

Ecological site R010XC038OR

SR Very Shallow

9-12 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.

Associated sites

R010XC035OR	SR Shallow 9-12 PZ SR Shallow 9-12" PZ
R010XC036OR	SR Shallow Cool 9-12 PZ SR Shallow Cool 9-12" PZ
R010XC043OR	SR South 9-12 PZ SR South 9-12" PZ
BX010X00C050	Shallow South 9-12 PZ Snake River Warm Plains SR Shallow South 9-12 PZ
R010XC021OR	SR Clayey 9-12 PZ SR Clayey 9-12" PZ
R010XC030OR	SR Cool 9-12 PZ SR Cool 9-12 PZ
R010XC064OR	SR North 9-12 PZ SR North 9-12" PZ
R010XC065OR	SR Cool North 9-12 PZ SR Cool North 9-12 PZ

Similar sites

R010XC039OR	SR Very Shallow 12-16 PZ SR Very Shallow 12-16 PZ (higher precipitation and production)
R010XC036OR	SR Shallow Cool 9-12 PZ SR Shallow Cool 9-12" PZ (greater depth, higher production, different composition - presence of ARTRW)
R010XC035OR	SR Shallow 9-12 PZ SR Shallow 9-12" PZ (greater depth, higher production, different composition - presence of ARTRW)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia rigida</i>
Herbaceous	(1) <i>Poa secunda</i>

Physiographic features

This site occurs on terraces, tablelands and rolling uplands. Slopes range from 0 to 12%. Elevations typically range from 2,800 to 4,200 feet.

Table 2. Representative physiographic features

Landforms	(1) Ridge (2) Plateau
Elevation	850 – 1,280 m
Slope	0 – 10 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 9 to 12 inches, most of which occurs in the form of snow and rain during the months of November through March. The soil temperature regime is cool mesic with a mean annual air temperature of 45 degrees F. Temperature extremes range from 100 to -20 degrees F. The frost-free period ranges from 60 to 100 days. The optimum period for plant growth is from April through May.

Table 3 Representative climatic features

Frost-free period (average)	100 days
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Freeze-free period (average)	
Precipitation total (average)	310 mm

Influencing water features

Soil features

The soils of this site are typically very shallow and moderately well drained. Typically the surface layer is a very cobbly silt loam about 4 inches thick. The subsoil is a heavy loam or a very cobbly silty clay loam about 4 to 6 inches thick. Depth to bedrock, an indurated pan or a dense clay subsoil is less than 10 inches. Permeability is moderately slow. The available water holding capacity ranges from 1 to 2 inches for the profile. The potential for erosion is moderate to severe.

Table 4. Representative soil features

Surface texture	(1) Cobbly silt loam
Family particle size	(1) Clayey
Drainage class	Moderately well drained to poorly drained
Permeability class	Moderately slow to slow
Soil depth	10 – 30 cm
Available water capacity (0-101.6cm)	2.54 – 5.08 cm

Ecological dynamics

The potential native plant community is dominated by stiff sagebrush and Sandberg bluegrass. Idaho fescue, bluebunch wheatgrass, squirreltail and a variety of forbs are common in the stand. Vegetative composition of the community is approximately 60 percent grasses, 15 percent forbs and 25 percent shrubs. Approximate ground cover is 30 to 50 percent (basal and crown).

Range in Characteristics:

Plant composition and production is dependent on soil depth and bedrock fracture. Sandberg bluegrass increases over unfractured bedrock and soils that are 4 to 6 inches deep. Stiff sagebrush and Idaho fescue will increase on deeper soils close to 10 inches deep and over fractured bedrock. Bluebunch wheatgrass will increase at lower elevations and on slight south and west slopes. Production will increase with soil depth and precipitation.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, perennial bunchgrasses decrease while stiff sagebrush and Sandberg bluegrass increase. Major disturbance will result in loss of plant vigor and reduction of cover. Excessive erosion in the bare soil interspaces markedly reduces the site productivity and contributes to downstream sedimentation.

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	Dominant, perennial shallow-rooted grass			135-202	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	135-202	–
2	Sub-dominant, perennial grasses			34-77	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	17-34	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	10-27	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	7-17	–
Forb					
7	Dominant, perennial forbs			17-44	
	desertparsley	LOMAT	<i>Lomatium</i>	10-27	–
	buckwheat	ERIOG	<i>Eriogonum</i>	7-17	–
8	Sub-dominant, perennial forbs			10-20	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	3-7	–
	fleabane	ERIGE2	<i>Erigeron</i>	3-7	–
	phlox	PHLOX	<i>Phlox</i>	3-7	–
9	Other forbs			10-41	
	agoseris	AGOSE	<i>Agoseris</i>	2-6	–
	onion	ALLIU	<i>Allium</i>	2-6	–
	pussytoes	ANTEN	<i>Antennaria</i>	2-6	–
	deathcamas	ZIGAD	<i>Zigadenus</i>	2-6	–
	haplopappus	HAPLO11	<i>Haplopappus</i>	0-6	–
	pricklypear	OPUNT	<i>Opuntia</i>	0-6	–
	blepharipappus	BLEPH2	<i>Blepharipappus</i>	1-4	–
	beardtongue	PENST	<i>Penstemon</i>	0-3	–
Shrub/Vine					
11	Dominant deciduous shrub			67-135	
	scabland sagebrush	ARRI2	<i>Artemisia rigida</i>	67-135	–

Animal community

Livestock Grazing: This site provides limited spring forage to livestock. The very shallow soils have low water holding capacity for extended plant growth. This site is easily damaged by early grazing and trampling when soils are saturated. Grazing management should be keyed for the limited amount of Idaho fescue. Deferred grazing or rest is recommended at least once every three years. Native Wildlife Associated with the Potential Climax Community: This site offers food and limited cover for mule deer, antelope, small mammals, birds and their associated predators. It is an important spring use area for deer, antelope and upland birds. It is a preferred site for sage grouse leks and rearing. Forbs furnish excellent high quality protein for brood rearing and young wildlife.

Hydrological functions

The soils of this site are in an upland topographic position. They have high runoff potential and low available water storage potential even when the hydrologic cover is good. Under frozen ground conditions runoff potential is significantly increased. With a reduction in ground cover and an increase in bare ground, sediment delivery is considerably increased and site productivity is reduced.

Other information

This site is not suited to range seeding or brush control. The major limitation is the very shallow soils. Special designs are needed for fence construction. When incised channels are present, rehabilitation will markedly improve production, reduce downstream sedimentation, and restore good hydrologic characteristics. On altered sites, the reintroduction of perennial grasses may be needed to fully restore the site potential.

Contributors

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Approval

Kirt Walstad, 4/10/2025

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 Franssen
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Date	08/07/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills: None, severe sheet & rill erosion hazard

2. Presence of water flow patterns: None

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): 10-20%

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

6. Extent of wind scoured, blowouts and/or depositional areas: None, moderate 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):
Moderate resistance to erosion: aggregate stability = 3-5

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Very shallow well drained loam to cobbly loam (4 inches thick): Low OM (0-2%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Low to moderate ground cover (30-50%) and gentle slopes (0-20%) 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: Sandberg bluegrass > Stiff sagebrush > other grasses > forbs

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: 400, Normal: 300, Unfavorable: 100 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: Western Juniper readily invades the 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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