

Ecological site R009XY046OR Shrubby Moist North 15+ 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.

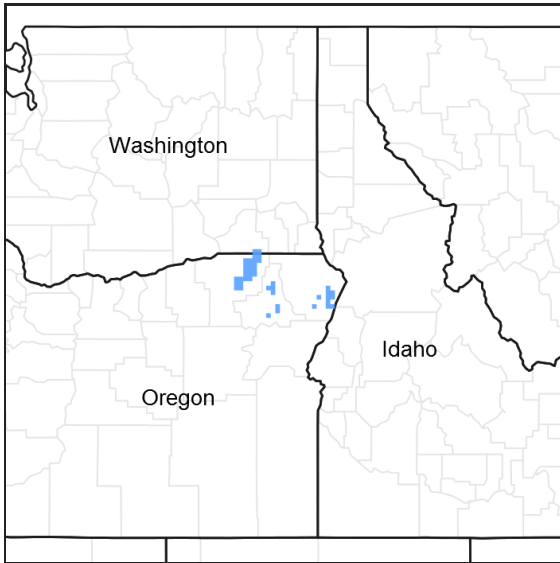


Figure 1. Mapped extent

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

R009XY030OR	South 17-22 PZ south 17-22" PZ
R009XY031OR	Shallow South 14+ PZ Shallow South 14"+ PZ
R009XY041OR	Deep North 14-17 PZ Deep North 14-17" PZ
R009XY045OR	North 17-24 PZ North 17-24" PZ
R009XY060OR	Shrubby North 15+ PZ Shrubby North 15"+ PZ

Similar sites

R009XY060OR	Shrubby North 15+ PZ Shrubby North 15"+ PZ (lower production, less subsurface flow)
R009XY041OR	Deep North 14-17 PZ Deep North 14-17" PZ (lower production, little subsurface flow)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on the upper slopes of prairies and on the slopes of canyons and mountain plateaus. It is typically on steep slopes and swales having north and northeast aspects. Slopes range from 12 to 70%, with gradients of 40 to 70% being most typical. Elevation varies from 2000 to 3800 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Plateau
Elevation	610–1,158 m
Slope	12–70%
Aspect	N, NE

Climatic features

The annual precipitation ranges from 14 to 30 inches with 17 to 24 inches being most typical. Seasonal subsurface flows augment the precipitation. The precipitation occurs as snow during the months of November through March followed by ample spring rainfall. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 43 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 July.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	762 mm

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 19 inches thick. The subsoil is a silt loam over a coarsely silty clay loam. Soil permeability is moderate. The available water holding capacity (AWC) is 10 to 14 inches. Erosion potential is high.

Table 4. Representative soil features

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

Ecological dynamics

Range in Characteristics:

