

Ecological site R009XY004OR

Fan 14-17 PZ

Accessed: 05/19/2024

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.

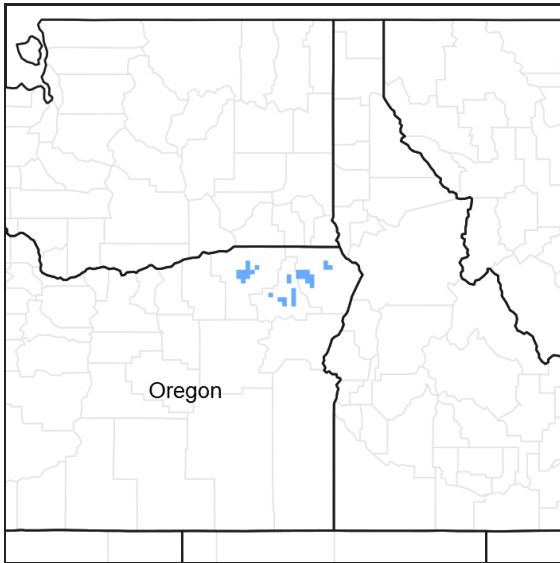


Figure 1. Mapped extent

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

R009XY013OR	Loamy 17-22 PZ Loamy 14-17 PZ
R009XY015OR	Clayey 14-17 PZ Clayey 14-17 PZ
R009XY029OR	South 14-17 PZ South 14-17 PZ
R009XY040OR	North 14-17 PZ North 14-17 PZ

Similar sites

R009XY003OR	Fan 10-15 PZ Fan 10-15 PZ (lower elevation and production)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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Physiographic features

This site occurs along lower slopes and on fans at outlet of perennial and ephemeral streams. Braiding at stream outlets and fan coalescence is often common. Slopes range from 0 to 15%. Elevation varies from 2700 to 3400 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan
Elevation	823–1,036 m
Slope	0–15%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 14 to 17 inches. Limited deep seasonal subsurface flows augment the precipitation. The precipitation occurs as rain and snow during the months of November through March. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 48 degrees F. Extreme temperatures range from 100 degrees F. to -20 degrees F. Soil temperature regimes are mesic. The frost-free period ranges from April through mid July.

Table 3. Representative climatic features

Frost-free period (average)	130 days
Freeze-free period (average)	0 days
Precipitation total (average)	432 mm

Influencing water features

Soil features

The soils of this site are formed in deep alluvium, colluvium and loess. They are deep to very deep. Typically the surface layer is a silt loam or gravelly silt loam over a loamy to cobbly clay loam subsoil. Stoniness is variable. Soil permeability is moderate. The available water holding capacity (AWC) is 6 to 10 inches. Localized, deep, seasonal subsurface flows augment the available water. The erosion potential is moderate.

Table 4. Representative soil features

Surface texture	(1) Silt loam (2) Very gravelly silt loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate

Ecological dynamics

Range in Characteristics:

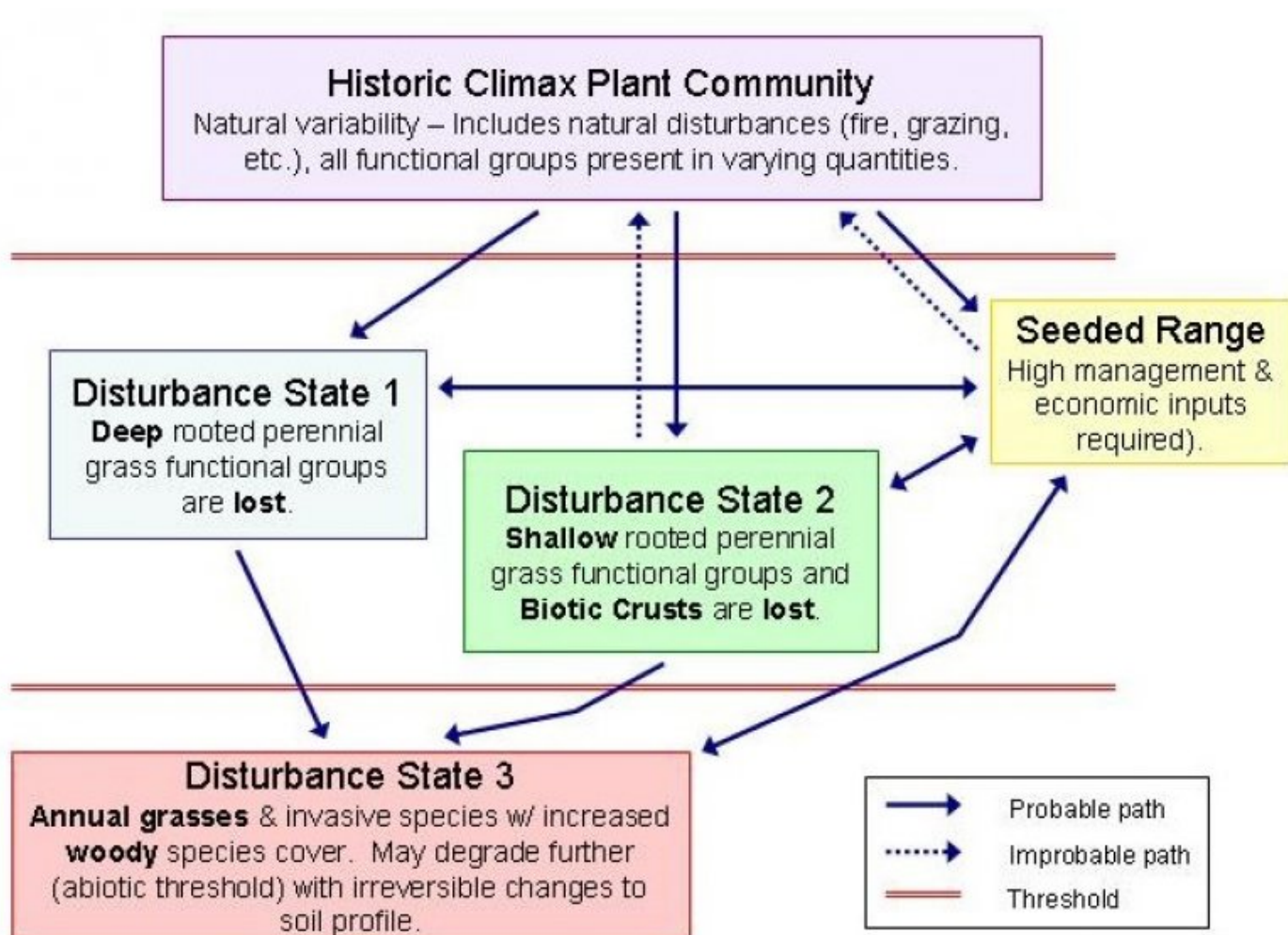
Variability in plant composition and yield is dependant on soil depth and the extent of lateral subsurface water flow. Basin wildrye, shrubs and production increases with longer duration subsurface flows. Bluebunch wheatgrass increases on drier south facing fans. Idaho fescue increases on north exposures.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, basin wildrye, Idaho fescue and bluebunch wheatgrass decrease along with palatable understory forbs. Bluegrass, unpalatable forbs and annuals invade. With

