

Ecological site R007XY020OR

South 8-10 PZ

Last updated: 2/06/2025

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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.



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

R007XY014OR	Loamy 8-10 PZ Loamy 8-10" PZ
R007XY013OR	Sandy Loam 8-10 PZ Sandy Loam 8-10" PZ

R007XY015OR	Shallow Loam 8-10 PZ Shallow Loam 8-10" PZ
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Similar sites

R007XY014OR	Loamy 8-10 PZ Loamy 8-10" PZ (less steep, not as droughty)
R007XY015OR	Shallow Loam 8-10 PZ Shallow Loam 8-10" PZ (shallow soils)
R007XY013OR	Sandy Loam 8-10 PZ Sandy Loam 8-10" PZ (less steep, not as droughty)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on side slopes of hills and dissected plateaus on mostly southerly aspects.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Plateau
Flooding frequency	None
Elevation	152–366 m
Slope	12–40%
Water table depth	183 cm
Aspect	SE, S, SW

Climatic features

The annual precipitation ranges from 8 to 10 inches which occurs mostly as rain during the months of November through April. The temperature regime is mesic with extremes ranging from 115 degrees F to -10 degrees F. The frost-free period is 200 to 230 days and the optimum period for plant growth is early March through mid-May.

Table 3. Representative climatic features

Frost-free period (average)	230 days
Freeze-free period (average)	
Precipitation total (average)	254 mm

Influencing water features

Soil features

The soils of this site are moderately deep to very deep, well drained fine sandy loams to gravelly silt loams. They are formed over alluvium, loess, or lacustrine sediments. Permeability is moderately rapid and reaction is neutral to moderately alkaline in the subsoils. Runoff is low and the erosion hazard is moderate for both water and wind.

Table 4. Representative soil features

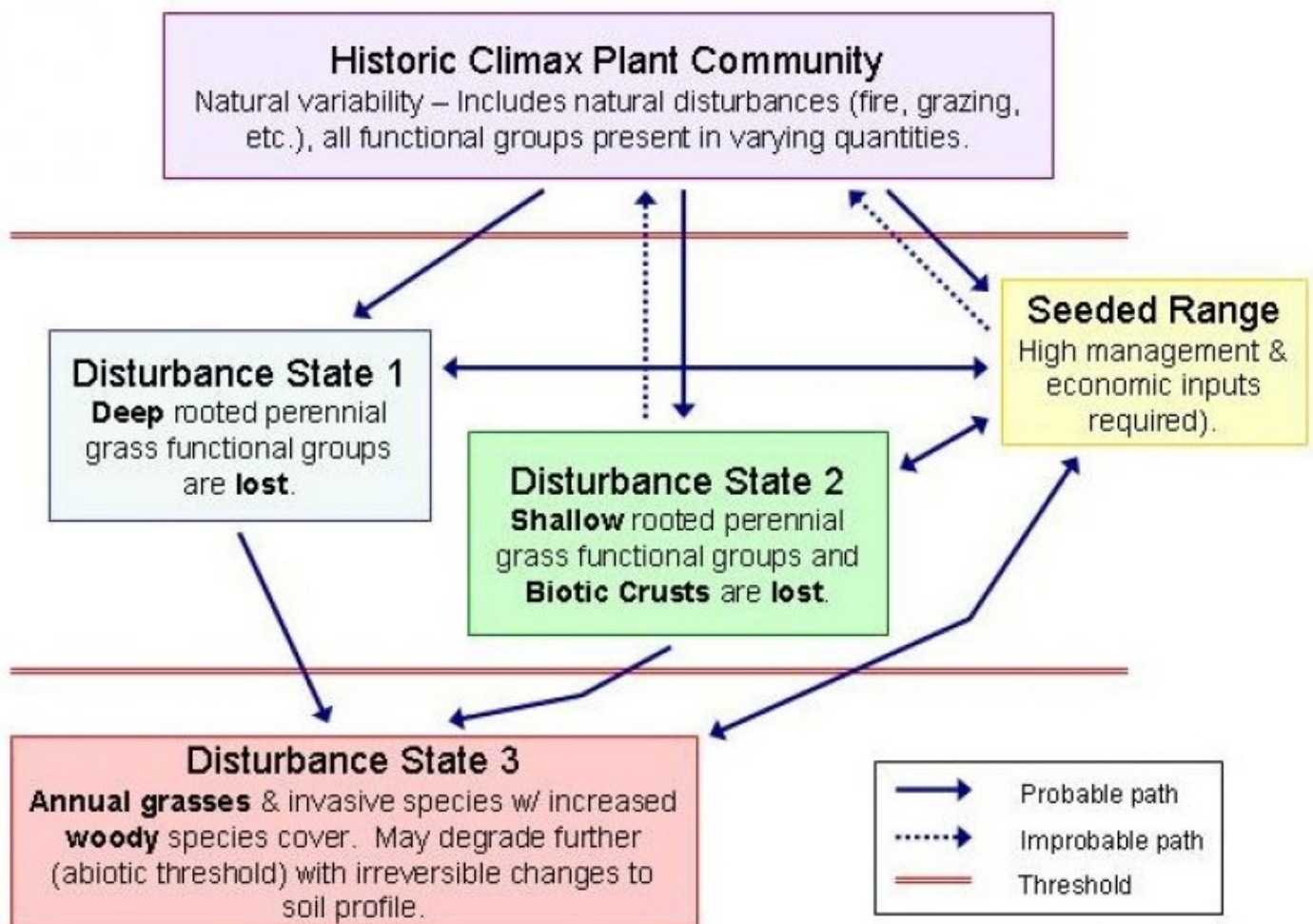
Surface texture	(1) Fine sandy loam (2) Gravelly silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately rapid
Soil depth	152 cm

