

# Ecological site group DX035X01HESG07

## Black Mesa-Navajo Mtn-Clayey Washes

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### Key Characteristics

- Black Mesa Navajo Mountain
- Clayey soils
- Clayey washes

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 occurs in bottoms, flood plains, and washes.

### Climate

Mean annual precipitation is 6 to 14 inches, but the sites receive additional moisture from run in and flooding.

### Soil features

The soils are typically very deep and less than well drained. Flooding ranges from rare to frequent and are usually brief in duration.

### Vegetation dynamics

Vegetation is dominated by western wheatgrass, alkali sacaton and fourwing saltbush.

### Major Land Resource Area

MLRA 035X  
Colorado Plateau

### Subclasses

- DX035X011104–Clay Loam Wash 10-14" p.z.
- R035XB202AZ–Clayey Wash 6-10" p.z.
- R035XB212AZ–Loamy Bottom 6-10" p.z. Ephemeral
- R035XB239AZ–Clayey Fan 6-10" p.z.

### Stage

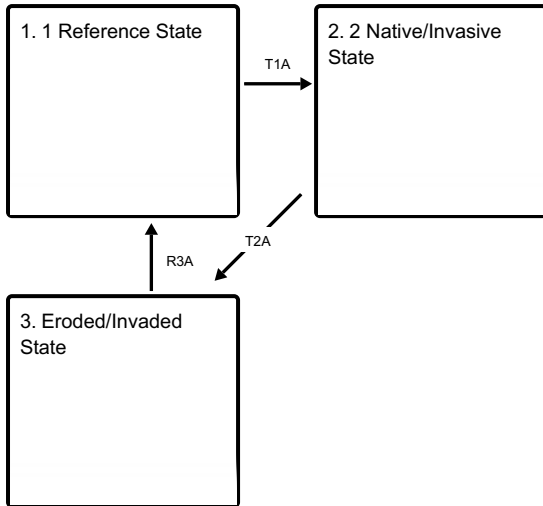
Provisional

### Contributors

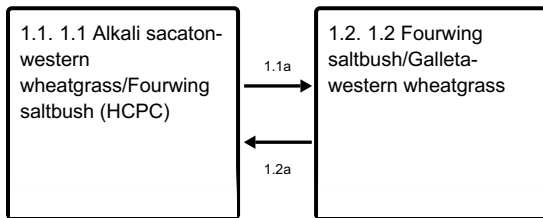
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# State and transition model

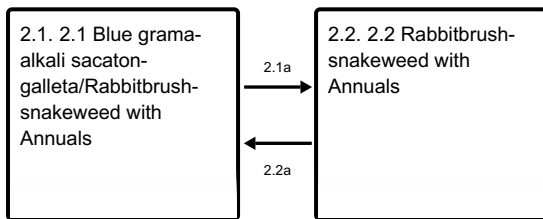
## Ecosystem states



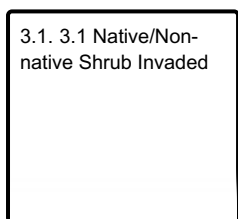
## State 1 submodel, plant communities



## State 2 submodel, plant communities



## State 3 submodel, plant communities



## State 1

### 1 Reference State

The reference state was described by the observation and study of plant communities that have evolved through a long-term interactions of natural disturbances processes, climate, soils and landforms. This reference state is characterized as a native mid and short grassland dominated by alkali sacaton and western wheatgrass.

### Community 1.1

#### 1.1 Alkali sacaton-western wheatgrass/Fourwing saltbush (HCPC)

This plant community is about 70 to 80% grasses, 5 to 10% forbs, and 10 to 20% shrubs based on air dry weight. Alkali sacaton dominates the plant community, making up to 40% of the total annual production of the site. Western wheatgrass is the subdominant. blue grama, galleta grass, vine mesquite, sideoats grama grass, fourwing saltbush and winterfat are important indigenous components. If retrogression is from unmanaged grazing, alkali sacaton,

western wheat, vinemesquite, and sideoats grama decrease. Three awn, tumble grass, ring muhly, burrograss and inferior forbs and shrubs can increase. Plant species most likely to increase on a deteriorating condition are rabbitbrush, broom snakeweed, wooly groundsel, annuals and cacti.

