

Ecological site R010XB043OR JD Droughty Clayey 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.

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 terraces composed of early cenozoic tuffaceous sediments. Slopes range from 5 to 70% with slopes of 12 to 60% being most typical. Elevation varies from 1300 to 2400 feet.

Table 2. Representative physiographic features

Landforms	(1) Hillside (2) Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	396–732 m
Slope	5–70%
Water table depth	183 cm
Aspect	S, SW, W

Climatic features

Elevation and aspect affect precipitation and the relative effectiveness of the precipitation and temperatures. Temperature changes can occur rapidly. In addition, the topography also results in localized cold air drainages, along with occasional cold air entrapment and inversions in the valleys.

Table 3. Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	180 days
Precipitation total (average)	305 mm

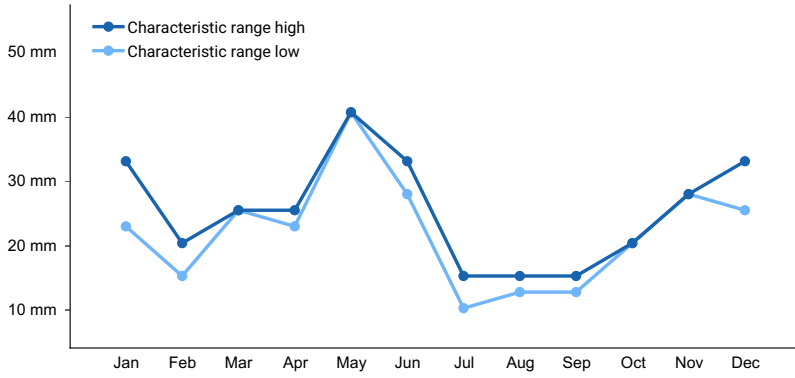


Figure 1. Monthly precipitation range

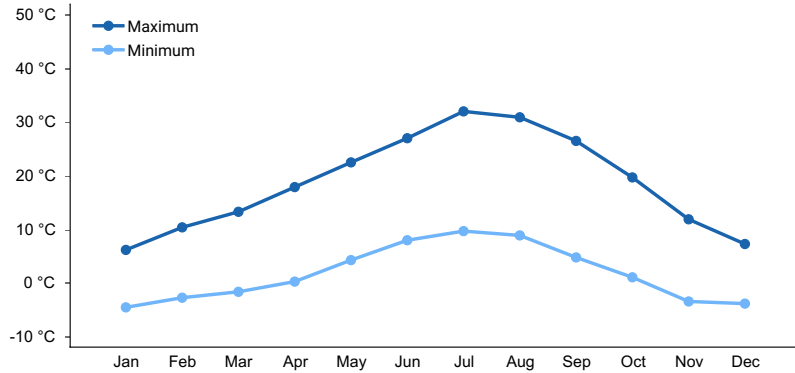


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils on this site typically have a stony clay surface over clay and are shallow to deep. Soils are well drained. They have formed in colluvium and loess.

