

Ecological site R010XA007OR Juniper Pumice South 9-12 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.

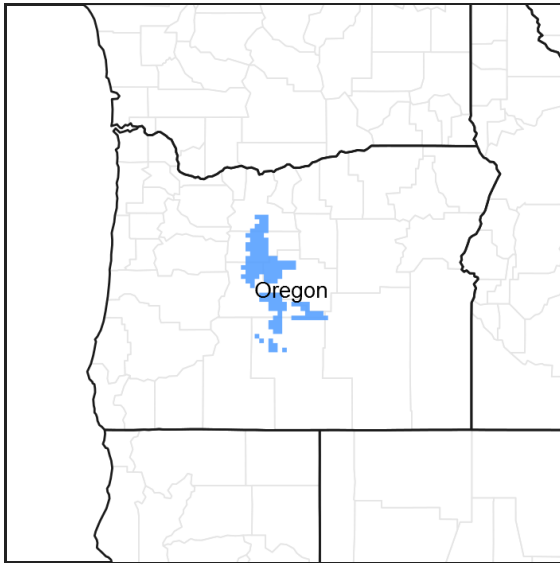


Figure 1. Mapped extent

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
R010XA009OR	Juniper Shrubby Pumice Flat 10-12 PZ
R010XA023OR	Juniper Lava Shrubby Blisters 10-12 PZ

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>Pseudoroegneria spicata</i> ssp. <i>spicata</i>

Physiographic features

This site occurs on moderately steep south facing slopes of canyons, buttes, and ridges. Slopes range from 15 to 65 percent, but are typically from 30 to 60 percent. Elevations range from 2500 feet to 4500 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon (2) Butte (3) Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	762–1,372 m
Slope	15–65%
Aspect	S

Climatic features

The annual precipitation ranges from 9 to 12 inches which occur mainly between the months of October and June, mostly in the form of snow and spring-fall rains. The soil temperature is 49 degrees F. with extreme temperatures ranging from -20 to 104 degrees F. The frost free period is 80 to 110 days. The optimum period for plant growth is from mid-March through June.

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	150 days
Precipitation total (average)	305 mm

Influencing water features

Soil features

The soils of this site have sandy loam surface layers and loam subsoils. They are usually stony to very stony on the surface and throughout the profile. Colluvial rock material limits the effective depth to less than 30 inches. Depth to bedrock ranges from 10 to 40 inches. Permeability is moderate to rapid and the available water holding capacity is 2 to 6 inches for the profile. The potential for water erosion is high.

Table 4. Representative soil features

Parent material	(1) Colluvium–volcanic breccia (2) Colluvium–shale (3) Residuum–volcanic breccia
Surface texture	(1) Very gravelly loam (2) Very stony loam (3) Very stony sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderately slow to moderately rapid
Soil depth	25–102 cm
Surface fragment cover ≤3"	0–35%
Surface fragment cover >3"	0–40%
Available water capacity (0-101.6cm)	3.3–13.21 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 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)	10-60%
Subsurface fragment volume >3" (Depth not specified)	0-35%

