

## Ecological site R010XC064OR SR North 9-12 PZ

Accessed: 07/27/2024

### 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

R010XC020OR	<b>SR Loamy 9-12 PZ</b> SR Loamy 9-12" PZ
R010XC021OR	<b>SR Clayey 9-12 PZ</b> SR Clayey 9-12" PZ
R010XC025OR	<b>SR Sandy 9-12 PZ</b> SR Sandy 9-12 PZ
R010XC043OR	<b>SR South 9-12 PZ</b> SR South 9-12" PZ
R010XC063OR	<b>SR Droughty North 9-12 PZ</b> SR Droughty North 9-12 PZ

### Similar sites

R010XC063OR	<b>SR Droughty North 9-12 PZ</b> SR Droughty North 9-12 PZ (droughtier site, predominantly on northeast and northwest aspects, different composition-bluebunch wheatgrass dominant)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata</i> var. <i>wyomingensis</i> (2) <i>Artemisia tridentata</i> ssp. <i>tridentata</i>
Herbaceous	(1) <i>Festuca idahoensis</i> (2) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>

## Physiographic features

This site occurs on north facing aspects of canyon side slopes, terraces, rolling uplands and tablelands. Slopes range from 12 to 70%. Elevations typically range from 2,000 to 3,600 feet.

**Table 2. Representative physiographic features**

Landforms	(1) Terrace (2) Canyon
Elevation	2,000–3,600 ft
Slope	12–70%
Aspect	N

## Climatic features

The annual precipitation ranges from 9 to 12 inches, most of which occurs in the form of rain and snow during the months of December through March. Localized convection storms occasionally occur during the summer. The soil temperature regime is cool mesic with a mean air temperature of 50 degrees F. Temperature extremes range from 100 to -20 degrees F. The frost free period ranges from 100 to 130 days. The optimum growth period for plant growth is April through June.

**Table 3. Representative climatic features**

Frost-free period (average)	130 days
Freeze-free period (average)	0 days
Precipitation total (average)	12 in

## Influencing water features

### Soil features

The soils of this site are typically moderately deep to deep with a depth range of shallow to very deep. They are well drained. Typically the surface layer is a silt loam to clay loam or channery loam 5 to 20 inches thick. The subsoil is a silty clay loam to clay or channery loam 16 to 28 inches thick. Depth to bedrock, lacustrine or alluvium sediments ranges from 20 to 60 inches. Permeability is moderate slow to moderate. The available water holding capacity (AWC) is about 4 to 6 inches for the profile. The erosion potential is moderate to severe.

**Table 4. Representative soil features**

Surface texture	(1) Silt loam (2) Clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	20–60 in

Available water capacity (0-40in)	4-6 in
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## Ecological dynamics

The potential native plant community is dominated by Idaho fescue and bluebunch wheatgrass. Wyoming big sagebrush and lesser amounts of basin big sagebrush are common. Sandberg bluegrass and a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 85 percent grasses, 5 percent forbs and 10 percent shrubs. The approximate ground cover is 80 to 90 percent (basal and crown).

### Range Characteristics:

Idaho fescue is strongly dominant on due north slopes. Bluebunch wheatgrass increases on easterly and westerly exposures. Basin big sagebrush increases as precipitation approaches 12 inches. Production increases on deeper foot slope soils and at the upper end of the precipitation zone.

### Response to Disturbance:

When the condition of the site deteriorates as a result of over grazing, Idaho fescue the preferred species decreases. Bluebunch wheatgrass, Sandberg bluegrass, Wyoming and basin big sagebrush increase. With continued deterioration bluebunch wheatgrass decreases and annuals strongly invade. With fire big sagebrush is severely impacted. Under deteriorated conditions rabbitbrush increases slightly and the site is dominated by cheatgrass, other annuals, and biennial forbs. Bare ground increases and excessive erosion, particularly in incised channel areas, contributes to downstream sedimentation.

