

Ecological site R010XA027OR Juniper Pumice Flat 8-10 PZ

Accessed: 05/07/2024

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.

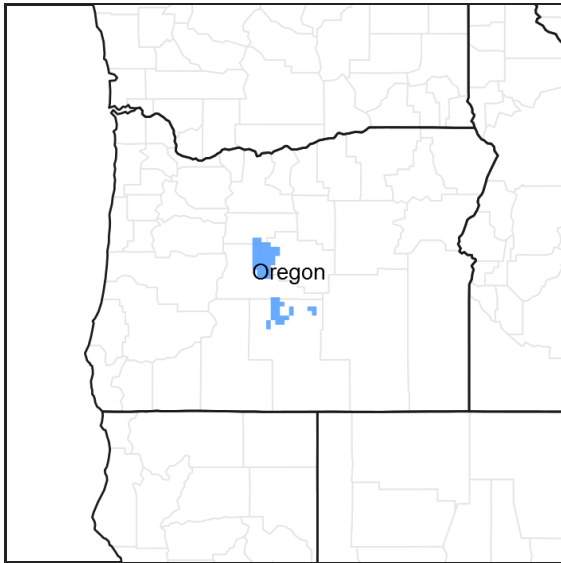


Figure 1. Mapped extent

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

R010XA022OR	Juniper Lava Blisters 8-10 PZ Lava Blisters 8-10 pz
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Similar sites

R010XA009OR	Juniper Shrubby Pumice Flat 10-12 PZ Pumice Flat 10-12 pz, higher precipitation and production.
R010XA021OR	Juniper Shallow Pumice Hills 10-12 PZ Shallow Pumice Hills 10-12 pz. Dominated by Idaho fescue. Frigid temperature regime.

Table 1. Dominant plant species

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>tridentata</i> (2) <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Herbaceous	(1) <i>Hesperostipa comata</i> (2) <i>Festuca idahoensis</i>

Physiographic features

This site occurs on nearly level plains and gentle slopes of low hills.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Hill
Flooding frequency	None
Ponding frequency	None
Elevation	853–1,219 m
Slope	0–10%
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 48 degrees F. with extreme temperatures ranging from -10 to 105 degrees F. The frost free period is 40 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)	130 days
Precipitation total (average)	254 mm

Influencing water features

Soil features

The soils of this site are moderately deep or deep, well drained and sandy loam (medium) textured. They are generally formed in pumice ash over basalt bedrock. Permeability is moderately rapid and the available water holding capacity is 1 to 7 inches for the profile. The potential for wind erosion is high.

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Ashy sandy loam (3) Loamy sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderately rapid
Soil depth	51–152 cm
Surface fragment cover <=3"	0–25%
Surface fragment cover >3"	0–20%
Available water capacity (0-101.6cm)	2.79–18.54 cm
Calcium carbonate equivalent (0-101.6cm)	0%

Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	0–33%
Subsurface fragment volume >3" (Depth not specified)	0–25%

Ecological dynamics

Burning reduces sagebrush and juniper, while increasing the cover of rabbitbrush. Overgrazing damages Idaho fescue, needle and thread, Indian ricegrass, and Ross sedge, but encourages rabbitbrush, granite prickly phlox, cheatgrass, squirreltail, and weeds. Juniper clearing will be detrimental to Idaho fescue which is dependent on the overstory effects for its occurrence.

Increasers and invaders include rubber rabbitbrush, cheatgrass, mustard, collinsia, and gray parsely.

Local areas with pockets of deeper sand or pumice may have greater amounts of bitterbrush.

Disturbance Response:

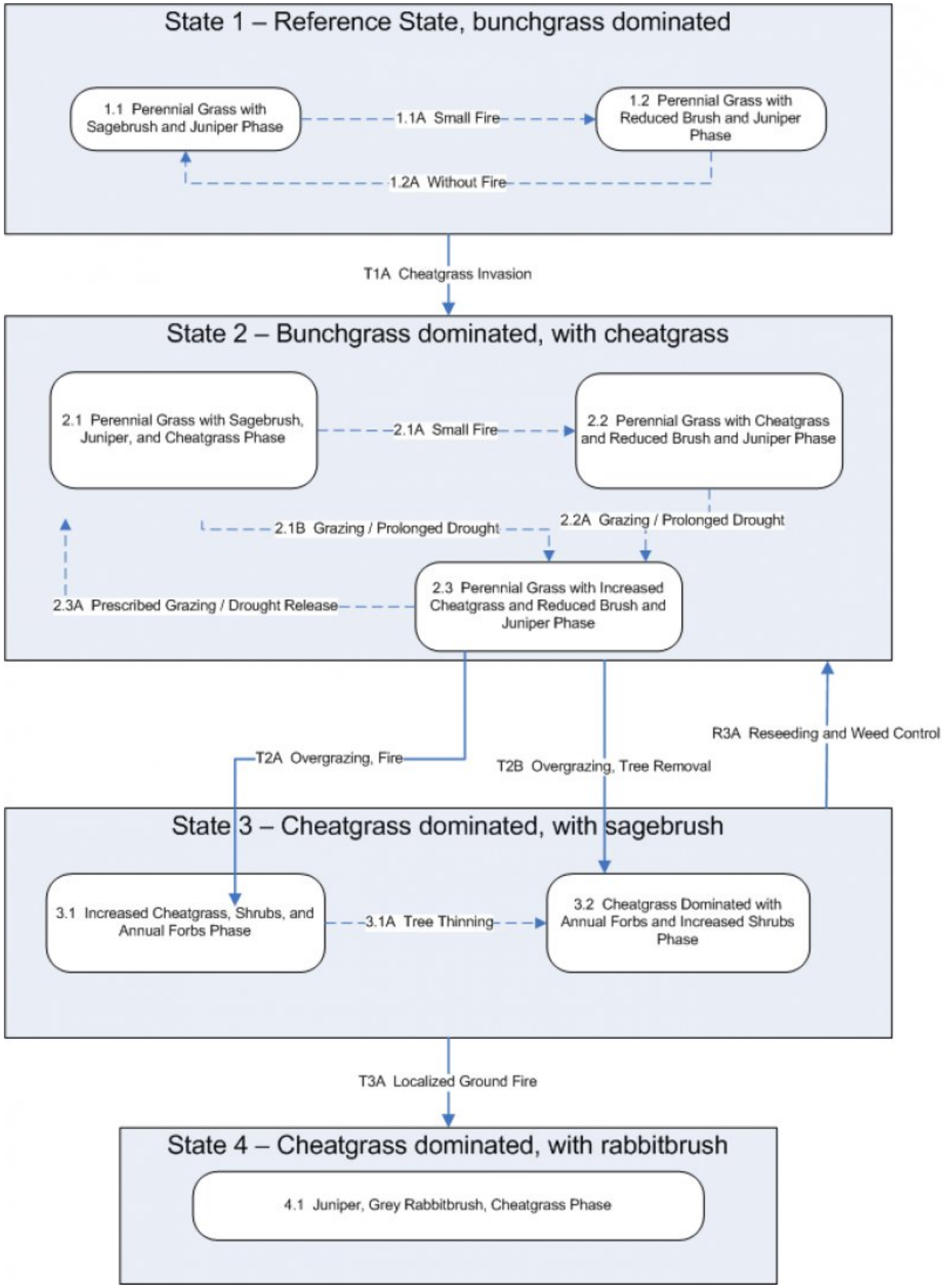
Three primary disturbances were identified for this site: grazing, tree cutting, and the infrequent small area fire.

