

Ecological site group DX035X01IESG14

Little Colorado River Basin-Shale or clayey shallow soils. Dominantly shale (non run in moisture)

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Key Characteristics

- Little Colorado River Basin
- Shale or Clayey
- Does not receive extra water from run-in moisture
- Generally shallow soils on hills, benches and slopes
- landforms are dominantly shale

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 gently sloping plains, plateaus or fan remnants. Also occurs on summits and footslopes of mesas and buttes, hills, benches and escarpments, and pediments. Slopes generally range from 0 to 15 percent, but can reach up to 25 percent for short distances.

This site occurs in an upland position. It neither benefits from run-in moisture nor sustains excessive runoff unless denuded of its vegetation.

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. Soil moisture regime is typical 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 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. Windy conditions are common year round with the strongest most frequently in the spring.

Soil features

Soils in this site are shallow and well drained to the parent material. Highly weathered clayey shale is the parent material. The surface layer is clay, silty clay, or clay loam. The substratum is clay or silty clay. The soils are typically saline/sodic to sodic. Permeability is very slow. Available water capacity is 1 to 3 inches. Salinity is low to high. The water erosion hazard is moderate to severe and the wind erosion hazard is slight. Effective rooting depth is typically shallow into the fractured parent material.

Vegetation dynamics

Reference State

The general aspect of the site is made up of primarily mid and short grasses with a significant percentage of cold 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 saltbushes, broom snakeweed and annuals. Repetitive herbivory with high utilization during the winter and spring periods will decrease

the cool season grasses, which are replaced by warm season, lower forage value grasses and shrubs.

Reference Plant Community

The mixed shrubs/grass plant community is made up of primarily mid and short grasses with a significant percentage of cold desert shrubs and a few forbs. The plant composition for the site is typically 65-70% grasses, 5-10% forbs and 20-25% shrubs. Plant species most likely to invade or increase on this site when it deteriorates are broom snakeweed and annuals. Continuous grazing during the winter and spring periods will decrease the cool season grasses, which are replaced by warm season, lower forage value grasses and shrubs.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB220AZ–Shale Upland 6-10" p.z.
- R035XC320AZ–Shale Hills 10-14" p.z.

Correlated Map Unit Components

22341106, 22353854, 22353877, 22353989, 22354041, 22354031, 22396714, 22396723, 22484755, 22484787

Stage

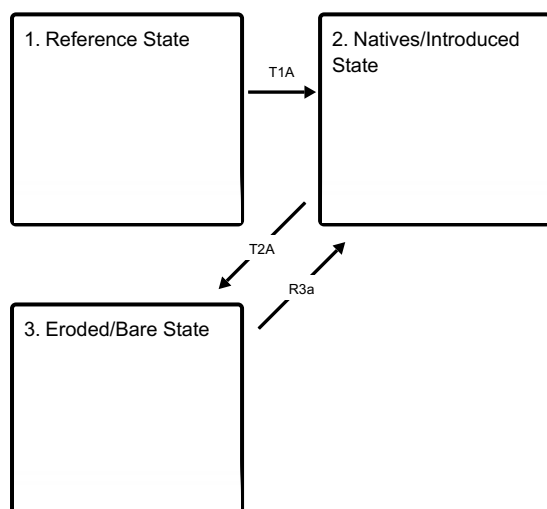
Provisional

Contributors

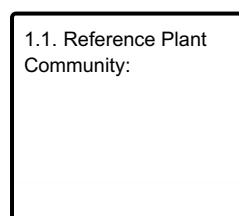
Curtis Talbot

State and transition model

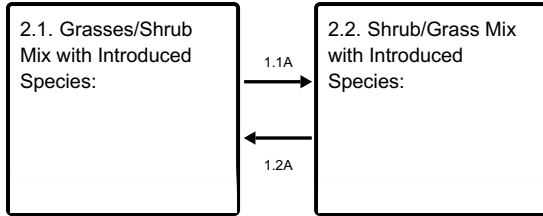
Ecosystem states



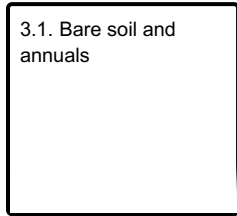
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1 Reference State

The general aspect of the site is made up of primarily mid and short grasses with a significant percentage of cold desert shrubs and a few forbs. In the reference plant community there is a mixture of both cool and warm season grasses. Over time the site fluctuates between shrub dominant and grass dominant based on fire cycle.

Community 1.1 Reference Plant Community:

The plant community is made up of mid and short grasses with a fair percentage of forbs and shrubs. There is a mixture of both cool and warm season plants. Species include alkali sacaton, galleta, Indian, ricegrass, shadscale, and saltbush

Resilience management. Plant species most likely to invade or increase on this site when it deteriorates are galleta, Torrey seepweed, Greene rabbitbrush, cheatgrass and annual forbs. Heavy, repetitive livestock grazing during winter and spring will decrease cool season grasses, which are replaced by lower forage value grasses and shrubs.

State 2 Natives/Introduced State

Plant species most likely to invade or increase on this site when it deteriorates are galleta, Torrey seepweed, Greene rabbitbrush, cheatgrass and annual forbs. Continuous livestock grazing use during winter and spring will decrease cool season grasses, which are replaced by lower forage value grasses and shrubs.

Community 2.1 Grasses/Shrub Mix with Introduced Species:

Characterized by alkali sacaton, galleta Indian ricegrass, shadscale, and saltbush. Introduced exotic annual grasses and forbs are present in minor amounts in the plant community, but the amount and proportions of native plants is similar to that found in plant community 1.1, Reference Plant Community.

Community 2.2 Shrub/Grass Mix with Introduced Species:

This plant community is characterized by a dominance of shadscale, saltbush, Torrey Seepweed, snakeweed, with a few grass species such as alkali sacaton and galleta. Introduced exotic annual grasses and forbs are present in minor amounts in the plant community.

Pathway 1.1A
Community 2.1 to 2.2

Grass are reduced due to high grazing pressure and shrubs gain a competitive advantage. Introduced species also increase.

Pathway 1.2A
Community 2.2 to 2.1

A set back to the shrubs along with increased colonization of grasses.

State 3
Eroded/Bare State

Erosion and bare soil is extensive.

Community 3.1
Bare soil and annuals

Russian thistle with native and non-native annuals. Shrubs and perennial grasses may be absent or severely reduced. There is significant bare ground and erosion.

Transition T1A
State 1 to 2

Repetitive, high utilization decrease plant cover, increases bare soil and allow a weakened ecosystem for introduced species to colonize. Once introduced species have invaded it is unlikely the site can be restored to reference.

Transition T2A
State 2 to 3

Severe degradation of plant species, causing bare soil and erosion.

Restoration pathway R3a
State 3 to 2

Very long term restoration of soil, plant and water function.

Citations