USDA Natural Resources Conservation Service

Ecological site R010XA021OR
Juniper Shallow Pumice Hills 10-12 PZ

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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.

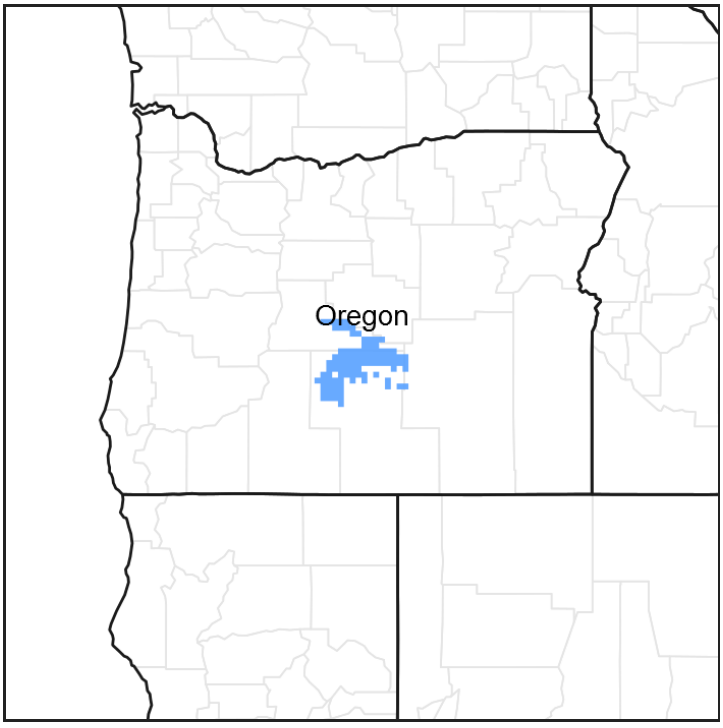


Figure 1. Mapped extent

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

R010XA002OR	**Juniper Shrubby Pumice Hills 8-10 PZ**
R010XA026OR	**Juniper Pumice North 10-12 PZ**

Similar sites

R010XA027OR	**Juniper Pumice Flat 8-10 PZ**
R010XA002OR	**Juniper Shrubby Pumice Hills 8-10 PZ**
R010XA009OR	**Juniper Shrubby Pumice Flat 10-12 PZ**

Table 1. Dominant plant species

Tree	(1) *Juniperus occidentalis*
Shrub	(1) *Artemisia tridentata ssp. vaseyana*
Herbaceous	(1) *Pseudoroegneria spicata ssp. spicata*

Physiographic features

This site occurs on hills, plateaus, and gentle slopes of volcanic uplands.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Plateau
Elevation	1,219–1,402 m
Slope	0–20%
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 October and June, mostly in the form of rain and snow. The soil temperature regime is frigid. The average annual air temperature is 46 degrees F. with extreme temperatures ranging from -25 to 100 degrees F. The frost free period is 50 to 90 days. The optimum period for plant growth is from April through early July.

Table 3. Representative climatic features

Frost-free period (average)	90 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 moderately deep, well drained and medium textured. They are generally formed in volcanic ash and residuum. Permeability is moderate and the available water holding capacity is 3 to 5 inches for the profile.

Table 4. Representative soil features

Drainage class	Well drained
Permeability class	Moderate
Soil depth	51–102 cm
Available water capacity (0-101.6cm)	7.62–12.7 cm

