

Ecological site R010XB047OR

JD Shallow South

12-16 PZ

Last updated: 5/06/2025
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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

R010XB045OR	JD Clayey South 12-16 PZ JD Clayey South 12-16" PZ
R010XB048OR	JD Loamy South 12-16 PZ JD Mahogany rockland 12"+ PZ
R010XB027OR	JD Clayey 12-16 PZ JD Clayey 12-16" PZ
R010XB030OR	JD Loamy 12-16 PZ JD Loamy 12-16" PZ
R010XB031OR	JD Shallow 12-16 PZ JD Shallow 12-16" PZ
R010XB032OR	JD Very Shallow 12-16 PZ JD Very Shallow 12-16" PZ

Similar sites

R010XB045OR	JD Clayey South 12-16 PZ JD Clayey South 12-16" PZ (deeper soil, higher production)
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Table 1. Dominant plant species

Tree	Not specified
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Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on south facing aspects of uplands, tablelands, and upper canyon side slopes. Slopes range from 10 to 70 percent with slopes of 30 to 60 percent being most typical. Elevation varies from 2700 to 4800 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon
Elevation	820 – 1,460 m
Slope	10 – 70 %
Water table depth	150 cm
Aspect	S

Climatic features

The annual precipitation ranges from 10 to 16 inches. The precipitation occurs as rain and snow during the months of November and March. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 50 degrees F. Extreme temperatures range from 100 degrees F to -10 degrees F. Soil temperature regimes are mesic. The frost-free period ranges from 90 to 150 days. The period of optimum plant growth is from April through June.

Table 3 Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	
Precipitation total (average)	410 mm

Influencing water features

Soil features

The soils of this site are formed in colluvium and loess over basalt and tuffaceous bedrock. They are shallow. Typically the surface layer is a very stony loam over a very stony clay loam subsoil. Depth to bedrock is 10 to 20 inches. Soil permeability is moderate. The available water holding capacity (AWC) is 2 to 4 inches. The erosion potential is severe.

Table 4. Representative soil features

Surface texture	(1) Stony loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate
Soil depth	30 – 50 cm
Available water capacity (0-101.6cm)	5.08 – 10.16 cm

Ecological dynamics

Range in Characteristics:

Variability in plant composition and production is dependent on soil depth, texture, and bedrock conditions. Bluebunch wheatgrass increases on fine textured surfaces. Thurber needlegrass increases on coarse textured surfaces. Juniper and antelope bitterbrush increase with bedrock fracturing. Production increases with soil depth.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass, and Thurber needlegrass decrease while Sandberg bluegrass, broom snakeweed, and western juniper increase. Cheatgrass, annual brome, medusa-head and other annuals invade. In the absence of fire, western juniper strongly increases and areas of bareground appear between the juniper. Soil erosion rapidly accelerates and inherent site productivity decreases.

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			538-628	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	538-628	–
2	Perennial, deep-rooted, sub-dominant			90-135	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	90-135	–
4	Perennial, shallow-rooted, sub-dominant			18-45	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	18-45	–
5	Other perennial grasses, all			27-81	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0-27	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	0-27	–
	bluegrass	POA	<i>Poa</i>	0-27	–
Forb					

7	Perennial, all, dominant			36-108	
	milkvetch	ASTRA	Astragalus	9-27	–
	arrowleaf balsamroot	BASA3	Balsamorhiza sagittata	9-27	–
	desertparsley	LOMAT	Lomatium	9-27	–
	lupine	LUPIN	Lupinus	9-27	–
9	Other perennial forbs, all			9-45	
	common yarrow	ACMI2	Achillea millefolium	0-9	–
	agoseris	AGOSE	Agoseris	0-9	–
	cryptantha	CRYPT	Cryptantha	0-9	–
	Blue Mountain prairie clover	DAOR2	Dalea ornata	0-9	–
	fleabane	ERIGE2	Erigeron	0-9	–
	buckwheat	ERIOG	Eriogonum	0-9	–
	grasswidow	OLSYN	Olsynium	0-9	–
	phacelia	PHACE	Phacelia	0-9	–
	phlox	PHLOX	Phlox	0-9	–
Shrub/Vine					
11	Perennial, deep-rooted, dominant			18-63	
	antelope bitterbrush	PUTR2	Purshia tridentata	18-45	–
15	Other perennial shrubs, all			9-45	
	basin big sagebrush	ARTRT	Artemisia tridentata ssp. tridentata	0-9	–
	rubber rabbitbrush	ERNA10	Ericameria nauseosa	0-9	–
	broom snakeweed	GUSA2	Gutierrezia sarothrae	0-9	–
	Saskatoon serviceberry	AMAL2	Amelanchier alnifolia	0-9	–
Tree					
16	Evergreen			0-18	
	western juniper	JUOC	Juniperus occidentalis	0-18	–
	ponderosa pine	PIPO	Pinus ponderosa	0-9	–

Animal community

Livestock Grazing: This site is suited to spring, summer, and fall use by cattle, sheep, and horses under a planned grazing system. Bluebunch wheatgrass can be damaged if heavily grazed during periods of flowering and seed formation when root reserves and soil moisture is low. Use in the spring should be postponed until the soils are firm enough to prevent plant crown trampling damage, soil compaction, and soil mass movement. Native Wildlife Associated with the Potential Climax Community: Mule deer Elk Upland birds 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. Threatened and Endangered Animals: Listed endangered species (1993), which may occur on this site include the peregrine falcon. Listed threatened species is the bald eagle.

Hydrological functions

The soils of this site have low water holding capacities providing little late season water for plant growth. The hydrologic cover condition is fair when the ecological condition is high.

Other information

When in poor condition this site has low potential for range seeding because it is shallow, stony, and usually steep. Technology for seeding on steep slopes is currently not available.

Contributors

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Approval

Kirt Walstad, 5/06/2025

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 and Bruce Frannsen
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Date	08/06/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills: None to few on steeper slopes, significant sheet & rill erosion hazard

2. Presence of water flow patterns: None to few on steeper slopes

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

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): 10-25%

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):
Moderately resistant to erosion: aggregate stability = 3-5

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Shallow to very shallow
very stony or very cobbly loams or silt loams: moderate OM (1-3%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on
infiltration and runoff: Moderate ground cover (50-60%) and gentle 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: Bluebunch wheatgrass > Thurber needlegrass > shrubs > forbs > 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: 1200, Normal: 800, Unfavorable: 500 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: Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.
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17. Perennial plant reproductive capability: All species should be capable of reproducing annually
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