

Ecological site R010XA014OR

Juniper Cinder Hills

10-12 PZ

Accessed: 08/23/2026

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

R010XA009OR	Juniper Shrubby Pumice Flat 10-12 PZ
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Similar sites

R010XA007OR	Juniper Pumice South 9-12 PZ
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Table 1. Dominant plant species

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Artemisia tridentata</i> var. <i>wyomingensis</i>
Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>

Physiographic features

This site occurs on cinder buttes and ridges on all aspects.

Table 2. Representative physiographic features

Landforms	(1) Butte
Elevation	760 – 910 m
Slope	0 – 50 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 12 inches which occurs mainly between the months of November and June in the form of rain and snow. The soil temperature regime is mesic. The average annual air temperature is 47 degrees F. with extreme temperatures ranging from -20 to 100 degrees F. The frost free period is 60 to 90 days. The optimum period for plant growth is from April through June.

Table 3 Representative climatic features

Frost-free period (average)	90 days
Freeze-free period (average)	0 days
Precipitation total (average)	310 mm

Influencing water features

Soil features

The soils of this site are very deep and some what excessively drained. Scoriaceous cinders occur at a depth of 10 to 20 inches. They are generally formed in volcanic ash over cinders. Permeability is moderately rapid and the available water holding capacity is 2 to 4 inches for the profile. The potential for water or wind erosion is high.

Table 4. Representative soil features

Drainage class	Somewhat excessively drained
Permeability class	Moderately rapid
Soil depth	150 cm
Available water capacity (0-101.6cm)	5.08 – 10.16 cm

Ecological dynamics

Burning reduces juniper and sagebrush cover but usually stimulates bluebunch wheatgrass.

Areas with more gravel and cinders on the surface have less herbaceous cover

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			224-308	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	224-308	–
2	Sub-dominant deep rooted perennial grasses			11-56	

	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	6-28	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	6-28	–
3	Dominant shallow rooted perennial grasses			28-84	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	28-84	–
Forb					
7	Dominant perennial forbs			11-22	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	6-11	–
	spreading phlox	PHDI3	<i>Phlox diffusa</i>	6-11	–
Shrub/Vine					
11	Dominant evergreen shrubs			84-140	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata ssp. wyomingensis</i>	84-140	–
12	Sub-dominant evergreen shrubs			6-11	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	6-11	–
Tree					
16	Dominant evergreen trees			28-56	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	28-56	–

Animal community

Little wildlife use is made of this site.

Hydrological functions

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

Wood products

Poorly suited for wood products.

Other products

Generally not widely use for grazing due to steep slopes and fragile soils.

Other information

Not suited for mechanical site preparation. This is a marginal site for seeding due to the droughty nature of the soils. Low survival rates should be expected even with species compatible with the site i.e., crested wheatgrass, Siberian wheatgrass, Canby bluegrass, and Secar bluebunch wheatgrass.

Contributors

Cici Brooks
E Ersch
Gene Hickman
K.Kennedy

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 to some, Severe sheet & rill erosion hazard

2. Presence of water flow patterns: None

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): 5-15%

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

6. Extent of wind scoured, blowouts and/or depositional areas: None to some, Severe wind erosion hazard

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

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): Slightly resistant to erosion; aggregate stability = 2-4

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Deep (scoriaceous cinders occur at 10-20 inches), excessively drained sandy loam; low OM (1-2%)

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 steep slopes (to 50%) slightly limit rainfall impact and overland flow

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

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 > Wyoming big sagebrush > Sandberg bluegrass = Western Juniper > other dominant grasses > forbs > Antelope bitterbrush

Sub-dominant:

Other:

Additional:

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: 600, Normal: 500, Unfavorable: 300 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