Ecological dynamics

If heavy grazing causes site deterioration, broom snakeweed and gray rabbitbrush will strongly increase along with big sagebrush. Annuals like cheatgrass, mustard, russian thistle, and china lettuce readily invade the site.

Variation in plant composition on this site results from variations in soil surface texture. Fine textured surfaces favor the establishment of bluebunch wheatgrass. Coarse textured surfaces will encourage a higher proportion of needleandthread. Gravels increase the proportion of Thurber needlegrass.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Reference

Community 1.1

Bluebunch Wheatgrass, Needle and Thread, and Sandberg Bluegrass

Variation in plant composition on this site results from variations in soil surface texture. Fine textured surfaces (silts) favor the establishment of bluebunch wheatgrass. Coarse textured surfaces (fine sands) will encourage a higher percentage of needle and thread. Gravels increase the proportion of thurber needlegrass.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	305	426	542
Forb	22	45	67
Shrub/Vine	13	22	31
Total	340	493	640

Figure 3. Plant community growth curve (percent production by month).
OR2271, B7 LOAMY, GOOD CONDITION. RPC growth curve B7 LOAMY,
GOOD CONDITION.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	15	25	20	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					
1	Dominant deep rooted perennial grasses			224–314	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	224–314	–
2	Sub-dominant deep rooted perennial grasses			49–148	
	needle and thread	HECO26	<i>Hesperostipa comata</i>	45–135	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	4–13	–
3	Dominant shallow rooted perennial grasses			22–67	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	22–67	–
5	Other perennial grasses			9–13	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	0–9	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–9	–
Forb					
7	Dominant perennial forbs			18–54	
	balsamroot	BALSA	<i>Balsamorhiza</i>	4–13	–
	buckwheat	ERIOG	<i>Eriogonum</i>	4–13	–
	desertparsley	LOMAT	<i>Lomatium</i>	4–13	–

	phlox	PHLOX	<i>Phlox</i>	4–13	–
9	Other perennial forbs			4–13	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–4	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–4	–
	lupine	LUPIN	<i>Lupinus</i>	0–4	–
Shrub/Vine					
11	Dominant evergreen shrubs			4–13	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	4–13	–
12	Sub-dominant evergreen shrubs			4–9	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	4–9	–
15	Other shrubs			4–9	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	0–4	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	0–4	–

Animal community

This site provides food and cover for songbirds, small mammals and their associated predators. It can also provide part of the winter-early spring diet for mule deer and antelope.

The scarcity of water is the limiting factor in the use of this site by wildlife. When located near water it furnishes valuable winter-early spring feed to deer and antelope.

Livestock Grazing:

Because of its southerly exposure and warmer soil temperatures, this site is commonly the first to show plant growth. These factors contribute to rapid soil moisture depletion, therefore special consideration is required in grazing management to allow for plant regrowth.

Hydrological functions

The soils of this site have moderate intake rates and high runoff potential. The hydrologic soil group is B.

Other information

Caution must be exercised in developing a seeding plan because the soils are droughty

and subject to moderate to severe wind erosion.

Contributors

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Approval

Kirt Walstad, 2/06/2025

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
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Date	07/26/2012
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Few, moderate sheet & rill erosion hazard

2. **Presence of water flow patterns:** Few to many, depending on slope and plant cover

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 2-10%
-
5. **Number of gullies and erosion associated with gullies:** None
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6. **Extent of wind scoured, blowouts and/or depositional areas:** Very few possible, moderate to severe wind erosion hazard
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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 slightly resistant to erosion; aggregate stability = 3-4
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Moderately deep to very deep, well drained, fine sandy loams to gravelly silt loams; low OM (1-2%)
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate ground cover (30-50%) should limit rainfall impact and overland flow on lower slopes (12-20%); increased flow likely on steeper slopes (up to 40%)
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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
-
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 > Needle and thread > Sandberg bluegrass > Thurber needlegrass = other grasses = dominant forbs = other forbs = Basin big sagebrush >= Gray rabbitbrush = other 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
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14. **Average percent litter cover (%) and depth (in):** In areas with adequate plant cover
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 700, Normal: 400, Unfavorable: 300 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:** Rabbitbrush, sage brush and broom snakeweed may increase and reduce cover of herbaceous plants. Cheatgrass and annual forbs invade sites that have lost shallow rooted perennial grass functional groups
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually
