

Ecological site R009XY035OR **Cold South 17-24 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

R009XY018OR	Cold Loamy 17-24 PZ Mountain Loamy 17-24" PZ
R009XY022OR	Cold Shallow 13+ PZ Mountain Shallow 13"+ PZ
R009XY027OR	Cold Very Shallow 13+ PZ Mountain Very Shallow 13" + PZ

Similar sites

R009XY036OR	Cold Shallow South 13+ PZ Mountain Shallow South 13"+ PZ
R009XY034OR	Cold South 13-17 PZ Mountain South 13-17" PZ (lower Production)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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Physiographic features

This site occurs near and within forestland on the backslopes of canyons, tablelands, and mountain plateaus north of the Wallowa Mountains. It is typically on slopes with south and southwest aspects as one of the last grassland sites before and within the forest. Slopes range from 12 to 60%. Elevation varies from 4000 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Plateau (3) Canyon
Elevation	4,000–5,000 ft
Slope	12–60%
Aspect	S, SW

Climatic features

The annual precipitation ranges from 17 to 24 inches most of which occurs in the form of snow during the months of November through March followed by ample spring rainfall. Localized, occasionally severe, convectional storms occur during the summer. The soil temperature regime is frigid with a mean annual air temperature of 44 degrees F. The frost-free period ranges from 70 to 95 days. The optimum period for plant growth is from late March to late June.

Table 3. Representative climatic features

Frost-free period (average)	95 days
Freeze-free period (average)	0 days
Precipitation total (average)	24 in

Influencing water features

Soil features

The soils of this site are moderately deep over basalt bedrock and are well drained. Areas of rock outcrop and talus are common. Typically the surface layer is a very cobbly silt loam to a very stony clay loam. The subsoil varies from a very cobbly clay loam to an extremely cobbly clay. Depth to bedrock is typically less than 30 inches. Permeability is moderately slow and the available water holding capacity (AWC) is about 3 to 5 inches for the profile. The potential for erosion, particularly on steep slopes, is severe.

Table 4. Representative soil features

Surface texture	(1) Very cobbly silt loam (2) Very stony clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow

Ecological dynamics

Range in Characteristics:

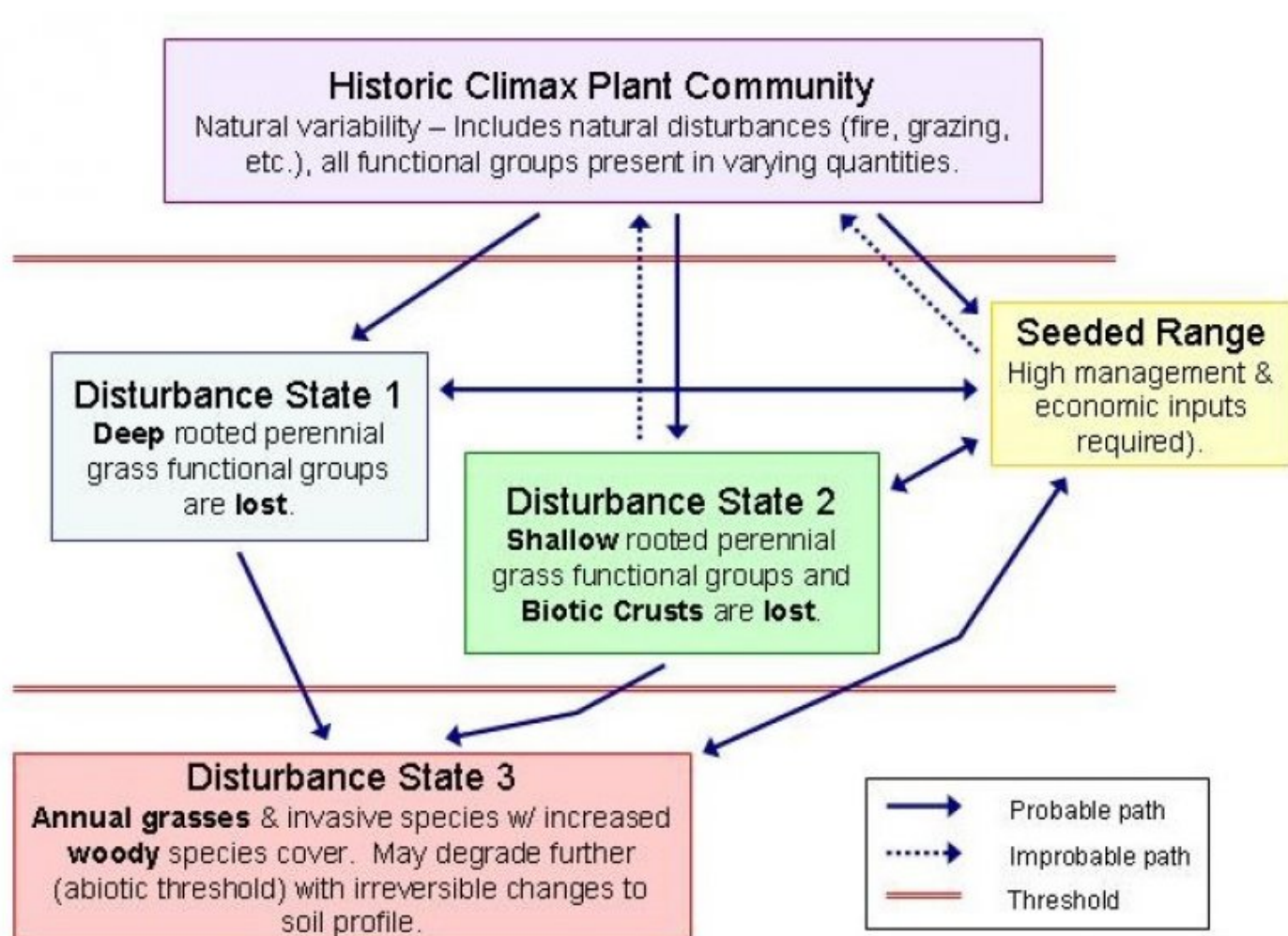
Changes in precipitation and elevation have little effect on composition and yield. Steep due south slopes will have the most bluebunch wheatgrass. Idaho fescue will be highest in composition on moderate southeasterly and

