Ecological site R010XA019OR
Shrubby Loam
8-12 PZ

Last updated: 5/06/2025
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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.

Associated sites

R010XA001OR	**Loamy 8-10 PZ** Droughty Loam 8-10 PZ
R010XA002OR	**Juniper Shrubby Pumice Hills 8-10 PZ** Pumice Hills 8-10 PZ
R010XA007OR	**Juniper Pumice South 9-12 PZ** South 10-12 PZ
R010XA009OR	**Juniper Shrubby Pumice Flat 10-12 PZ** Pumice Flat 10-12 PZ

Similar sites

R010XA001OR	**Loamy 8-10 PZ** Droughty Loam 8-10 PZ
R010XA018OR	**Juniper Shrubby Loam 10-12 PZ** Loamy 10-12 PZ
R010XA007OR	**Juniper Pumice South 9-12 PZ** South 10-12 PZ

Table 1. Dominant plant species

Tree	Not specified

Shrub	(1) *Artemisia tridentata var. wyomingensis* (2) *Purshia tridentata*
Herbaceous	(1) *Pseudoroegneria spicata ssp. spicata* (2) *Poa sandbergii*

Physiographic features

This site occurs on gentle hills and the tops or slopes of low ridges.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge (3) Plateau
Elevation	700 – 1,010 m
Slope	0 – 20 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges primarily from 8 to 12 inches and somewhat higher in a few locations. Precipitation occurs mainly between the months of October and June mostly in the form of rain. The soil temperature regime is mesic. The average annual air temperature is 49 degrees F. with extreme temperatures ranging from -20 to 104 degrees F. The frost free period is 90 to 120 days. The optimum period for plant growth is from mid March through mid June.

Redmond climate report located at: ftp://ftp.wcc.nrcs.usda.gov/support/climate/taps/or/41017.txt

Table 3 Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	
Precipitation total (average)	310 mm

Influencing water features

Soil features

The soils of this site are moderately deep, well drained and coarse to medium textured. They are generally formed from volcanic ash and the underlying bedrock. Permeability is moderately rapid and the available water holding capacity is 2 to 4 inches for the profile. The potential for wind erosion is high.

Table 4. Representative soil features

Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately rapid
Soil depth	100 cm
Surface fragment cover <=3"	10 – 30 %
Surface fragment cover >3"	0 – 20 %
Available water capacity (0-101.6cm)	5.08 – 10.16 cm
Subsurface fragment volume <=3" (Depth not specified)	30 – 60 %
Subsurface fragment volume >3" (Depth not specified)	10 – 50 %

Ecological dynamics

Burning results is a decline or loss of bitterbrush and big sagebrush. Overgrazing causes a decline in bluebunch wheatgrass and an increase in Thurber needlegrass. Excessive grazing in late summer or fall will reduce the vigor of bitterbrush.

Increasers and invaders include, cheatgrass, annual fescue, and squirreltail.

In areas of deeper soil, composition of antelope bitterbrush and perennial grasses may be higher than indicated above.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant deep rooted perennial grasses**			269-404	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	269-404	–
2	**Sub-dominant deep rooted perennial grasses**			13-40	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	7-13	–
	Idaho fescue	FEID	*Festuca idahoensis*	7-13	–

	needle and thread	HECO26	*Hesperostipa comata*	0-7	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0-7	–
3	**Dominant shallow rooted perennial grasses**			81-101	
	Sandberg bluegrass	POSE	*Poa secunda*	81-101	–
Forb					
7	**Dominant perennial forbs**			7-13	
	common yarrow	ACMI2	*Achillea millefolium*	7-13	–
9	**Other perennial forbs**			7-40	
	curvepod milkvetch	ASCU4	*Astragalus curvicarpus*	0-6	–
	basalt milkvetch	ASFI	*Astragalus filipes*	0-6	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	0-6	–
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	0-6	–
	fleabane	ERIGE2	*Erigeron*	0-6	–
	bigseed biscuitroot	LOMA3	*Lomatium macrocarpum*	0-6	–
	lupine	LUPIN	*Lupinus*	0-6	–
	spreading phlox	PHDI3	*Phlox diffusa*	0-6	–
	deathcamas	ZIGAD	*Zigadenus*	0-6	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			67-135	
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	34-67	–
	antelope bitterbrush	PUTR2	*Purshia tridentata*	34-67	–
12	**Sub-dominant shrubs**			20-61	
	slender buckwheat	ERMI4	*Eriogonum microthecum*	7-34	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	7-13	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	7-13	–
Tree					
16	**Dominant evergreen trees**			7-34	
	western juniper	JUOC	*Juniperus occidentalis*	7-34	–

Animal community

Mule deer use this site as winter range. Key species are Antelope Bitterbrush and Wyoming Big Sagebrush.

Hydrological functions

The soils of this site have high infiltration rates and moderate runoff potential.

Recreational uses

Hunting, hiking.

Wood products

A minor amount of juniper is cut for firewood from this site.

Other products

Key species for grazing management are bluebunch wheatgrass and bitterbrush.

Other information

Adapted species for range seedings include crested wheatgrass, Siberian wheatgrass, and secar bluebunch wheatgrass.

Other references

B10B site also associated with this site:
Droughty North 9-12 PZ #010XB084OR

Contributors

Cici Brooks
E Ersch
Gene Hickman
J P Repp
K.Kennedy

Approval

Kirt Walstad, 5/06/2025

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 and Bruce Frannsen
Contact for lead author	State Rangeland Management Specialist for NRCS - Oregon
Date	08/03/2012
Approved by	
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: None**

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-15%

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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 to some, Severe 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):** Moderately deep, well drained, sandy loams and very gravelly loams; low OM (1-2%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate ground cover (45-60%) and moderate slopes (to 20%) moderately 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 > Sandberg bluegrass > Antelope bitterbrush = Basin big sagebrush > other forbs > shrubby buckwheat = Western Juniper > other dominant grasses > Common yarrow > other dominant 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

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 800, Normal: 600, Unfavorable: 400 lbs/acre/year at high RSI (HCPC)

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 increases on the site. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually