USDA Natural Resources
Conservation Service

Ecological site R010XA018OR
Juniper Shrubby Loam 10-12 PZ

Accessed: 05/11/2025

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.

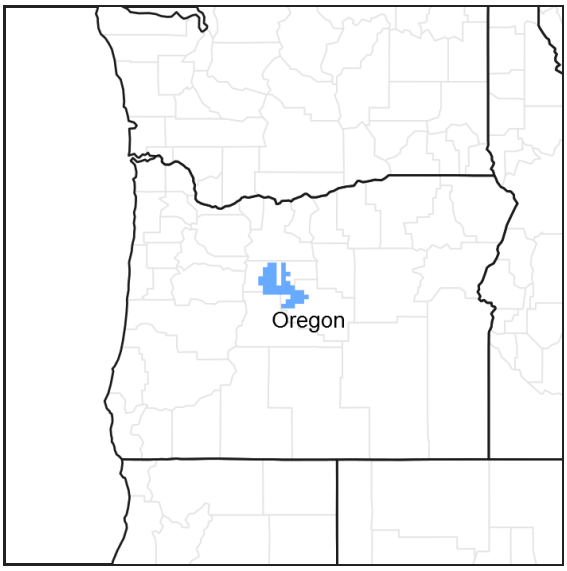


Figure 1. Mapped extent

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

R010XA009OR	**Juniper Shrubby Pumice Flat 10-12 PZ**

Similar sites

R010XA019OR	**Shrubby Loam 8-12 PZ**
R010XA001OR	**Loamy 8-10 PZ**

Table 1. Dominant plant species

Tree	(1) *Juniperus occidentalis*
Shrub	(1) *Purshia tridentata* (2) *Artemisia tridentata*
Herbaceous	(1) *Pseudoroegneria spicata ssp. spicata* (2) *Festuca idahoensis*

Physiographic features

This site occurs on plateaus, ridgetops, and gently sloping to undulating uplands.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Ridge
Elevation	2,000–4,000 ft
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 mesic. The average annual air temperature is 44 degrees F. with extreme temperatures ranging from -20 to 105 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)	0 days
Precipitation total (average)	12 in

Influencing water features

Soil features

The soils of this site are shallow to moderately deep, well drained and medium textured. They are generally formed from loess and the underlying bedrock. Permeability is moderately slow and the available water holding capacity is 3 to 6 inches for the profile. The potential for water or wind erosion is low.

Table 4. Representative soil features

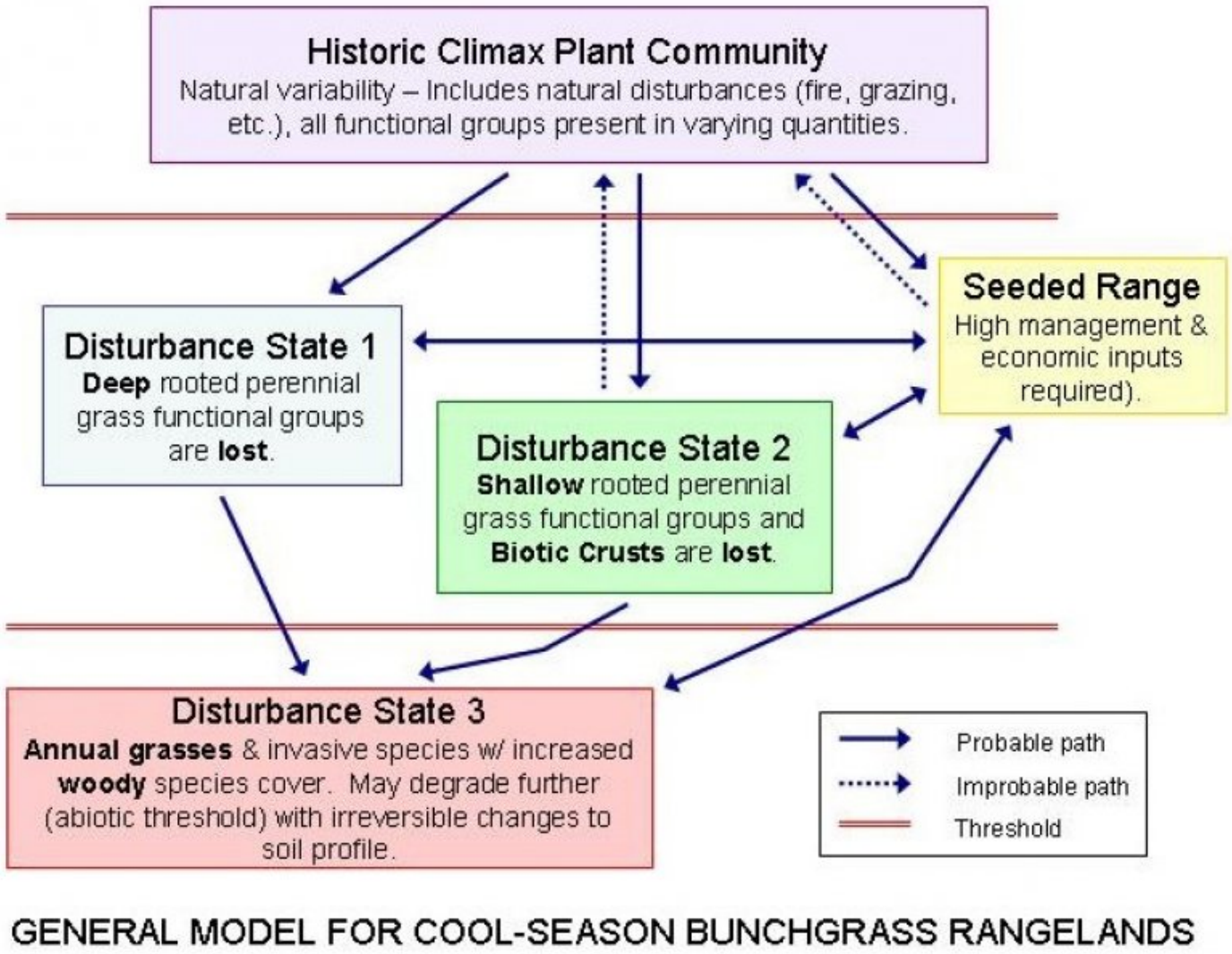
Drainage class	Well drained
Permeability class	Moderately slow
Soil depth	20–40 in
Available water capacity (0-40in)	3–6 in

