

Ecological site R009XY043OR

Low Elevation Deep North

14-17 PZ

Last updated: 5/05/2025
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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.

Associated sites

R009XY029OR	South 14-17 PZ South 14-17" PZ
R009XY031OR	Shallow South 14+ PZ Shallow South 14"+ PZ

Similar sites

R009XY040OR	North 14-17 PZ North 14-17" PZ (frigid, lower production, different composition)
R009XY042OR	Low Elevation North 14-17 PZ Low Elevation North 14-17" PZ (lower production, different composition)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in the lower elevations of the canyonlands of northeast Oregon. It si typically on steep slopes having north and northeast aspects. Slopes range from 30% to 90%. Elevation varies from 1600 to 3400 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon
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Elevation	490 – 1,040 m
Slope	30 – 90 %
Aspect	N, NE

Climatic features

The annual precipitation ranges from 14 to 17 inches most of which occurs in the form of snow during the months of November through March followed by ample spring rainfall. Localized convective storms occasionally occur during the summer. The soil temperature regime is mesic with a mean annual air temperature of 48 degrees F. The frost-free period ranges from 90 to 130 days. The optimum period for plant growth is from late April to mid-July.

Table 3 Representative climatic features

Frost-free period (average)	130 days
Freeze-free period (average)	
Precipitation total (average)	430 mm

Influencing water features

Soil features

The soils of this site are deep over basalt bedrock and are well drained. Areas of rock outcrop and talus occur. Typically the surface layer is a very cobbly silt loam. The subsoil includes a very cobbly silty clay loam and an extremely cobbly silty clay or clay. Depth to basalt bedrock averages 40 to over 60 inches. Permeability is moderately slow. The available water holding capacity (AWC) is about 8 to 12 inches for the profile. The potential for erosion is moderate to severe particularly on steep slopes.

Table 4. Representative soil features

Surface texture	(1) Very cobbly silt loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow

Ecological dynamics

Range in Characteristics:

Variability in plant composition and yield is dependent on aspect and soil depth rather than on precipitation and elevation ranges that occur within the site. Higher amounts of bluebunch wheatgrass occur as aspects change to northeast or northwest. Shrubs increase along with production as soil depth approaches 60 inches and on steeper north aspects. Conversely, production decreases and grasses increase as soil depths approach 40 inches and aspects change to east or northwest. Shrubs occurring in dense patches compete with grasses for space, water, nutrients and sunlight. An occasional ponderosa pine bearing fire scars may be present.

Response To Disturbance:

The original condition of the site with Idaho fescue dominant has low stability due to the site's warm low elevation position. If the condition of the site deteriorates as a result of overgrazing, Idaho fescue decreases and bluebunch wheatgrass strongly increases. Rhizomatous shrubs increase through shading and root competition with the weakened perennial grasses. Annual grasses invade. Unpalatable forbs increase slightly. With further deterioration, annuals strongly invade and together with shrubs dominate the site. Areas of bare ground increase and erosion is accelerated. The site is susceptible to fire, having variable to high fuel loads. Root sprouting shrubs respond well to these conditions and maintain a prominent position in the plant community.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Perennial Deep-rooted Dominant			1009-1816	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	605-1009	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	404-807	–
Forb					
7	Perennial All Dominant			61-121	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	20-40	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	20-40	–
	desertparsley	LOMAT	<i>Lomatium</i>	20-40	–
9	PPFF			20-40	
	milkvetch	ASTRA	<i>Astragalus</i>	4-8	–
	leather flower	CLEMA	<i>Clematis</i>	4-8	–
	hawksbeard	CREPI	<i>Crepis</i>	4-8	–
	buckwheat	ERIOG	<i>Eriogonum</i>	4-8	–
	western stone seed	LIRU4	<i>Lithospermum ruderales</i>	4-8	–
Shrub/Vine					
13	Perennial Deciduous Dominant			81-323	
	mock orange	PHILA	<i>Philadelphus</i>	40-161	–
	rose	ROSA5	<i>Rosa</i>	40-161	–
14	Perennial Deciduous Sub-dominant			81-404	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	20-101	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	20-101	–
	elderberry	SAMBU	<i>Sambucus</i>	20-101	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	20-101	–
15	SSSS			20-121	
	hawthorn	CRATA	<i>Crataegus</i>	6-30	–
	mallow ninebark	PHMA5	<i>Physocarpus malvaceus</i>	6-30	–
	currant	RIBES	<i>Ribes</i>	6-30	–
	western poison ivy	TORY	<i>Toxicodendron rydbergii</i>	6-30	–

Animal community

Livestock Grazing: This site is suited to use by cattle and sheep in the summer and fall. As this site usually occurs on steep, rocky slopes along with shallower sites, these limitations need to be carefully considered in developing alternatives. Care should be taken to avoid trampling damage and soil compaction when soils are wet. Wildlife: This site is important as a winter, spring, and fall grazing site for elk and deer. Taller shrubs provide valuable escape and hiding cover. As a critical site for deer and elk, adverse impacts can easily result to

palatable species such as Idaho fescue without careful management. Native Wildlife Associated With The Potential Climax Community; Mule deer, Rocky Mountain elk, Hawks, Coyote, and Rodents.

Hydrological functions

The hydrologic cover condition is good at higher condition classes. The soils are in hydrologic group B.

Recreational uses

In the Snake River Canyon area this site occurs on steep slopes interfingering with shallower sites. It provides a visual diversity contrasting with steep south slopes.

Other information

This site has a low potential for range seeding because of steepness of slope and adjacent shallower sites. Aerial seeding after a burn is practical to only a limited extent on intensely burned shrub areas.

Contributors

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Approval

Kirt Walstad, 5/05/2025

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	
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, well drained,
with areas of rock outcrop and talus and with a very cobbly silt loam surface - depth to bedrock ranges from 40 to 60 inches; low to
moderate OM (1-3%)

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 very steep slopes (30-90%) 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: Idaho fescue > Bluebunch wheatgrass > forbs > 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):
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15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):

Favorable: 2300, Normal: 1800, Unfavorable: 1300 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. 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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