Ecological site group DX035X01IESG10
Little Colorado River Basin- Loamy shallow soils on benches, terraces and mesas (landforms are capped by sandstone, limestone, or other sedimentary strata)

Last updated: 10/25/2022
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Key Characteristics

- Little Colorado River Basin
- Loamy
- Does not receive extra run-in moisture
- Shallow
- On benches, terraces and mesas

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 range site occurs in an upland position on plateaus, benches, mesas or buttes. It is on gently sloping to rolling plains and slopes that are generally 1 - 15% and occasionally up to 30%. It does not benefit from run-in moisture from adjacent areas nor does it suffer from excessive loss of moisture from runoff.

Climate

About 50% of annual precipitation is received as rain from July to September with the least amounts falling during May and June. Most of the moisture that comes from November to February comes as snow. High winds are common during the winter and spring.

Soil features

Soils on this site are very shallow and shallow (5 - 20 inches deep) to bedrock. The surface textures range from loamy sand to loam about 1 - 4 inches thick. The surface may be covered with up to 20-30% gravels or channers. The subsurface horizon has textures of sandy loam or loam and contains less than 35% gravel by volume. Shallow depth to bedrock restricts the root growth and moisture. The soil has very low available water capacity.

Vegetation dynamics

This site has a plant community made up primarily of short and mid grasses with a moderate amount of shrubs. The plant community has a mixture of both cool and warm season plants.
The reference state and the reference (climax) plant community has been determined by study of relict areas or areas protected from excessive disturbances. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures and historical accounts have also been used.
This reference state is characterized as a native mid and short grassland dominated by black grama and galleta with shrubs like Bigelow sagebrush and shadscale saltbush. Sites dominated by sandstone will show a slight dominance of Bigelow sagebrush and sites dominated by shale will show a slight dominance of shadscale.
Plant species most likely to invade or increase on this site when it deteriorates are broom snakeweed, Russian thistle and cacti.

Repetitive defoliation and high utilization during the winter and spring periods will decrease the cool season

grasses, which are replaced by lower forage value grasses and shrubs.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XA111AZ–Limy Upland 10-14" p.z.
- R035XB210AZ–Loamy Upland 6-10" p.z.
- R035XB215AZ–Sandstone/Shale Upland 6-10" p.z.
- R035XB232AZ–Limestone/Sandstone Upland 6-10" p.z.
- R035XB255AZ–Sandstone Rockland 6-10" p.z.
- R035XC313AZ–Loamy Upland 10-14" p.z.
- R035XC319AZ–Limestone/Sandstone Upland 10-14" p.z.
- R035XC337AZ–Sandstone/Shale Upland 10-14" p.z.

Correlated Map Unit Components

22341075, 22341101, 22341102, 22341104, 22341136, 22341178, 22341180, 22341192, 22341193, 22341639, 22341650, 22341648, 22341627, 22341653, 22341651, 22341611, 22341642, 22341655, 22341656, 22341634, 22341658, 22353887, 22353889, 22353974, 22396789, 22396746, 22396645, 22396748, 22396749, 22396668, 22396667, 22396675, 22396711, 22396663, 22396620, 22396735, 22396808, 22396807, 22396706, 22396820, 22396821, 22396852, 22396853, 22396845, 22396630, 22396631, 22396842, 22396843, 22396824, 22396825, 22396613, 22396626, 22484793