Ecological dynamics

Overgrazing causes declines in bluebunch wheatgrass and Idaho fescue while Sandberg bluegrass, big sagebrush, and Thurber needlegrass increase. Burning results in a decline of juniper, sagebrush, bitterbrush and sometimes fescue, followed by invasions of weeds and rabbitbrush.

Bluebunch wheatgrass decreases while Idaho fescue and Thurber needlegrass increases on more coarse textured soils or on northerly aspects.

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 western juniper, bitterbrush, big sagebrush, bluebunch wheatgrass, Idaho fescue, and Sandberg bluegrass. Thurber needlegrass and Junegrass are normally present but minor in the stand. A wide variety of forbs such as milkvetch, lupine, fleabane, yarrow, lomatium and hawksbeard occur along with small amounts of buckwheat. The vegetative composition is approximately 80% grasses, 5% forbs, and 15% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	486	671	855
Shrub/Vine	99	171	243
Tree	45	68	90
Forb	9	23	36
Total	**639**	**933**	**1224**

Figure 3. Plant community growth curve (percent production by month). OR4001, B10A Mesic, Low Elev., N/A, Sandy, Good Condition. B10A Mesic,

Low Elev., N/A, Sandy, Good Condition RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	20	55	15	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 (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant, perennial, deep rooted grasses**			405–675	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	270–405	–
	Idaho fescue	FEID	*Festuca idahoensis*	135–270	–
2	**Sub-dominant, perennial, deep rooted grasses**			27–63	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	18–45	–
	Ross' sedge	CARO5	*Carex rossii*	9–18	–
4	**Sub dominant, perennial, shallow rooted grasses**			45–90	
	Sandberg bluegrass	POSE	*Poa secunda*	45–90	–
5	**All other perennial grasses**			9–27	
	tufted wheatgrass	ELMA7	*Elymus macrourus*	2–7	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	2–7	–
	basin wildrye	LECI4	*Leymus cinereus*	2–7	–
	Cusick's bluegrass	POCU3	*Poa cusickii*	2–7	–
Forb					
9	**All other perennial forbs**			9–36	
	common yarrow	ACMI2	*Achillea millefolium*	1–3	–
	agoseris	AGOSE	*Agoseris*	1–3	–
	pussytoes	ANTEN	*Antennaria*	1–3	–
	Palouse milkvetch	ASAR7	*Astragalus arrectus*	1–3	–
	Idaho milkvetch	ASCO11	*Astragalus conjunctus*	1–3	–
	woollypod milkvetch	ASPU9	*Astragalus purshii*	1–3	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	1–3	–
	fleabane	ERIGE2	*Erigeron*	1–3	–
	desertparsley	LOMAT	*Lomatium*	1–3	–
	phacelia	PHACE	*Phacelia*	1–3	–
	spreading phlox	PHDI3	*Phlox diffusa*	1–3	–
	salsify	TRPO	*Tragopogon porrifolius*	1–3	–
Shrub/Vine					
11	**Dominant, perennial evergreen shrubs**			90–225	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	45–135	–
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	45–90	–
15	**All other perennial shrubs**			9–18	
	slender buckwheat	ERMI4	*Eriogonum microthecum*	1–2	–
	snow buckwheat	ERNI2	*Eriogonum niveum*	1–2	–
	wax currant	RICE	*Ribes cereum*	1–2	–
	desert gooseberry	RIVE	*Ribes velutinum*	1–2	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	1–2	–
Tree					
16	**Dominant, perennial evergreen trees**			45–90	
	western juniper	JUOC	*Juniperus occidentalis*	45–90	–

Animal community

Mule deer, hawks, coyotes, rabbits, and rodents

Hydrological functions

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

Wood products

Fence posts, firewood, and specialty products.

Other products

This site is suited to use by livestock in all seasons. The key forage species are bluebunch wheatgrass and Idaho fescue.

Other information

Species suitable for range seedings inclue crested wheatgrass, Siberian wheatgrass, secar bluebunch wheatgrass, sheep fescue, and pubescent wheatgrass.

Other references

B10B sites also associated with this site include:
Droughty North 9-12 PZ #010XB084OR
JD North 9-12 PX

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, 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):** 5-10%

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, Slight 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):** Significantly resistant to erosion; aggregate stability = 4-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow t moderately deep, well drained loams and cobbly loams; moderate OM (1-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (75-85%) and level to gently rolling slopes (0-20%) 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: Bluebunch wheatgrass > Idaho fescue > Sandberg bluegrass = Basin big sagebrush > Antelope bitterbrush = Western Juniper > other dominant grasses > other forbs > other grasses > other shrubs

    Sub-dominant:

    Other:

    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):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 1100, Normal: 900, Unfavorable: 700 lbs/acre/year at high RSI (HCPC)

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.

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