10660

Inter-Mountain Basins Mat Saltbush Shrubland

BpS Model/Description Version: Aug. 2020

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Vegetation Type

Shrubland

Map Zones

16, 23, 24

Geographic Range

This ecological system occurs on gentle slopes and rolling plains in the northern Colorado Plateau and Uinta Basin on Mancos Shale and arid, wind-swept basins and plains across parts of Wyoming.

Biophysical Site Description

Substrates are shallow, typically saline, alkaline, fine-textured soils developed from shale or alluvium and may be associated with shale badlands. Infiltration rate is typically low. In Wyoming and possibly elsewhere, inclusions of non-saline, gravelly barrens or rock outcrops may be present.

Vegetation Description

These dwarf-shrublands are typically composed of relatively pure stands of *Atriplex* spp. such as *Atriplex corrugata* (mat saltbush) or *Atriplex gardneris* (Gardner's saltbush). Other dominant or co-dominant dwarf-shrubs may include *Artemisia longifolia* (longleaf wormwood), *Artemisia pedatifida* (birdfoot sagebrush), or *Picrothamnus desertorum* (bud sagebrush), sometimes with a mix of other low shrubs such as *Krascheninnikovia lanata* (winterfat) or *Tetradymia spinosa*. *Atriplex confertifolia* (shadscale) or *Atriplex canescens* (fourwing saltbush) may be present but do not co-dominate. The herbaceous layer is typically sparse. Scattered perennial forbs occur, such as *Xylorhiza glabriuscula* and *Sphaeralcea grossulariifolia*, and the perennial grasses *Achnatherum hymenoides* (Indian ricegrass), *Bouteloua gracilis* (blue grama), *Elymus elymoides*, *Elymus lanceolatus* ssp. *lanceolatus*, *Pascopyrum smithii* (western wheatgrass), or *Sporobolus airoides* (alkali sacaton) may dominate the herbaceous layer. In less saline areas, there may be inclusions grasslands dominated by *Hesperostipa comata*, *Leymus salinus*, *Pascopyrum smithii*, or *Pseudoroegneria spicata*. In Wyoming and possibly elsewhere, inclusions of non-saline, gravelly barrens, or rock outcrops dominated by cushion plants such as *Arenaria hookeri* (Hooker's sandwort) and *Phlox hoodii* without dwarf-shrubs may be present. Annuals are seasonally present and may include *Eriogonum inflatum* and *Plantago tweedyi*.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| ATCO4 | *Atriplex corrugata* | Mat saltbush |
| ATGA | *Atriplex gardneri* | Gardner's saltbush |

Species names are from the NRCS PLANTS database. Check species codes at http://plants.usda.gov.

Disturbance Description

This system does not have a fire regime due to discontinuous fuel. High mortality (every 100yrs on average) can occur in conjunction with wet years. Wet periods contribute to mortality and are the only disturbance in this system.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement |  |  |  |  |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires |  |  |  |  |

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Patches occur in 100s to 10,000s of acres.

Adjacency or Identification Concerns

This Biophysical Setting (BpS) may be hard to distinguish from Intermountain Basins Mixed Salt Desert Scrub (1081) without ground truthing.

Sickle saltbush communities are common in central and eastern Nevada. The range described in NatureServe should be extended to the central and eastern Great Basin.

In some areas, there is cheatgrass invasion, though usually not enough (continuous) to carry fire or to increase fire frequency

Issues or Problems

Native Uncharacteristic Conditions

Comments

Map zones 16, 23, and 24 were combined during 2015 BpS Review.

Succession Classes

**Mapping Rules**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Upper Layer Lifeform** | **Height (m)** | **Canopy Cover (%)** | | | | | | | | | |
| **0-10** | **11-20** | **21-30** | **31-40** | **41 - 50** | **51-60** | **61-70** | **71-80** | **81-90** | **91-100** |
| Herb | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Herb | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Herb | >1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0-0.5 | A | B | B | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | A | B | B | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | A | B | B | UN | UN | UN | UN | UN | UN | UN |
| Shrub | >3.0 | A | B | B | UN | UN | UN | UN | UN | UN | UN |
| Tree | 0-5 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 5-10 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 10-25 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | 25-50 | B | B | B | B | B | UN | UN | UN | UN | UN |
| Tree | >50 | B | B | B | B | B | UN | UN | UN | UN | UN |

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

**Description**

Class A 10 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ATCO4 | Atriplex corrugata | Mat saltbush | All |
| ATGA | Atriplex gardneri | Gardner's saltbush | All |

Description

Characterized by bare ground and young shrubs that have re-sprouted or established from nearby seed. May find some ephemeral forbs or grasses (listed in vegetation description above) at this stage. Disturbance is characterized by very wet periods that contribute to high shrub mortality.

*Maximum Tree Size Class*  
None

Class B 90 Late Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| ATCO4 | Atriplex corrugata | Mat saltbush | All |
| ATGA | Atriplex gardneri | Gardner's saltbush | All |

Description

Characterized by mature shrubs. Typically lacks understory vegetation. Sites at this stage are very patchy with discontinuous shrubs.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Late1:ALL | 11 |
| Late1:ALL | 12 | Late1:ALL | 999 |

Probabilistic Transitions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Disturbance Type** | **Disturbance occurs In** | **Moves vegetation to** | **Disturbance Probability** | **Return Interval (yrs)** | **Reset Age to New Class Start Age After Disturbance?** | **Years Since Last Disturbance** |
| Wind or Weather or Stress | Early1:ALL | Early1:ALL | 0.01 | 100 | Yes | 0 |
| Wind or Weather or Stress | Late1:ALL | Early1:ALL | 0.01 | 100 | Yes | 0 |

References

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