11530

Inter-Mountain Basins Greasewood Flat

BpS Model/Description Version: Aug. 2020

|  |  |  |  |
| --- | --- | --- | --- |
| **Modelers** |  | **Reviewers** |  |
| Sandy Gregory | s50grego@nv.blm.gov | Eric Limbach | [eric\_limbach@blm.gov](mailto:eric_limbach@blm.gov) |
| Bryan Bracken | Bryan\_Bracken@blm.gov | Klara Varga | [klara@ida.net](mailto:klara@ida.net) |
| Jack Sheffey | Jack\_Sheffey@blm.gov | Tristan Fluharty | [tfluharty@fs.fed.us](mailto:tfluharty@fs.fed.us) |

Reviewer: Andrea Laliberte

Vegetation Type

Mixed Upland and Wetland

Map Zones

6, 10, 12, 13, 17, 18, 19, 21

Geographic Range

Occurs throughout much of the western United States in intermountain basins. Common in southern Idaho, Nevada, and Utah. Also occurs in eastern Oregon and possibly eastern Washington. In map zone (MZ) 21, this is a minor type in the zone, occurring occasionally on the edges of the zone, more likely in the east and south, if at all.

Biophysical Site Description

This site occurs on alluvial flats or lake plains usually adjacent to 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. Slope gradients of <2% are most typical. Elevations are between 3,800-5,800ft. Average annual precipitation is 5-8in, mean temperature is 45°-50° F, and average growing season is 100-120 days. The surface layer will normally crust, inhibiting water infiltration and seedling emergence.

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) may be present or co-dominant. [MZ13 description stated that: *Atriplex confertifolia* (shadscale) may be present or co-dominant along with other salt bushes, such as *Suaeda moguinii* and rubber rabbitbrush (Ericameria nauseosa.)] 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*) and *Distichilis spicata* (saltgrass) and Great Basin wildrye. Vegetation on this site is normally restricted to coppice mound areas that are surrounded by playa-like depressions or nearly level, usually barren, inner spaces. Potential vegetative composition is about 15% grasses, 5% forbs, and 80% shrubs. As ecological condition declines, herbaceous understory is reduced or eliminated and the site becomes a community of halophytic shrub dominated by greasewood. *Suaeda moquinii* was listed as a Biophysical Setting (BpS) Dominant Species only in MZ13.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| SAVE4 | *Sarcobatus vermiculatus* | Greasewood |
| DISTI | *Distichlis* | Saltgrass |
| LECI4 | *Leymus cinereus* | Basin wildrye |
| ATCO | *Atriplex confertifolia* | Shadscale saltbush |
| SUMO | *Suaeda moquinii* | Mojave seablite |

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

Disturbance Description

Historically, fire was extremely infrequent. Greasewood is a vigorous resprouter following low- to moderate-severity fires, although severe fires may result in some mortality (Anderson 2004). Some reseeding may occur from nearby remnant plants.

This type may be killed by standing water that lasts >40 days based on observation of inundations of Lake Bonneville flats in 1983 (personal observation, Gary Medlyn, Ely BLM).

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 1049 | 100 | 500 | 2000 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 1049 | 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

Scale ranges from 10s to 100,000s of acres.

Adjacency or Identification Concerns

Halogeton is likely to invade this site.

Issues or Problems

Native Uncharacteristic Conditions

The MZ13 description stated that greasewood cover >30% (remote sensing) is uncharacteristic.

Comments

Andrea Laliberte reviewed this BpS during the 2016 BpS Review and suggested that the MZ18 model be included with the MZ06 et al. variant. Both variants had identical models. The only significant difference was that in MZ18, Class A maximum cover was 30%, and in the MZ06 et al. variant, it was 20%.

MZ06, MZ10, MZ12, MZ13, MZ17, MZ19, and MZ21 were combined during 2015 BpS Review because the comments and LANDFIRE review indicated that they were identical. S-class rules from MZ19 and MZ10 were used in the combined description because they used LANDFIRE class breaks. The few descriptive differences between the zones, especially species differences in MZ13, are noted in the revised description.

For MZ21, the LANDFIRE model for the same BpS 1153 from MZ10 and MZ19, created by Sandy Gregory, Bryan Bracken, and Jack Sheffey and reviewed by Eric Limbach, was adopted with only minor changes to description. Minor changes made by an anonymous reviewer. Reviewers for MZ21 were Klara Varga and Tristan Fluharty. However, they were unsure as to whether this type occurs in MZ21. MZ18 lists the same modelers and reviewers as MZ10 and MZ19.

MZ12 and MZ17 were reviewed by Mike Zielinski (mike\_zielinski@nv.blm.gov), Terri Barton (terri\_barton@nv.blm.gov). Reviewers recommended extending the mean fire return interval from 200yrs to 1000yrs and adding extended flooding with 150yrs return interval. Duration of Class A was extended from 2 to 5yrs. The model and description for MZ06 were imported unchanged from MZ12.

MZ13 was modeled by Jan Nachlinger and did not receive review. The MZ13 model was based on MZ12 with only minor changes made to the species composition.

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 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 0.5-1.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | 1.0-3.0 | B | B | B | B | B | B | B | B | B | B |
| Shrub | >3.0 | B | B | 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** |
| ELEL5 | Elymus elymoides | Bottlebrush squirreltail | Upper |
| LECI4 | Leymus cinereus | Basin wildrye | Lower |
| SPAI | Sporobolus airoides | Alkali sacaton | Lower |
| SAVE4 | Sarcobatus vermiculatus | Greasewood | Middle |

Description

Some grasses, with greasewood sprouts present. Some representation of other sprouting species may be present (rabbitbrush). Grass species vary geographically but include the following for Utah and Nevada: 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** |
| SAVE4 | Sarcobatus vermiculatus | Greasewood | Upper |
| DISTI | Distichlis | Saltgrass | Lower |
| SPAI | Sporobolus airoides | Alkali sacaton | Middle |
| LECI4 | Leymus cinereus | Basin wildrye | Upper |

Description

Greasewood shrubs are mature. Rabbitbrush may be found with greasewood. May occur with various sagebrush species and salt desert shrub vegetation (shadscale, saltbushes, and budsage).

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:ALL | 0 | Late1:OPN | 4 |
| Late1:OPN | 5 | 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 | 0.001 | 1000 | Yes | 0 |
| Wind or Weather or Stress | Late1:OPN | Early1:ALL | 0.007 | 143 | Yes | 0 |

References

Anderson, M.D. 2004. Sarcobatus vermiculatus. In: Fire Effects Information System, [Online]. USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2005, December 2].

Blaisdell, J.P. and R.C. Holmgren. 1984. Managing intermountain rangelands-salt-desert shrub ranges. General Technical Report INT-163. Ogden, UT: USDA Forest Service, Intermountain Forest and Range Experiment Station. 52 pp.

Knight, D.H. 1994. Mountains and plains: Ecology of Wyoming landscapes. Yale University Press, New Haven, MA. 338 pp.

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA. Data current as of 10 February 2007.

USDA-NRCS Ecological Site Description 29A & B, Sodic Dune and Flat. Available online: http://esis.sc.egov.usda.gov/Welcome/pgESDWelcome.aspx.

West, N.E. 1983. Intermountain salt desert shrublands. Pages 375-397 in: N.E. West, editor. Temperate deserts and semi-deserts. Ecosystems of the world, Volume 5. Elsevier Publishing Company, Amsterdam.