

Ecological site group DX035X01JESG05

Paria and Kaibito Plateaus Sandy Washes and Bottoms

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Key Characteristics

- Paria and Kaibito Plateaus
- Sandy
- Washes and bottoms

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 receives extra run-in water due to its landscape position on flood plains, stream terraces, narrow valleys, and valley flats. Run off is low due to gentle slopes and highly permeable soils. The elevation ranges from 3800 to 6000 ft. This site usually does not have a seasonally high water table, but in some areas spring water table can be within 42 inches of the soil surface. It is found in the desert and semidesert climate zones of the Colorado and Green River Plateaus region (MLRA 35). The soils are deep alluvial deposits derived primarily from sandstone parent material. Soil textures range from sandy loams to fine sands throughout the profile and may have small gravel lenses. These soils are most often classified as fluvents, with mesic soil moisture regimes and aridic soil temperature regimes (occasionally ustic aridic).

Climate

The climate is characterized by hot, dry summers and cool winters. Average annual precipitation ranges from 6.5 to 10 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. 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. In addition to the climate stations listed below, the PRISM climate model was used to refine annual precipitation information.

Soil features

The soils are deep to very deep and well drained to somewhat excessively well drained. Surface and subsurface textures are generally fine sandy loams, loamy fine sands, and fine sands. 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 parent materials. The soil temperature regime is mesic and the soil moisture regime is aridic (sometimes ustic aridic). Soils are non-saline to slightly saline. Water-holding capacity ranges from 2.7 to 5.7 inches of water in the upper 40 inches of soil.

Vegetation dynamics

The reference plant community is dominated by four-wing saltbush, Indian rice-grass, James' galleta, *Sporobolus* spp., and sometimes needle-and-thread. Herbivory, fire, drought, and invasive species are common drivers of plant community change on this site. Cheat-grass and Russian thistle are common invaders of the understory. Today this site often burns 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.

Major Land Resource Area

MLRA 035X
Colorado Plateau

Subclasses

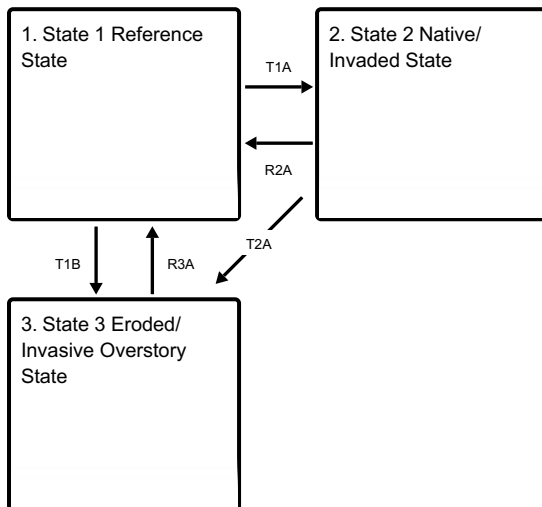
- R035XB216AZ–Sandy Wash 6-10" p.z.
- R035XY015UT–Sandy Bottom

Stage

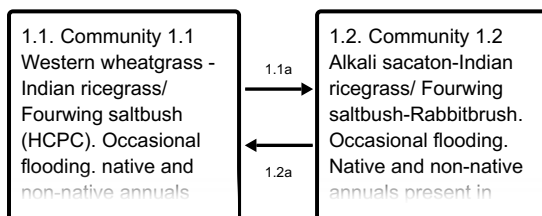
Provisional

State and transition model

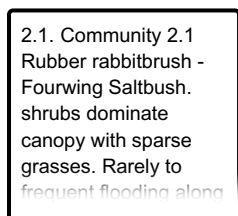
Ecosystem states



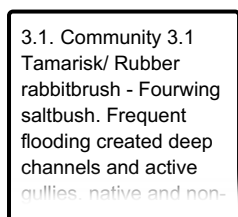
State 1 submodel, plant communities



State 2 submodel, plant communities



State 3 submodel, plant communities



State 1

State 1 Reference State

State 1 Reference State The reference state includes the Historic Climax Plant Community and is a grassland dominated by perennial grasses, such as western wheatgrass, Indian ricegrass, alkali sacaton, squirreltail and galleta. Occasional over bank flooding and additional run-in moisture from adjacent uplands lends to high grass production. Shrubs can occur across the site along drainageways and areas of discontinuous channels. The occasional cottonwood may be present where a seep or a higher water table due to shallow bedrock depth occurs.

Community 1.1

Community 1.1 Western wheatgrass - Indian ricegrass/ Fourwing saltbush (HCPC). Occasional flooding. native and non-native annuals present in minor amounts.

