

Ecological site R010XA023OR

Juniper Lava Shrubby Blisters 10-12 PZ

Accessed: 05/04/2024

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

R010XA009OR	Juniper Shrubby Pumice Flat 10-12 PZ
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Similar sites

R010XA022OR	Juniper Lava Blisters 8-10 PZ
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Table 1. Dominant plant species

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> (2) <i>Purshia tridentata</i>
Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>

Physiographic features

This site occurs on exposed lava flows and lava blisters or small knolls dispersed across lava plains. Slopes range from 0 to 15 percent although the steep side slopes of blisters may approach 60 percent in places.

Table 2. Representative physiographic features

Landforms	(1) Lava flow (2) Lava plain
Elevation	853–1,280 m
Slope	0–15%
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, mostly in the form of rain and snow. The soil temperature regime is mesic. The average annual air temperature is 48 degrees F. with extreme temperatures ranging from -27 to 105 degrees F. The frost free period is 70 to 100 days. The optimum period for plant growth is from March through June.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	305 mm

Influencing water features

Soil features

The soils of this site are shallow or very shallow with sandy loam surface layers dominated by volcanic ash. Subsoils may have cobbly or gravelly sandy loam textures and are well drained. They are generally found on lava flows which have created a very uneven land surface. Pumice ash soil fills rock fractures and pockets on the lava in which plants take root. Permeability is rapid and the available water holding capacity is 1 to 3 inches for the profile. The potential for water or wind erosion is high.

Table 4. Representative soil features

Drainage class	Well drained
Permeability class	Rapid
Soil depth	25–51 cm
Available water capacity (0-101.6cm)	2.54–7.62 cm