westerly slopes. Production is lowest as the soil approaches 20 inches of depth and as coarse fragments increase. Soils close to 40 inches of depth and with few coarse fragments will have the highest production.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue decreases first followed by bluebunch wheatgrass. Unpalatable forbs increase. Canada and Kentucky bluegrass invade along with soft chess, cheatgrass, salsify and a variety of other unpalatable forbs. Under deteriorated conditions, annuals dominate, bare ground increases and excessive erosion in the bare interspaces reduces the potential of the site 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 dominated by bluebunch wheatgrass, Idaho fescue and cinquefoil. Sandberg bluegrass, lupine, arrowleaf balsamroot, yarrow, penstemon and a variety of other forbs are prominent in the stand. Rose and other shrubs are occasionally present. The vegetative composition of the community is approximately 85 percent grasses, 13 percent forbs and 2 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1008	1372	1736
Forb	56	133	210
Shrub/Vine	28	42	56
Total	1092	1547	2002

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			980–1680	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	700–1120	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	280–560	–
4	Perennial Shallow-rooted Sub-dominant			28–56	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	14–28	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	14–28	–
Forb					
7	Perennial All Dominant			28–84	
	lupine	LUPIN	<i>Lupinus</i>	14–42	–
	cinquefoil	POTEN	<i>Potentilla</i>	14–42	–
8	Perennial All Sub-dominant			14–28	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	14–28	–
9	PPFF			14–98	
	milkvetch	ASTRA	<i>Astragalus</i>	2–11	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	2–11	–
	Indian paintbrush	CASTI2	<i>Castilleja</i>	2–11	–
	buckwheat	ERIOG	<i>Eriogonum</i>	2–11	–
	old man's whiskers	GETR	<i>Geum triflorum</i>	2–11	–
	Scouler's woollyweed	HISC2	<i>Hieracium scouleri</i>	2–11	–
	western stoneseed	LIRU4	<i>Lithospermum ruderales</i>	2–11	–
	beardtongue	PENST	<i>Penstemon</i>	2–11	–
	mule-ears	WYAM	<i>Wyethia amplexicaulis</i>	2–11	–
Shrub/Vine					
13	Perennial Deciduous Dominant			28–56	
	rose	ROSA5	<i>Rosa</i>	14–28	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	14–28	–

Animal community

Livestock Grazing:

This site is suited to use by cattle and sheep in the late spring and fall. As this site often occurs on both steep and rocky slopes, 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 late winter, early spring feeding site for deer and elk. It is often free of snow during the late winter and is one of the first soil areas to warm up. Early green forage is available. Adjacent forested areas provide valuable escape, hiding and thermal cover. As a critical site for deer and elk adverse impacts can easily result without careful management.

Native Wildlife Associated With The Potential Climax Community:

Rodents, Songbirds, Red-tailed hawk, Coyote, Rocky Mountain elk, and Mule deer.

Hydrological functions

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

Recreational uses

North of the Wallowa Mountains this site occurs in complex with other sites near and within forestland. It adds to the view with the distant mountains and high canyon slopes.

Other information

This site has a low potential for range seeding because of coarse fragments being in complex with shallower sites and/or steepness of slope.

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

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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%
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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, 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 to significantly resistant to erosion; aggregate stability = 3-6
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**
Moderately deep, well drained, with areas of rock outcrop and talus and with a very cobbly silt loam to a very stony clay loam surface; low to 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:** Significant ground cover (80-90%) and steep slopes (12-60%) moderately to significantly 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 > Idaho fescue > dominant forbs > other forbs > other grasses = shrubs

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: 1800, Normal: 1400, Unfavorable: 1000 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, annual bromes, and medusahead 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 reproducing annually