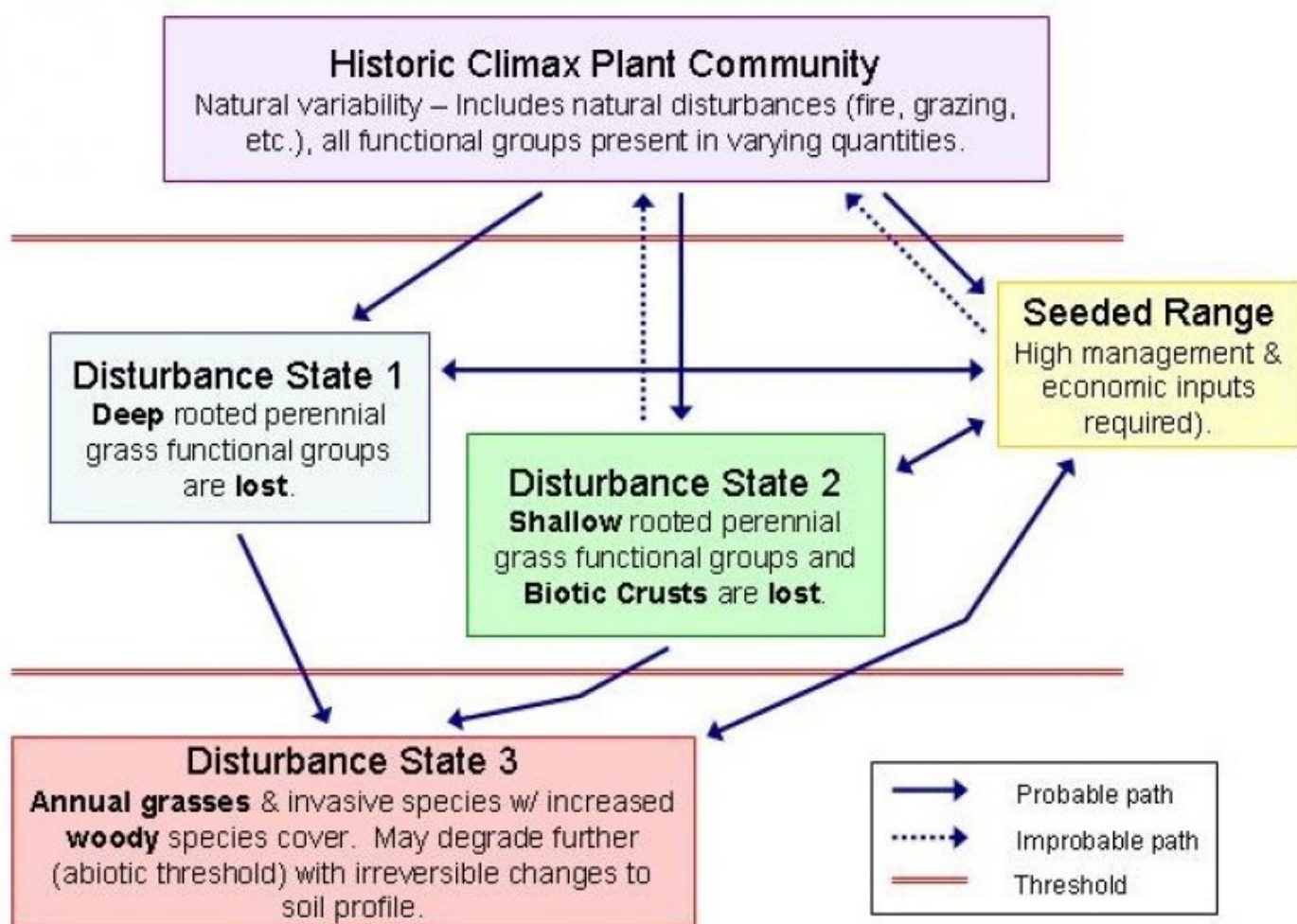
The production and density of shrubs is dependant on aspect, soil depth and the extent and duration of lateral

subsurface water flows. Tall shrubs such as hawthorn and chokecherry, increase on deep, due north slopes and swales receiving subsurface flows late into the growing season. Mallow ninebark increases on shallow areas having lower water storage capacities and receiving moderate duration subsurface flows. Snowberry increases on drier areas. Shrubs occur in these patches and present strong competition to the less stable grass/forb component of the site. Scattered ponderosa pine and Douglas-fir bearing fire scars are often present. As a site highly susceptible to fire, fire frequency will influence vegetative production and cover. With an increase in fire frequency, rhizomatous, root sprouting shrubs and grasses will increase. With an increase in fire frequency, hawthorn will increase, forming dense thickets.

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. Kentucky bluegrass, annuals and unpalatable forbs will invade. Rhizomatous shrubs increase through shading and root competition of the weakened understory component. With further deterioration areas of bare ground under and adjacent to shrubs increase, forage production decreases and erosion accelerates. Erosion from concentrated flows reduces the site productivity and contributes to downstream sedimentation.

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 strongly dominated by hawthorn. Mallow ninebark, serviceberry, snowberry and rose are common. Spirea, currant, oceanspray, Idaho fescue and a variety of forbs are present. The potential

vegetative composition is approximately 80 percent shrubs, 10 percent grass and 5 percent forbs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	2757	3564	4371
Grass/Grasslike	303	572	841
Forb	101	202	303
Total	3161	4338	5515

