USDA Natural Resources
Conservation Service

Ecological site R010XB013OR
JD Shrubby Loam 12-16 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

R010XB032OR	**JD Very Shallow 12-16 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Purshia tridentata*
Herbaceous	(1) *Festuca idahoensis* (2) *Pseudoroegneria spicata*

Physiographic features

This site occurs on flat plains and gently rolling areas.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Hill
Flooding frequency	None

Ponding frequency	None
Elevation	457–1,219 m
Slope	0–20%
Ponding depth	0 cm
Water table depth	0 cm
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 12 to 16 inches. It occurs mainly between the months of October and June 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 -16 to 103 degrees F. The frost free period is 100 to 170 days. The optimum period for plant growth is from April through early July.

Table 3. Representative climatic features

Frost-free period (average)	170 days
Freeze-free period (average)	0 days
Precipitation total (average)	406 mm

Influencing water features

Soil features

The soils of this site are moderately deep to deep, well drained and medium textured. They are generally formed in volcanic materials and may be overlain by glacial outwash. Permeability is moderate to moderately slow and the available water holding capacity is 3.7 to 8.8 inches for the profile. The potential for water or wind erosion is low.

Table 4. Representative soil features

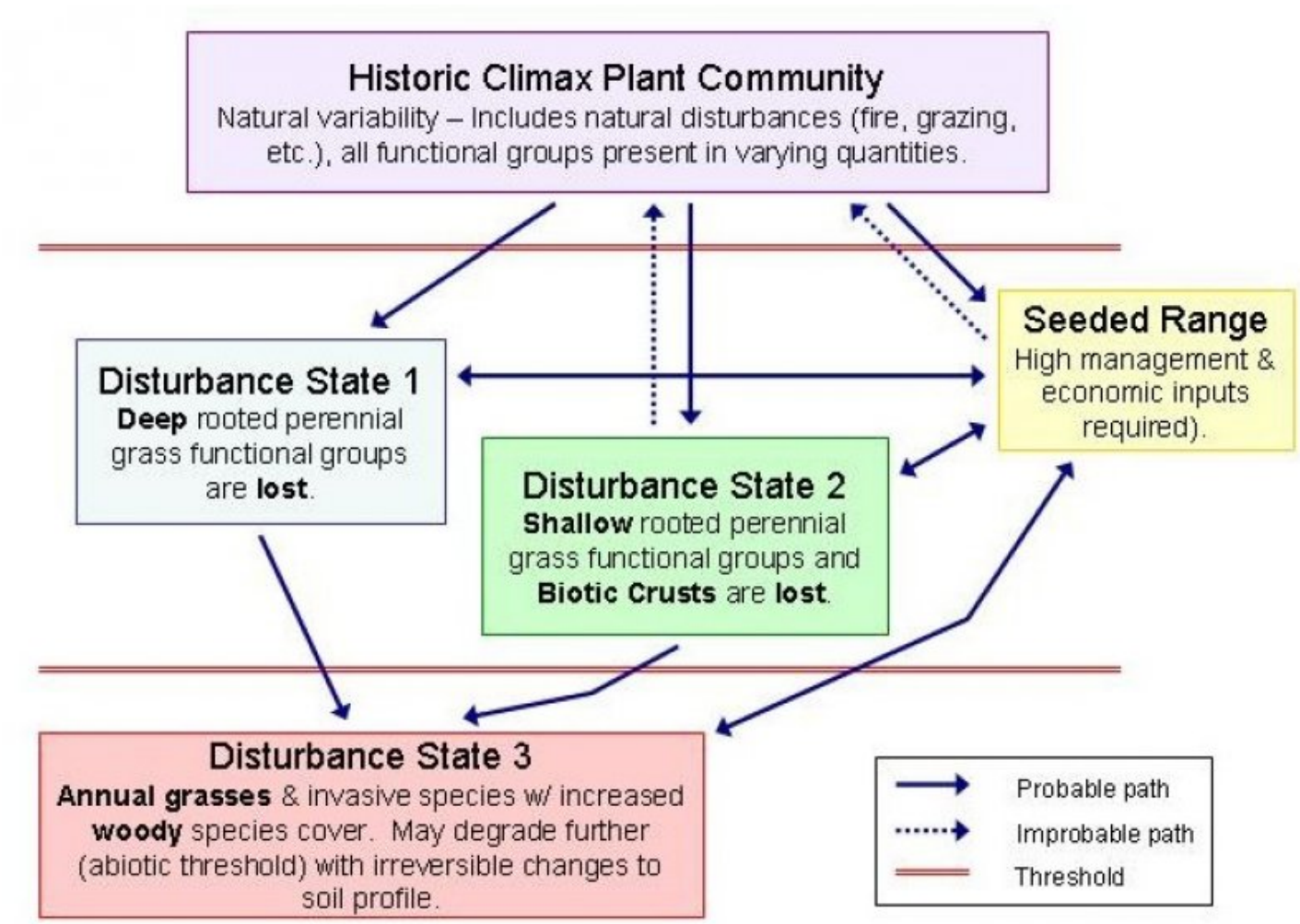
Surface texture	(1) Silt loam
Drainage class	Well drained
Permeability class	Moderate to moderately slow
Soil depth	51–203 cm
Surface fragment cover <=3"	0–17%
Surface fragment cover >3"	0–15%
Available water capacity (0-101.6cm)	9.4–22.35 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.1–7.3
Subsurface fragment volume >3" (Depth not specified)	2–34%

Ecological dynamics

Deep soils, especially in moist areas, may have greater shrub cover than moderately deep soils.

