

Ecological site group DX035X01AESG16

Grand Staircase-Loam Soils Shrublands

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Key Characteristics

- Grand Staircase-Kaiparowits
- Loam Soils Shrublands
- Soils are generally free of rock fragments

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 relatively flat upland areas as including plateaus, valley floors and fans. Slopes range from 0 to 15 percent but are mostly less than 10 percent. Elevations range from 4900 to 7200 ft. (1480 to 2180m).

Climate

Soil temperature and moisture regimes range from mesic, aridic ustic to frigid, typic ustic.

Soil features

The soils of this ecological site group are deep and loamy with very few rock fragments on the soil surface or in the profile. They were formed in eolian sands, alluvium, and/or slope alluvium derived mostly from sandstone and shale. Surface textures are typically loamy, but range from silt loams to loamy fine sands. They are well-drained with moderate permeability.

Vegetation dynamics

This site is influenced by many of the natural disturbances typical of MLRA 35. Fire is among such disturbances and the natural fire return interval is expected to be about 15-40 years (Johnson 2000). Following a burn, perennial grasses generally dominate the community. After a few years of average precipitation, sagebrush regains dominance of the site. In contrast, lack of fire results in pinyon and juniper encroachment and an increase in large woody material. Due to modern disturbances such as brush treatments, invasive species, and recreation, the resilience of the plant communities may be reduced compared to the reference plant community. Disturbances that reduce the vigor of perennial grasses and shrubs result in an opportunity for pinyon and juniper, or invasive annuals, to enter the system and alter ecological processes.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY209UT–Semidesert Loam (Wyoming Big Sagebrush)
- R035XY216UT–Semidesert Sandy Loam (Wyoming Big Sagebrush)
- R035XY301UT–Upland Clay Loam (Low Sagebrush)
- R035XY304UT–Upland Clay Loam (Pinyon - Juniper)

- R035XY305UT–Upland Loam (Gambel Oak)
- R035XY306UT–Upland Loam (Basin Big Sagebrush)
- R035XY308UT–Upland Loam (Mountain Big Sagebrush)
- R035XC307AZ–Clay Loam Upland 10-14" p.z.
- R035XC313AZ–Loamy Upland 10-14" p.z.
- R035XD409AZ–Loamy Upland 7-11" p.z.
- R035XD416AZ–Silty Upland 7-11" p.z.

Correlated Map Unit Components

22338421, 22338422, 22338423, 22340943, 22340946, 22856410, 22856817, 22933931, 22934058, 22934167, 22934170, 22594815, 22593892, 22597188, 22597948, 22598396, 22598109, 22598110, 22598179, 22598180, 22598181, 22601154, 22601582, 22600928, 22600980, 22600989, 22601417, 22601005, 22601213, 22601622, 22601219, 22601223, 22601041, 22601040, 22601306, 22601307, 22601671, 22601672, 22601860, 22601730, 22601732, 22601731, 22601675, 22601668, 22601665, 22601666, 22601667, 22601048, 22601050, 22601049, 22601677, 22601678, 22601680, 22601806, 22601807, 22601693, 22601868, 22601375, 22601374, 22601372, 22601472, 22601475, 22601497, 22601499, 22601728, 22601495, 22601519, 22601521, 22601520, 22601038, 22600913, 22600916, 22600917, 22600918, 22601662, 22601059, 22601060, 22601055, 22601369, 22965583, 22965409, 22965673, 22965615, 22965207, 22965184, 22965676, 22965695, 22965305, 22965292, 22965691, 22965692, 22965269, 22965440, 22965623, 22965627, 22965773, 22965643, 22965160, 22965452, 22965462, 22965463, 22965458, 22965456, 22965168, 22965167, 22965471, 22965632, 22965633, 22965790, 22965175, 22965493, 22963354, 22963380, 22963415, 22963413, 22963412, 22963376, 22963338, 22963365

