

Ecological site R010XC050OR

SR Shallow South 9-12 PZ

Accessed: 05/18/2024

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

R010XC021OR	SR Clayey 9-12 PZ SR Clayey 9-12" PZ
R010XC035OR	SR Shallow 9-12 PZ SR Shallow 9-12" PZ
R010XC038OR	SR Very Shallow 9-12 PZ SR Very Shallow 9-12" PZ
R010XC043OR	SR South 9-12 PZ SR South 9-12" PZ

Similar sites

R010XC043OR	SR South 9-12 PZ SR South 9-12" PZ (deeper soil, higher production)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>

Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> (2) <i>Achnatherum thurberianum</i>
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Physiographic features

This site occurs on south-facing canyon sideslopes and southerly exposures of terraces and tablelands. Slopes range from 12 to 70 percent. Elevations typically range from 2,000 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon (2) Plateau (3) Terrace
Elevation	610–1,372 m
Slope	12–70%
Aspect	S

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 November through March. Localized, occasionally severe, convectional storms occur during the summer. The soil temperature regime is mesic with a mean annual air temperature of 52 degrees F. Temperature extremes range from 100 to -20 degrees F. The frost-free period ranges from 120 to 160 days. The optimum period for plant growth is from April through June.

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	0 days
Precipitation total (average)	305 mm

Influencing water features

Soil features

The soils of this site are typically shallow and well-drained. Typically the surface layer is a stony loam to gravelly clay loam about 6 inches thick. The subsoil is an extremely gravelly clay to stony clay loam about 4 to 5 inches thick. Depth to bedrock is 10 to 20 inches. Permeability is slow to moderate. The available water holding capacity is about 2 to 4 inches for the profile. The potential for erosion is moderate to severe.

Table 4. Representative soil features

Surface texture	(1) Stony loam (2) Gravelly clay loam
Family particle size	(1) Clayey
Drainage class	Well drained to moderately well drained
Permeability class	Moderate to slow
Soil depth	25–51 cm
Available water capacity (0–101.6cm)	5.08–10.16 cm

Ecological dynamics

The potential native plant community is dominated by Wyoming big sagebrush and bluebunch wheatgrass. Thurber needlegrass and Sandberg bluegrass are common in the stand. Vegetative composition of the community is approximately 80 percent grasses, 10 percent forbs, and 10 percent shrubs. Approximate ground cover is 30 to 50 percent (basal and crown).

Range in Characteristics:

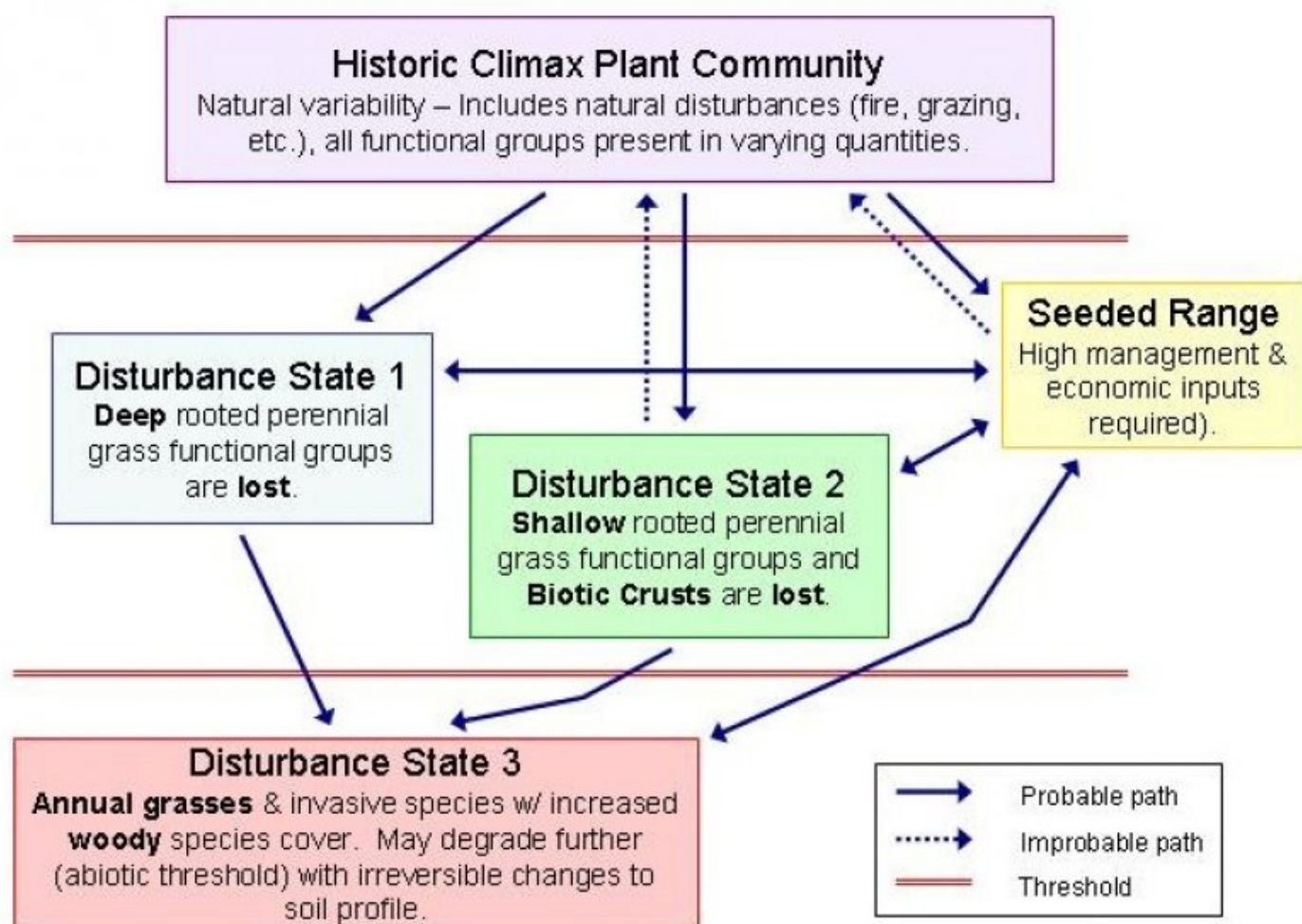
Droughty conditions, gravels on the surface layer and a decrease in clay in the subsoil will favor the presence of Thurber needlegrass in the stand. As the soil surface becomes thinner, the proportion of Sandberg bluegrass increases.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Thurber's needlegrass decrease while sagebrush and Sandberg bluegrass increase. Bluebunch wheatgrass and Thurber's needlegrass are the preferred species during the spring and summer. With further deterioration, annuals invade. Under deteriorated conditions, annual grasses and shrubs dominate the site, bare ground increases and excessive erosion contributes to downstream sedimentation.

