USDA Natural Resources Conservation Service

Ecological site R008XY150OR
Very Shallow Loam 10-14 PZ

Last updated: 5/02/2025
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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.

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

R008XY110OR	**Loamy 10-12 PZ**
R008XY120OR	**Loamy 12-14 PZ**
R008XY140OR	**Shallow Loam 10-14 PZ**

R008XY200OR	**South 10-14 PZ**
R008XY220OR	**North 10-14 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on the tops and shoulders of rigdes and plateaus underlain by basalt bedrock.

Table 2. Representative physiographic features

Landforms	(1) Ridge (2) Plateau
Elevation	168–1,097 m
Slope	2–20%

Climatic features

The annual precipitation ranges from 10 to 14 inches depending on elevation. Precipitation occurs as rain with snow during the months of November through May. Spring and fall rains are common. The temperature regime is mesic and extreme temperatures range from 110 degrees F. to -10 degrees F. The frost free period is 120 to 160 days long and the optimum period for plant growth is from early April to late May.

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	
Precipitation total (average)	356 mm

Influencing water features

Soil features

The soils of this site are very shallow, very stony, well drained loams over clay loams. Basalt bedrock is commonly within 8 inches of the soil surface. The available water

holding capacity is about 1.5 inches for the profile. The soil surface is very stony. The erosion hazard for both wind and water is slight.

Table 4. Representative soil features

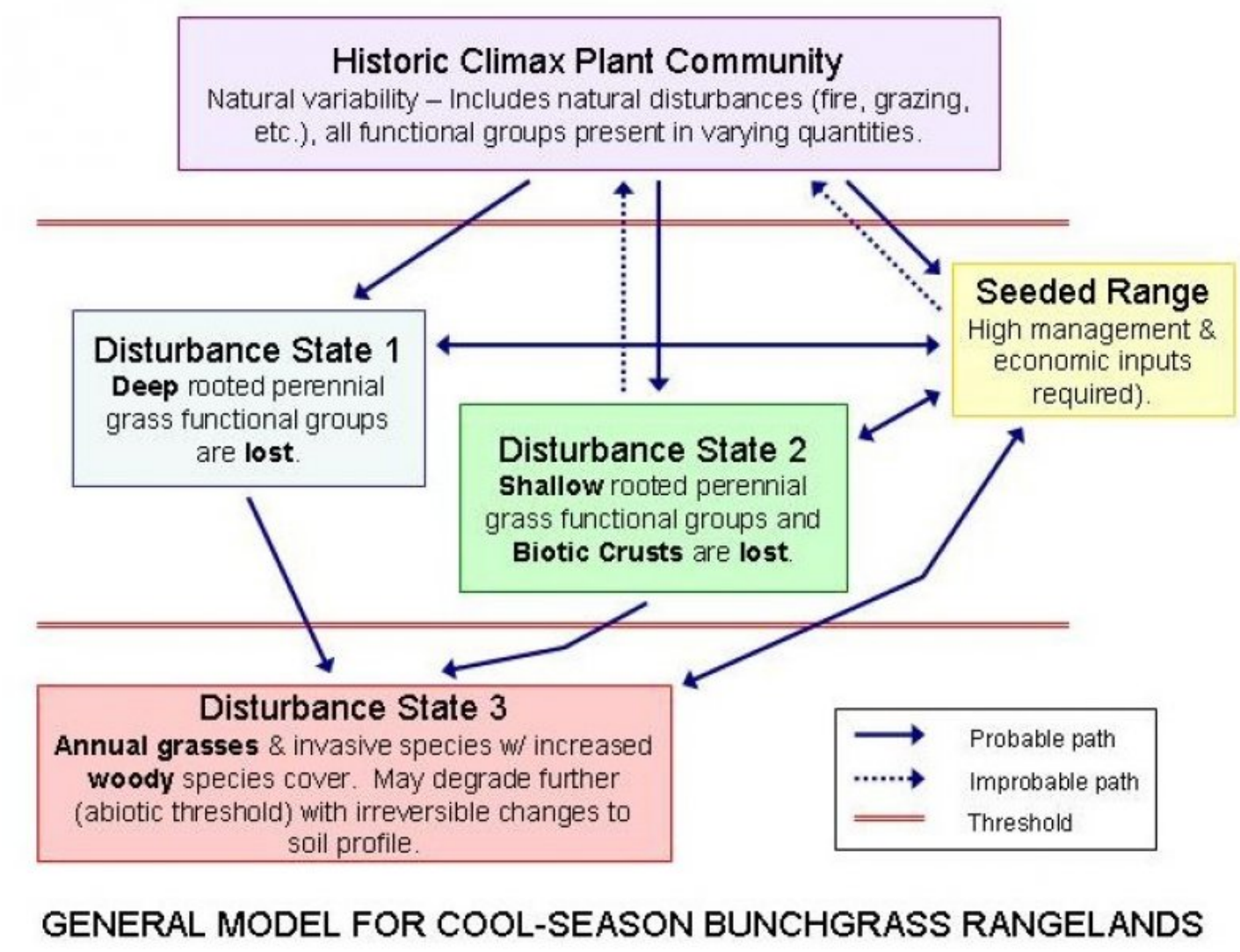
Surface texture	(1) Stony loam (2) Clay loam
Family particle size	(1) Loamy
Drainage class	Well drained to excessively drained
Soil depth	0–20 cm
Available water capacity (0-101.6cm)	0–3.81 cm

Ecological dynamics

If heavy grazing causes site deterioration, the site will become fully occupied by Sandberg bluegrass. Grazing while the soil is wet will cause severe pitting of the soil surface, an increase in bare soil, and reduce overall site production.

Variability in soil depth affects production and composition on this site. An increase in soil depth will promote higher production and increase the amount of bluebunch wheatgrass and stiff sagebrush. Idaho fescue will occur at the higher end of the precipitation range.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference

Community 1.1
Reference Plant Community

The potential native plant community is dominated by stiff sagebrush and Sandberg bluegrass. Vegetative composition is about 60% grasses, 10% forbs, and 30% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	73	219	286
Shrub/Vine	28	84	118
Forb	11	34	45
Total	**112**	**337**	**449**

Figure 3. Plant community growth curve (percent production by month). OR2531, B8 Shallow Site, Good Condition. B8 Shallow Site, Good Condition RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	15	20	25	15	10	0	0	5	10	0	0

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					
2	**Sub-dominant deep rooted perennial grasses**			7–34	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	7–34	–
3	**Dominant shallow rooted perennial grasses**			67–252	
	Sandberg bluegrass	POSE	*Poa secunda*	67–252	–
5	**Other perennial grasses**			0–17	
	squirreltail	ELEL5	*Elymus elymoides*	0–6	–
	Idaho fescue	FEID	*Festuca idahoensis*	0–6	–
Forb					
7	**Dominant perennial forbs**			3–10	
	desertparsley	LOMAT	*Lomatium*	3–10	–
8	**Sub-dominant perennial forbs**			13–27	
	pussytoes	ANTEN	*Antennaria*	3–7	–
	fleabane	ERIGE2	*Erigeron*	3–7	–
	buckwheat	ERIOG	*Eriogonum*	3–7	–
	phlox	PHLOX	*Phlox*	3–7	–
9	**Other perennial forbs**			0–7	
	common yarrow	ACMI2	*Achillea millefolium*	0–3	–
	agoseris	AGOSE	*Agoseris*	0–3	–
	onion	ALLIU	*Allium*	0–3	–
	rockcress	ARABI2	*Arabis*	0–3	–
	serrate balsamroot	BASE2	*Balsamorhiza serrata*	0–3	–
	bitter root	LERE7	*Lewisia rediviva*	0–3	–
Shrub/Vine					
11	**Dominant shrub**			50–101	
	scabland sagebrush	ARRI2	*Artemisia rigida*	50–101	–

Animal community

This site is important as sage grouse breeding grounds. Adequate amounts of stiff sagebrush provides important winter range for deer.

Hydrological functions

The soils of this site have moderate infiltration rates and moderate to high runoff potential. The hyrologic group is D.

Recreational uses

This site can produce the greatest variety of flowering plants of any site in the area.

Wood products

None

Other products

This site has limited suitability for livestock grazing. Grazing should be postponed until soils are dry. Where stiff sagebrush is present it offers late fall and witner forage particularly for sheep.

Other information

The very shallow soils and very stony surface make this site unsuitable to reseeding. Special designs are needed for fencing and stock water pipelines.

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.

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Date	07/27/2012
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

2. **Presence of water flow patterns:** Few to none in plant/stone interspaces

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):** 15-30%

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 = 4-5

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very shallow, very stony, well drained loams: Low OM (<1%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Very low ground cover (10-20%) and surface rock fragments limit rainfall impact and moderately supress water flow

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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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 > Bluebunch wheatgrass > other grasses > dominant forbs = other forbs

    Sub-dominant:

    Other:

    Additional:

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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: 400, Normal: 300, Unfavorable: 100 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:** Site is generally resistant to invading brush and tree species. Cheatgrass ans 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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