USDA Natural Resources
Conservation Service

Ecological site R007XY015OR
Shallow Loam 8-10 PZ

Last updated: 2/06/2025
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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

R007XY010OR	**Sandy Bottom 8-10 PZ** Sandy Bottom 8-10" PZ
R007XY011OR	**Sands 8-10 PZ** Sands 8-10" PZ
R007XY012OR	**Sandy 8-10 PZ** Sandy 8-10" PZ
R007XY013OR	**Sandy Loam 8-10 PZ** Sandy Loam 8-10" PZ
R007XY014OR	**Loamy 8-10 PZ** Loamy 8-10" PZ
R007XY020OR	**South 8-10 PZ** South 8-10" PZ

Similar sites

R007XY020OR	**South 8-10 PZ** South 8-10" PZ (deeper soil)

R007XY014OR	**Loamy 8-10 PZ** Loamy 8-10" PZ (deeper soil)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on the tops, shoulders, and side slopes of dissected basalt flows.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Plateau (3) Ridge
Flooding frequency	None
Elevation	152–518 m
Slope	2–20%
Water table depth	183 cm
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 10 inches, most of which occurs as rain between the months of November and April. The mean annual air temperature is 48 degrees F. Extremes range from 115 degrees F to -30 degrees F. The period of optimum plant growth is from mid-April to mid-June.

Table 3. Representative climatic features

Frost-free period (average)	
Freeze-free period (average)	
Precipitation total (average)	254 mm

Influencing water features

Soil features

The soils of this site are shallow over basalt or strongly cemented or indurated duripans. Surface textures are loams, gravelly loams, or very fine sandy loams. Permeability is moderate and the available water capacity is 2 to 4 inches for the profile. Water and wind erosion hazards are slight.

Table 4. Representative soil features

Surface texture	(1) Loam (2) Gravelly loam (3) Very fine sandy loam
Family particle size	(1) Loamy
Permeability class	Moderate
Soil depth	25–51 cm

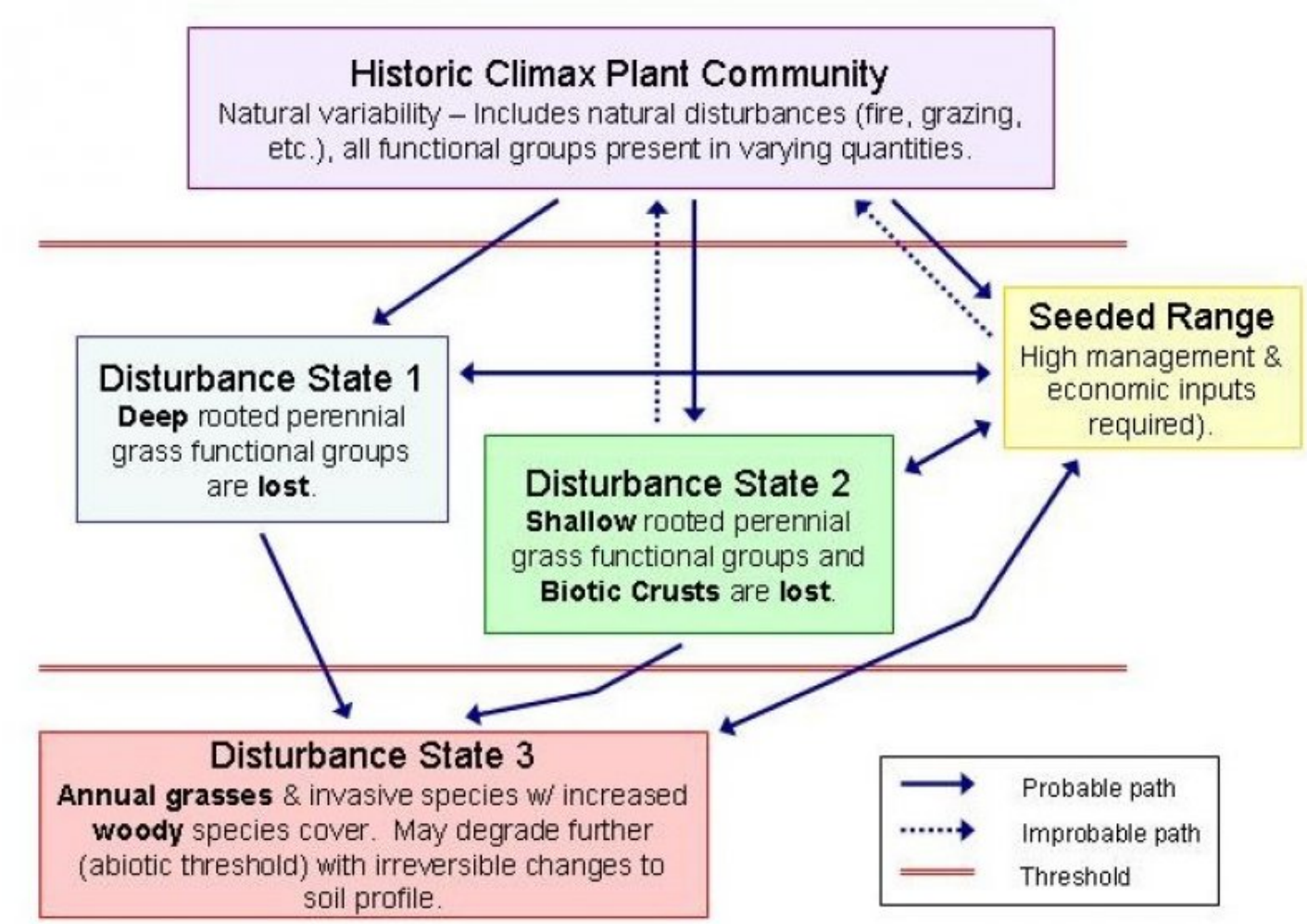
Available water capacity (0-101.6cm)	5.08–10.16 cm

