

Ecological site R010XB025OR
JD Sandy Loam 9-12 PZ

Accessed: 05/17/2024

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on low elevation terraces and gentle slopes. Slopes range from 2 to 15% slopes. Elevation varies from 1300 to 2400 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Fan (3) Terrace
Elevation	396–732 m
Slope	2–15%
Water table depth	152 cm
Aspect	Aspect is not a significant factor

Climatic features

Elevation and aspect effect precipitation and the relative effectiveness of the precipitation and temperatures. Temperature changes can occur rapidly. In additon, the topography also results in localized cold air drainages, along with occasional cold air entrapment and inversions in the valleys. Annual snowfall is 13 inches to 17 inches, with most coming in the winter and spring. Snow cover is of short duration and melts quickly at low elevations.

Table 3. Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	209 days
Precipitation total (average)	305 mm

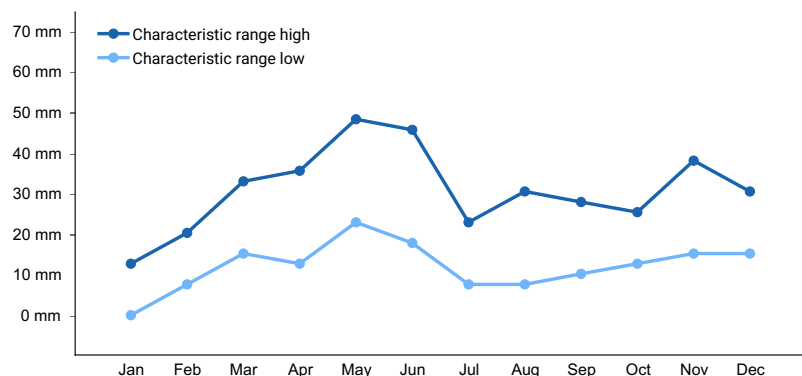


Figure 1. Monthly precipitation range

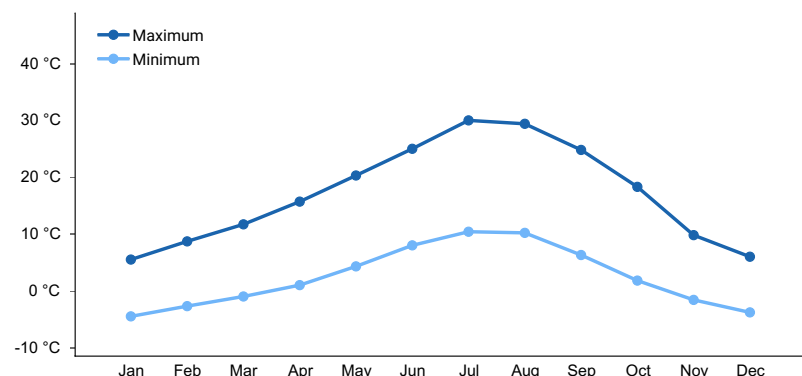


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils on this site are very deep and well drained. Surface textures are sandy loams. The soils are generally aridic. Soils correlated to the site are Broncho very cobbly coarse sandy loam, 2 to 8% slopes; Courtrock very fine sandy loam, 2 to 8% slopes; and Drewsey find sandy loam, 2 to 8% slopes.

Table 4. Representative soil features

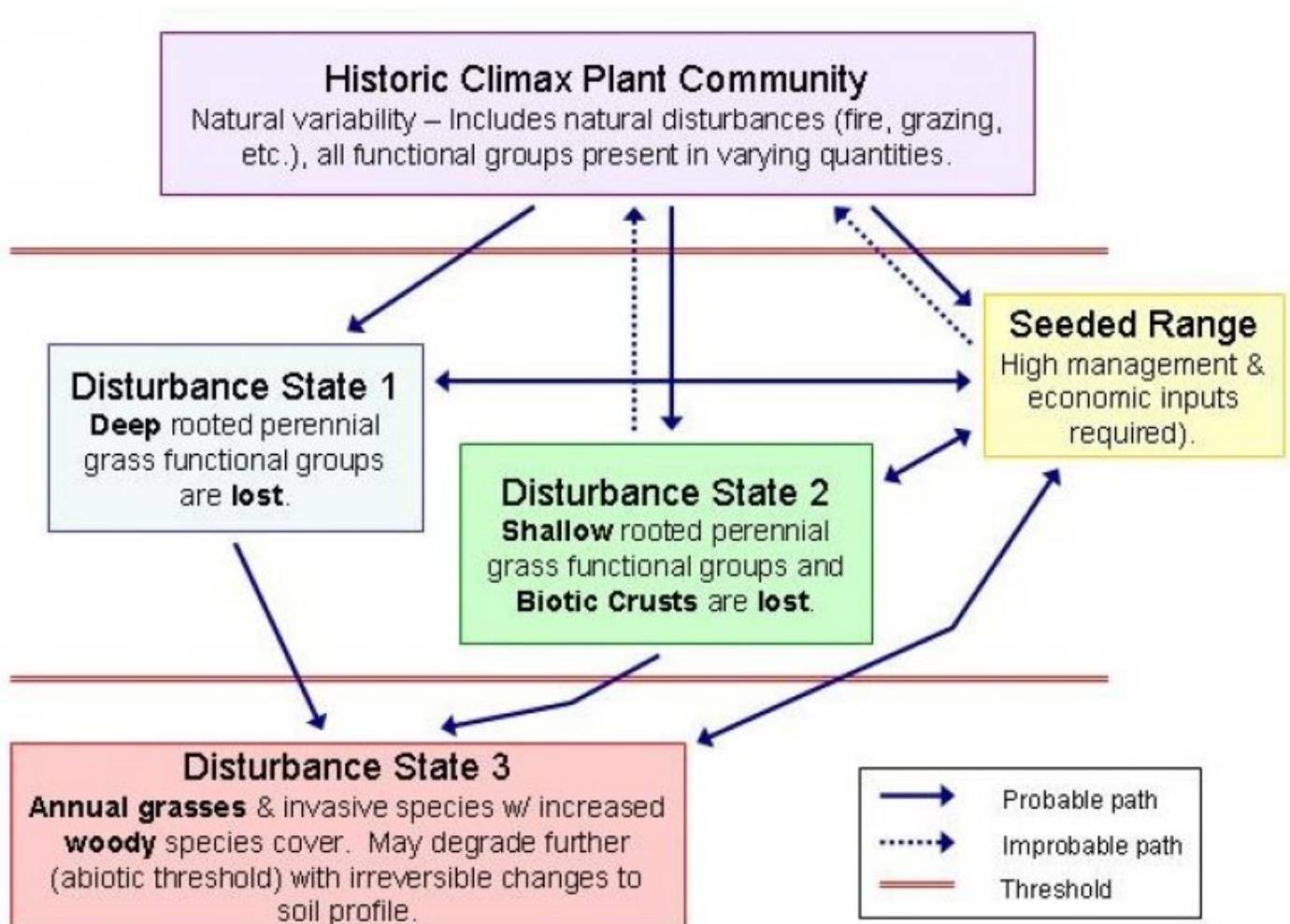
Surface texture	(1) Gravelly very fine sandy loam (2) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderately slow
Soil depth	183 cm
Surface fragment cover <=3"	20%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	5.08–12.7 cm
Calcium carbonate equivalent (0-101.6cm)	0–5%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0

Soil reaction (1:1 water) (0-101.6cm)	7.4–9
Subsurface fragment volume <=3" (Depth not specified)	45%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

This site occurs on low elevation terraces and gentle slopes. Grasses with few forbs and shrubs dominate this plant community. Fluctuations in species composition and relative production may change from year to year dependent upon abnormal precipitation or other climatic factors. Bluebunch wheatgrass increases as the surface texture becomes finer. The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). State and transition pathways: 1. Combination of overgrazing with or without fire. Fire suppresses the encroachment of juniper and shrubs while overgrazing decreases needleandthread and bluebunch wheatgrass and increases sandropseed. 2. Continued overgrazing without fire. 3. Mechanical manipulation of brush and/or trees to prepare seedbed and seeded.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Historic Climax Plant Community

