USDA Natural Resources
Conservation Service

Ecological site R009XY041OR
Deep North 14-17 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.

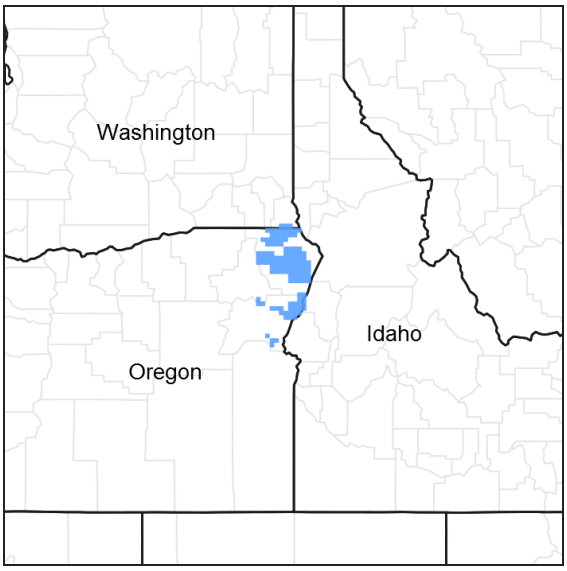


Figure 1. Mapped extent

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

R009XY029OR	**South 14-17 PZ** South 14-17" PZ
R009XY031OR	**Shallow South 14+ PZ** Shallow South 14"+ PZ
R009XY040OR	**North 14-17 PZ** North 14-17" PZ
R009XY046OR	**Shrubby Moist North 15+ PZ** Shrubby Moist North 15"+ PZ
R009XY060OR	**Shrubby North 15+ PZ** Shrubby North 15"+ PZ

Similar sites

R009XY045OR	**North 17-24 PZ** North 17-24" PZ (higher production, higher elevation)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on the slopes of canyons and mountian plateaus. It is typically on slopes having north and northeast aspects. Slopes range from 15 to 60%. Elevation varies from 2000 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Canyon
Elevation	2,000–5,000 ft
Slope	15–60%
Aspect	N, NE

Climatic features

The annual precipitation ranges from 14 to 17 inches. Late season subsurface flows which augment the precipitation are minimal. The precipitation occurss as snow durin the months of November through March followed byspring rainfall. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 43 degrees F. Extreme temperatures range from 90 degrees F. To -30 degrees F. Soil temperature regimes are frigid. The frost-free period ranges from 30 to 100 days. The period of optimum plant growth is from mid April through mid July.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	17 in

Influencing water features

Soil features

The soils of this site are formed in loess and colluvium over basalt bedrock. They are deep to very deep. Typically the surface layer is a silt loam about 10 inches thick over a silty clay loam or cobbly silty clay loam subsoil. Stoniness is variable. Soil permeabilty is moderate. The available water holding capacity (AWC) is 6 to 10 inches. Erosion potential is high.

Table 4. Representative soil features

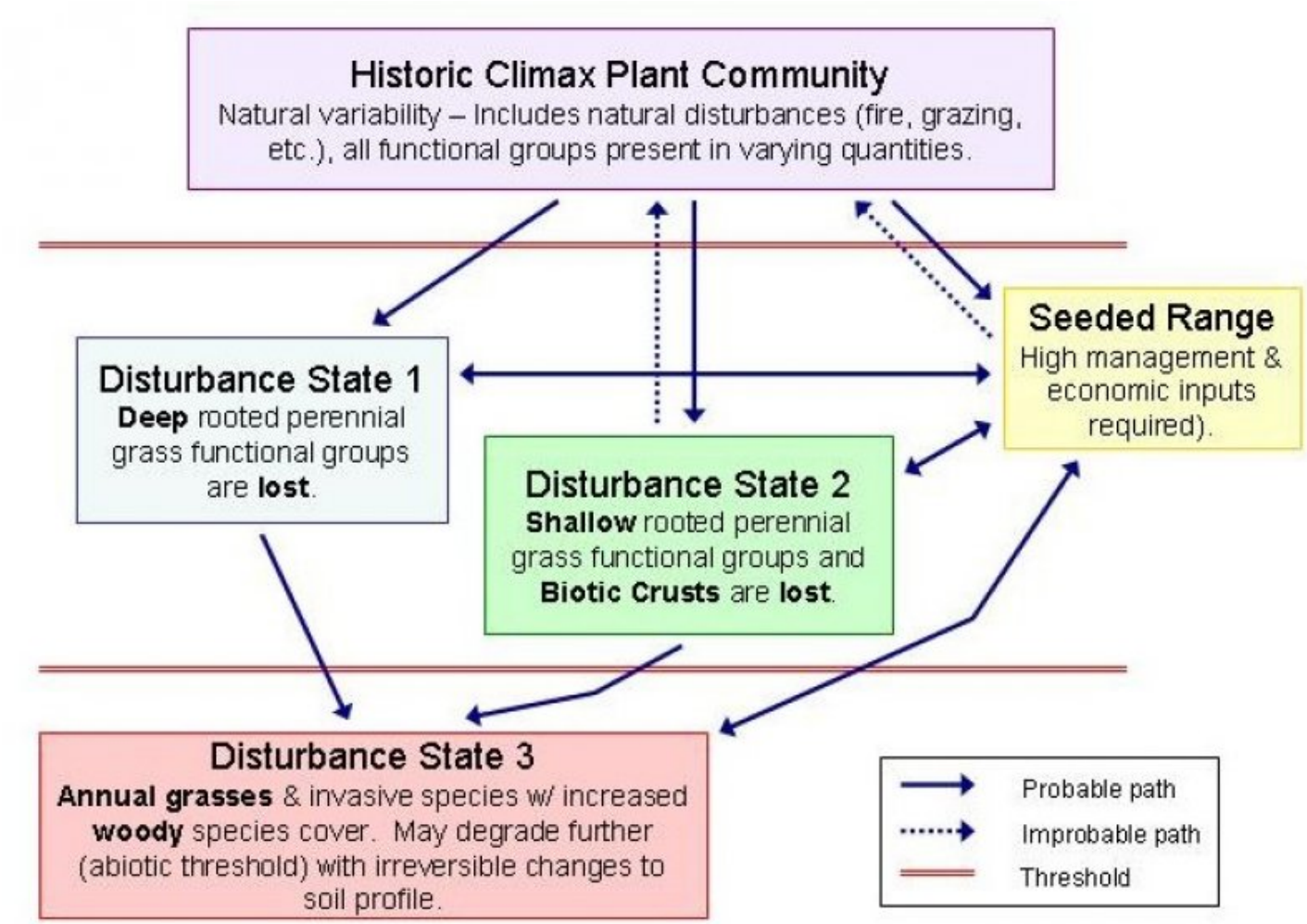
Surface texture	(1) Silt loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate

Ecological dynamics

Range in Characteristics:
Variability in plant composition and yeild is dependent on aspect and soil depth. Seasonal subsurface flows which augment the precipitation are minimal. Snowberry, rose and scattered tall shrubs increase on steep, cooler due