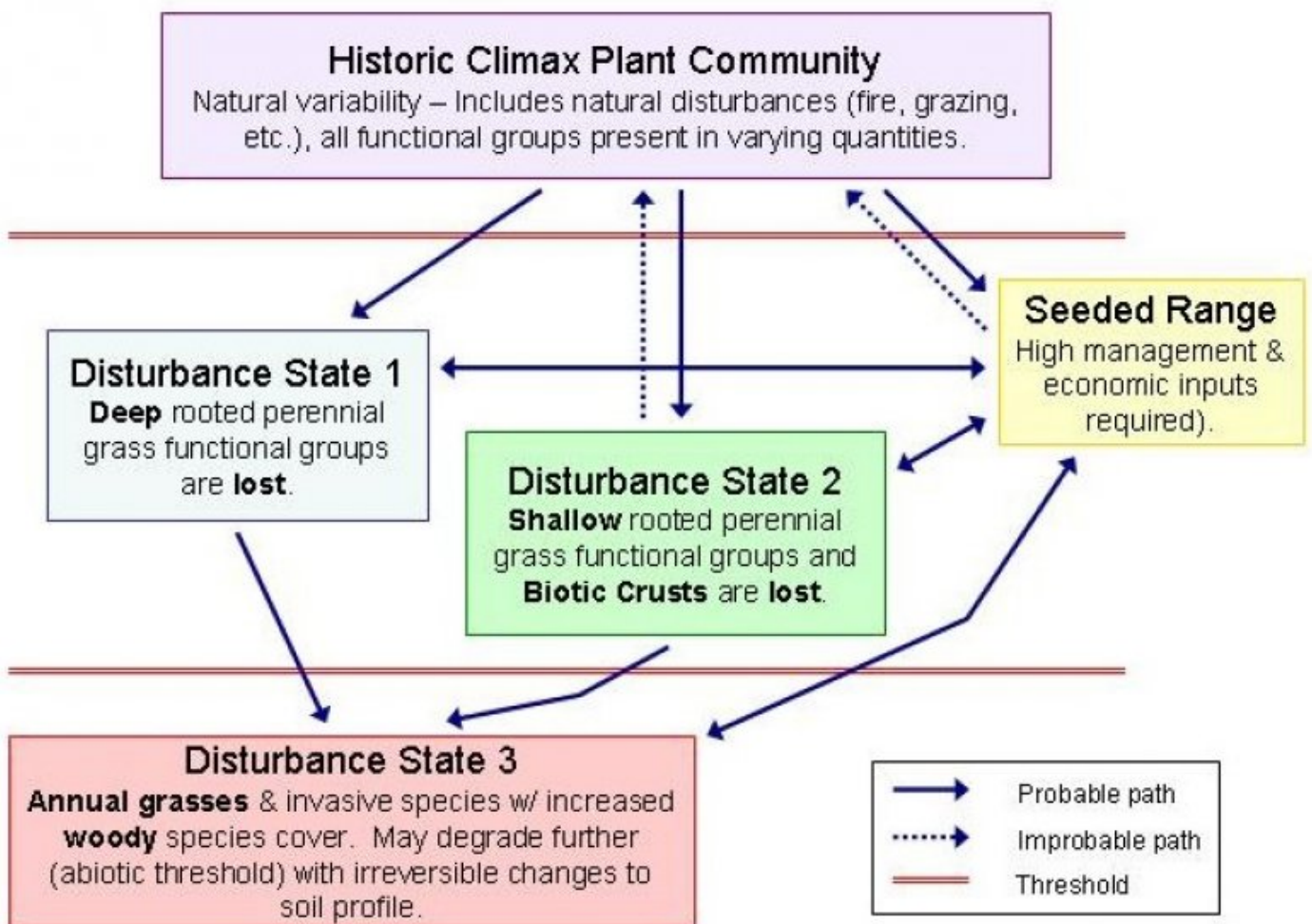
Ecological dynamics

Fire causes a decline in juniper and sagebrush, but increases in rabbitbrush. Cheatgrass patches occur around the base of burned out juniper.

Bluebunch wheatgrass is the dominant grass but Thurber needlegrass increases with more sandy surface textures. Basin big sagebrush and Mountain big sagbrush are represented in the plant community but both species may occur alone. Antelope bitterbrush and western juniper may increase as precipitation approaches 12 inches. The juniper component is greater in areas with larger amounts of coarse fragments.

Stocking rate for the reference plant community calculates to 6 acres per cow per year. As the site deteriorates, this ecosite will require 9 to 14 acres per cow per year in moderate similarity to the reference plant community and a minimum of 50 acres per cow per year in low similarity.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference State

Community 1.1
Reference Plant Community

The potential native plant community is dominated by western juniper and bluebunch wheatgrass. Basin big sagebrush and/or Mountain big sagebrush (NTE 10% combined), antelope bitterbrush and Sandberg bluegrass are common in the stand.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	420	588	757
Shrub/Vine	84	118	151
Tree	28	39	50
Forb	28	39	50
Total	560	784	1008

Figure 5. Plant community growth curve (percent production by month).
OR4021, B10A Mesic, Mid Elev., South, Good Condition. HCPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	2	30	60	6	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	Dominant deep rooted perennial grasses			471–549	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	471–549	–
2	Sub-dominant deep rooted perennial grasses			31–55	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	8–24	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	8–16	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	16	–
3	Dominant shallow rooted perennial grasses			39–78	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	39–78	–
4	Sub-dominant shallow rooted perennial grasses			8	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	8	–
Forb					
9	Other perennial forbs			8–39	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–6	–
	woollypod milkvetch	ASPU9	<i>Astragalus purshii</i>	0–6	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0–6	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–6	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–6	–
	phacelia	PHACE	<i>Phacelia</i>	0–6	–
	phlox	PHLOX	<i>Phlox</i>	0–6	–
Shrub/Vine					
11	Dominant evergreen shrubs			39–78	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	39–78	–
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	39–78	–
12	Sub-dominant evergreen shrubs			8–39	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	8–39	–
15	Other shrubs			8–31	
	Mathias' eryngo	ERMA10	<i>Eryngium mathiasiae</i>	0–6	–
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	0–6	–
	green rabbitbrush	ERTE18	<i>Ericameria teretifolia</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

Because of this site's south aspect, it is very important to big game during the winter and early spring.

Hydrological functions

The soils are in hydrologic group B. The soils of this site have slow to very rapid runoff potential.

Wood products

This site will yield firewood and other specialty products.

Other products

This site is best suited to use by livestock in spring and fall.

Other information

Adapted species for seedings include crested wheatgrass and Siberian wheatgrass. Due to the shallow and stony soils, this site has low potential for range seeding.

Other references

B10B site Droughty South 9-12 PZ #010XB042OR is similar to this site.

Contributors

Barrett, Carlson
Bob Gillaspay
Cici Brooks
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 Fransen
Contact for lead author	Oregon State Rangeland Management Specialist
Date	03/15/2005
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, Slight 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):** 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, Severe wind erosion hazard
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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):** Slightly to moderately resistant to erosion: aggregate stability = 2-4
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Weak very fine granular structure to moderate medium subangular blocky structure. A-horizon dry color value from 4 to 6 with a thickness of 9 - 13 inches. Low surface organic matter (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 (45-60%) and moderately steep to steep slopes (30-60%) slightly to 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
-
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: Moderate to deep-rooted perennial bunch grasses >> shallow rooted perennial bunch grasses.
- Sub-dominant: Evergreen shrubs and trees.
- Other: Forbs and deciduous 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: 900, Normal: 700, Unfavorable: 500 lbs/acre/year RPC.
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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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