### States:

ARTRW/PSSPS-POSE-BRTE;CHVI8/POSE-BRTE/biennial forbs(following fire on degraded range)

## State and transition model

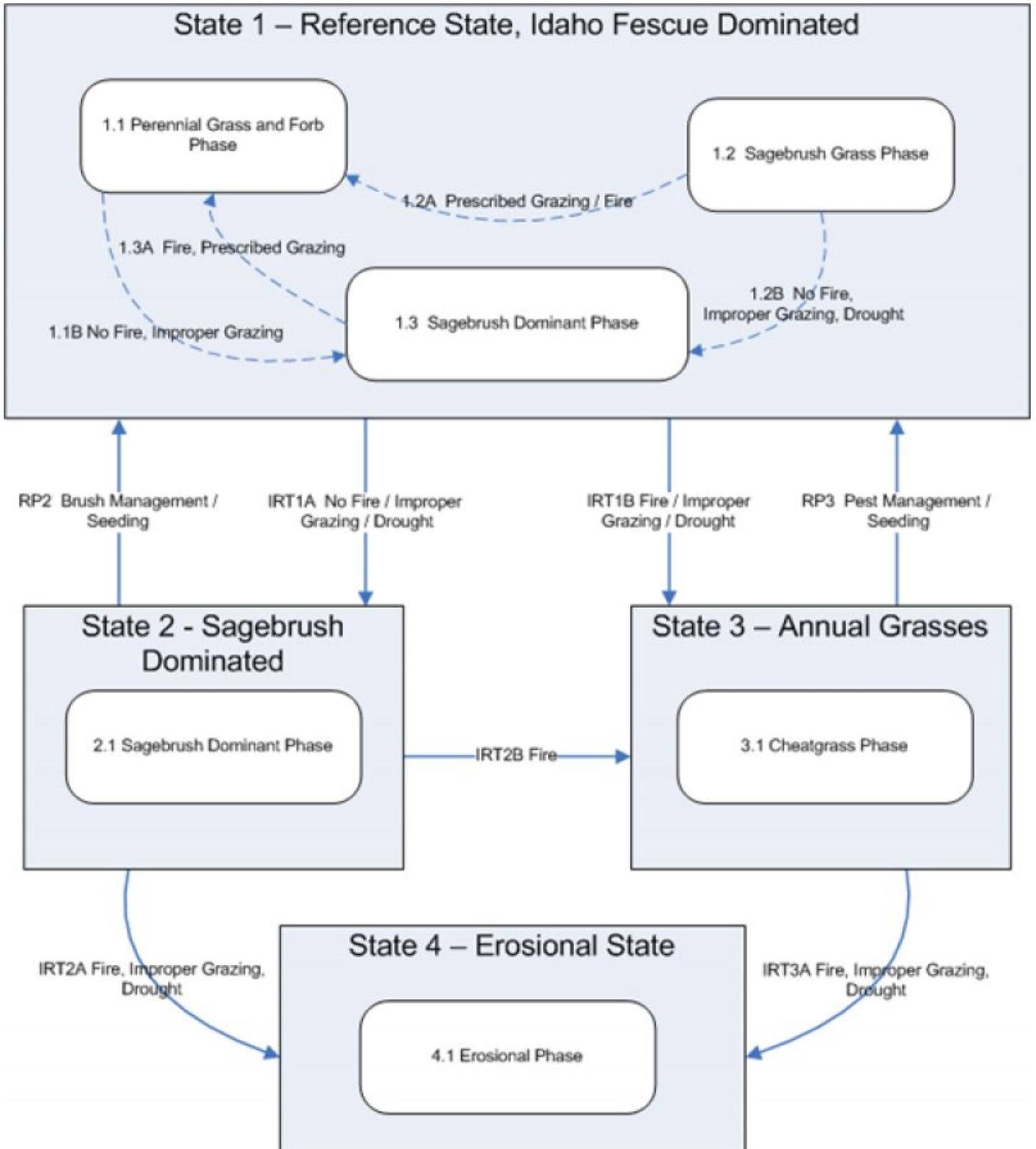


Figure 2. State and Transition Model

**State 1  
Reference State**

**Community 1.1  
Reference Plant Community**

The potential native plant community is dominated by Idaho fescue and bluebunch wheatgrass. Wyoming big sagebrush and lesser amounts of basin big sagebrush are common. Sandberg bluegrass and a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 85 percent grasses, 5 percent

forbs and 10 percent shrubs. The approximate ground cover is 80 to 90 percent (basal and crown).

