Ecological site group DX035X01EESG06
Green River Desert - Shallow Shrublands and Woodlands - mid elevation

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Key Characteristics

- Green River Desert
- Shallow Shrublands and Woodlands
- Mid-elevation MAST < 54 degrees F.

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

The ecological sites of this group occur in slope alluvium and eolian deposits on hillslopes, mountain slopes, mesas, structural benches cuestas, pediments, and ridges. Runoff is medium to very high due to shallow soil depth and is often influenced by micro-topography. Typically slopes range from 2 to 40 percent but range up to 70 percent. Elevations range from 4000 to 6500 feet with some occurrences at higher elevations.

Climate

The climate is characterized by hot summers and cool to warm winters. Large fluctuations in daily temperatures are common. Approximately 70-75% of precipitation occurs as rain from March 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 5 and 11 inches per year. Much of the summer precipitation occurs as convection thunderstorms. Snow packs when present are generally light and not persistent.

Soil features

The soils on these sites are shallow and well drained to somewhat excessively well drained and formed in parent material ranging from slope alluvium to eolian deposits. Bedrock is typically sandstone or interbedded sandstone and shale but includes other sedimentary and igneous rocks. The soils are usually young and relatively undeveloped. Rock fragment content varies from relatively free of fragments in eolian soils to gravelly and cobbly in soils derived from slope alluvium and colluvium. Surface fragments similarly range from few fragments to as much as 75 percent cover. Biological crust cover is characterized as a weak crust, with light cyanobacteria and/or isolated moss clumps with no continuity. The soils are generally nonsaline to slightly saline and nonsodic. Water holding capacity is low (0.5 to 3 inches). The soil moisture regime is typic aridic or ustic aridic and the soil temperature regime is mesic.

Vegetation dynamics

The dominant visual aspect of ecological sites of this group is a sparse salt desert shrubland; a sparse overstory of Utah juniper and two-needle pinyon pine occurs on sandy sites.
There is no evidence to indicate that the sites in this group historically maintained a short burn frequency. Disturbances that reduce the presence of perennial grasses result in an opportunity for invasive annuals to enter into the system and may produce a fuel load for fire to become an ecological driver. The main ecological drivers of this group have been drought and insects, particularly in the Utah juniper and pinyon sites.
This ecological site has been grazed by domestic livestock since they were first introduced into the area. This livestock introduction, and the use of fencing and reliable water sources, has influenced the disturbance regime

historically associated with this ecological site. This site often serves as important wintering pastures for sheep and cattle. Improperly managed livestock grazing (continuous season long grazing, heavy stocking rates, etc.) may cause this site to depart from the reference plant community. When this occurs, any native perennial grasses present can decrease while invasive forbs, annual grasses, rabbitbrush and broom snakeweed can increase.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XY130UT–Desert Shallow Sandy Loam (Shadscale)
- R035XY227UT–Semidesert Shallow Sand (Utah Juniper-Pinyon)
- R035XY229UT–Semidesert Shallow Sandy Loam
- R035XY230UT–Semidesert Shallow Sandy Loam (Shadscale)

Correlated Map Unit Components

22480150, 22479864, 22480656, 22479928

Stage

Provisional

Contributors

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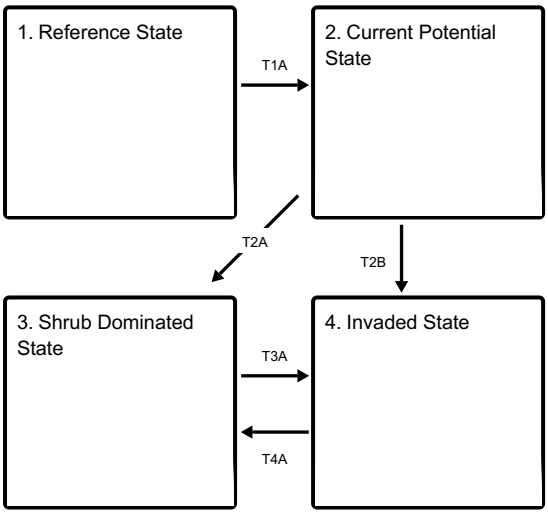
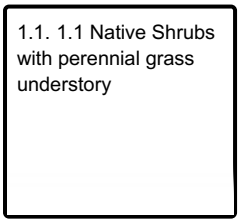
State and transition model

Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities

2.1. 2.1 Native Shrubs and Grasses with Invasive Species

State 3 submodel, plant communities

3.1. 3.1 Shrubland

State 4 submodel, plant communities

4.1. 4.1 Invasive non-native species dominated

State 1
Reference State

This state is dominated by native shrubs with native grasses in the understory. Utah juniper and pinyon may be present in the more moist and/or sandier areas.

Community 1.1
1.1 Native Shrubs with perennial grass understory

Native Shrubs, typically shadscale and jointfir, form an open shrub layer. The understory is mostly native grasses, typically galleta and Indian ricegrass.

State 2
Current Potential State

This state is similar to the reference state but non-native, invasive species are present.

Community 2.1
2.1 Native Shrubs and Grasses with Invasive Species

Typically this community is made up of an overstory of native shrubs such as shadscale and jointfir with an understory of native grasses with some invasive annuals present but not dominating the herbaceous layer.

State 3
Shrub Dominated State

This state is dominated by grazing resistant shrubs with little understory.

Community 3.1
3.1 Shrubland

This community is dominated by shrubs which are typically increasers such as rubber rabbitbrush or broom snakeweed. Little herbaceous understory is present.

State 4
Invaded State

This state is dominated by invasive species such as cheatgrass or Russian thistle. Native shrub and herbaceous species may be present in small amounts.

Characteristics and indicators. The dominance of annual weeds can lead to an increase in the frequency of fires and make re-establishing the native plant community difficult.

Community 4.1
4.1 Invasive non-native species dominated

This community is dominated by invasive annuals such as cheatgrass or Russian thistle. Native shrubs and herbaceous species may be present. The dominace of annuals may lead to an increased frequency of fire.

Transition T1A
State 1 to 2

Transition from the Reference State (State 1) to the Current Potential State (State 2). This transition occurs due to the establishment invasive plant species. Events triggering this event include can include and combination of improper livestock grazing, extended drought, poorly managed off road vehicle (OHV) use, etc. However cheatgrass and other invasive species have been known to establish into intact perennial plant communities without disturbance triggers.

Transition T2A
State 2 to 3

This transition occurs as events, such as sustained improper livestock grazing, favor the dominance of broom unpalatable and toxic shrubs. Prolonged improper grazing can result in a decrease of perennial grasses and palatable shrubs and an increase in unpalatable or toxic shrubs.

Transition T2B
State 2 to 4

This transition occurs as events, such as fire or other surface disturbance, favor the dominance of cheatgrass and other invasive annuals. Cheatgrass typically invades the sites interspaces and once this species and other annuals dominate, the amount and continuity of fine fuels can increase until fire can fully eliminate the shrub/forb/perennial grass component and completes the conversion to an annual dominated site that can persist for long periods of time. Once this occurs, it is difficult for these species to reestablish themselves, because not only has the fire return interval been shortened, but the soil and other abiotic factors may have been altered.

Transition T3A
State 3 to 4

This transition occurs as events favor the increased establishment and dominance of cheatgrass and other invasive annuals. Typically this occurs due to fire.

Transition T4A
State 4 to 3

This transition occurs as events favor the establishment and dominance of unpalatable shrubs. This transition may occur after prolonged improper livestock grazing, which decreases fine fuels and allows for the reestablishment of shrubs due to an increase in the fire return interval. Cheatgrass, while tolerant of grazing, can be reduced by heavy spring grazing due to its palatability. Heavy spring grazing also reduces seed production, which decreases it abundance on a site.

Citations