

Ecological site group DX035X01GESG02

Chinle Valley Sodic Uplands Stream Terraces

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Key Characteristics

- Chinle Valley
- Sodic
- Uplands
- Stream terraces

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 occurs on fan remnants, low stream terraces, and swales of valley floors below mesas and cuestras. Elevations range from 3800 to 6100 feet.

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 14 inches. The soil moisture regime is typical aridic or ustic aridic and the soil temperature regime is mesic. 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. May and June are the driest months.

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 degrees F and -17 degrees F have been recorded. Frost-free period ranges from 140 to 160 days. Windy conditions are common year round, but the winds are strongest and most frequent during the spring.

Soil features

Soils on this site are very deep and well-drained. They are formed from alluvium derived from sandstone, shale, and siltstone. The soil is slightly to strongly effervescent in the surface and subsurface profile. Soils are slightly sodic (SAR 5-13), slightly saline (EC 2-16), moderately to very strongly alkaline (pH 7.9-9.6) and are affected by soluble salts.

Vegetation dynamics

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.

Plant species most likely to invade or increase on this site when it deteriorates are black greasewood, Russian thistle, Powell's saltweed, Torrey seepweed (Mojave seablite), annual grama, Russian thistle, and other annual forbs.

Continuous livestock grazing during winter and spring decreases the cool-season grasses and increases lower forage value grasses and shrubs.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB016NM–Clay Loam Terrace (Sodic) 7-10"

Correlated Map Unit Components

22999409, 23000050, 22999494

Stage

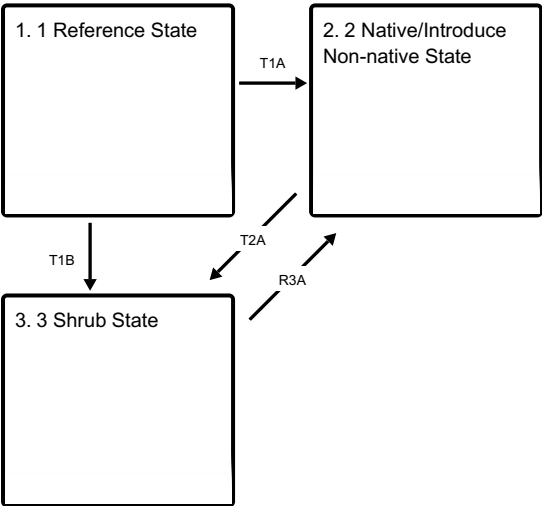
Provisional

Contributors

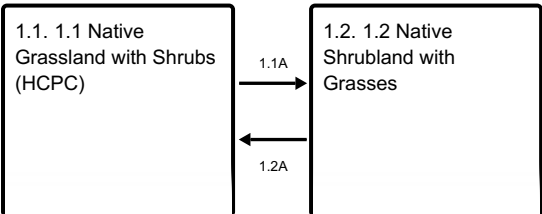
Curtis Talbot

State and transition model

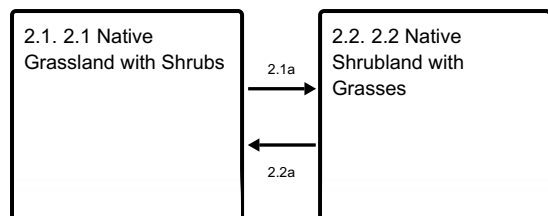
Ecosystem states



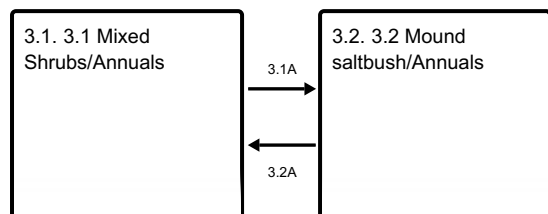
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1

1 Reference State

This plant community represents the historic climax plant community that is dominated by perennial warm season grasses with a mix of shrubs and a small component of forbs. Dominate grasses, such as alkali sacaton, James' gallata and squirreltail, make up about 55 percent of the total production. Common shrubs like mound saltbush and black greasewood generally make up less than 30 percent of the annual production.