Stage

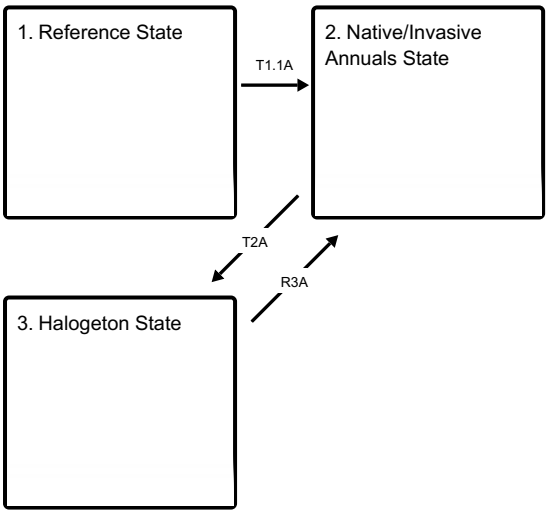
Provisional

Contributors

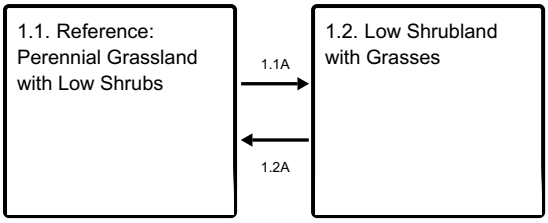
Curtis Talbot

State and transition model

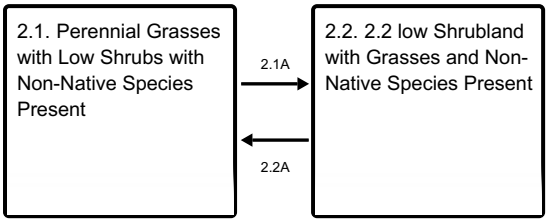
Ecosystem states



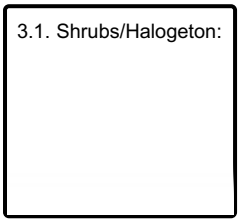
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1
Reference State

The reference state and the reference (climax) plant community has been determined by study of relict areas or areas protected from excessive disturbances. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures and historical accounts have also been used. This reference state is characterized as a native mid and short grassland dominated by black grama and galleta with shrubs like Bigelow sagebrush and shadscale saltbush. Sites dominated by sandstone will show a slight dominance of Bigelow sagebrush and sites dominated by shale will show a slight dominance of shadscale.

Community 1.1
Reference: Perennial Grassland with Low Shrubs

This site has a plant community made up primarily of short and mid grasses with a moderate amount of shrubs. The plant community has a mixture of both cool and warm season plants. This reference community is characterized as a native mid and short grassland dominated by black grama and galleta with shrubs like Bigelow sagebrush and shadscale saltbush. Sites dominated by sandstone will show a slight dominance of Bigelow sagebrush and sites dominated by shale will show a slight dominance of shadscale.

Community 1.2
Low Shrubland with Grasses

This plant community is characterized by an increase of shrubs with a decrease in perennial grasses.

Pathway 1.1A
Community 1.1 to 1.2

Shrubs have a competitive advantage with deep tap roots that sink into the cracks and fissures on the bedrock. They will out-compete grasses over time.

Pathway 1.2A
Community 1.2 to 1.1

A set back to the shrubs either by fire or disease.

State 2
Native/Invasive Annuals State

This plant community state closely resembles the reference state plant communtiy, but introduced annuals, such as cheatgrass and Russian thistle are present in amounts up to 15% composition.

Community 2.1
Perennial Grasses with Low Shrubs with Non-Native Species Present

This site has a plant community made up primarily of short and mid grasses with a moderate amount of shrubs and introduced annuals. Annuals such as cheatgrass and Russian thistle are present in minor amounts, 1-15% composition.

Community 2.2
2.2 low Shrubland with Grasses and Non-Native Species Present

This plant community is characterized by an increase of shrubs with a decrease in perennial grasses. Introduced annuals, such as cheatgrass and Russian thistle can make up to 15% composition.

Pathway 2.1A
Community 2.1 to 2.2

Shrubs gain a competitive advantage over time due to extensive tap root systems.

Pathway 2.2A
Community 2.2 to 2.1

A disturbance to set the shrubs back such as fire or disease.

State 3
Halogeton State

This plant community is characterized as a shrubland with an invasion of halogeton. Common species in this plant community are Shadscale, Bigelow sagebrush, snakeweed, galleta, Russian Thistle and halogeton. It is associated with increased bare ground and erosion.

Community 3.1
Shrubs/Halogeton:

This plant community is characterized by an invasion of halogeton. Common species in this plant community are Shadscale, Bigelow sagebrush, snakeweed, galleta, prickly Russian Thistle with halogeton.

Transition T1.1A
State 1 to 2

A decrease in soil and plant health allowing for invasive species to spread. Once introduced species have invaded it is unlikely the site can be restored to reference.

Transition T2A
State 2 to 3

Invasion of halogeton coupled with increased bare ground and erosion.

Restoration pathway R3A

State 3 to 2

Treatment of halogeton and a slight improvement of soil health.

Citations