Community 1.1 Western wheatgrass - Indian ricegrass/ Fourwing saltbush (HCPC) This grassland dominated plant community has a mixture of both cool and warm season grasses, with scattered shrubs. Dominant grasses are western wheatgrass and Indian ricegrass with scattered alkali sacaton and squirreltail. Common shrubs that occur across the site along drainageways are fourwing saltbush, rubber rabbitbrush and Bigelow sagebrush. The occasional cottonwood may be present where a seep or a higher water table due to shallow bedrock depth occurs. Plant species most likely to invade or increase on this site when it deteriorates are salt cedar, rabbitbrush, and russian thistle. As erosion occurs, the benefits of over bank flooding are significantly reduced and results in a decline of grass cover and an increase in shrub species.

Community 1.2

Community 1.2 Alkali sacaton-Indian ricegrass/ Fourwing saltbush-Rabbitbrush. Occasional flooding. Native and non-native annuals present in minor amounts.

Community 1.2 Alkali sacaton-Indian ricegrass/ Fourwing saltbush-Rabbitbrush This site is a grassland community with an increase of shrub species. Dominant grasses in this plant community are alkali sacaton, Indian ricegrass and galleta. Western wheatgrass may or not be present. There is an increase of large shrubs like fourwing saltbush, rabbitbrush and scattered half shrubs. Non-native annuals are present, but do not alter the function and processes of this plant community phase. This site can result from drought, unmanaged grazing and a lack of fire or a combination of disturbances.

Pathway 1.1a

Community 1.1 to 1.2

Unmanaged grazing, drought, removal of natural fire.

Pathway 1.2a

Community 1.2 to 1.1

Managed grazing, reintroduction of fire to remove shrubs, improved climatic conditions/precipitation.

State 2

State 2 Native/ Invaded State

State 2 Native/ Invaded State This plant community is a shrubland with sparse perennial grasses and an increase in native and non-native annuals.

Community 2.1

Community 2.1 Rubber rabbitbrush - Fourwing Saltbush. shrubs dominate canopy with sparse grasses. Rarely to frequent flooding along with deposition. Native and non-native annuals present in moderate amounts.

Community 2.1 Rubber rabbitbrush - Fourwing Saltbush This plant community is a shrubland that includes rubber rabbitbrush and fourwing saltbush with sparse perennial grasses. A loss of biotic integrity and hydrologic function thru the loss of perennial grass cover and incised channels. The site begins to dry and shrubs increase, especially deep rooted shrubs. Bare ground increases and allows for accelerated wind and water erosion, promoting

deposition and sedimentation.

State 3

State 3 Eroded/ Invasive Overstory State

State 3 Eroded/ Invasive Overstory State

Community 3.1

Community 3.1 Tamarisk/ Rubber rabbitbrush - Fourwing saltbush. Frequent flooding created deep channels and active gullies. native and non-native annuals present.

Community 3.1 Tamarisk/ Rubber rabbitbrush - Fourwing saltbush This plant community is dominated by tamarisk and/or Russian olive as the overstory. The understory is dominated by shrubs such as rubber rabbitbrush and fourwing saltbush with only patches of perennial grasses. Native and non-native annuals are also present in the understory. This state is caused by heavy disturbance along the channel such as changes in stream flow and width, drought, and unmanaged grazing. Unmanaged grazing on site and on adjacent uplands produces increased surface runoff and sediments. Channelized flows accelerate channel scour, gully erosion and creates abandoned floodplains. Deep channels form and promote the establishment of exotic tree species thru seed sources from adjacent washes and rivers. The site has the potential to burn and promote further Tamarisk invasion.

Transition T1A

State 1 to 2

Changes in the site's hydrology due to disturbances such as unmanaged grazing or altering the floodplain thru road building, farming, channel diversion. This reduces the benefit of overland flow that promotes productive grasslands. A loss of perennial grass cover allows for the increase of shrub species, especially deeper rooted shrubs.

Transition T1B

State 1 to 3

Continuous unmanaged grazing on this site and adjacent uplands, excessive surface runoff and sediments, channelized flows accelerate channel scour promote gully erosion and creates abandoned floodplains. Deep channels form and promote the establishment of exotic tree species thru seed sources from disturbed areas.

Restoration pathway R2A

State 2 to 1

Managed grazing, reseeding or seed source for perennial grasses, brush treatment for shrubs, possibly treatments to control channel and gully erosion and to reestablish the flooding regime.

Transition T2A

State 2 to 3

Unmanaged grazing, increased surface runoff and sediments, channelized flows accelerate channel scour, gully erosion and create abandoned floodplains. Deep channels form and promote the establishment of exotic tree species thru seed sources and frequent flooding.

Restoration pathway R3A

State 3 to 1

Managed grazing including adjacent uplands, reseeding or seed source for perennial grass recovery, brush/herbicide treatment for invasive trees and shrubs, mechanical treatments to control channel and gully erosion; reestablishment of the flooding regime.

Citations