11530

Inter-Mountain Basins Greasewood Flat

BpS Model/Description Version: Aug. 2020

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| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| George Soehn | george\_soehn@blm.gov | Steve Cooper | scooper@mt.gov |
| George Jones | gpjones@uwyo.edu | None | None |
| Dennis Knight | dhknight@uwyo.edu | None | None |

Reviewer: Kathleen S. Roche

Vegetation Type

Mixed Upland and Wetland

Map Zones

20, 22, 29, 30

Geographic Range

Occurs throughout much of the western United States in intermountain basins and extends onto the western Great Plains. Occurs throughout map zone (MZ) 22 in all subsections at lower elevations. In MZ20, this Biophysical Setting (BpS) is thought to be limited to very limited in extent. In MZ29 and MZ30, might occur -- but in little areas -- in playas. This type goes into western North Dakota in MZ30 and MZ29. In central area of MZ29. In streams and closed depressional areas.

Biophysical Site Description

Typically occurs near drainages, on stream terraces and flats, or may form rings around more sparsely vegetated playas. Sites typically have saline soils and shallow water table and flood intermittently but remain dry for most growing seasons. The water table remains high enough to maintain vegetation, despite salt accumulations.

Vegetation Description

This system sometimes occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or co-dominated by *Sarcobatus vermiculatus* (greasewood). *Atriplex confertifolia* (shadscale) or *Krascheninnikovia lanata* (winterfat) may be present or co-dominant. Occurrences are often surrounded by mixed salt desert scrub. Herbaceous layer, if present, is usually dominated by graminoids. There may be inclusions of *Sporobolus airoides* (alkali sacaton), *Distichilis spicata* (saltgrass), or *Eleocharis patustris* (spikerush). In MZ22, very little *Atriplex confertifolia* (shadscale) but rather *Atiplex gardneri* occurs. *Artemsesia tridentata* ssp. *tridentata* is common in southwestern part of MZ22 more in riparian systems; *Artemesia wyomingensis* occurs more on the playa types. MZ22 was the only zone that did not include *Pascopyrum smithii* and *Puccinellia* in the BpS Dominant and Indicator Species list.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| SARCO | *Sarcobatus* | Greasewood |
| DISTI | *Distichlis* | Saltgrass |
| SPAI | *Sporobolus airoides* | Alkali sacaton |
| PASM | *Pascopyrum smithii* | Western wheatgrass |
| PUCCI | *Puccinellia* | Alkaligrass |

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

Disturbance Description

Historically, fire was extremely infrequent. There is conflicting evidence about mean fire return interval (MFRI) in this system. Anderson (2004) claims a fire return interval (FRI) <100yrs, whereas expert opinion considers fire rare to absent in greasewood. As a compromise, an MFRI of ~200yrs was chosen here.

Greasewood may be killed by standing water that lasts >40 days. Greasewood is a vigorous resprouter following low- to moderate-severity fires, although severe fires may result in some mortality. Some reseeding may occur from nearby remnant plants.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 209 | 100 | 100 | 800 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 209 | 100 |  |  |

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

1-100s ac.

Adjacency or Identification Concerns

Greasewood communities are susceptible to invasion by non-native annual grasses (cheatgrass). Adjacency to other vegetation with shorter FRIs may influence the FRI in this BpS, particularly where the patches are small in areal extent.

Issues or Problems

Anderson (2004) indicates that black greasewood height, canopy coverage, and total leaf surface area are inversely related to depth to water. Greasewood is phreatophytic and tends to increase the salt in the soil over time, so older stands could be less flammable as the increasing salt reduces productivity. Herbage production is generally 0-500 pounds per acre (0-560 kg/ha) while fuel loads range from very low to 2,000 pounds per acre (2,267 kg/ha).

Native Uncharacteristic Conditions

Comments

This model was reviewed by Kathleen S. Roche during the 2016 BpS Review. Kori Blankenship combined MZ20, MZ22, MZ29, and MZ30 during the BpS review because the models were identical. The minor zone-to-zone differences in the descriptions are noted in the text.

The modeled wind/weather/stress transition represents flooding.

For LANDFIRE National, MZ22 was not reviewed; MZ20 was reviewed by Cooper.

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 | A | B | B | B | B | B | B | B | B |
| Shrub | 0.5-1.0 | A | A | B | B | B | B | B | B | B | B |
| Shrub | 1.0-3.0 | A | A | B | B | B | B | B | B | B | B |
| Shrub | >3.0 | A | A | B | B | B | B | B | B | B | B |
| 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 3 Early Development 1 - All Structures

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| DISTI | Distichlis | Saltgrass | Lower |
| SPAI | Sporobolus airoides | Alkali sacaton | Lower |

Description

Some grasses, with greasewood sprouts present. Some representation of other sprouting species may be present such as rabbitbrush (*Ericameria nauseosus*). Grass species vary geographically but include the following: inland saltgrass, bottlebrush squirreltail, and alkali sacaton.

*Maximum Tree Size Class*  
None

Class B 97 Late Development 1 - Open

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SARCO | Sarcobatus | Greasewood | Upper |
| DISTI | Distichlis | Saltgrass | Lower |
| SPAI | Sporobolus airoides | Alkali sacaton | Lower |

Description

Greasewood shrubs maturing or have reached maturity and will increase canopy closure. Perennial grasses will still be in the understory. Shrubs probably only reach heights of 1.5m.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Late1:OPN | 2 |
| Late1:OPN | 3 | Late1:OPN | 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** |
| Replacement Fire | Late1:OPN | Early1:ALL | 0.005 | 200 | Yes | 0 |
| Wind or Weather or Stress | Late1:OPN | Early1:ALL | 0.013 | 77 | Yes | 0 |

References

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