

Ecological site group DX035X01IESG01

Little Colorado River Basin-salt affected soils-run in moisture

Last updated: 10/12/2022
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Key Characteristics

- Little Colorado River Basin
- Salt affected soils
- Receive extra water from run-in moisture

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 in the drainage or bottom positions on the landscape that have the potential to flood following storm events. The surface textures are loamy. The soils are deep and well drained. Slopes range from 0 to 5 percent.

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. The soil moisture regime is typic-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. Windy conditions are common year round, but the winds are strongest and most frequent during the spring.

Soil features

These soils are stratified flow deposited soils that are deep and well drained, formed from mixed alluvium. The surface layer texture range from very fine sandy loam to sandy clay loam. The subsurface textures are typically loamy, but may have stratified layers coarser and finer textures. The soils are saline and/or sodic throughout the profile. Available water capacity is 6 to 13 inches. Effective rooting depth is more than 60 inches. Permeability is moderately slow to slow. Runoff is very slow to moderate.

Soil survey map unit components that have been correlated to this ecological site include:

Vegetation dynamics

This site has higher levels of accumulated salts due to position on the landscape and the underlying geology. Areas of increased salts seal the soil surface and prevent most plants from germinating. These areas become depressional and become sites for precipitation to accumulate, evaporate, and increase the salt content. The natural plant community of shrubs and grasses grow at the edges of these sites and in drifts of eolian sand that have accumulated, which allow the plants to germinate. The plant community is primarily made up of mid and short grasses and shrubs with a relatively small percentage of forbs. In the original plant community there is a mixture of both cool and warm season grasses.

Major Land Resource Area

Subclasses

- R035XB211AZ–Loamy Wash 6-10" p.z. Saline-Sodic

Correlated Map Unit Components

22341166, 22353903, 22353905, 22353909, 22353910, 22353912, 22353939, 22353941, 22354010, 22354012, 22353396, 22353455, 22396718, 22396719, 22396708, 22396816, 22484760, 22484761, 22484731

Stage

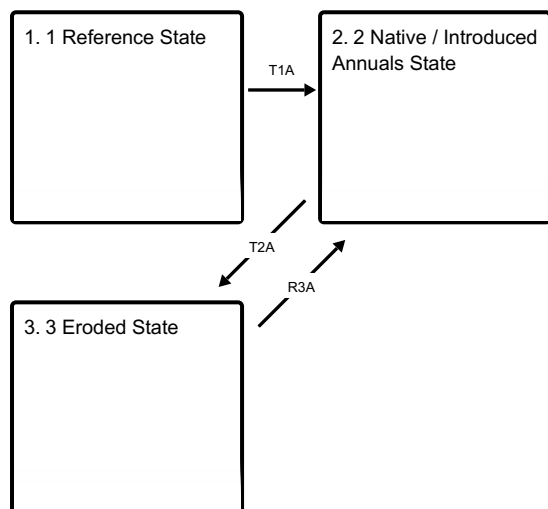
Provisional

Contributors

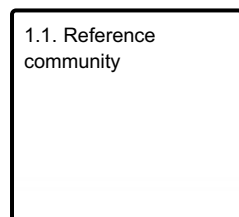
Curtis Talbot

State and transition model

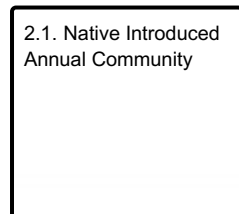
Ecosystem states



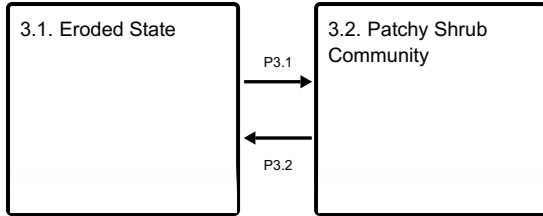
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1

1 Reference State

Community 1.1 Historic Climax Plant Community 35.2 Loamy Bottom Historic Climax Plant Community The plant community is made up primarily of mid and short grasses and shrubs with a relatively small percentage of forbs. In the original plant community there is a mixture of both cool and warm season grasses.

Community 1.1

Reference community

Community 1.1 Reference Community 35.2 Loamy Bottom Historic Climax Plant Community The plant community is made up primarily of mid and short grasses and shrubs with a relatively small percentage of forbs. In the original plant community there is a mixture of both cool and warm season grasses. Transition T1A State 1 to 2 Introduced annuals such as Russian thistle and cheatgrass move into the plant community and compete with the native species.

State 2

2 Native / Introduced Annuals State

State 2 Natives / Introduced State This state is what land managers should work towards in maintaining a healthy present plant community on this site. Communities fluctuate between areas of natural shrubland-grassland areas of salt tolerant species such as mound saltbush and alkali sacaton, to areas of patchy vegetation or salt-affected bare areas. Community 2.1 Natives with Introduced Annuals Community This community is similar to the Historic Climax Plant Community, but introduced annuals are now part of the plant community and compete with native species on the site. Drought, unmanaged grazing or other disturbances that reduce the perennial grass component may allow the more aggressive introduced species like Russian thistle to continue increasing on the site.

Community 2.1

Native Introduced Annual Community

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State 3

3 Eroded State

State 3 Eroded State This state consists of playas and other bare areas that are bowl-shaped and catch water and sediment; these areas may also be eroded or denuded sites due to large amounts of salts in the area or heavy grazing.

Community 3.1

Eroded State

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Community 3.2 Patchy Shrub Community

The community phase is characterized by large bare soil areas where sodic subsoils have become exposed, and small shrub islands that are able to capture aeolian soil deposits that can support plant production. Plant species most likely to invade or increase on this site when it deteriorates are camelthorn, greasewood, shadscale, wooly groundsel, and native and introduced annuals.

Pathway P3.1 Community 3.1 to 3.2

Lesser palatable shrubs with deep tap roots increasing.

Pathway P3.2 Community 3.2 to 3.1

A set back to the shrubs.

Transition T1A State 1 to 2

Introduced annuals such as Russian thistle and cheatgrass move into the plant community and compete with the native species.

Transition T2A State 2 to 3

Long-term repetitive, high utilization of palatable species over time increases bare soil and erosion.

Restoration pathway R3A State 3 to 2

Long term improvement of soil, plant, and hydrologic health.

Citations