Table 4. Representative soil features

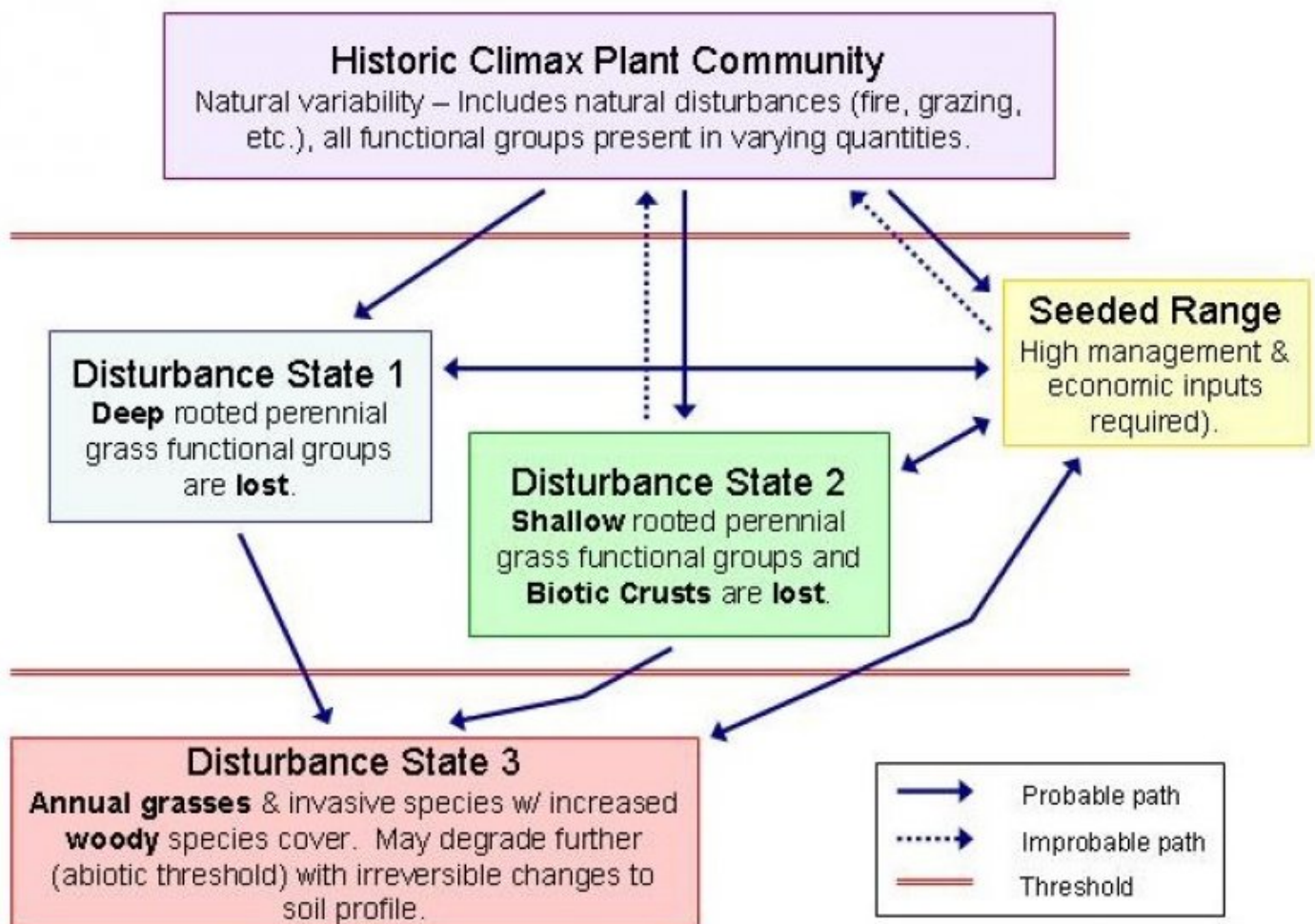
Surface texture	(1) Very cobbly clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Very slow
Soil depth	23–152 cm
Surface fragment cover ≤3"	5%
Surface fragment cover >3"	10%
Available water capacity (0-101.6cm)	2.9–27.28 cm
Calcium carbonate equivalent (0-101.6cm)	1–10%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.6–9

Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

This site occurs on hillslopes and ridgetops. Grasses dominate this plant community with a fair amount of shrubs with few forbs. Fluctuations in species composition and relative production may change from year to year dependent upon abnormal precipitation or other climatic factors. Shadscale is strongly correlated with a clay surface and decreases as the surface becomes coarser. The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). State and transition pathways: 1) Overgrazing (constant grazing); 2) Rest and time.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1

HCPC: Shadscale/Bluebunch wheatgrass

Community 1.1

HCPC: Shadscale/Bluebunch wheatgrass

This site is dominated by Bluebunch wheatgrass with a subdominance of Shadscale. Forbs make up a minor component of this site.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	327	491	655
Shrub/Vine	112	168	224
Forb	9	13	18
Total	448	672	897

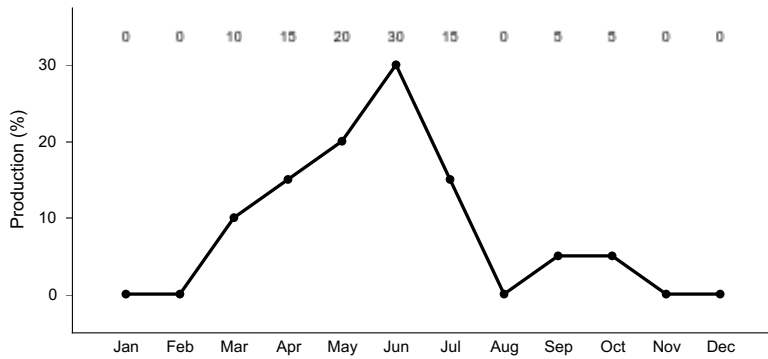


Figure 4. Plant community growth curve (percent production by month). OR4191, B10 JD Droughty, Clayey, Souths RPC. JD Droughty, Clayey, Souths RPC(Shadscale/Bluebunch wheatgrass).

