

**Ecological site R010XA022OR**  
**Juniper Lava Blisters 8-10 PZ**

Accessed: 05/10/2025

**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**

R010XA027OR	<b>Juniper Pumice Flat 8-10 PZ</b> Pumice Flat 8-10 pz
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**Similar sites**

R010XA023OR	<b>Juniper Lava Shrubby Blisters 10-12 PZ</b> Lava Blisters 10-12 pz
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**Table 1. Dominant plant species**

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Herbaceous	(1) <i>Pseudoroegneria spicata</i> (2) <i>Poa sandbergii</i>

**Physiographic features**

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

**Table 2. Representative physiographic features**

Landforms	(1) Lava flow (2) Lava plain
Flooding frequency	None
Ponding frequency	None
Elevation	2,800–4,000 ft
Slope	0–15%
Aspect	Aspect is not a significant factor

## Climatic features

The annual precipitation ranges from 8 to 10 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 46 degrees F with extreme temperatures ranging from -26 to 104 degrees F. The frost free period is 50 to 90 days. The optimum period for plant growth is from late March through June.

**Table 3. Representative climatic features**

Frost-free period (average)	90 days
Freeze-free period (average)	140 days
Precipitation total (average)	10 in

## Influencing water features

### Soil features

The soils of this site are shallow with sandy loam surface layers dominated by volcanic ash. Subsoils can have cobbly or gravelly sandy loam textures. They are all well drained. They are generally all found on lava flows which have created a very uneven land surface. Volcanic ash soil fills rock fractures and posckets on the lava in which plants take root. Permeability is rapid and the available water holding capacity is 1.4 to 2.6 inches for the profile. The potential for wind erosion is high where soil is exposed on the surface.

**Table 4. Representative soil features**

Surface texture	(1) Cobbly sandy loam (2) Sandy loam (3) Stony loamy sand
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderately rapid to rapid
Soil depth	10–20 in
Surface fragment cover <=3"	0–15%
Surface fragment cover >3"	5–45%
Available water capacity (0-40in)	1.4–2.6 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm

Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	0–10%
Subsurface fragment volume >3" (Depth not specified)	0–10%

## Ecological dynamics

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

Invaders include gray rabbitbrush, cheatgrass, mustard, larkspur, and gray parsley.

Much variation in yield and composition occurs. Where deeper soil is present, more vegetative cover occurs. South slopes of blisters or in areas where soil has accumulated there is an increase in needle and thread. Most Idaho fescue is under trees and/or on the north side of blisters.

### Disturbance Response:

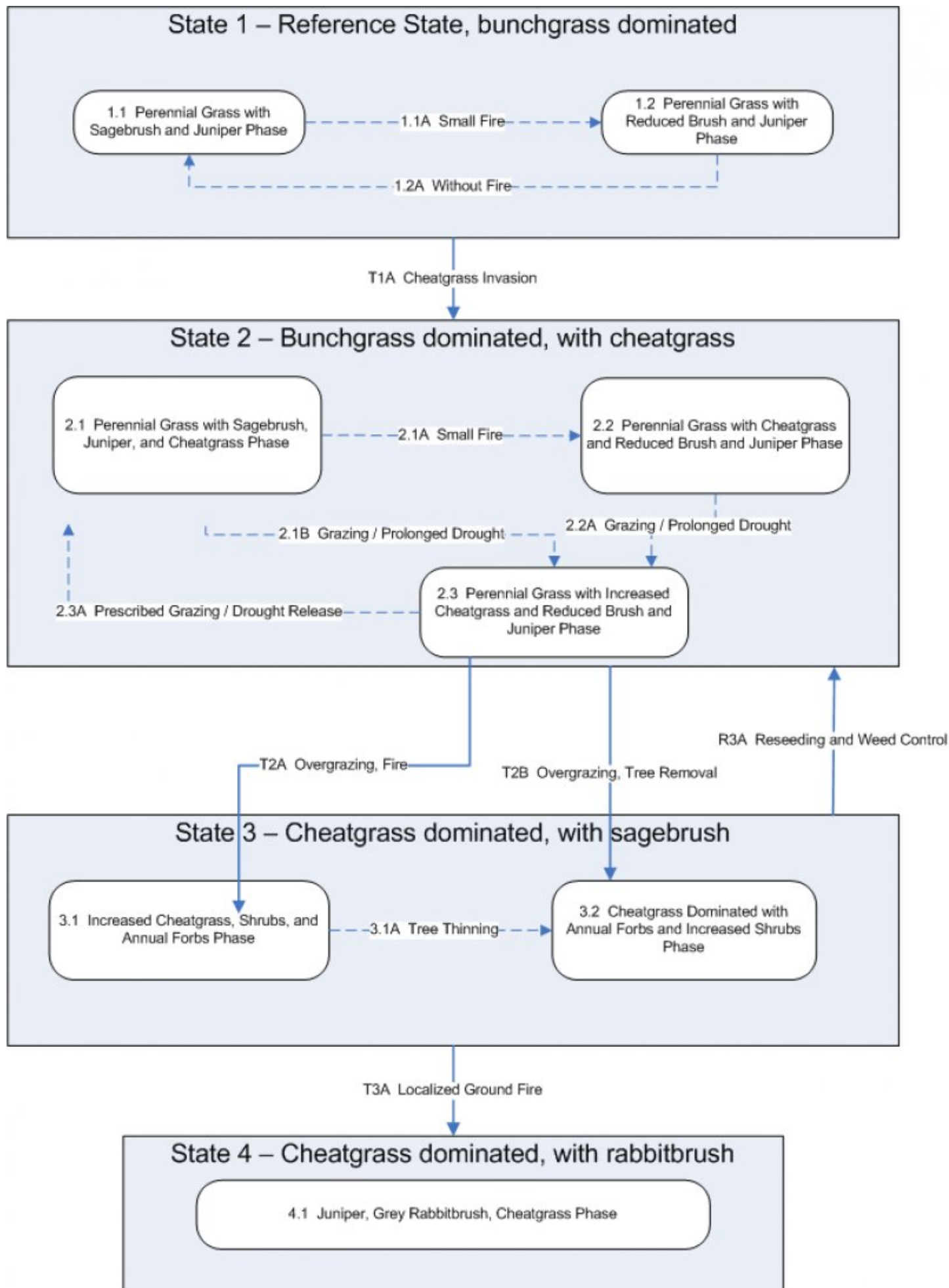
Three primary disturbances were identified for this group: grazing, tree cutting, and the infrequent small area fire.

