

## Ecological site R010XC067OR SR Shrubby Mountain North 16-20 PZ

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### General information

**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.



**Figure 1. Mapped extent**

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

### Associated sites

R010XC034OR	<b>SR Shrubby Mountain Loam 16-20 PZ</b> Shrubby Mountain Loam 16-20" PZ
R010XC049OR	<b>SR Shrubby Mountain South 16-20 PZ</b> Shrubby Mountain South 16-20" PZ

### Similar sites

R010XC034OR	<b>SR Shrubby Mountain Loam 16-20 PZ</b> Shrubby Mountain Loam 16-20" PZ (lower effective moisture, lower production, less tall shrubs)
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**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Amelanchier alnifolia</i> (2) <i>Prunus virginiana</i>
Herbaceous	(1) <i>Festuca idahoensis</i>

### Physiographic features

This site occurs adjacent to forestland on the backslopes of tablelands and mountain plateaus. It is typically on slopes with north and northeast aspects. Slopes range from 12 to 60%. Elevations range from 3200 to 5000 feet.

**Table 2. Representative physiographic features**

Landforms	(1) Plateau
Elevation	3,200–5,000 ft
Slope	12–60%
Aspect	N, NE

### Climatic features

The annual precipitation ranges from 16 to 20 inches, most of which occurs in the form of snow during the months of November through March. The soil temperature regime is frigid with a mean annual air temperature of 42 degrees F. Temperature extremes range from 90 to -30 degrees F. The frost free period ranges from 30 to 60 days. The optimum period for plant growth is from mid-April through mid-July.

**Table 3. Representative climatic features**

Frost-free period (average)	60 days
Freeze-free period (average)	0 days
Precipitation total (average)	20 in

### Influencing water features

#### Soil features

The soils of this site are typically deep and well drained. Typically the surface layer is a loam about 25 inches thick. The subsoil is a gravelly loam about 9 inches thick. Depth to granitic bedrock ranges from 40 to 60 inches. Permeability is moderate for surface soils and moderately rapid in the subsoil. The available water holding capacity is about 6 to 8 inches for the profile. The potential for erosion is moderate to severe.

**Table 4. Representative soil features**

Surface texture	(1) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to moderately rapid
Soil depth	40–60 in
Available water capacity (0–40in)	6–8 in

