Ecological site group DX035X01BESG03
Circle Cliffs - Bottoms and Flats - run-in - nonsodic

Last updated: 10/05/2022
Accessed: 05/02/2024

Key Characteristics

- Circle Cliffs
- Bottoms and Flats
- Extra water is from run-in or local water table
- Soils are not sodic

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 group of ecological sites receive extra run-in water from adjacent uplands due to landscape position on flood plains, stream terraces, drainageways, narrow valleys, and valley flats. Run off is low due to gentle slopes and the bottom position. The elevation ranges from 3800 to 7000 ft. A seasonally high water table may occur near the soil surface to depths of 6 feet in some sites.

Climate

The climate is characterized by hot, dry summers and cool winters. Average annual precipitation ranges from 6 to 13 inches. Approximately 75% of the total precipitation occurs from March to October, mostly in the form of convection thunderstorms from July through October. June is typically the driest month during the growing season. These sites receive additional moisture during the growing season in the form of runoff or subsurface flow.
Large fluctuations in daily temperatures are common. Summer temperatures are in the 90's and winter temperatures are in the 20's and 30's.

Soil features

The soils are deep to very deep and poorly drained to somewhat excessively well drained. Surface and subsurface textures can range from loams to fine sands and may be stratified. There are typically few rock fragments on the soil surface and throughout the profile, but sometimes gravel lenses are present. These soils are usually formed in alluvium derived from sandstone, shale, limestone and/or igneous parent materials. The soil temperature regime is mesic and the climatic soil moisture regime is aridic or ustic aridic. The soils in lower positions having a high water table have an aquic or oxyaquic soil moisture regime. Soils are nonsaline to slightly saline. Water-holding capacity ranges from 2 to 6 inches of water in the upper 40 inches of soil.

Vegetation dynamics

These sites are historically dominated by a shrub overstory, fourwing saltbush on sandy sites and basin big sagebrush on loamy sites, and a diverse perennial understory dominated by Indian ricegrass, James's Galleta, gooseberryleaf globemallow, Sporobolus spp, and/or needle-and-thread. The lower, wetter sites support meadow vegetation consisting of sedges, rushes, and perennial grasses. The historic fire return interval is presumed to be about 35-100 years (Howard 2003) (Fryer and Luensmann 2012). Native grasses would have dominated for several years following fire, with sprouting shrubs increasing in the community.
Today these sites often burn less frequently due to fire suppression efforts and reduced fine fuel loads resulting from livestock grazing. In addition, excessive livestock grazing during the spring and summer can cause native grasses and forbs to lose vigor or disappear from the community completely.

Invasive plant species, particularly cheatgrass, Russian thistle, and annual mustards, can establish on the site given a seed source and germination sites in disturbed soil.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

- R035XB216AZ–Sandy Wash 6-10" p.z.
- R035XY010UT–Semiwet Fresh Meadow
- R035XY011UT–Loamy Bottom (Basin Big Sagebrush)
- R035XY015UT–Sandy Bottom

Correlated Map Unit Components

22484442, 22597946, 22597858, 22966784, 22967039, 22966871, 22966764, 22966914, 22966979

Stage

Provisional

Contributors

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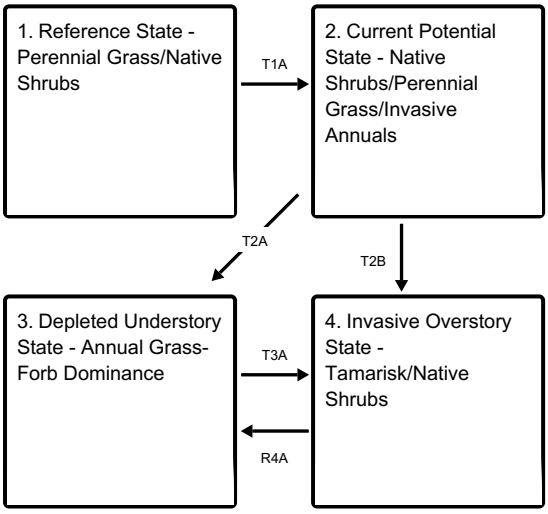
State and transition model

Ecosystem states



State 1
Reference State - Perennial Grass/Native Shrubs

This state us typically dominated by deep-rooted perennial warm and cool season grasses and grass-like plants and native shrubs; species dependent on soil texture, drainage, and salinity/sodicity. Typical shrubs are fourwing saltbush, basin big sagebrush, and black greasewood. Grass and grass-like species include Indian ricegrass, galleta, alkali sacaton, dropseed species and some sedges.

State 2
Current Potential State - Native Shrubs/Perennial Grass/Invasive Annuals

This state is similar to the reference state in composition and ecological function, but allows for non-native species to be present.

State 3
Depleted Understory State - Annual Grass-Forb Dominance

The depleted understory state occurs when perennial grasses have been lost from the understory. Perennial forbs may also be reduced. Interspaces may be sparsely vegetated or dominated by Russian thistle or other annual invasive species.

State 4
Invasive Overstory State - Tamarisk/Native Shrubs

This state may occur on low stream terraces or when major disruptions to the channel hydrology occur. The stream provides a corridor for tamarisk invasion which spreads throughout the bottom, eventually dominating the site.

Transition T1A
State 1 to 2

Establishment and persistence of non-native species results in a transition from the reference state.

Transition T2A
State 2 to 3

This transition occurs when perennial grasses are reduced by improper grazing to the point that they can no longer self-propagate. Few remnant plants may still persist under shrubs, but re-establishment and dominance by perennial grasses will not occur following a fire, or with the removal of livestock grazing.

Transition T2B
State 2 to 4

This transition occurs on low stream terraces. The stream provides a corridor for tamarisk invasion, which spreads to low terraces dominated by native shrubs. Disturbances to to the hydrology of the stream channel or the adjacent uplands causing increased erosion and gullying may accelerate this process.

Transition T3A
State 3 to 4

This transition occurs on low stream terraces. The stream provides a corridor for tamarisk invasion, which spreads to low terraces dominated by native shrubs. Disturbances to to the hydrology of the stream channel or the adjacent uplands causing increased erosion and gullying may accelerate this process.

Restoration pathway R4A
State 4 to 3

This community pathway may occur with tamarisk control efforts, either mechanical or biological.

Citations