

11270

Inter-Mountain Basins Semi-Desert Shrub-Steppe

BpS Model/Description Version: Aug. 2020

Modelers		Reviewers	
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None	None	None	None
None	None	None	None

Vegetation Type

Steppe/Savanna

Map Zones

14

Geographic Range

This ecological system is scattered throughout MZ14.

Biophysical Site Description

The community type is found at elevations ranging from 3,500-6,500ft. The climate where this system occurs is generally hot in summers and cold in winters with low annual precipitation, ranging from 5-12in and high inter-annual variation. Much of the precipitation falls as snow, and growing-season drought is characteristic. Temperatures are continental with large annual and diurnal variation. Mean annual temperature ranges from 52-69 degrees F. Average growing season ranges from 140-250 days. Sites are generally on lower piedmont slopes and alluvial flats with shallow to very deep soils. Slopes range from 2-30% but are typically 2-15%. Substrates are generally calcareous derived from alluvium, medium to coarse-textured alluvial soils. Soils may be alkaline.

Vegetation Description

The plant associations in this system are characterized by a somewhat sparse to moderately dense (15-35% cover) shrub layer of *Grayia spinosa*, *Artemisia* spp., *Menodora* spp., *Ephedra nevadensis*, *Tetradymia* spp., *Atriplex confertifolia*, and *Lycium* spp. The herbaceous layer is dominated by bunch grasses which occupy patches in the shrub matrix. Perennial grass species include *Pleuraphis* spp., *Achnatherum speciosum*, *Muhlenbergia porter*, and *Achnatherum hymenoides*. Forbs are generally of low importance and are highly variable across the range, but may be diverse in some occurrences. Species that often occur are *Astragalus*, *Eriogonum*, *Penstemon*, and *Sphaeralcea*.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
GRSP	<i>Grayia spinosa</i>	Spiny hopsage
TETRA3	<i>Tetradymia</i>	Horsebrush
ARTRW 8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming big sagebrush
ATCO	<i>Atriplex confertifolia</i>	Shadscale saltbush

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

Disturbance Description

Disturbance is unpredictable in these systems. However, drought, insects and fire may all occur here.

Fire was infrequent and somewhat dependent on fire importation from the upper sagebrush zone. Replacement fire was the primary fire and increased with shrub development intermixed with grass.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement	228	100	100	500
Moderate (Mixed)				
Low (Surface)				
All Fires	228	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

This BpS occupies a narrow elevation band that can be scattered in many valleys (>1,000ac). Disturbance scale was variable during pre-settlement. Droughts and extended wet periods could be region wide, or more local. A series of high water years or drought could affect whole basins.

Most fires were rare and less than one acre, but may have exceeded hundreds of acres with a good grass crop.

Adjacency or Identification Concerns

This BpS is transitional between salt desert shrub (1081) and creosotebush scrub (1087) at lower elevations, and Inter-Mountain Basins Big Sagebrush Shrublands (1080) and Inter-Mountain Basins Xeric Sagebrush Shrublands (1079) at higher elevations. Intermingling of ecological systems on different lifeforms and aspects on alluvial fans creates this BpS.

Upland shrub communities are easily invaded and, in the short term at least, replaced by red brome and cheatgrass. Other nonnative problematic annuals include Russian thistle and several mustards.

Issues or Problems

Native Uncharacteristic Conditions

Shrub cover >50% is uncharacteristic.

Comments

Succession Classes

Mapping Rules

Upper Layer	Height (m)	Canopy Cover (%)									
		0-10	11-	21-	31-	41 -	51-	61-	71-	81-	91-

Lifeform			20	30	40	50	60	70	80	90	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	UN	UN	UN	UN	UN
Shrub	0.5-1.0	B	B	B	B	B	UN	UN	UN	UN	UN
Shrub	1.0-3.0	B	B	B	B	B	UN	UN	UN	UN	UN
Shrub	>3.0	B	B	B	B	B	UN	UN	UN	UN	UN
Tree	0-5	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	5-10	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	10-25	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	25-50	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	>50	B	UN	UN	UN	UN	UN	UN	UN	UN	UN

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leaf form 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 29 Early Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ACHNA	Achnatherum	Needlegrass	Upper
PLEUR	Pleuricospora	Pinesap	Upper
GRSP	Grayia spinosa	Spiny hopsage	Lower
MESP2	Menodora spinescens	Spiny menodora	Lower

Description

Dominated by continuous perennial grasses with widely scattered dwarf shrubs and relatively younger shrubs.

Maximum Tree Size Class

None

Class B 71 Mid Development 1 - Open

Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
GRSP	Grayia spinosa	Spiny hopsage	Upper
MESP2	Menodora spinescens	Spiny menodora	Upper
ACHNA	Achnatherum	Needlegrass	Lower
PLEUR	Pleuricospora	Pinesap	Lower

Description

Discontinuous grass patches, and higher shrub canopy cover. Spiny hopsage or menodora dominates.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:OPN	0	Mid1:OPN	19
Mid1:OPN	20	Mid1: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	Early1:OPN	Early1:OPN	0.003	333	Yes	0
Wind or Weather or Stress	Early1:OPN	Early1:OPN	0.0133	75	Yes	0
Replacement Fire	Mid1:OPN	Early1:OPN	0.005	200	Yes	0
Wind or Weather or Stress	Mid1:OPN	Early1:OPN	0.0133	75	Yes	0

References

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