Ecological dynamics

If heavy grazing causes site deterioration, bluebunch wheatgrass is significantly reduced; sandberg bluegrass increases and annuals invade as well. Periodic fire with proper grazing use will reduce the amount of wyoming big sagebrush and encourage perennial grass growth. Frequent burning will favor rabbitbrush.

Variability in this site is related to soil depth or textural changes. A decrease in soil depth will reduce plant density and increase Sandberg bluegrass percentage, while changes in texture toward sandy loam will increase the amount of needleandthrerad in the stand. Gravelly loam soils will give rise to an increase presence of Thurber needlegrass.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference

Community 1.1
Bluebunch Wheatgrass, Sandberg Bluegrass, and Wyoming Big Sagebrush

Variability in this site is related to soil depth or textural changes. A decrease in soil depth will reduce plant density and increase sandberg bluegrass percentage, while changes in texture toward sandy loam will increase the amount of needle and thread in the stand. Gravelly loam soilswill give rise to an increase in thurber needlegrass.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	266	347	420
Forb	20	37	50
Shrub/Vine	13	22	30
Total	**299**	**406**	**500**

Figure 3. Plant community growth curve (percent production by month). OR2271, B7 LOAMY, GOOD CONDITION. RPC growth curve B7 LOAMY, GOOD CONDITION.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	15	25	20	15	10	0	0	5	10	0	0

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 deep rooted perennial grasses**			202–269	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	202–269	–
2	**Sub-dominant deep rooted perennial grasses**			24–67	
	needle and thread	HECO26	*Hesperostipa comata*	17–50	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	7–17	–
3	**Dominant shallow rooted perennial grasses**			34–67	
	Sandberg bluegrass	POSE	*Poa secunda*	34–67	–
5	**Other perennial grasses**			7–17	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	0–7	–
	squirreltail	ELEL5	*Elymus elymoides*	0–7	–
Forb					
7	**Dominant perennial forbs**			7–20	
	common yarrow	ACMI2	*Achillea millefolium*	3–10	–
	phlox	PHLOX	*Phlox*	3–10	–
8	**Sub-dominant perennial forbs**			10–20	
	pussytoes	ANTEN	*Antennaria*	3–7	–
	milkvetch	ASTRA	*Astragalus*	3–7	–
	desertparsley	LOMAT	*Lomatium*	3–7	–
9	**Other perennial forbs**			3–10	
	onion	ALLIU	*Allium*	0–3	–
	balsamroot	BALSA	*Balsamorhiza*	0–3	–
	naked mariposa lily	CANU2	*Calochortus nudus*	0–3	–
	fleabane	ERIGE2	*Erigeron*	0–3	–
	lupine	LUPIN	*Lupinus*	0–3	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			7–17	
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	7–17	–
12	**Sub-dominant evergreen shrubs**			3–7	
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	3–7	–
15	**Other shrubs**			3–7	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	0–3	–
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	0–3	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–3	–

Animal community

The site provides limited food and cover for songbirds, small mammals and their associated predators. It provides part of the yearly diet for mule deer and pronghorn antelope.

The scarcity of water is the limiting factor in the use of this site by wildlife. When located near dependable water sources, the site may support ring-necked pheasants, chukar and gray partridge.

Livestock Grazing:
This site is suited to livestock grazing during all seasons of the year under a system of grazing that allows for full growth and seed production of the desirable species in two out of thre years. This site is especially well-suited to winter grazing.

Hydrological functions

The soils of this site have moderate intake rates and low runoff potential except for short reaches under saturated soil conditions. The hydrologic soil group is D.

Other information

This site has low potential for range seeding because it is droughty, shallow and usually very stony or rocky.

Contributors

Alan Bahn
E Ersch (OSU)
JPR

Approval

Kirt Walstad, 2/06/2025

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	07/26/2012
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, slight sheet & rill erosion hazard

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2. **Presence of water flow patterns:** Few, in interspaces

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not**

bare ground): 2-10%

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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 wind erosion hazard

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - limited to moderate 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):** Moderatley to strongly resistant to erosion; aggregate stability = 5-6

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow loams, gravelly loams, or very fine sandy loams, low OM (1%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderately limited ground cover (25-50%) and slopes (0-20%) should slightly limit rainfall impact and overland flow; slightly increased flow possible on steeper slopes (up to 20%)

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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 > sandberg bluegrass > Needle and thread > Thurber needlegrass = Wyoming big sagebrush > dominant forbs > other forbs = Gray rabbitbrush = other shrubs

    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):** In areas with adequate plant cover

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 500, Normal: 300, Unfavorable: 200 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:** Rabbitbrush, sage brush and broom snakeweed may increase and reduce cover of herbaceous plants. Cheatgrass and annual forbs invade sites that have lost shallow 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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