Community 1.1

1.1 Native Grassland with Shrubs (HCPC)

This plant community represents the historic climax plant community that is dominated by perennial warm season grasses with a mix of shrubs and a small component of forbs. Alkali sacaton-James' galleta/Mound saltbush

Community 1.2

1.2 Native Shrubland with Grasses

This plant community is primarily comprised of shrubs, a mixture of mid and short grasses along with a small percentage of forbs. Shrubs, like mound saltbush, black greasewood, Torrey seepweed, shadscale saltbush produce about 60 percent of the total annual production.

Pathway 1.1A

Community 1.1 to 1.2

No Prescribed Grazing, Extensive Insect and/or Wildlife Herbivory, or Drought

Pathway 1.2A

Community 1.2 to 1.1

Prescribed grazing or Rest, Favorable/Normal precipitation.

State 2

2 Native/Introduce Non-native State

This state has plant communities that reflect a well-managed area after the introduction of livestock and non-native annual species. While not the HCPC, this state reflects the best current potential. Annuals, native and non-native, can make up to 20 percent of the total plant composition. Annuals are well established, but do not dominate the understory canopy.

Community 2.1

2.1 Native Grassland with Shrubs

This plant community represents the best current potential plant community that is dominated by perennial warm season grasses with a mix of shrubs and a small component of forbs. Dominate grasses, such as alkali sacaton, James' gallata and squirreltail, make up about 55 percent of the total production. Common shrubs like mound saltbush and black greasewood generally make up less than 30 percent of the annual production. Non-native annual forbs and grasses are present in small amounts.

Community 2.2

2.2 Native Shrubland with Grasses

This plant community is primarily comprised of shrubs, a mixture of mid and short grasses along with a small percentage of forbs. Shrubs, like mound saltbush, black greasewood, Torrey seepweed, shadscale saltbush produce about 60 percent of the total annual production. Non-native annual forbs and grasses are present in small amounts.

Pathway 2.1a

Community 2.1 to 2.2

No Prescribed Grazing, Extensive Insect and/or Wildlife Herbivory, or Drought

Pathway 2.2a

Community 2.2 to 2.1

Prescribed grazing or Rest, Favorable/Normal precipitation.

State 3

3 Shrub State

This state is characterized by a dominance of shrub canopy with a small amount of herbaceous cover. Bare ground is typically over 75 percent, but ranges from 65 to 90 percent with basal cover averaging 1 to 5 percent for all vegetation. Perennial grasses may not be present or only present in occasional scattered clumps.

Community 3.1

3.1 Mixed Shrubs/Annuals

This plant community is dominated by a mixed shrub canopy, where some perennial grasses are present but contribute only a small amount of the total annual production. Common dominate shrubs include mound saltbush and black greasewood. Other shrubs include shadscale saltbush, Torrey seepweed, snakeweed and succulents. Non-native annual species are present.

Community 3.2

3.2 Mound saltbush/Annuals

This plant community is dominated by mound saltbush with a lesser amounts of black greasewood, shadscale, and Torrey seepweed. Annual forbs are present in small amounts and perennial grasses are sparse and widely scattered.

Pathway 3.1A

Community 3.1 to 3.2

Continuous heavy grazing, Drought.

Pathway 3.2A

Community 3.2 to 3.1

Rest or prescribed grazing, Normal precipitation.

Transition T1A**State 1 to 2**

Introduction of non-native annuals.

Transition T1B**State 1 to 3**

Drought, extended periods with winter dominated moisture patterns, loss of the natural fire frequency, and unmanaged grazing can reduce the perennial grasses on the site and allow woody species to increase.

Transition T2A**State 2 to 3**

Continuous heavy grazing.

Restoration pathway R3A**State 3 to 2**

Brush management with range planting, Deferred/Prescribed grazing, Favorable climate.

Citations