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			168–336	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	168–336	–
2	Perennial Deep-rooted Sub-dominant			67–168	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	67–168	–
5	PPGG			67–336	
	sedge	CAREX	<i>Carex</i>	2–13	–
	pinegrass	CARU	<i>Calamagrostis rubescens</i>	2–13	–
	blue wildrye	ELGL	<i>Elymus glaucus</i>	2–13	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	2–13	–
	bluegrass	POA	<i>Poa</i>	2–13	–
Forb					
7	Perennial All Dominant			67–135	
	cinquefoil	POTEN	<i>Potentilla</i>	34–67	–
	ragwort	SENEC	<i>Senecio</i>	34–67	–
9	PPFF			34–168	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	3–16	–
	milkvetch	ASTRA	<i>Astragalus</i>	3–16	–
	miner's lettuce	CLPE	<i>Claytonia perfoliata</i>	3–16	–
	bedstraw	GALIU	<i>Galium</i>	3–16	–
	old man's whiskers	GETR	<i>Geum triflorum</i>	3–16	–
	common cowparsnip	HEMA80	<i>Heracleum maximum</i>	3–16	–
	Scouler's woollyweed	HISC2	<i>Hieracium scouleri</i>	3–16	–
	waterleaf	HYDRO4	<i>Hydrophyllum</i>	3–16	–
	lupine	LUPIN	<i>Lupinus</i>	3–16	–
	bluebells	MERTE	<i>Mertensia</i>	3–16	–
	beardtongue	PENST	<i>Penstemon</i>	3–16	–
Shrub/Vine					
13	Perennial Deciduous Dominant			2186–3026	
	hawthorn	CRATA	<i>Crataegus</i>	1681–2354	–
	mallow ninebark	PHMA5	<i>Physocarpus malvaceus</i>	504–673	–
14	Perennial Deciduous Sub-dominant			471–1009	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	168–336	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	168–336	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	67–168	–
	rose	ROSA5	<i>Rosa</i>	67–168	–
15	SSSS			101–336	
	oceanspray	HOLOD	<i>Holodiscus</i>	26–84	–
	wax currant	RICE	<i>Ribes cereum</i>	26–84	–
	elderberry	SAMBU	<i>Sambucus</i>	26–84	–
	spirea	SPIRA	<i>Spiraea</i>	26–84	–

Animal community

Livestock Grazing:

This site is suited to late spring, summer and fall use by cattle, sheep and horses under a planned grazing system. The key species is Idaho fescue or Kentucky bluegrass if Idaho fescue is not present. Idaho fescue can be damaged if heavily grazed during periods of flowering and seed formation when root reserves are low. If Kentucky bluegrass is the key species, adequate ground cover and stubble should be left to prevent erosion and to maintain and improve plant vigor. Periodic prescribed burns or other brush control measures will greatly improve the forage production capability of the site. As this site occurs on steep slopes, 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 excellent food and cover for deer, elk, other mammals and upland birds. It is an important wintering area for mule deer and elk. Wildlife cover values, thermal, hiding and escape, should be considered in designing treatment measures that alter the kind and amount of shrub species present.

Native Wildlife Associated With The Potential Climax Community:

Mule deer, white-tail deer, elk, rodents, and a variety of upland birds use this site for food and cover. Cover is excellent when the ecological condition is high.

Hydrological functions

The soils of this site have excellent water holding capacities, providing late season water for plant growth and slow release to streams. The hydrologic cover condition is high.

Recreational uses

In the Blue Mountains this site occurs on ridgetops in association with forest. It provides visual mosaic patterns and diversity with the forests.

Wood products

A few scattered ponderosa pine and/or Douglas-fir may be present. These provide limited economic benefits in terms of wood products, but are of value for diversity and cover for wildlife.

Other information

Periodic prescribed burns or other brush control measures will both improve forage production and reduce wildlife cover values. These two opposite interfacing effects should be considered in designing treatment measures that alter the kind and amount of shrub species present. When in poor condition the site has a high potential for mechanical range seeding on moderate slopes and a low potential on steep slopes. Aerial seeding is practical on intensely burned areas, realizing forage production will reduce as shrubs resprout and improve vigor.

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
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Date	07/30/2012
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, severe sheet & rill erosion hazard

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

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):** 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 to very deep, well drained, with a thick (19") silt loam surface; 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 (90-110%) and moderately to very steep slopes (12-70%) 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: Hawthorn > Mallow ninebark > other dominant shrubs > Idaho fecue > other shrubs > other grasses > Bluebunch wheatgrass > forbs > trees

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: 3500, Normal: 3000, Unfavorable: 2000 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:** Perennial brush species will increase with deterioration of plant community. Bluegrasses, annual bromes, and medusahead invade sites that have lost deep rooted perennial grass functional groups. Excessive erosion may occur, deteriorating site potential.
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually
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