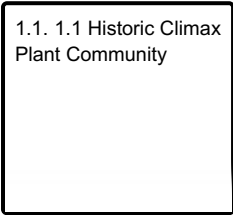
Curtis Talbot

## **State and transition model**

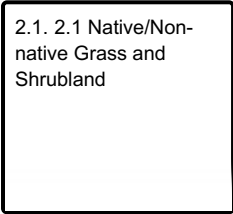
Ecosystem states



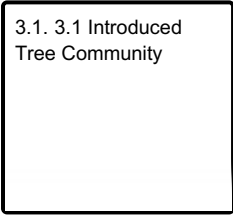
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1  
1 Reference State

This plant community is a perennial grassland with some shrubs and a small percentage of forbs.

Community 1.1  
1.1 Historic Climax Plant Community

This plant community is dominated by warm and cool season perennial grasses with fourwing saltbush and other shrubs and a small percentage of forbs. Plants most likely to increase or invade on this site due to disturbance are rabbitbrush, broom snakeweed, wooly groundsel, annuals and succulents.

State 2  
2 Natives with Introduced Annuals State

This site is a grassland with increased native shrubs along with the introduction of non-native invasive species.

## **Community 2.1**

### **2.1 Native/Non-native Grass and Shrubland**

This site is a grassland with warm and cool season grasses and increased native shrubs along with the introduction of non-native invasive species. The amount of non-native invasive species does not change the overall function of this site. The amount of bare ground has increased on this site. Trace amounts of tamarisk may be present.

## **State 3**

### **Natives with Introduced Tree State**

This site is dominated by an overstory of tamarisk with an understory of primarily annuals and few native shrubs and perennial grasses.

## **Community 3.1**

### **3.1 Introduced Tree Community**

This site contains an overstory of tamarisk leaving little ground cover. Native shrubs and grasses are being replaced by non-native annual species, such as Russian thistle, in the understory.

## **Transition T1A**

### **State 1 to 2**

Unmanaged grazing/drought/introduction of non-native invasive species.

## **Transition T2A**

### **State 2 to 3**

Unmanaged grazing, persistent drought, increase in invasive species.

## **Restoration pathway R3A**

### **State 3 to 2**

Managed grazing, woody species control, invasive weed control, range seeding.

## **Citations**