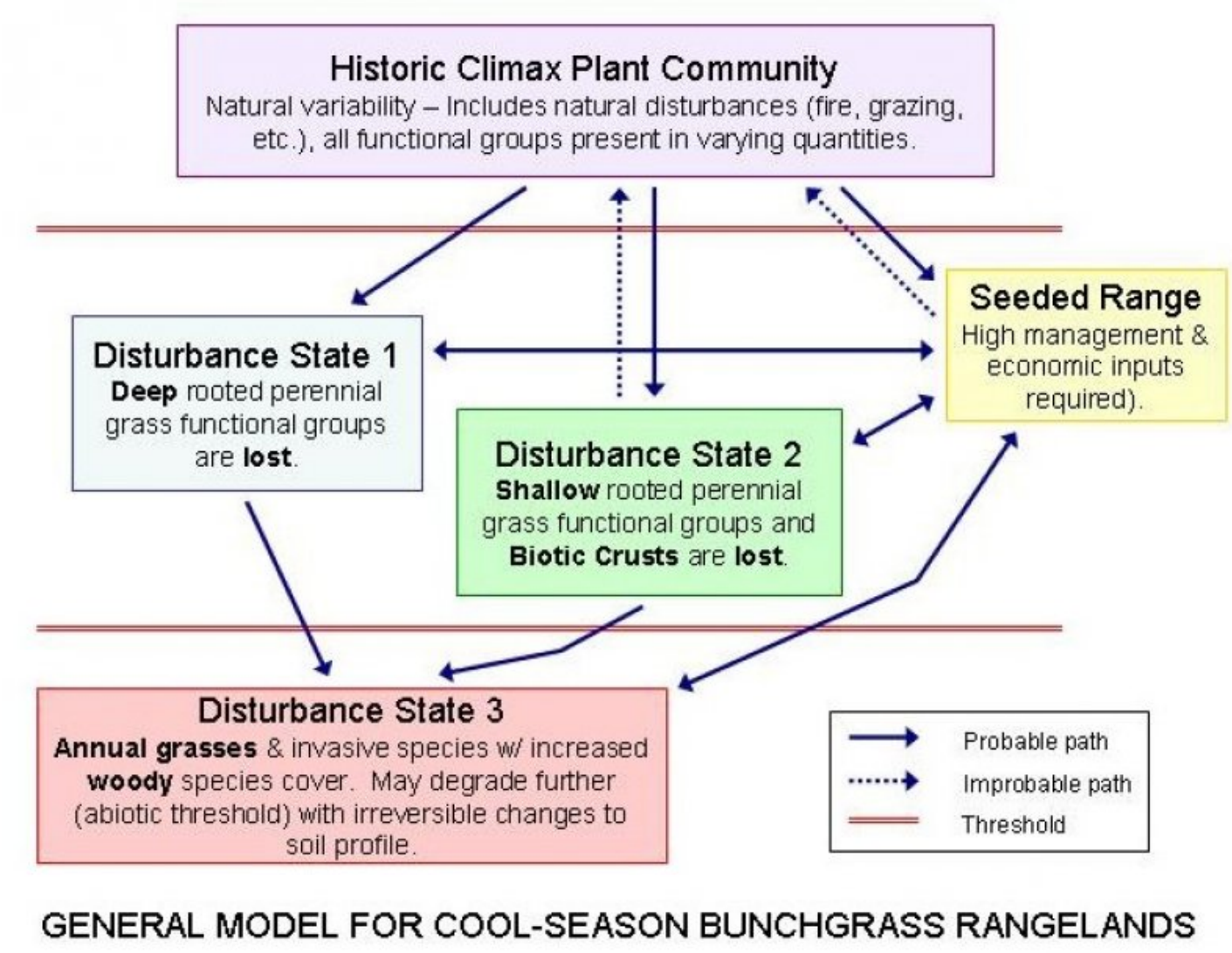
Ecological dynamics

Burning decreases juniper, big sagebrush and Idaho fescue while increasing rabbitbrush. Overgrazing causes a decline of Idaho fescue and encourages increases in bottlebrush squirreltail, western needlegrass, thickspike wheatgrass, big sagebrush, and rabbitbrush.

Increasers and invaders include cheatgrass, mustard, tarweed, willowweed, and annual buckwheat.

Warmer locations than typical may have needle and thread and greater amount of Indian ricegrass.

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 western juniper, mountain big sagebrush, and Idaho fescue. Thurber needlegrass, thickspike wheatgrass, western needlegrass, and Ross sedge are common in the stand. 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	520	619	717
Shrub/Vine	72	130	188
Tree	90	112	135
Forb	9	31	54
Total	**691**	**892**	**1094**

Figure 4. Plant community growth curve (percent production by month). OR4071, B10A Shallow Pumice RPC. Shallow Pumice RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	20	50	20	5	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**			448–538	
	Idaho fescue	FEID	*Festuca idahoensis*	448–538	–
2	**Sub-dominant deep rooted perennial grasses**			63–135	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	18–45	–
	Ross' sedge	CARO5	*Carex rossii*	9–18	–
	squirreltail	ELEL5	*Elymus elymoides*	9–18	–
	tufted wheatgrass	ELMA7	*Elymus macrourus*	9–18	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	9–18	–
	western needlegrass	ACOC3	*Achnatherum occidentale*	9–18	–
4	**Sub-dominant shallow rooted perennial grasses**			9–45	
	prairie Junegrass	KOMA	*Koeleria macrantha*	9–45	–
Forb					
9	**Other perennial forbs**			9–54	
	common yarrow	ACMI2	*Achillea millefolium*	0–6	–
	pussytoes	ANTEN	*Antennaria*	0–6	–

	fleabane	ERIGE2	*Erigeron*	0–6	–
	buckwheat	ERIOG	*Eriogonum*	0–6	–
	common starlily	LEMO4	*Leucocrinum montanum*	0–6	–
	desertparsley	LOMAT	*Lomatium*	0–6	–
	lupine	LUPIN	*Lupinus*	0–6	–
	phacelia	PHACE	*Phacelia*	0–6	–
	spreading phlox	PHDI3	*Phlox diffusa*	0–6	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			45–135	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	45–135	–
12	**Sub-dominant evergreen shrubs**			27–54	
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	9–18	–
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	9–18	–
Tree					
16	**Dominant evergreen trees**			90–135	
	western juniper	JUOC	*Juniperus occidentalis*	90–135	–

Animal community

Big game species use this site in the fall, winter and spring.

Hydrological functions

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

Wood products

Firewood, fence posts and other specialty products.

Other products

Primary forage species are Idaho fescue and Thurber needlegrass.

Other information

For range seedings, recommened species include crested wheatgrass, Siberian wheatgrass, Indian ricegrass, and sheep fescue.

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	08/03/2012
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, Severe 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):** 5-10%

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):** Moderately to 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):** Shallow or moderately deep, well drained, sandy loams; Low OM (1-2%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (65-80%) and moderate slopes (to 20%) effectively 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: Idaho fescue > Mountain big sagebrush = Western Juniper > Thurbers needlegrass > Prairie junegrass + other forbs > other dominant grasses > Granite prickly phlox > other dominant shrubs

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

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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):** Pavorable: 1000, Normal: 800, Unfavorable: 600 lbs/acre/year at high RSI (HCPC)

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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:** 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.

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

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