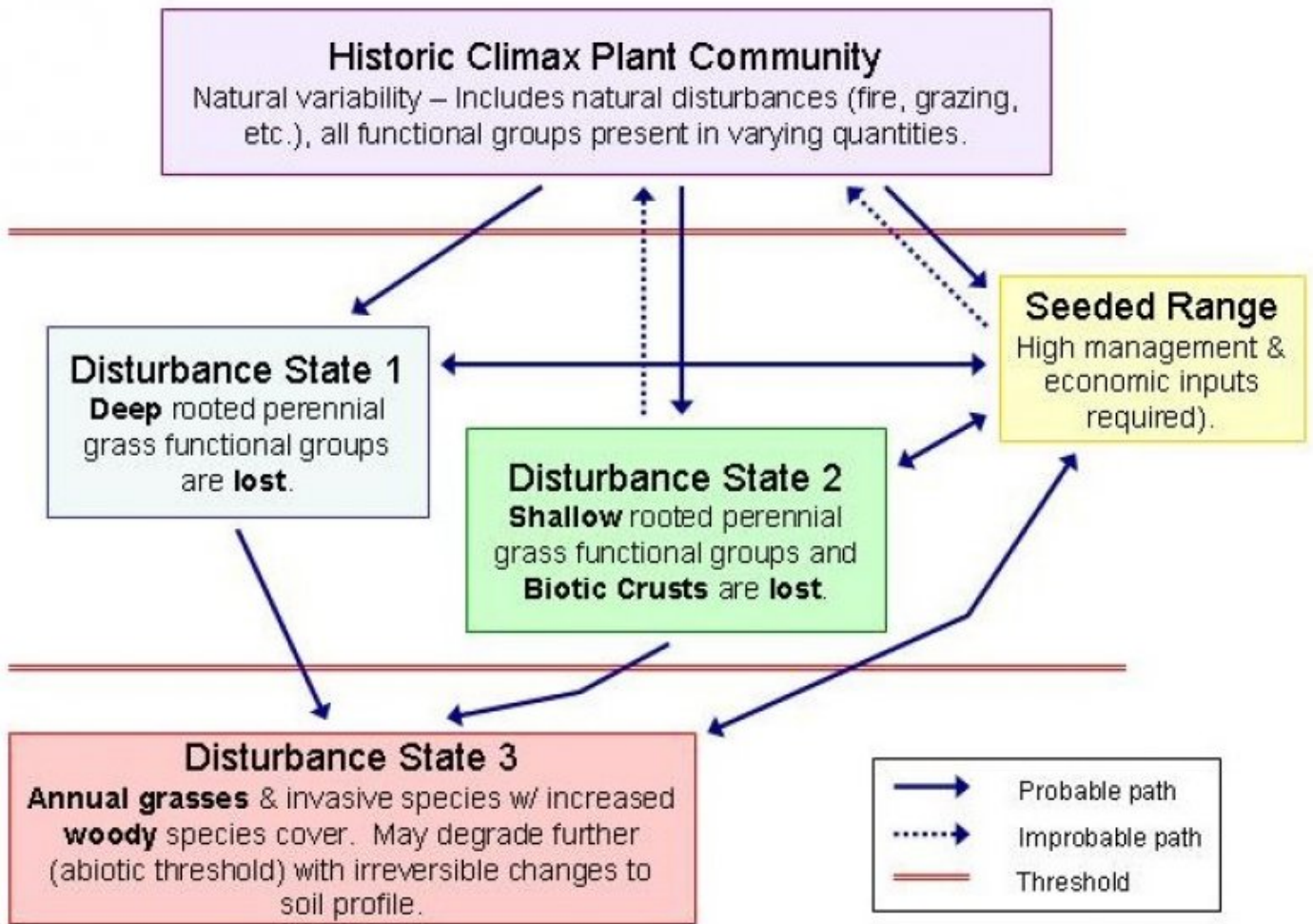
### Ecological dynamics

Needlegrasses increase on more coarse textured soils and sedges on steeper, due north exposures. Shrubs will increase with soil depth and precipitation. Tall shrubs often occur in groups with shorter shrubs forming a shrub/grassland mosaic. As a fire-influenced community the frequency of fire will have a major impact on the composition of the stand. Root sprouting shrubs are favored with a higher fire frequency.

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue will decrease while sedges, bluebunch wheatgrass and bluegrasses will increase. Idaho fescue is the preferred species during all seasons. With further deterioration, sod bluegrasses and annuals invade. Under deteriorated conditions, shrubs dominate the overstory and bare ground increases. Excessive erosion in the bare soil interspaces markedly reduces the site

productivity and contributes to downstream sedimentation.

## State and transition model



## GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

### State 1

#### Historic Climax Plant Community

#### Community 1.1

#### Historic Climax Plant Community

The potential native plant community is dominated by mountain big sagebrush and Idaho fescue. Tall shrubs, serviceberry, chokecherry and bitter cherry are prominent in the stand. Wax current, bitterbrush, buckwheat, needlegrasses and sedges are common. Vegetative composition of the community is approximately 50% grasses, 10% forbs and 40% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1008	1323	1638
Shrub/Vine	378	684	990
Forb	108	198	288
Tree	18	36	54
<b>Total</b>	<b>1512</b>	<b>2241</b>	<b>2970</b>

## Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Dominant, deep-rooted, perennial grasses</b>			720–900	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	720–900	–
2	<b>Sub-dominant, deep-rooted, perennial grasses</b>			234–594	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	90–270	–
	needlegrass	ACHNA	<i>Achnatherum</i>	90–180	–
	sedge	CAREX	<i>Carex</i>	54–144	–
4	<b>Sub-dominant, shallow-rooted, perennial grasses</b>			18–54	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	18–54	–
5	<b>All other perennial grasses</b>			36–90	
	mountain brome	BRMA4	<i>Bromus marginatus</i>	12–30	–
	blue wildrye	ELGL	<i>Elymus glaucus</i>	12–30	–
	bluegrass	POA	<i>Poa</i>	12–30	–
<b>Forb</b>					
7	<b>All dominant, perennial forbs</b>			36–90	
	buckwheat	ERIOG	<i>Eriogonum</i>	36–90	–
8	<b>All sub-dominant, perennial forbs</b>			54–108	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	18–36	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	18–36	–
	desertparsley	LOMAT	<i>Lomatium</i>	18–36	–
9	<b>All other perennial forbs</b>			18–90	
	agoseris	AGOSE	<i>Agoseris</i>	2–8	–
	Indian paintbrush	CASTI2	<i>Castilleja</i>	2–8	–
	shootingstar	DODEC	<i>Dodecatheon</i>	2–8	–
	alumroot	HEUCH	<i>Heuchera</i>	2–8	–
	Scouler's woollyweed	HISC2	<i>Hieracium scouleri</i>	2–8	–
	western stoneseed	LIRU4	<i>Lithospermum ruderales</i>	2–8	–
	lupine	LUPIN	<i>Lupinus</i>	2–8	–
	bluebells	MERTE	<i>Mertensia</i>	2–8	–
	phlox	PHLOX	<i>Phlox</i>	2–8	–
	purslane	PORTU	<i>Portulaca</i>	2–8	–
	ragwort	SENEC	<i>Senecio</i>	2–8	–
<b>Shrub/Vine</b>					
11	<b>Dominant, evergreen, perennial shrubs</b>			90–180	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	90–180	–
12	<b>Sub-dominant, evergreen, perennial shrubs</b>			36–144	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	36–144	–
13	<b>Dominant, deciduous, perennial shrubs</b>			108–288	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	54–144	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	54–144	–

14	<b>Sub-dominant, deciduous, perennial shrubs</b>			108–306	
	bitter cherry	PREM	<i>Prunus emarginata</i>	18–90	–
	wax currant	RICE	<i>Ribes cereum</i>	36–90	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	36–72	–
	rose	ROSA5	<i>Rosa</i>	18–54	–
15	<b>All other perennial shrubs</b>			36–72	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	18–36	–
	peraphyllum	PERAP	<i>Peraphyllum</i>	18–36	–
<b>Tree</b>					
16	<b>Dominant, evergreen, perennial tree</b>			18–36	
	ponderosa pine	PIPO	<i>Pinus ponderosa</i>	18–36	–
17	<b>Sub-dominant, evergreen, perennial trees</b>			0–18	
	Douglas-fir	PSME	<i>Pseudotsuga menziesii</i>	0–18	–

## Animal community

This site offers food and cover for mule deer and elk.

## Hydrological functions

The soils are hydrologic group B. The soils of this site have moderately low runoff potential.

## Wood products

A few scattered fir trees offer cover and diversity for wildlife.

## Other products

This site is suited to use by cattle, sheep, and horses in late spring, summer and fall under a planned grazing system. Use should be avoided until the soils are firm enough to withstand trampling damage and soil compaction.

## Contributors

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## Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	Jeff Repp
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	08/07/2012
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:** None to some, moderate to severe sheet & rill erosion hazard

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2. **Presence of water flow patterns:** None to some

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3. **Number and height of erosional pedestals or terracettes:** None to very few (some frost heaving)

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 0-5%

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5. **Number of gullies and erosion associated with gullies:** None

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6. **Extent of wind scoured, blowouts and/or depositional areas:** None, moderate wind erosion hazard

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - limited movement

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Moderately resistant to erosion: aggregate stability = 3-5

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep well drained loams (25 inches thick): Moderate OM (3-5%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (80-90%) and gentle to steep slopes (12-60%) moderately to significantly limit rainfall impact and overland flow

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**  
  
Dominant: Idaho fescue > shrubs > other grasses > forbs > trees  
  
Sub-dominant:

Other:

Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Normal decadence and mortality expected
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14. **Average percent litter cover (%) and depth ( in):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 2200, Normal: 1800, Unfavorable: 1400 lbs/acre/year at high RSI (HCPC)
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Perennial brush species will increase with deterioration of plant community. Western Juniper readily invades the site. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually
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