USDA Natural Resources
Conservation Service

Ecological site R010XB032OR
JD Very Shallow 12-16 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.

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

R010XB033OR	**JD Shallow North 12-16 PZ** Site is found on shallow North slopes with a predominence of Idaho fescue.
R010XB045OR	**JD Clayey South 12-16 PZ** This site is found on moderately deep to deep south slopes with a predominence of bluebunch wheatgrass.

Similar sites

R010XB027OR	**JD Clayey 12-16 PZ** This site is found on moderately deep to deep clayey soils with a predominence of bluebunch wheatgrass.
R010XB031OR	**JD Shallow 12-16 PZ** This site is found on shallow soils with a predominence of bluebunch wheatgrass.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia rigida*

Herbaceous	(1) *Pseudoroegneria spicata* (2) *Poa secunda*

Physiographic features

This site typically occurs on upland plateaus over basalt and tuffaceous material and basalts. Slopes range from 2 to 20 %. Elevation varies from 2100 to 4000 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Ridge (3) Mountain slope
Elevation	2,100–4,000 ft
Slope	2–20%
Water table depth	72 in
Aspect	Aspect is not a significant factor

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. Precipitation falls mainly as rain. Most precipitation occurs mainly in the winter and early spsring with <10" of snow.

Table 3. Representative climatic features

Frost-free period (average)	130 days
Freeze-free period (average)	150 days
Precipitation total (average)	16 in

Influencing water features

Soil features

Soils on this site are typically very shallow and predominantly very cobbly silt loams. These soils are well drained. The soils are formed from weathered basalts and loess. The major taxonomic units correlated to this site include Loamy-skeletal, mixed, superactive, frigid (mesic) Lithic Haploxerolls.

Table 4. Representative soil features

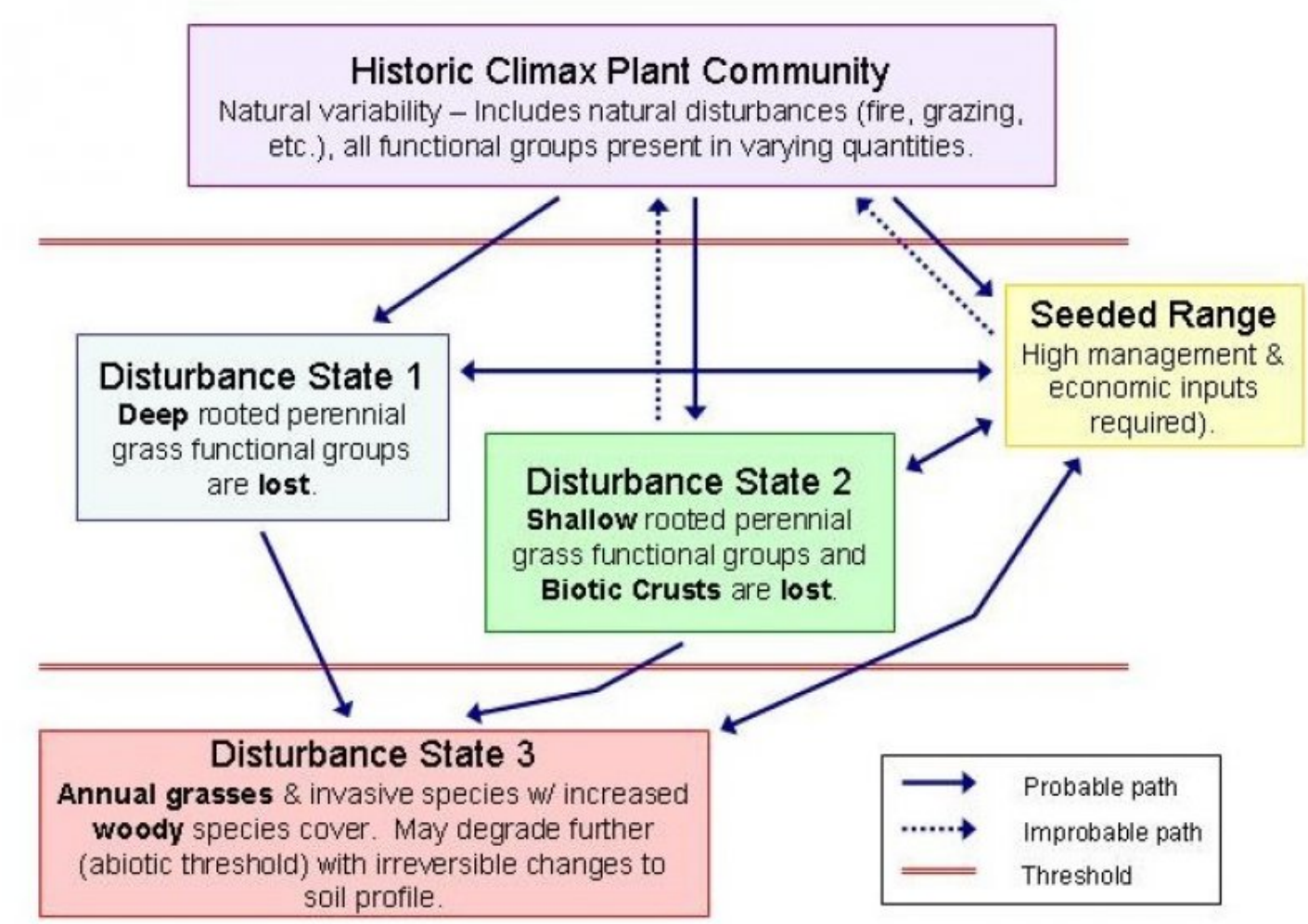
Surface texture	(1) Very cobbly silt loam (2) Very gravelly loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	0–10 in
Surface fragment cover <=3"	60%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	0.52–1.56 in

Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.1–7.3
Subsurface fragment volume <=3" (Depth not specified)	65%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

This site occurs on ridgetops, plateaus and mountains. 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. Plant composition and production is dependent on soil depth and bedrock fracture Sandberg bluegrass increases over unfractured bedrock and soils that are less than 4 inches deep. The interpretaive plant community for this site is the Historic Climax Plant Community (HCPC). State and transition: 1) Continued mis-management and overgrazing.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

This site is characterized by a dominance of Sandberg bluegrass. Bluebunch wheatgrass increases with soil depth. Forbs and shrubs make up a smaller portion of the community.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	70	210	350
Forb	20	60	100
Shrub/Vine	10	30	50
Total	**100**	**300**	**500**

Figure 5. Plant community growth curve (percent production by month). OR4201, B10 JD Very Shallow RPC. JD Very Shallow RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	15	30	35	5	0	5	5	0	0

State 2
State B: Disturbance (Sandberg bluegrass-Eroded)

Community 2.1
State B: Disturbance (Sandberg bluegrass-Eroded)

This site is dominated by Sandberg bluegrass. Past use that reduced ground cover and accelerated erosion formed this steady state.

Table 6. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	80	120	160
Shrub/Vine	10	15	40
Forb	10	15	40
Total	**100**	**150**	**240**

Figure 7. Plant community growth curve (percent production by month). OR4202, B10 JD Very Shallow B. Disturbance (Sandberg bluegrass-Eroded).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	20	35	30	5	0	0	5	0	0

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				100–150	
	Sandberg bluegrass	POSE	*Poa secunda*	60–144	–
2				80–250	
	bluebunch wheatgrass	PSSPS	*Pseudoroegneria spicata ssp. spicata*	90–150	–
	squirreltail	ELEL5	*Elymus elymoides*	15–80	–
	Idaho fescue	FEID	*Festuca idahoensis*	15–80	–
Forb					
3				5–30	
	common yarrow	ACMI2	*Achillea millefolium*	1–5	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	1–5	–
	fleabane	ERIGE2	*Erigeron*	1–5	–
	buckwheat	ERIOG	*Eriogonum*	1–5	–
	woodland-star	LITHO2	*Lithophragma*	1–5	–
	desertparsley	LOMAT	*Lomatium*	1–5	–
	phlox	PHLOX	*Phlox*	1–5	–
Shrub/Vine					
4				20–50	
	scabland sagebrush	ARRI2	*Artemisia rigida*	20–40	–

Table 8. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				80–150	
	Sandberg bluegrass	POSE	*Poa secunda*	60–120	–
2				40–80	
	bluebunch wheatgrass	PSSPS	*Pseudoroegneria spicata ssp. spicata*	50–80	–
	squirreltail	ELEL5	*Elymus elymoides*	5–10	–
	Idaho fescue	FEID	*Festuca idahoensis*	5–10	–
Forb					
3				5–25	
	mustard	BRASS2	*Brassica*	1–10	–
	prickly lettuce	LASE	*Lactuca serriola*	1–10	–
Shrub/Vine					
4				10–30	
	scabland sagebrush	ARRI2	*Artemisia rigida*	5–20	–

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 small amount of high quality forage. Management during the growing season should be aimed at harvesting the forage as quickly as possible, letting the keys species, Sandbergs bluegrass and bluebunch wheatgrass recover from the grazing event while there is adequate soil moisture and prior to 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

none

Type locality

Location 1: Grant County, OR	
Township/Range/Section	TT 13S RR 28E S27
General legal description	SE 1/4 NW 1/4 Sec. 27 T13S R28E WM 1/2 mile east of Dry Creek north of fence (1 mile east of Widow Creek) (90% SI)

Other references

Soil Conservation Service, Relative Forage Preferences 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

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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 to some in interspaces, severe sheet & rill erosion hazard

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2. **Presence of water flow patterns:** None to some in interspaces

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 15-30%

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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, moderate 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):** Very shallow, well drained stony loam to cobbly 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:** Slight ground cover (40-60%) and gentle slopes (2-20%) 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: Bluebunch wheatgrass > Sandberg bluegrass > Scabland sagebrush = forbs > other grasses > Western Juniper

    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: 500, Normal: 300, Unfavorable: 100 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