## **Community 1.2**

### **1.2 Fourwing saltbush/Galleta-western wheatgrass**

The aspect of this plant community is a shrubland. The plant community is dominated by fourwing saltbush with galleta, western wheatgrass and lesser amounts of alkali sacaton. Unmanaged grazing, run-in moisture/rare flooding, lack of fire and drought can maintain the shrub component.

#### **Pathway 1.1a**

##### **Community 1.1 to 1.2**

Drought, lack of fire, unmanaged grazing, insect herbivory

#### **Pathway 1.2a**

##### **Community 1.2 to 1.1**

Prescribed grazing, reduction of shrub canopy through drought, insect herbivory, or fire with a seed source for grasses along with periods of favorable moisture can return the plant community to the historic climax plant community

## **State 2**

### **2 Native/Invasive State**

This state is characterized by a dominance of warm season grasses and half shrubs with moderate amounts of native and non-native annuals. Common species in this state include galleta, blue grama, alkali sacaton, rabbitbrush and snakeweed.

## **Community 2.1**

### **2.1 Blue grama-alkali sacaton-galleta/Rabbitbrush-snakeweed with Annuals**

This plant community is characterized by a dominance of warm season short and mid grasses with an increase of shrubs like rabbitbrush and snakeweed along with native and non-native annual forbs. Non-native annuals have become well established and can make up to 20% of the plant community by weight. Favorable species, such as western wheatgrass and fourwing saltbush may only be present in minor amounts. Occasional invasive shrubs/trees may occupy the site along drainages and channels in small isolated clumps. Disturbances such as unmanaged grazing, severe drought, past farming activities or other activities have alter the drainages and results in a reduction of beneficial run-in moisture. Grass cover is reduced along with increased bare ground which allows annuals to increase.

## **Community 2.2**

### **2.2 Rabbitbrush-snakeweed with Annuals**

This plant community is characterized by a dominance of shrubs like rabbitbrush and snakeweed along with native and non-native annual forbs. Non-native annuals have become well established and can make up to 30% of the plant community by weight. Favorable species, such as alkali sacaton, western wheatgrass and fourwing saltbush may only be present in minor amounts. Occasional invasive shrubs/trees may occupy the site along drainages and channels in small stands or clumps. Disturbances such as unmanaged grazing, severe drought, past farming activities or other activities have alter the drainages and results in a reduction of beneficial run-in moisture. Perennial grass cover is reduced along with increased bare ground which allows annuals to increase and co-dominate.

#### **Pathway 2.1a**

##### **Community 2.1 to 2.2**

Unmanaged grazing and drought. Increased bare ground and runoff along with reduced run-in moisture allows for increase of shrubs and annuals

## **Pathway 2.2a**

### **Community 2.2 to 2.1**

Prescribed grazing, favorable periods of moisture, and seed source for perennial grass recovery

## **State 3**

### **Eroded/Invaded State**

This state is characterized by the invasion of native and non-native shrubs and active erosion. The site has lost the ability to capture and store moisture due to entrenched channels and gullies.

## **Community 3.1**

### **3.1 Native/Non-native Shrub Invaded**

This site is characterized by a dominance of shrubs, such as rabbitbrush, snakeweed and fourwing saltbush with occasional invasive species. Invasive shrubs/trees, such as tamarisk (salt cedar), camelthorn, Russian knapweed and/or Russian olive can occupy the site along drainages and entrenched channels in small stands. This plant community no longer benefits from extra run-in moisture and/or flooding. Active channel down cutting has drained the site and perennial grass cover is significantly reduced. Native and non-native forbs can make up to 30% of the plant community by weight.

## **Transition T1A**

### **State 1 to 2**

Establishment of non-native annuals creates an irreversible change in the plant community. Other disturbances such as unmanaged grazing, drought and/or lack of fire all allow for the establishment of native and non-native annuals.

## **Transition T2A**

### **State 2 to 3**

Drought, unmanaged grazing, decline or loss of perennial grass cover, active surface erosion create entrenched channels with headcutting

## **Restoration pathway R3A**

### **State 3 to 1**

Managed grazing, woody species management (chemical, biological and/or mechanical) to control invasive shrubs and/or trees, reseeding of favorable species, grade stabilization.

## **Citations**