State 2

State B: Disturbance (Broom snakeweed/cheatgrass)

Community 2.1

State B: Disturbance (Broom snakeweed/cheatgrass)

This site is dominated by Broom snakeweed. Forbs and grasses make up a small percent of the community. Broom snakeweed increases. Medusahead rye invades locally.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	168	336	504
Grass/Grasslike	45	90	135
Forb	11	22	34
Total	224	448	673

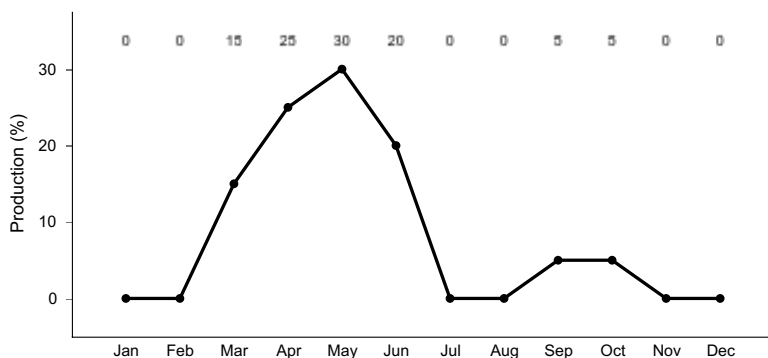


Figure 6. Plant community growth curve (percent production by month). OR4192, B10 JD Droughty Clayey South B. Disturbance (GUSA2/BRTE).

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				34–112	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	22–67	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	22–67	–
2				392–504	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	404–538	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	11–45	–
Forb					
3				22–67	
	milkvetch	ASTRA	<i>Astragalus</i>	11–22	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	11–22	–
	desertparsley	LOMAT	<i>Lomatium</i>	11–22	–
	phlox	PHLOX	<i>Phlox</i>	6–11	–
	agoseris	AGOSE	<i>Agoseris</i>	6–11	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	6–11	–
	fleabane	ERIGE2	<i>Erigeron</i>	6–11	–
	buckwheat	ERIOG	<i>Eriogonum</i>	6–11	–
Shrub/Vine					
4				84–252	
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	67–202	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	13–54	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	13–34	–
	purple sage	SADOI	<i>Salvia dorrii</i> ssp. <i>dorrii</i> var. <i>incana</i>	7–13	–

Table 8. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				56–135	
	cheatgrass	BRTE	<i>Bromus tectorum</i>	28–67	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	11–34	–
	soft brome	BRHO2	<i>Bromus hordeaceus</i>	11–34	–
2				11–34	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	11–34	–
Forb					
3				11–45	
	mustard	BRASS2	<i>Brassica</i>	6–22	–
	prickly lettuce	LASE	<i>Lactuca serriola</i>	6–22	–
Shrub/Vine					
4				168–235	
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	90–135	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	17–45	–
	purple sage	SADOI	<i>Salvia dorrii ssp. dorrii var. incana</i>	17–45	–
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	11–34	–
	yellow rabbitbrush	CHVIS5	<i>Chrysothamnus viscidiflorus ssp. viscidiflorus var. stenophyllus</i>	11–34	–
	western juniper	JUOC	<i>Juniperus occidentalis</i>	11–34	–

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.

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 soil 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	T10S R20E S36
General legal description	SE 1/4 SE 1/4 Sec. 36 T10S R20E Carroll Rim Trail- Painted Hills (80% S.I.)
Location 2: Grant County, OR	
Township/Range/Section	T10S R26E S31
General legal description	NW 1/4 SE 1/4 Sec. 31 T10S R26E North side of Foree Unit (80% S.I.)

Other references

Soil Conservation Service, Relative Forage Preference of Plants for Grazing Use by Season, Range Technical Note No. 16, 1982.

Western Regional Climate Center, NOAA, National Weather Service, Portland, OR, web site-
<http://nimbo.wrh.noaa.gov/Portland/climate.html>

Natural Vegetation of Oregon and Washington, Jerry F. Franklin and C.T. Dyrness.

The Ecological Provinces of Oregon, E. William Anderson, Michael M. Borman, and William C. Krueger.

Contributors

Ed Petersen, Alan Bahn

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 to few on steeper slopes, moderate sheet & rill erosion hazard
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2. **Presence of water flow patterns:** None to few on steeper slopes
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3. **Number and height of erosional pedestals or terracettes:** None

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10-30%
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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, 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):** Significantly resistant to erosion: aggregate stability = 4-6
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow to deep, well drained clay loams or very cobbly clay loams: moderate OM (1-3%)
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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 (50-60%) and gentle to very steep slopes (5-70%) 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
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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: Bluebunch wheatgrass > Shadscale > forbs > other shrubs > other grasses
- 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
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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: 800, Normal: 600, Unfavorable: 400 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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