Burning usually reduces bitterbrush composition and Idaho fescue, but stimulates bluebunch wheatgrass production and cover. Overgrazing may reduce Idaho fescue and/or bluebunch wheatgrass and bitterbrush, depending on the season of use. Increasers and invaders include cheatgrass, soft chess, squirreltail, bushy birdbeak, filaree, hemizonia, pepperweed, willowweed, and snakeweed. Western juniper may invade with prolonged fire suppression.

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 of this site is dominated by Idaho fescue and bluebunch wheatgrass. Sandberg bluegrass and Junegrass are prominent in the stand (about 2-5% each). A variety of perennial forbs occur throughout the stand such as balsamroot, lupine, phlox, paintbrush, and yarrow. Bitterbrush dominates the aspect and buckwheat is common. Vegetative composition is approximately 75% grasses, 10% forbs, and 15% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	757	925	1093
Shrub/Vine	151	185	219
Forb	101	123	146
Total	**1009**	**1233**	**1458**

Figure 5. Plant community growth curve (percent production by month). OR4151, B10 JD Clayey, Lmy, Sh North. B10B JD Clayey, Lmy, Sh North 12 - 16 PZ RPC.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	30	30	15	5	5	5	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, perennial deep rooted grasses**			673–998	
	Idaho fescue	FEID	*Festuca idahoensis*	471–706	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	202–291	–
2	**Sub-dominant, perennial deep rooted grasses**			50–73	
4	**Sub-dominant, perennial shallow rooted grasses**			50–73	
	Sandberg bluegrass	POSE	*Poa secunda*	50–73	–
Forb					
7	**Dominant, perennial forbs**			50–73	
	milkvetch	ASTRA	*Astragalus*	50–73	–
8	**Sub-dominant, perennial forbs**			50–73	
	common yarrow	ACMI2	*Achillea millefolium*	12–25	–
	fleabane	ERIGE2	*Erigeron*	12–25	–
	lupine	LUPIN	*Lupinus*	12–25	–
	common yarrow	ACMI2	*Achillea millefolium*	12–25	–
	St. Catherine's lace	ERGI2	*Eriogonum giganteum*	12–25	–
	lupine	LUPIN	*Lupinus*	12–25	–
9	**All other perennial forbs**			11–101	
	agoseris	AGOSE	*Agoseris*	1–11	–
	pussytoes	ANTEN	*Antennaria*	1–11	–
	Indian paintbrush	CASTI2	*Castilleja*	1–11	–
	trumpet	COLLO	*Collomia*	1–11	–
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	1–11	–
	desertparsley	LOMAT	*Lomatium*	1–11	–
	nineleaf biscuitroot	LOTR2	*Lomatium triternatum*	1–11	–
	spreading phlox	PHDI3	*Phlox diffusa*	1–11	–
	cinquefoil	POTEN	*Potentilla*	1–11	–
Shrub/Vine					
11	**Dominant, evergreen perennial shrubs**			101–146	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	101–146	–
14	**Sub-dominant, perennial deciduous shrubs**			50–73	
	slender buckwheat	ERMI4	*Eriogonum microthecum*	25–62	–
15	**All other perennial shrubs**			12–25	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	3–7	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	3–7	–
	rose	ROSA5	*Rosa*	3–7	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	3–7	–

Animal community

This site offers food and cover for mule deer, elk, rodents, and a variety of songbirds. It is an important fall and winter use area for deer and elk.

Hydrological functions

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

Other products

Livestock Grazing:
Key forage species are Idaho fescue and bluebunch wheatgrass (also bitterbrush for late season grazing).

Other information

Recommended seeding species include intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, sheep fescue, bluebunch wheatgrass, tall wheatgrass and big bluegrass.

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	08/06/2012
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):** 5-12%

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, Slight 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):** Moderately resistant to erosion; aggregate stability = 3-5

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Moderately deep to deep, well drained, silt loam and cobbly silt loam surface; moderate OM (2-4%)

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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 (70-80%) and gentle slopes (0-15%) 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: Idaho fescue > Bluebunch wheatgrass > Antelope bitterbrush > other dominant grasses >= dominant forbs > other dominant shrubs = other forbs > other shrubs > Western Juniper

    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):** Favorable: 1300, Normal: 1100, Unfavorable: 900 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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