

Ecological site group DX035X01AESG03

Grand Staircase-Outcrops & Slopes-Shallow Soils

Last updated: 10/05/2022
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Key Characteristics

- Grand Staircase-Kaiparowits
- Outcrops and Slopes
- Soils are shallow to bedrock

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 escarpments and hillslopes associated with structural benches, ledges on escarpments, dissected structural benches, side slope canyons, canyon walls, and scarp slopes on cuerdas. Run off is very high. Slopes typically range from 15-80%,

Climate

The climate is characterized by hot summers and cool to warm winters. Large fluctuations in daily temperatures are common. Approximately 60-70% occurs as rain from July through October. On the average, February, May, and June are the driest months and July through October are the wettest months. Precipitation is extremely variable from month to month and from year to year but averages between 6-12 inches. Much of the summer precipitation occurs as convection thunderstorms.

Soil features

The soils of this ecological site are very shallow to shallow. The complex geologic strata associated with the site has created a multitude of soil textures, and developments. There are also extreme differences in aspect which affect soil formation.

The soils range from coarse to fine loams. Parent material is typically limestone or sandstone with prominent calcium carbonate influence. Permeability is moderate to rapid, and the available water capacity is very low.

Vegetation dynamics

This site developed under Colorado Plateau ecological conditions, and the natural influences of herbivory and climate. Species composition is generally dominated by a sparse layer of Utah juniper and two-needle pinyon. Bigelow sagebrush, mormon tea and blackbrush are common shrub species. Perennial herbaceous species occurrence is highly variable with Indian ricegrass, Salina wildrye and desert needlegrass found most often. There is no evidence to indicate that this site historically maintained a short burn cycle.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB255AZ–Sandstone Rockland 6-10" p.z.
- R035XC302AZ–Sedimentary Cliffs 10-14" p.z.
- R035XD401AZ–Breaks 7-11" p.z.
- R035XY146UT–Desert Very Steep Stony Loam (Shadscale)
- R035XY240UT–Semidesert Steep Shallow Loam (Utah Juniper-Two-Needle Pinyon)
- R035XY325UT–Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)

Correlated Map Unit Components

22593691, 22593693, 22601395, 22601297, 22601284, 22601287, 22601747, 22601368, 22965227, 22965592, 22965598, 22965599, 22965743, 22965518, 22965423, 22965309, 22965500, 22965181, 22965541, 22965250, 22965577, 22965641

Stage

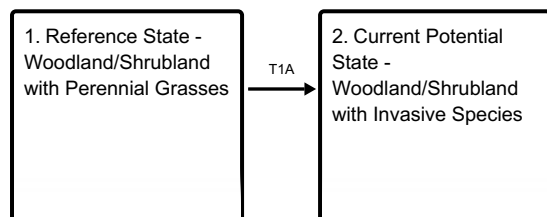
Provisional

Contributors

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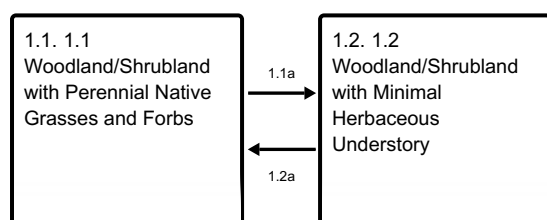
State and transition model

Ecosystem states



T1A - ILG = Improper Livestock Grazing D = Drought SD = Surface Disturbance IW = Invasive Weed Source

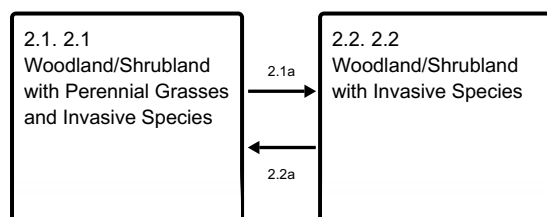
State 1 submodel, plant communities



1.1a - ILG = Improper Livestock Grazing D = Drought SD = Surface Disturbance

1.2a - PLG = Proper Livestock Grazing W = Wet Weather Periods T = Time

State 2 submodel, plant communities



2.1a - ILG = Improper Livestock Grazing D = Drought SD = Surface Disturbance

2.2a - PLG = Proper Livestock Grazing W = Wet Weather Periods T = Time

State 1

Reference State - Woodland/Shrubland with Perennial Grasses

The reference state is characterized by a sparse overstory of Utah juniper and two-needle pinyon, a native shrub layer which may contain shadscale, blackbrush, Bigelow's sagebrush, and jointfir, and a herbaceous layer dominated by native perennial grasses.

Community 1.1

1.1 Woodland/Shrubland with Perennial Native Grasses and Forbs

This plant community phase is typically a shrubland with a diverse herbaceous understory. In more moist sites a sparse overstory of Utah juniper and two-needle pinyon may be present. Shrubs species commonly include shadscale, Bigelow sagebrush, blackbrush, Torrey's jointfir, green jointfir, and cliffrose. Grass species commonly include Indian ricegrass, salina wildrye, James galleta and others. Surface rock fragments are prevalent as is bare ground.

Community 1.2

1.2 Woodland/Shrubland with Minimal Herbaceous Understory

This plant community phase is typically a shrubland with a minimal herbaceous understory. In more moist sites a sparse overstory of Utah juniper and two-needle pinyon may be present. Shrubs species commonly include shadscale, Bigelow sagebrush, blackbrush, Torrey's jointfir, green jointfir, and cliffrose. Grass species, when present, commonly include Indian ricegrass, salina wildrye, James galleta and others. Surface rock fragments are prevalent as is bare ground.

Pathway 1.1a

Community 1.1 to 1.2

This phase occurs when prolonged drought reduces the percent of native perennial grasses present in the Reference State. Surface disturbances and/or improper livestock grazing, where they occur may accelerate this transition.

Pathway 1.2a

Community 1.2 to 1.1

This community pathway occurs when a series of above average precipitation years allows for an increase in the perennial herbaceous species found on this site. Where grazing occurs, proper grazing management and it's associated reduction of any surface disturbance present, can accelerate this transition.

State 2

Current Potential State - Woodland/Shrubland with Invasive Species

Community 2.1

2.1 Woodland/Shrubland with Perennial Grasses and Invasive Species

This plant community phase is typically a shrubland with a diverse herbaceous understory. In more moist sites a sparse overstory of Utah juniper and two-needle pinyon may be present. Shrubs species commonly include shadscale, Bigelow sagebrush, blackbrush, Torrey's jointfir, green jointfir, and cliffrose. Native grass species commonly include Indian ricegrass, salina wildrye, James galleta and others. Invasive species, commonly cheatgrass, are established in the community. Surface rock fragments are prevalent as is bare ground.

Community 2.2

2.2 Woodland/Shrubland with Invasive Species

This plant community phase is typically a shrubland with an understory dominated by invasive species, typically cheatgrass. In more moist sites a sparse overstory of Utah juniper and two-needle pinyon may be present. Shrubs species commonly include shadscale, Bigelow sagebrush, blackbrush, Torrey's jointfir, green jointfir, and cliffrose.

Native grass species are only minimally present but James galleta is typically the most prevalent. Surface rock fragments are prevalent as is bare ground.

Pathway 2.1a

Community 2.1 to 2.2

This pathway occurs when prolonged drought reduces the percent of native perennial grasses present in the Reference State. Surface disturbances and/or improper livestock grazing, where they occur, may accelerate this transition. Invasive species may increase during periods of short term precipitation.

Pathway 2.2a

Community 2.2 to 2.1

This community phase occurs when a series of above average precipitation years allows for an increase in the perennial herbaceous species found on this site. Where grazing occurs, proper grazing management and it's associated reduction of any surface disturbance present, can accelerate this transition.

Transition T1A

State 1 to 2

This transition occurs as any combination of improper livestock grazing, drought, and/or surface disturbance allow invasive species become established in the plant community. The most common invasive species is cheatgrass. Invasive species, however, have been known to invade intact perennial plant communities where no disturbance has occurred.

Citations