Ecological site group DX035X02DESG04
Grand Canyon - Aridic Ustic - Limestone or Loamy Upland

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Key Characteristics

- Grand Canyon (D)
- Site parent material is limestone or dolomite, or soil is loamy.
- Site soils are aridic ustic or within a 13-17" precipitation zone.
- Site is and/or located in an upland with slopes <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

Site is and/or located in an upland with slopes <15%. Physiography is complex.

Climate

Site soils are aridic ustic or within a 13-17" precipitation zone. Precipitation comes monsoonal patterns during months of July, August, and September, and is supplemented by winter storm patterns from November through March.

Soil features

Parent material is limestone. Soils are loamy. Site consists of limited amounts of gently sloping sheet alluvial or eolian deposits over residuum of plateaus and structural benches.

Vegetation dynamics

The dominant aspect of the site is a grass-shrub mix. Major grasses include western wheatgrass, blue grama and bottlebrush squirreltail. Dominant shrubs are mountain and Wyoming big sagebrush.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- F035XF619AZ–Limestone Upland 13-17" p.z. (JUOS, PIED)
- R035XF605AZ–Loamy Upland 13-17" p.z.
- R035XF608AZ–Limestone / Sandstone Upland 13-17" p.z.

Correlated Map Unit Components

22395188, 22395065, 22395063, 22394986, 22394892, 22394893, 22395451, 22395060, 22395454, 22395452, 22395021, 22395019, 22395460, 22395461, 22395431, 22394861, 22395173, 22395172, 22395171, 22394876, 22394898, 22394853, 22396811, 22396810

Stage

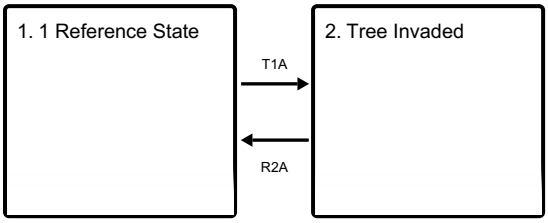
Provisional

Contributors

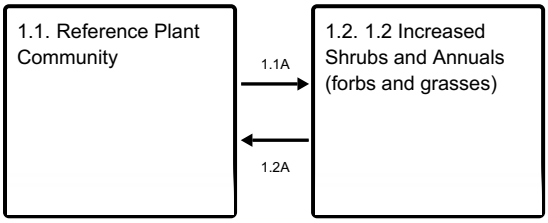
Curtis Talbot

State and transition model

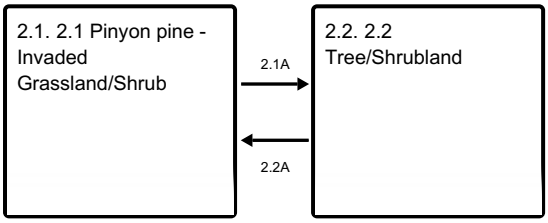
Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities



State 1
1 Reference State

This is a grassland / shrub mix. The approximate total production breakdown is grasses are 60-70%, forbs 1-5%, shrubs 25-35% and trees 0-4%. Western wheatgrass, squirreltail, muttongrass and blue grama are the dominant grasses and Wyoming big sagebrush is the dominant shrub.

Community 1.1
Reference Plant Community

The dominant aspect of the site is a grass-shrub mix. Major grasses include western wheatgrass, blue grama and bottlebrush squirreltail. Dominant shrubs are mountain and Wyoming big sagebrush.

Community 1.2
1.2 Increased Shrubs and Annuals (forbs and grasses)

Disturbance has reduced perennial grasses. Sagebrush, broom snakeweed, sixweeks fescue and annual lupine increase. Non-native plant species may be present in minor amounts.

Pathway 1.1A
Community 1.1 to 1.2

Continuous understory disturbance decreases perennial grasses and allows the shrubs to increase along with

annual grasses and forbs.

Pathway 1.2A
Community 1.2 to 1.1

Shrub treatment if necessary along with careful management. There may be a need for some range re-seeding if conditions warrant it.

State 2
Tree Invaded

Trees (mostly pinyon pine) is invading the site. Disturbed understory, lack of fire and favorable climatic conditions have opened up the site to this tree invasion. Left unchecked the trees and shrubs will dominate the site and the understory becomes less productive with less quality forage plant species. It takes tree and shrub treatments along with careful management which might include some re-seeding to move back to a more desired plant communty. There are times when drought and insect damage reduce tree densities,also. There may be very little to a few percent of non-native plants. Introduction of non-native annuals species creates an irreversible change in the plant community

Community 2.1
2.1 Pinyon pine - Invaded Grassland/Shrub

This community will have pinyon pine (PIED) invade this site when fire has been suppressed and there is a favorable moisture regime to allow the trees to move in from adjacent areas. Grasses will still be the dominant plants followed by shrubs and will remain similar to the plant community of 1.1. There may be very little to a few percent of non-native plants. Introduction of non-native annuals species creates an irreversible change in the plant community.

Community 2.2
2.2 Tree/Shrubland

Continued tree invasion is facilitated by continuous understory disturbance. Pinyon pine and sagebrush expand and increase their influence on the site. Broom snakeweed and annual forbs and grasses increase while perennial native grasses decrease. Note: Mechanical removal of the trees will be needed to reverse the tree invasion. There are times when drought, fire and insect damage reduce tree densities. There may be very little to a few percent of non-native plants. Introduction of non-native annuals species creates an irreversible change in the plant community.

Pathway 2.1A
Community 2.1 to 2.2

Continued tree invasion is facilitated by continuous understory disturbance. Pinyon pine and sagebrush expand and increase their influence on the site. Broom snakeweed and annual forbs and grasses increase while perennial native grasses decrease.

Pathway 2.2A
Community 2.2 to 2.1

Mechanical removal of the trees will be needed to reverse the tree invasion. There are times when drought, fire and insect damage reduce tree densities.

Transition T1A
State 1 to 2

Trees (mostly pinyon pine) is invading the site. Disturbed understory, lack of fire and favorable climatic conditions have opened up the site to this tree invasion.

Restoration pathway R2A
State 2 to 1

It takes tree and shrub treatments along with careful management which might include some re-seeding to move back to a more desired plant communty. There are times when drought and insect damage reduce tree densities,also.

Citations