

Ecological site R010XB051OR

JD Shallow 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.

Associated sites

R010XB022OR	JD Clayey 9-12 PZ JD Clayey 9-12" PZ
R010XB041OR	JD Clayey South 9-12 PZ JD Clayey South 9-12" PZ
R010XB065OR	JD Droughty Clayey North 9-12 PZ JD Clayey North 9-12" PZ

Similar sites

R010XB041OR	JD Clayey South 9-12 PZ JD Clayey South 9-12" PZ (deeper soil, higher production)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on southerly exposures of low elevation canyons and tablelands. Slopes range from 30 to 80 percent. Elevations range from 1300 to 3000 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon
Elevation	396–914 m
Slope	30–80%
Water table depth	152 cm
Aspect	S

Climatic features

The annual precipitation ranges from 9 to 12 inches, most of which occurs in the form of rain during the months of November through April. Localized, occasionally severe, convectional storms occur during the summer. The soil temperature regime is mesic with a mean annual air temperature of 54 degrees F. Temperature extremes range from 105 to +10 degrees F. The frost-free period ranges from 130 to 180 days. The optimum period for plant growth is from April through mid-June.

Table 3. Representative climatic features

Frost-free period (average)	180 days
Freeze-free period (average)	0 days
Precipitation total (average)	305 mm

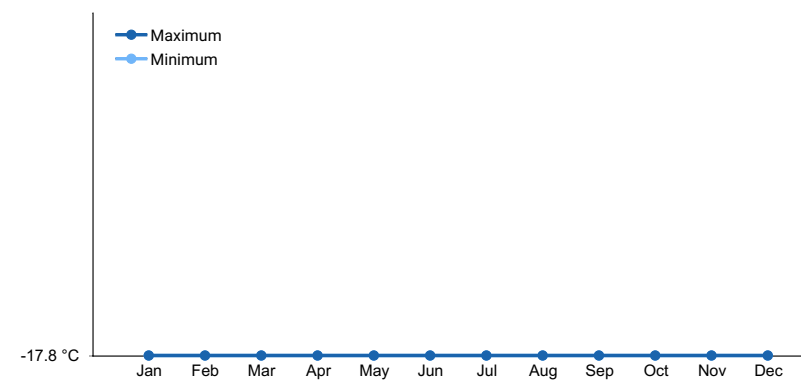


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The soils of this site are typically shallow and well drained. Typically the surface layer is a very stony loam about 9 inches thick. The subsoil is a very gravelly clay loam about 10 inches thick. Depth to basalt bedrock is about 12 to 20 inches. Permeability is moderate. The available water holding capacity is about 2 to 4 inches for the profile. The potential for erosion is severe.

Table 4. Representative soil features

Surface texture	(1) Stony loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate
Soil depth	30–51 cm
Available water capacity (0-101.6cm)	5.08–10.16 cm

Ecological dynamics

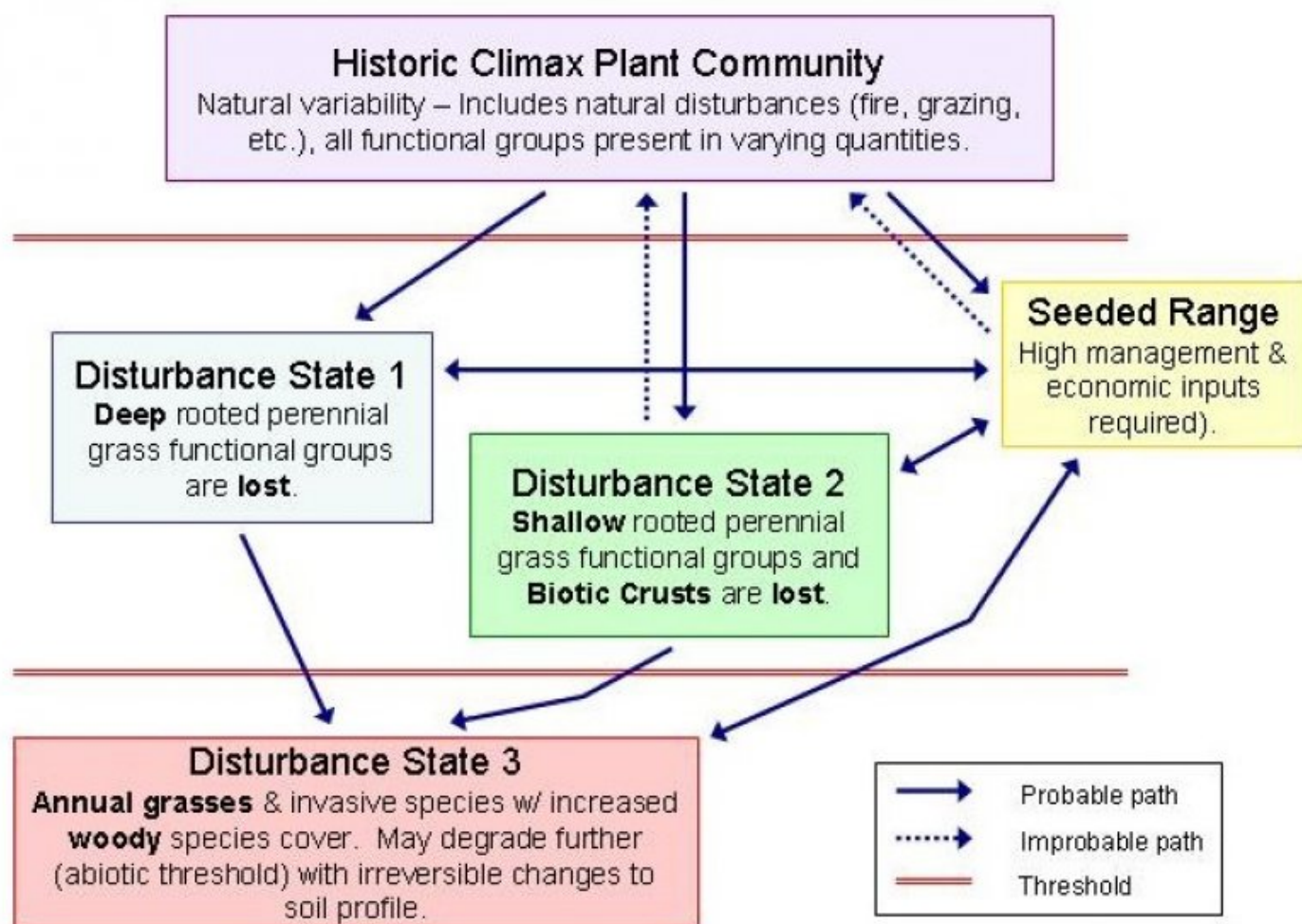
Range in Characteristics:

Gravel or more coarse textured soil surfaces favor an increase in Thurber needlegrass. Sandberg bluegrass is favored as soil depth decreases.

Response to disturbance:

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass decreases while basin big sagebrush and broom snakeweed increase and annuals invade. Bluebunch wheatgrass is the preferred species during spring and summer. Western juniper may increase in the absence of fire. With further deterioration, bare soil interspaces markedly increase and excessive erosion reduces the site productivity and contributes to downstream sedimentation.

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 bluebunch wheatgrass. Basin big sagebrush, Sandberg bluegrass and other shrubs are present in the stand. Vegetative composition of the community is approximately 85 percent grasses, 5 percent forbs, and 10 percent shrubs. Approximate ground cover is 30-40 percent (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	370	469	566
Shrub/Vine	28	48	67
Forb	22	39	56
Tree	6	9	11
Total	426	565	700

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, deep-rooted, dominant			336–448	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	336–448	–
2	Perennial, deep-rooted, sub-dominant			22–73	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	11–45	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	6–17	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	6–11	–
4	Perennial, shallow-rooted, sub-dominant			11–45	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	11–45	–
Forb					
7	Perennial, all, dominant			6–17	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	6–17	–
8	Perennial, all, sub-dominant			11–22	
	milkvetch	ASTRA	<i>Astragalus</i>	6–11	–
	desertparsley	LOMAT	<i>Lomatium</i>	6–11	–
9	Other perennial forbs, all			6–17	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–2	–
	onion	ALLIU	<i>Allium</i>	0–2	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–2	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–2	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–2	–
	phacelia	PHACE	<i>Phacelia</i>	0–2	–
	gooseberryleaf globemallow	SPGR2	<i>Sphaeralcea grossulariifolia</i>	0–2	–
Shrub/Vine					
11	Perennial, evergreen, dominant			17–28	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	17–28	–
14	Perennial, deciduous, sub-dominant			6–11	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	6–11	–
15	Other perennial shrubs, all			6–28	
	rabbitbrush	CHRY9	<i>Chrysothamnus</i>	0–15	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–15	–
Tree					
16	Perennial, evergreen, dominant			6–11	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	6–11	–

Animal community

Livestock Grazing:

This site is suited for use by cattle, sheep, and horses in all seasons, except late winter, under a planned grazing

system. Limitations are clayey soils, steepness of slope, and coarse fragments. Use should be postponed until the soils are firm enough to avoid trampling damage and soil compaction.

Native Wildlife Associated with the Potential Climax Community:

Mule deer
Hawks
Rodents
Songbirds

This site will offer food and cover for mule deer, rodents, and a variety of birds. It is an important wintering area for mule deer.

Hydrological functions

The soils are in hydrologic group D. The soils of this site have high runoff potential.

Wood products

This site is susceptible to increase in western juniper. Where this has occurred, the site will yield fence posts, firewood and specialty products.

Other information

Invasion by western juniper and the subsequent competition for moisture will lead to a reduction of available forage. Overgrazing can easily reduce ground cover and accelerate soil loss. Improving infiltration and permeability, and reducing runoff should be the immediate goal of juniper control.

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 Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to some, significant sheet & rill erosion hazard
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2. **Presence of water flow patterns:** None to some on steeper slopes
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3. **Number and height of erosional pedestals or terracettes:** None to few pedestals
-
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10-35%
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5. **Number of gullies and erosion associated with gullies:** None
-
6. **Extent of wind scoured, blowouts and/or depositional areas:** None to very few, moderate 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):** 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, well drained very stony loams or cobbly loamy coarse sands: low OM (1-2%)
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate ground cover (50-60%) and steep slopes (30-60%) 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: Bluebunch wheatgrass > other grasses > shrubs > forbs
- 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: 800, Normal: 500, Unfavorable: 300 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:** 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