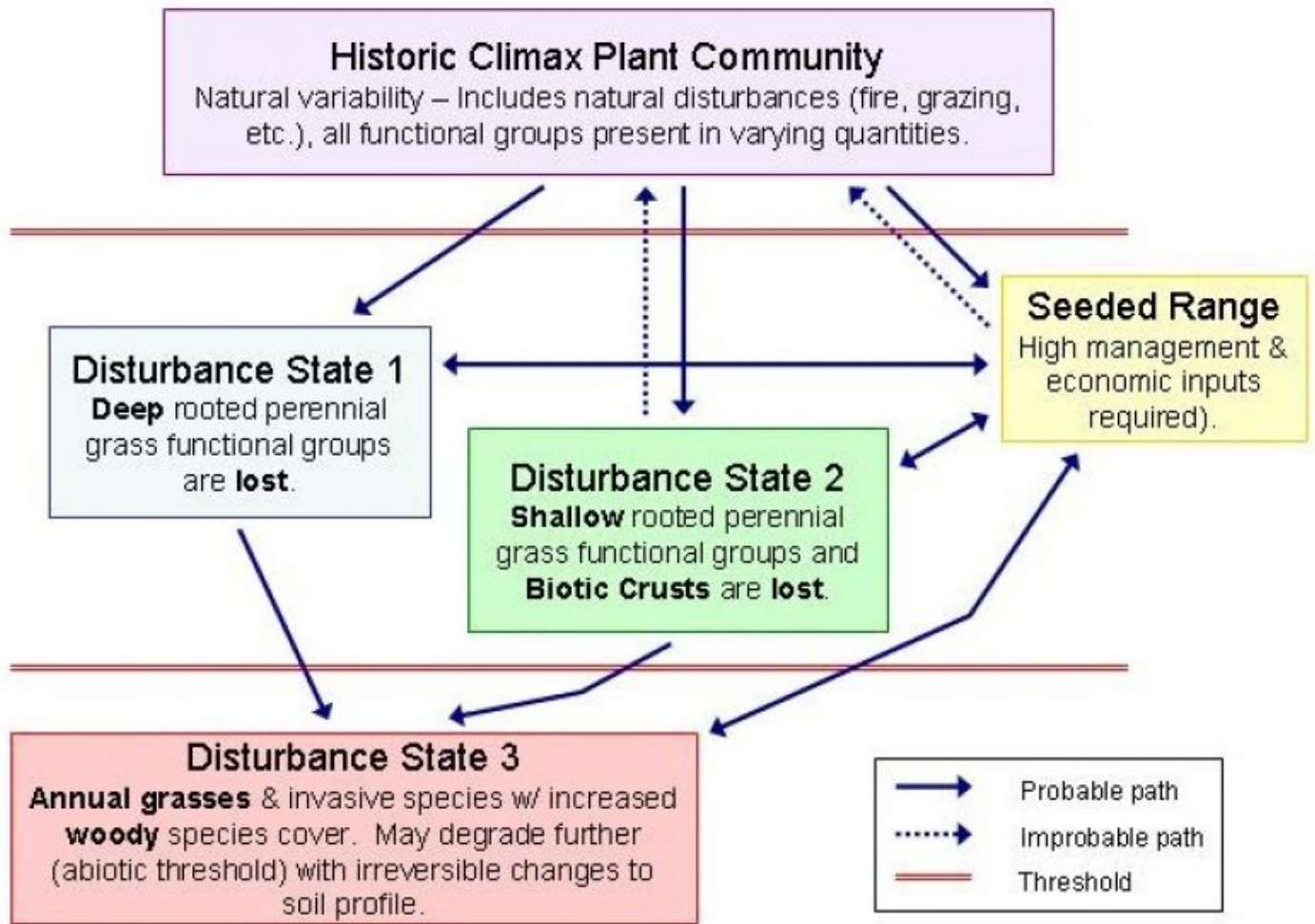
Ecological dynamics

Burning reduces cover of juniper and sagebrush and encourages rabbitbrush. Overuse of bluebunch wheatgrass, Thurber needlegrass, or Idaho fescue by livestock would encourage rabbitbrush, cheatgrass and Sandberg bluegrass.

Further deterioration results in increases in gray rabbitbrush, green rabbitbrush, cheatgrass, mustard, larkspur, and gray parsley.

Much variation in yield and composition occurs. Where less surface rock is present, more vegetative cover occurs. South slopes of blisters have more drought tolerant species. Most Idaho fescue, big bluegrass, and Junegrass is on the north side of blisters.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Historic Climax Plant Community

Community 1.1 Historic Climax Plant Community

The potential native plant community is dominated by an open stand of juniper but is extremely variable, depending on the amount of soil and rock. The understory is a sparse stand of mountain big sagebrush, antelope bitterbrush, buckwheat, bluebunch wheatgrass and Sandberg bluegrass. Varied amounts of other species occur such as Thurber needlegrass, Idaho fescue, big bluegrass, Indian ricegrass and needleandthread. Vegetative composition is approximately 70% grasses, 5% forbs, and 25% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	337	522	706
Shrub/Vine	102	157	212
Tree	39	59	78
Forb	16	28	39
Total	494	766	1035

Figure 4. Plant community growth curve (percent production by month).
OR4051, B10A Mesic, Mid Elev., N/A, Stony, Good Condition. HCPC Growth Curve B10A Mesic, Mid Elev., N/A, Stony, Good Condition - Cindery Hills & Lava Blisters.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	30	55	10	0	0	0	0	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			196–275	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	196–275	–
2	Sub-dominant deep rooted perennial grasses			94–235	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	39–118	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	39–78	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	8–24	–
	western needlegrass	ACOC3	<i>Achnatherum occidentale</i>	8–16	–
4	Sub-dominant shallow rooted perennial grasses			39–118	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	39–118	–
5	Other perennial grasses			8–78	
	Ross' sedge	CARO5	<i>Carex rossii</i>	0–6	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–6	–
	tufted wheatgrass	ELMA7	<i>Elymus macrourus</i>	0–6	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	0–6	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–6	–
Forb					
7	Dominant perennial forbs			8–16	
	spreading phlox	PHDI3	<i>Phlox diffusa</i>	8–16	–
9	Other perennial forbs			8–24	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–6	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–6	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–6	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–6	–
Shrub/Vine					
11	Dominant evergreen shrubs			78–157	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	39–78	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	39–78	–
12	Sub-dominant evergreen shrubs			16–39	
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	16–39	–
15	Other shrubs			8–16	
	wax currant	RICE	<i>Ribes cereum</i>	0–6	–
	desert gooseberry	RIVE	<i>Ribes velutinum</i>	0–6	–
Tree					
16	Dominant evergreen trees			39–78	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	39–78	–

Animal community

Mule deer use this site in all seasons of the year.

Hydrological functions

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

Wood products

Firewood is usually impractical to harvest in these areas due to lava rock.

Other products

In many areas, the lava blisters have low potential for livestock use due to poor access (rock obstructions). Water is generally limiting.

Other information

This site is generally not practical to reseed due to shallow and stony soils.

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 Franssen
Contact for lead author	State Rangeland Management Specialist for NRCS - Oregon
Date	04/24/2003
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.
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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.
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10 - 20%

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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.
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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 to slightly resistant to erosion: aggregate stability = 2-4.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow and very shallow, well drained, sandy loams and stony loamy sands dominated by volcanic ash: Weak thin and medium platy to single grain structure, dry color value of 5, 3-4 inches thick; 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 (40-50%) and slight to severe slopes (0-15% with some as high as 60% on sides of blisters) 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: Perennial, deep-rooted bunch-grasses
- Sub-dominant: Evergreen shrubs = deciduous shrubs
- Other: Evergreen trees = perennial forbs > other shrubs
- Additional:
-
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: 900, Normal: 700, Unfavorable: 500 lbs/acre/year.

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: 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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