Stage

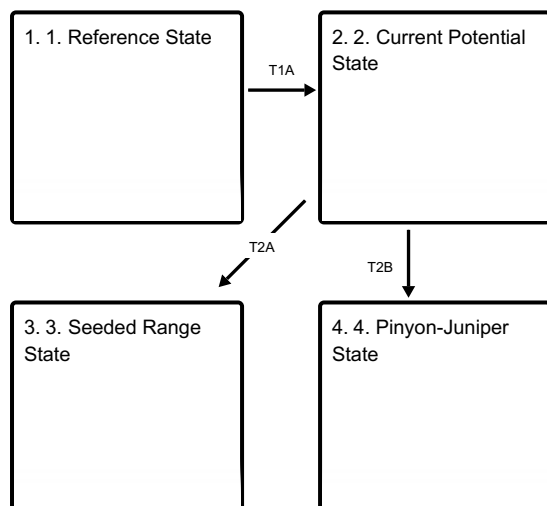
Provisional

Contributors

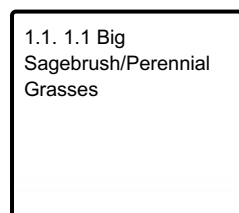
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Curtis Talbot

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities

2.1. 2.1 Big Sagebrush/Perennial Grasses with invasive species.

State 3 submodel, plant communities

3.1. 3.1 Perennial Grass Seeding

State 4 submodel, plant communities

4.1. 4.1 Pinyon-Utah Juniper Dominance
Utah juniper and two-needle pinyon dominate the plant community.

State 1

1. Reference State

The reference state is generally a big sagebrush state with fluctuations from a big sagebrush shrubland to a grassland and a shrubland/grassland community.

Community 1.1

1.1 Big Sagebrush/Perennial Grasses

This community is characterized by a mixture of perennial shrubs and grasses. In this phase, big sagebrush is co-dominant with perennial grasses. Commonly seen grasses include Indian ricegrass, James' galleta and sandberg bluegrass. Other perennial grasses, shrubs, and forbs may or may not be present and cover is variable. Bare ground is variable depending on the amount of biological crusts. The proportion of shrubs and herbaceous vegetation varies with drought, fire, and surface disturbance.

State 2

2. Current Potential State

The current potential state is similar to the reference state, however invasive species are present in all community phases. This state is generally a big sagebrush state with fluctuations from a big sagebrush shrubland to a grassland, shrubland/grassland, or a juniper encroached shrubland community. Invasive plants are present. Primary disturbance mechanisms include climate fluctuations, fire, native herbivore grazing, domestic livestock grazing and surface disturbances such as road and pipeline development and off road vehicle (OHV) use.

Community 2.1

2.1 Big Sagebrush/Perennial Grasses with invasive species.

This community is generally a mixture of perennial shrubs and grasses. Typically big sagebrush is the dominant shrub and commonly seen grasses include Indian ricegrass, James' galleta and sandberg bluegrass. Other perennial grasses, shrubs, and forbs may or may not be present and cover is variable. Invasive species are present. Bare ground is variable depending on the amount of biological crusts. If an area does not burn for a longer than normal period or time, Utah juniper and two-needle pinyon may encroach on the area.

State 3

3. Seeded Range State

This state is the result of a successful rangeland seeding during years of average or above average precipitation during the growing season. Russian wildrye and crested wheatgrass are documented to establish on this group, and native species begin to re-establish naturally on the site 10-30 years after seeding.

Community 3.1

3.1 Perennial Grass Seeding

This phase is dominated by Russian wildrye, crested wheatgrass, and/or other non-native perennial grass species.

State 4

4. Pinyon-Juniper State

This state occurs when perennial grasses become too sparse to produce and bank sufficient seed to become dominant after fire or other disturbance. Shrubs also decrease and may be unable to return following disturbance.

Community 4.1

4.1 Pinyon-Utah Juniper Dominance Utah juniper and two-needle pinyon dominate the plant community.

This phase is dominated by Utah juniper and two-needle pinyon. Shrubs and grasses may or may not be present depending on the degree of dominance by tree species. This usually occurs when fire is absent from the system for an extended period (over 100 years) and may be exacerbated by improper grazing use.

Transition T1A

State 1 to 2

This transition is from the native perennial warm and cool season grass understory in the reference state to a state that contains invasive species. Events can include establishment of invasive plant species, intense continuous grazing of perennial grasses, prolonged drought, and/or surface disturbances, etc. However, invasive species such as cheatgrass have been known to invade intact perennial plant communities with little to no disturbance. Once invasive species are found in the plant community a threshold has been crossed.

Transition T2A

State 2 to 3

This transition occurs when a successful range seeding (during average or above-average precipitation years during the growing season) results in the establishment, dominance, and persistence of non-native perennial grasses.

Transition T2B

State 2 to 4

This transition occurs when fire suppression extends well beyond the natural fire return interval (over 100 years), resulting in dominance by Utah juniper and two-needle pinyon.

Citations