States: ARTRW/POSE-Annuals-Bare Ground; Annuals-Bare Ground

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1

Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

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Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	269	448	717
Shrub/Vine	34	56	90
Forb	34	56	90
Total	337	560	897

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Dominant, perennial, deep rooted bunchgrass			392–616	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	336–448	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	56–168	–
2	Sub-dominant, perennial, shallow-rooted grass			17–45	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	17–45	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	6–11	–
3	Other grasses			6–28	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	0–17	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	6–11	–
Forb					
7	Dominant, perennial, forb			11–28	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	11–28	–
8	Sub-dominant, perennial, forbs			17–34	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	6–11	–
	onion	ALLIU	<i>Allium</i>	6–11	–
	cliff beardtongue	PERU	<i>Penstemon rupicola</i>	6–11	–
9	Other perennial forbs			6–28	
	pussytoes	ANTEN	<i>Antennaria</i>	0–3	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–3	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0–3	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–3	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–3	–
	western stoneseed	LIRU4	<i>Lithospermum ruderales</i>	0–3	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–3	–
	lupine	LUPIN	<i>Lupinus</i>	0–3	–
	phacelia	PHACE	<i>Phacelia</i>	0–3	–
	phlox	PHLOX	<i>Phlox</i>	0–3	–
Shrub/Vine					
11	Dominant evergreen, shrub			6–28	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	6–28	–
13	Other shrubs			6–34	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	6–11	–
	wild crab apple	PERA4	<i>Peraphyllum ramosissimum</i>	0–11	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–11	–

Animal community

Livestock Grazing:

This site is suitable for livestock grazing use in the spring, early summer and fall under a planned grazing system. Limitations are clayey soils, steep slopes, and surface stones. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Grazing management should be keyed for bluebunch

wheatgrass. 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 mule deer, small mammals, upland birds and various predators. Mule deer make excellent use of the site for winter and spring forage. Upland birds make good use of the site for wintering, nesting and rearing.

Hydrological functions

The soils are in hydrologic group D. The soils of this site have high runoff potential. They have moderate runoff potential and medium infiltration rates when the hydrologic cover is good. Hydrologic cover is good when the bluebunch wheatgrass deep rooted bunchgrass component is >70 percent of potential. Under lower seral conditions runoff potential is high. This occurs when deep rooted perennial bunchgrass cover is low and bare ground increases.

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, moderate to severe sheet & rill erosion hazard

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

3. **Number and height of erosional pedestals or terracettes:** None

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10-35%

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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, slight to 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):** Shallow well drained gravelly clay loam or gravelly clay, or gravelly sandy clay loam (6inches 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:** Low to moderate ground cover (30-50%) and moderate to steep slopes (30-80%) moderately to slightly 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: Bluebunch wheatgrass > Thurber needlegrass > 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: 800, Normal: 500, Unfavorable: 300 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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