further deterioration annuals strongly invade, production decreases, seasonal availability of quality forage decreases and soil erosion accelerates.

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 basin wildrye. Bluebunch wheatgrass and Idaho fescue are prominent. A variety of forbs are present along with a minor amount of shrubs. The potential vegetative composition is approximately 90 percent grass, 5 percent forbs and 5 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2791	3615	4439
Shrub/Vine	101	185	269
Forb	67	168	269
Total	2959	3968	4977

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			1681–2354	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	1681–2354	–
2	Perennial Deep-rooted Dominant			1009–1681	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	673–1009	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	336–673	–
5	PPGG			26–101	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	26–101	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	26–101	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	26–101	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	26–101	–
Forb					
9	PPFF			8–30	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	8–30	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	8–30	–
	fleabane	ERIGE2	<i>Erigeron</i>	8–30	–
	buckwheat	ERIOG	<i>Eriogonum</i>	8–30	–
	aster	EUCEP2	<i>Eucephalus</i>	8–30	–
	hawkweed	HIERA	<i>Hieracium</i>	8–30	–
	desertparsley	LOMAT	<i>Lomatium</i>	8–30	–
	lupine	LUPIN	<i>Lupinus</i>	8–30	–
	phlox	PHLOX	<i>Phlox</i>	8–30	–
Shrub/Vine					
15				17–45	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	17–45	–
	hawthorn	CRATA	<i>Crataegus</i>	17–45	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	17–45	–
	currant	RIBES	<i>Ribes</i>	17–45	–
	rose	ROSA5	<i>Rosa</i>	17–45	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	17–45	–

Animal community

Livestock Grazing:

This site is suited to spring, summer and fall use by cattle, sheep and horses under a planned grazing system. The key species is basin wildrye. Basin wildrye can be damaged if heavily grazed during periods of flowering and seed formation when root reserves and soil temperature is low. Use in the spring should be postponed until the soils are firm enough to prevent trampling damage, soil compaction and streambank sloughing. As a sediment depositor area, adequate plant cover should be left in the fall to catch sediment and protect streambanks and secondary overflow channels during the spring runoff events.

Wildlife:

When the ecological condition is high this site provides food and cover for deer, elk, other mammals and upland birds. It is an important wintering area for deer and elk.

Native Wildlife Associated With The Potential Climax Community:

Mule deer, Whitetail deer, elk, rodents and a variety of upland birds use this site for food and cover.

Hydrological functions

The soils of this site have excellent waterholding capacities providing late season water for plant growth. As a site which often occurs at stream outlets in deposition areas the site is inherently unstable. In natural undisturbed conditions, it supports a braided stream pattern, one with numerous secondary Overflow channels. This pattern functions in reducing stream energy and allowing sediment deposition. The deposition potential of the site should be considered in hydrologic analysis and developing planning alternatives. The hydrological cover condition is excellent when the ecological condition is high.

Other information

When in poor condition the site has potential for mechanical range seeding. When incised channels are present, rehabilitation will markedly improve production, reduce downstream sedimentation and improve hydrologic characteristics.

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, Bruce Franssen
Contact for lead author	
Date	07/10/2007
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, moderate sheet & rill erosion hazard
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2. **Presence of water flow patterns:** Occasional flooding with seasonal high water table.
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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):** 5-10%

5. **Number of gullies and erosion associated with gullies:** Poor resistance to erosion when cover is lacking - subject to incision and downcutting.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, slight 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):** Moderately resistant to erosion with adequate cover: aggregate stability = 3-4

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Granular to subangular blocky structure; Dry color value 4-5; 9-14" thick; low OM (1-2%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (90-100%) and moderate slopes (0-15%) effectively 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: Basin wildrye > bluebunch wheatgrass > idaho fescue

Sub-dominant: other perennial grasses > shrubs

Other: forbs

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: 4000, Normal: 3000, Unfavorable: 2000 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:** Perennial brush species will increase with deterioration of plant community. 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