Inappropriate grazing causes a reduction in bluebunch wheatgrass (PSSP6), needle and thread (HECO26), Indian ricegrass (ACHY), and other understory grass species. Idaho fescue (FEID) remains in the community under the north side canopy of juniper trees and cheatgrass (BRTE), if present, will increase on all other aspects under the canopy. Interspaces are normally sparse, however with overgrazing granite prickly gilia (LIPU11) increases and grasses decline. Squirreltail (ELEL5) may increase initially as needle and thread and bluebunch wheatgrass decline, however with continued overgrazing this species will also decline. Eventually deep rooted perennial bunchgrasses (DRPBG) are eliminated. Cheatgrass becomes dominate along with grey rabbitbrush (ERNA10). Ground fire potential increases with increasing cheatgrass, however fires would be infrequent and small in area.

Cutting of juniper (JUOC) leads to an increase in grey rabbitbrush and an increase in cheatgrass with or without grazing. Idaho fescue is eliminated from areas where trees are removed due to harsh microclimate and cheatgrass replaces it. The addition of inappropriate grazing would lead to a decline in the other deep-rooted perennial bunchgrasses and an increase in annuals and granite prickly gilia.

Fire was extremely infrequent in the historical community and limited to single tree or small area events (Miller, R. pers. comm. 2006). With juniper cutting and/or improper grazing, cheatgrass will dominate the understory and the probability of ground fire increases, however without ladder fuels the fire would be small in extent. Fire would reduce the amount of sagebrush while increasing cheatgrass and other annuals.

## State and transition model



State 1  
Reference Plant Community

Community 1.1  
Reference 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 big sagebrush, buckwheat, bluebunch wheatgrass and Sandberg bluegrass, with widely varying amounts of other grasses such as Thurber needlegrass and Idaho fescue. Pockets of deeper soil also provide a niche for needleandthread and Indian ricegrass. Vegetative composition is approximately 75% grasses, 5% forbs, and 20% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	300	450	600
Shrub/Vine	60	90	120
Tree	20	30	40
Forb	20	30	40
Total	400	600	800

Figure 5. 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 (Lb/Acre)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Perennial, bunch grass, deep-rooted</b>			180–360	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	180–360	–
2	<b>Perennial, bunch grass, deep-rooted</b>			44–88	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	24–48	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	20–40	–
3	<b>Perennial, bunch grass, deep-rooted</b>			20–40	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	12–24	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	8–16	–
4	<b>Perennial, bunch-grass, shallow-rooted</b>			40–80	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	40–80	–
5	<b>Other perennial grasses</b>			16–32	
	western needlegrass	ACOC3	<i>Achnatherum occidentale</i>	0–8	–
	Ross' sedge	CARO5	<i>Carex rossii</i>	0–8	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–8	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–8	–
<b>Forb</b>					
7	<b>Perennial, dominant</b>			8–16	
	spreading phlox	PHDI3	<i>Phlox diffusa</i>	8–16	–
9	<b>Other perennial forbs</b>			12–24	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–8	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–8	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–8	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–8	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–8	–
<b>Shrub/Vine</b>					
11	<b>Evergreen, dominant</b>			28–56	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata ssp. wyomingensis</i>	28–56	–
12	<b>Evergreen, subdominant</b>			20–40	
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	20–40	–
15	<b>Other shrubs</b>			12–24	
	granite prickly phlox	LIPU11	<i>Linanthus pungens</i>	0–8	–
	wax currant	RICE	<i>Ribes cereum</i>	0–8	–
	desert gooseberry	RIVE	<i>Ribes velutinum</i>	0–8	–
<b>Tree</b>					
16	<b>Evergreen trees</b>			20–40	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	20–40	–

## Animal community

Mule deer use this site in all seasons of the year. Other wildlife species include pinyon jay, gray jay, coyote, rodents, American robin.

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

## 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 information

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

## 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 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

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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):** 15-30%

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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):** weak thin to coarse platy structure parting to weak fine granular structure, dry color value 5, 2-5 inches thick; low soil OM (0.5 - 4%).
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate to slight ground cover (30-40%) 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 cool-season bunch-grasses
- Sub-dominant: Evergreen shrubs >= perennial shallow-rooted cool-season bunchgrasses > forbs
- 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: 600, Unfavorable: 400 lbs/acre/year at high RSI



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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: 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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