Inappropriate grazing causes a reduction in needle and thread (HECOC8), 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 phlox (LIPU11) increases and grasses decline. Squirreltail (ELEL5) may increase initially as needle and thread declines, however with continued overgrazing this species will also decline. Eventually deep rooted perennial bunchgrasses (DRPBG) are eliminated. Cheatgrass becomes dominate along with rubber 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 rubber 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 phlox.

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. The understory is composed of two distinct communities in complex with each other. Under the trees and within influence of the crown is an Idaho fescue dominated ground layer. The interspaces between the trees (openings) are dominated by mountain and basin big sagebrush, needle and thread, and several other minor species such as Indian ricegrass, western needlegrass, and Thurber's needlegrass. Vegetative composition is approximately 75% grasses, 5% forbs, and 20% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	504	673	841
Shrub/Vine	101	135	168
Tree	34	45	56
Forb	34	45	56
Total	673	898	1121

Figure 5. Plant community growth curve (percent production by month).
OR4011, B10A Mesic, Mid Elev., N/A, Good Condition. RPC Growth Curve
(Pumice Flats).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	2	10	58	28	2	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	Perennial, bunch-grass, deep-rooted			269–448	
	needle and thread	HECO26	<i>Hesperostipa comata</i>	269–448	–
2	Perennial, bunch-grass, deep-rooted			67–112	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	67–112	–
3	Perennial, bunch-grass, deep-rooted			101–168	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	34–56	–
	western needlegrass	ACOCO	<i>Achnatherum occidentale</i> ssp. <i>occidentale</i>	34–56	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	34–56	–
4	Perennial, bunch-grass, deep-rooted			61–101	
	thickspike wheatgrass	ELLA3	<i>Elymus lanceolatus</i>	20–34	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	13–22	–
	Ross' sedge	CARO5	<i>Carex rossii</i>	13–22	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	7–11	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	7–11	–

Forb					
9	Other perennial forbs			34–56	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–6	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–6	–
	larkspur	DELPH	<i>Delphinium</i>	0–6	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–6	–
	starlily	LEUCO	<i>Leucocrinum</i>	0–6	–
	lupine	LUPIN	<i>Lupinus</i>	0–6	–
	phacelia	PHACE	<i>Phacelia</i>	0–6	–
	spreading phlox	PHDI3	<i>Phlox diffusa</i>	0–6	–
Shrub/Vine					
11	Dominant evergreen shrubs			47–78	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	24–78	–
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	24–78	–
12	Sub-dominant evergreen shrubs			34–56	
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	34–56	–
15	Other shrubs			20–34	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	0–11	–
	granite prickly phlox	LIPU11	<i>Linanthus pungens</i>	0–11	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–11	–
	desert gooseberry	RIVE	<i>Ribes velutinum</i>	0–11	–
	spineless horsebrush	TECA2	<i>Tetradymia canescens</i>	0–11	–
Tree					
16	Dominant evergreen trees			34–56	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	34–56	–

Animal community

This site is suitable to grazing by livestock.

Wildlife associated with this site include Mule deer, coyote, and passerine birds.

Hydrological functions

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

Wood products

Firewood and fence posts.

Other products

This site is usually without natural sources of livestock water.

Other information

For range seedings, recommended species are crested wheatgrass, Siberian wheatgrass, thickspike wheatgrass,

tall wheatgrass, and Indian ricegrass.

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

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):** 20-30%

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

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

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 to moderately resistant to erosion: aggregate stability = 2-5
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** single grain to moderate very fine granular structure, dry color value 4-5, 7-12 inches thick; low organic matter content (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:** Significant ground cover (60-70%) and moderate slopes (0-10%) effectively 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
- 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
-
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: 1000, Normal: 800, Unfavorable: 600 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