Community 1.1

Historic Climax Plant Community

This site is characterized by the abundance of needleandthread and bluebunch wheatgrass. Forbs and shrubs makeup a smaller portion of the climax community.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	762	953	1143
Shrub/Vine	90	112	135
Forb	45	56	67
Total	897	1121	1345

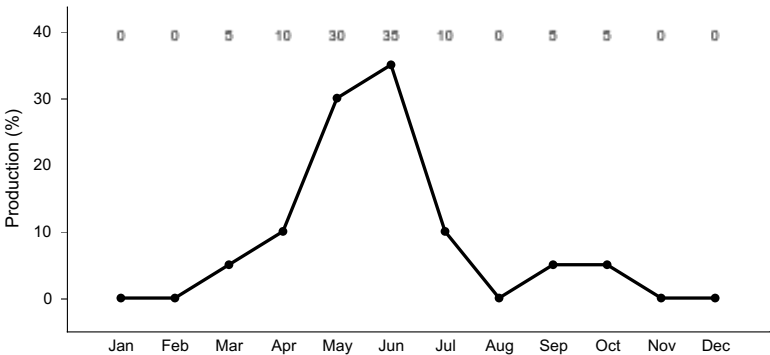


Figure 4. Plant community growth curve (percent production by month). OR4161, B10 JD FAN & SWALE 9-16. B10B FAN, SWALE, Gumbo, & JD Sandy Lm 9-16 RPC Growth Curve.

State 2

State B: Disturbance (GUSA2/SPCR)

Community 2.1

State B: Disturbance (GUSA2/SPCR)

This site is dominated by Broom snakeweed and sand dropseed. Past use by grazing animals and fire formed this steady state.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	179	269	359
Shrub/Vine	157	235	314
Tree	67	101	135
Forb	45	67	90
Total	448	672	898

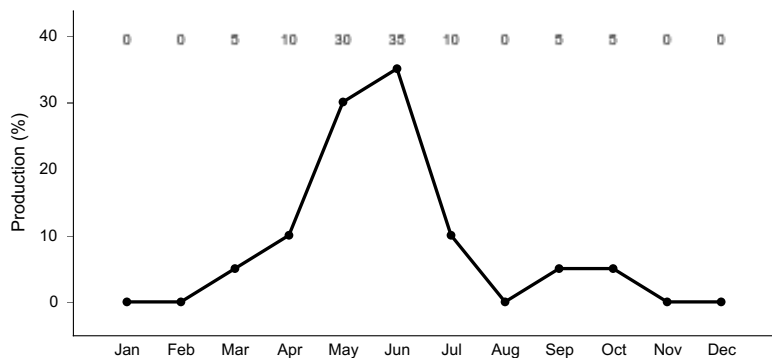


Figure 6. Plant community growth curve (percent production by month).
OR4162, B10 JD Sandy Fan B. Disturbance (GUSA2/SPCR) .

State 3

State C: Disturbance/ Juniper (JUOC)

Community 3.1

State C: Disturbance/ Juniper (JUOC)

This site is dominated by Western Juniper with little or no grasses, forbs and shrubs. Past use by grazing animals and lack of fire has formed this steady state.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Tree	112	168	224
Shrub/Vine	56	84	112
Grass/Grasslike	45	67	90
Forb	11	17	22
Total	224	336	448

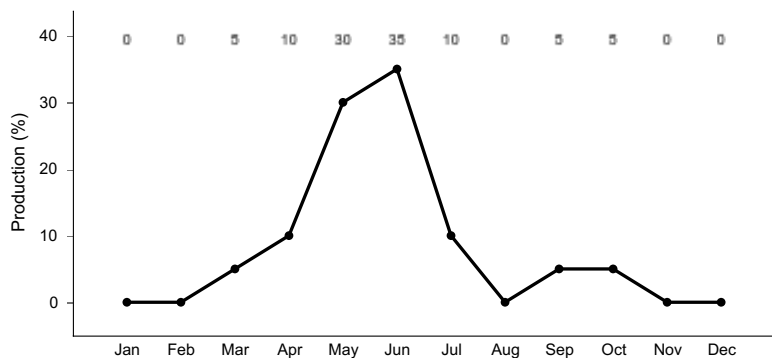


Figure 8. Plant community growth curve (percent production by month).
OR4163, B10 JD Sandy Fan C. Disturbance/Juniper (JUOC).