**Table 5. Annual production by plant type**

<b>Plant Type</b>	<b>Low (Lb/Acre)</b>	<b>Representative Value (Lb/Acre)</b>	<b>High (Lb/Acre)</b>
Grass/Grasslike	765	1020	1530
Shrub/Vine	90	120	180
Forb	45	60	90
<b>Total</b>	<b>900</b>	<b>1200</b>	<b>1800</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 grass</b>			600–840	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	600–840	–
2	<b>Sub-dominant, deep-rooted perennial grass</b>			180–300	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	180–300	–
3	<b>Deep-rooted, perennial bunch grass</b>			24–60	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	24–60	–
4	<b>Sub-dominant, shallow-rooted perennial grass</b>			12–36	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	12–36	–
5	<b>Other Perennial grasses</b>			12–24	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0–12	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–12	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–12	–
<b>Forb</b>					
7	<b>Dominant perennial forbs</b>			30–60	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	12–24	–
	lupine	LUPIN	<i>Lupinus</i>	12–24	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	6–12	–
9	<b>Other forbs</b>			32–84	
	agosaris	AGOSE	<i>Agoseris</i>	0–12	–
	milkvetch	ASTRA	<i>Astragalus</i>	6–12	–
	brodiaea	BRODI	<i>Brodiaea</i>	0–12	–
	hawksbeard	CREPI	<i>Crepis</i>	6–12	–
	fleabane	ERIGE2	<i>Erigeron</i>	3–12	–
	buckwheat	ERIOG	<i>Eriogonum</i>	6–12	–
	woodland-star	LITHO2	<i>Lithophragma</i>	0–12	–
	stoneseed	LITHO3	<i>Lithospermum</i>	6–12	–
	desertparsley	LOMAT	<i>Lomatium</i>	3–12	–
	phlox	PHLOX	<i>Phlox</i>	0–12	–
	goldenrod	SOLID	<i>Solidago</i>	0–12	–
<b>Shrub/Vine</b>					
11	<b>Dominant, evergreen shrubs</b>			48–96	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata ssp. wyomingensis</i>	36–60	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	12–36	–
14	<b>Other shrubs</b>			8–90	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	8–24	–
	wild crab apple	PERA4	<i>Peraphyllum ramosissimum</i>	0–24	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–24	–
	threetip sagebrush	ARTR4	<i>Artemisia tripartita</i>	0–18	–

## Animal community

### Livestock Grazing:

This site is suitable for livestock grazing use in the spring, early summer, and fall under a planned grazing system. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Grazing management should be keyed for Idaho fescue. Deferred grazing or rest is recommended at least once every three years.

### Native Wildlife Associated with the Potential Climax Community:

This site is commonly used by pronghorn antelope, mule deer, rabbits, rodents, upland birds and various predators. It is a preferred site for sage grouse rearing. Antelope and mule deer make excellent use of the site for fall, late winter and spring forage.

## Hydrological functions

The soils of this site are in an upland topographic position. They have moderately high runoff potential and medium infiltration rates when the hydrologic cover is high. Hydrologic cover is high when the Idaho fescue and other deep rooted bunchgrass component is >70 percent of potential. The soils are in hydrologic group C.

## 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 and Bruce Frannsen
Contact for lead author	State Rangeland Management Specialist for NRCS in Oregon
Date	08/07/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:** None to some, 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):** Slightly to significantly resistant to erosion: aggregate stability = 2-5

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**  
Moderately deep to deep well drained silt loam, channery loam, very sandy loam, or clay loam (5-20 inches thick):  
Moderate OM (2-4%)

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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 (12-70%) 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 > Bluebunch wheatgrass > shrubs > forbs

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: 1700, Normal: 1100, Unfavorable: 800 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:** 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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