north slopes with greater soil depth and water holding capacity. Idaho fescue increases as aspect changes to northeast and northwest. Shrubs can occur in dense patches presenting strong competition to the grass/forb component of the site. As a site highly suscepible to fire, fire frequency will influence vegetative production and cover. snowberry, rose and other low growing, root sprouting rhizomatus shrubs will increase under a moderate fire frequency.
Response to Disturbance:
If the condition of the site deteriorates as a result of overgrazing, Idaho fescue decreases along with other palatable understory grasses and forbs. Bluegrasses, annuals and unpalatable forbs will invade. Rhizomatous shrubs increase through shading and root competition of the weakened grass component. With further deterioration areas of bare ground increase, forage production 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 dominanted by Idaho fescue and a complex of low-growing shrubs in a mosaic pattern. The dominant low-growing shrubs are common snowberry and rose. Taller shrubs, serviceberry, chokecherry, hawthorn and mallow ninebark are scattered. Bluebunch wheatgrass is common along with prarie junegrass and a variety of forbs. The potential vegetative composition is approximately 70 percent grass, 25 percnet shrubs and 5 percent forbs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	980	1330	1680
Shrub/Vine	360	680	1000
Forb	60	120	180
Total	**1400**	**2130**	**2860**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Perennial Deep-rooted Dominant**			800–1200	
	Idaho fescue	FEID	*Festuca idahoensis*	800–1200	–
2	**Perennial Deep-rooted Sub-dominant**			100–300	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	100–300	–
4	**Perennial Shallow-rooted Sub-dominant**			40–100	
	prairie Junegrass	KOMA	*Koeleria macrantha*	40–100	–
5	**PPGG**			40–80	
	sedge	CAREX	*Carex*	20–40	–
	bluegrass	POA	*Poa*	20–40	–
Forb					
7	**Perennial All Dominant**			40–80	
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	20–40	–
	lupine	LUPIN	*Lupinus*	20–40	–
9	**PPFF**			20–100	
	common yarrow	ACMI2	*Achillea millefolium*	2–11	–
	onion	ALLIU	*Allium*	2–11	–
	milkvetch	ASTRA	*Astragalus*	2–11	–
	kittentail	BESSE	*Besseya*	2–11	–
	aster	EUCEP2	*Eucephalus*	2–11	–
	green gentian	FRASE	*Frasera*	2–11	–
	hawkweed	HIERA	*Hieracium*	2–11	–
	western stoneseed	LIRU4	*Lithospermum ruderale*	2–11	–
	cinquefoil	POTEN	*Potentilla*	2–11	–
Shrub/Vine					
13	**Perennial Deciduous Dominant**			200–500	
	common snowberry	SYAL	*Symphoricarpos albus*	100–300	–
	rose	ROSA5	*Rosa*	100–200	–
14	**Perennial Deciduous Sub-dominant**			120–300	
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	40–100	–
	mallow ninebark	PHMA5	*Physocarpus malvaceus*	40–100	–
	chokecherry	PRVI	*Prunus virginiana*	40–100	–
15	**SSSS**			40–200	
	hawthorn	CRATA	*Crataegus*	10–50	–
	wax currant	RICE	*Ribes cereum*	10–50	–
	elderberry	SAMBU	*Sambucus*	10–50	–
	spirea	SPIRA	*Spiraea*	10–50	–

Animal community

Livestock Grazing:
This site is suited to late spring, summer and fall use bt cattle, sheep and horses under a planned grazing system. The key species is Idaho fescue. Idaho fescue can be damaged if heavily grazed during periods of flowering and seed formation when root reserves are low. Periodic brush control measures such as a prescribed burning will

improve the forage production capability of the site. Care should be taken to avoid trampling damage and soil compaction when soils are wet.
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 fall and winter use area for deer and elk.
Native Wildlife Associated With The Potential Climax Community:
Mule 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 water holding capacites providing late season water for plant growth. The hydrologic cover condition is excellent when the ecological condition is high.

Other information

Periodic prescribed burns or other brush control measures will normally improve forage production. When in poor condition the site has a high potential for mechanical range seeding on moderate slopes and a low potential on steep slopes.

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
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	07/30/2012
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, severe sheet & rill erosion hazard

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

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 0-5%

5. **Number of gullies and erosion associated with gullies:** None

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):** Significantly resistant to erosion; aggregate stability = 4-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep, well drained, with a silt loam surface - variable stoniness; moderate OM (2-4%)

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 steep slopes (15-60%) 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: Idaho fescue > dominant shrubs > Bluebunch wheatgrass > 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

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: 2500, Normal: 2000, Unfavorable: 1500 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:** With deterioration of plant community, bluegrasses and annual bromes invade sites that have lost deep rooted perennial grass functional groups. Excessive erosion may occur, deteriorating site potential.

17. **Perennial plant reproductive capability:** All species should be capable of repreducing annually