Ecological site group DX035X04BESG01
Bisti Lowlands LRU Subset - Saline and Sodic Uplands Subgroup

Last updated: 11/01/2022
Accessed: 05/02/2024

Key Characteristics

- Bisti Lowlands. This LRU subset is composed of Cretaceous materials, and is generally below 1900 m in elevation. The Bisti Lowanads subset is further distinguished from Chaco Mesa in that the former receives less monsoonal moisture, harbors less warm-season grass, and experiences low amounts of blowing sands.
- Sites that occur on "upland", water-shedding landforms. Elevated terraces are included in this group.
- Soils are > 50 cm to lithic or paralithic contact (root-restrictive bedrock).
- Sites that have saline and/or sodic soils. In these cases soils regularly have an EC > 4.0 and/or SAR > 10 or ESP > 15.

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 ESG covers a number of upland landforms including fans and elevated terraces. Water-collecting landforms such as drainageway bottoms correlate to the Bottomlands ESG.

Soil features

Soils are at least moderate in sodicity and/or salinity.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB008NM–Sodic Slopes
- R035XB016NM–Clay Loam Terrace (Sodic) 7-10"
- R035XB017NM–Cobbly Slopes 6-10"
- R035XB022NM–Loamy Upland 6-10"p.z. sodic
- R035XB033NM–Sandy Loam Upland 6-10" sodic
- R035XB034NM–Sandy Terrace 6-10" sodic
- R035XB211AZ–Loamy Wash 6-10" p.z. Saline-Sodic
- R035XB227AZ–Sandy Loam Upland 6-10" p.z. Saline-Sodic
- R035XB228AZ–Sandstone Upland 6-10" p.z. Sodic
- R035XB237AZ–Clay Loam Terrace 6-10" p.z. Sodic
- R035XB268AZ–Shale Hills 6-10" p.z.
- R035XB271AZ–Loamy Upland 6-10" p.z. Saline-Sodic
- R035XB274AZ–Sandy Loam Upland 6-10" p.z. Saline
- R035XB276AZ–Siltstone Upland 6-10" p.z. Saline
- R035XB277AZ–Siltstone Upland 6-10" p.z. Limy
- R035XB278AZ–Loamy Upland 6-10" p.z. Saline, Gypsic
- R035XB279AZ–Clay Loam Upland 6-10" p.z. Sodic, Gypsic
- R035XC318AZ–Silty Shallow 10-14" p.z.
- R035XC328AZ–Cobbly Slopes 10-14" p.z.

Correlated Map Unit Components

23436143, 23436154, 23436187, 23436195, 23436198, 23436196, 23436247, 23436270

Stage

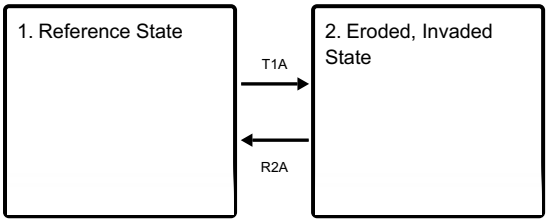
Provisional

Contributors

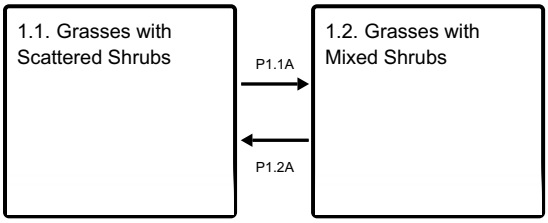
Curtis Talbot

State and transition model

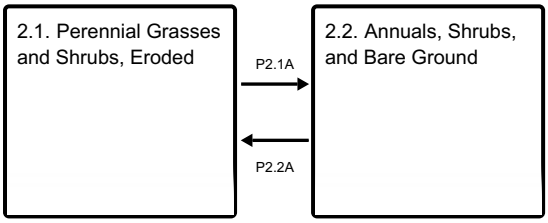
Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities



State 1
Reference State

This state is characterized by a mix of grasses, shrubs, and forbs. Topsoils are at least somewhat intact, and invasive annuals are not a major component.

Community 1.1
Grasses with Scattered Shrubs

Dominant plant species

- saltbush (*Atriplex*), shrub
- alkali sacaton (*Sporobolus airoides*), grass
- James' galleta (*Pleuraphis jamesii*), grass
- Indian ricegrass (*Achnatherum hymenoides*), grass

Community 1.2
Grasses with Mixed Shrubs

Dominant plant species

- saltbush (*Atriplex*), shrub
- broom snakeweed (*Gutierrezia sarothrae*), shrub
- goldenbush (*Ericameria*), shrub
- alkali sacaton (*Sporobolus airoides*), grass
- James' galleta (*Pleuraphis jamesii*), grass

Pathway P1.1A
Community 1.1 to 1.2

Continuous herbivory.

Pathway P1.2A
Community 1.2 to 1.1

Prescribed and/or deferred grazing.

State 2
Eroded, Invaded State

Topsoils significantly degraded or absent; invasive annuals are an important component.

Community 2.1
Perennial Grasses and Shrubs, Eroded

A mix of perennial grasses and shrubs, with a significant component of invasive annual grasses and forbs.

Community 2.2
Annuals, Shrubs, and Bare Ground

Shrubs and annual grasses and forbs make up the plant community. Production is quite low, and bare ground abounds.

Pathway P2.1A
Community 2.1 to 2.2

Continuous grazing

Pathway P2.2A
Community 2.2 to 2.1

Prescribed/deferred grazing

Transition T1A
State 1 to 2

Prolonged continuous grazing and subsequent drought leads to considerable mortality among perennial grasses. Low plant basal area leads to accelerated erosion. Invasive annuals gain a competitive advantage.

Restoration pathway R2A
State 2 to 1

Successful restoration will be multi-faceted, involving some combination of: prescribed/deferred grazing, shrub control, erosion control, and seeding. Full recovery of the site will require the re-building of topsoil--a very slow process in this setting.

Citations