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				841–1457	
	needle and thread	HECO26	<i>Hesperostipa comata</i>	448–673	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	224–448	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	56–112	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	22–56	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	22–56	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	11–34	–
	squirreldtail	ELEL5	<i>Elymus elymoides</i>	11–34	–
2				22–56	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	11–34	–
Forb					
3				6–34	
	fleabane	ERIGE2	<i>Erigeron</i>	1–6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	1–6	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	1–6	–
	purple clover	TRPU15	<i>Trifolium purpureum</i>	1–6	–
Shrub/Vine					
4				34–90	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	22–45	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	11–34	–
	rubber rabbitbrush	ERNAB	<i>Ericameria nauseosa ssp. nauseosa var. bernardina</i>	6–11	–

Table 9. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				202–224	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	168–202	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	34–67	–
2				56–90	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	34–67	–
Forb					
3				11–34	
	brassia	BRASS4	<i>Brassia</i>	1–3	–
	prickly lettuce	LASE	<i>Lactuca serriola</i>	1–3	–
	salsify	TRPO	<i>Tragopogon porrifolius</i>	1–3	–
Shrub/Vine					
4				213–258	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	112–135	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	67–90	–
	rubber rabbitbrush	ERNAB	<i>Ericameria nauseosa ssp. nauseosa var. bernardina</i>	45–67	–
Tree					
5				56–90	
	juniper	JUNIP	<i>Juniperus</i>	56–90	–

Table 10. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				34–56	
	cheatgrass	BRTE	<i>Bromus tectorum</i>	45–67	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	22–34	–
2				11–34	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	6–17	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	6–17	–
Shrub/Vine					
3				78–90	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	34–56	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	22–45	–
	rubber rabbitbrush	ERNAB	<i>Ericameria nauseosa ssp. nauseosa var. bernardina</i>	11–34	–
Tree					
4				146–179	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	135–202	–

Animal community

Grazing: Livestock grazing is suitable for this site as long as management objectives include the improvement or maintenance of this site. It is easy to overuse this site and cause a shift in vegetation that is difficult to change. This site has the potential to produce a large amount of high quality forage. Management should be aimed at harvesting the forage as quickly as possible, letting the site recover from the grazing event prior to fall dormancy. Initial stocking rates will be determined with the landowner or decisionmaker. They will be based on past use histories and type and condition of the vegetation. Calculations used to determine an initial starting stocking rate will be based on forage preference ratings. Wildlife: The main wildlife species of concern on this site are large herbivores. These are mule deer and elk. These wildlife species can possibly overuse this site before the time cattle or sheep are planned to be grazed. Being an open grassland, this site is home to a variety of small herbivores, birds, and their associated predators. This site is mainly a foraging area for the larger wildlife. No threatened or endangered wildlife species rely on this site for any of their habitat requirements.

Hydrological functions

The site has a high potential in low seral condition to produce significant run-off to receiving waters. The hydrology of this site is characterized by high intensity thunderstorms during the summer months and by low intensity frontal storms during the winter.

Recreational uses

None

Wood products

No wood products are associated with this site.

Other products

None

Other information

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

Type locality

Location 1: Wheeler County, OR	
Township/Range/Section	T75 R19E S32
General legal description	SE 1/4 NE 1/4 Sec. 32 T75R19E WM East of Clarno. (60% SI)

Contributors

Ed Petersen, Rangeland Management Specialist, John Day Field Office And Alan Bahn, Rangeland Management Specialist, Baker City Field Office

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, moderate sheet & rill erosion hazard

2. **Presence of water flow patterns:** None

3. **Number and height of erosional pedestals or terracettes:** None to some

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):** Slightly resistant to erosion: aggregate stability = 1-2

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep, well drained coarse, fine, and very fine 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:** Moderate ground cover (60-70%) and gentle slopes (2-15%) moderately 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: Needle and thread > Bluebunch wheatgrass > Sand dropseed > 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: 1200, Normal: 1000, Unfavorable: 800 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:** Western Juniper readily invades 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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