Ecological site R024XY653OR
ARID FAN
8-10 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

R024XY016OR	**LOAMY 8-10 PZ** Loamy 8-10 PZ (deeper soil, higher production)
R024XY017OR	**SHALLOW LOAM 8-10 PZ** Shallow Loam 8-10 PZ (upland position,different composition - LECI4 not common)

Similar sites

R024XY017OR	**SHALLOW LOAM 8-10 PZ** Shallow Loam 8-10 PZ (upland position, different composition - LECI4 not common)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia tridentata ssp. wyomingensis*
Herbaceous	(1) *Achnatherum hymenoides* (2) *Achnatherum thurberianum*

Physiographic features

This site occurs on fans along low rolling hill toe slopes. It is typically found on shallow soils over bedrock. Slopes typically range from 2 to 15%. Elevation varies from 4200 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan
Elevation	1,280 – 1,520 m

Slope	0 – 20 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 10 inches, most of which occurs in the form of snow and rain during the months of December through March. The soil temperature regime is mesic to frigid near mesic. Air temperature extremes range from 110 to -20 degrees F. The frost free period ranges from 90 to 120 days. The optimum growth period for native plants is from the first of April through early June.

Table 3 Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	0 days
Precipitation total (average)	250 mm

Influencing water features

Soil features

The soils of this site are typically shallow over fractured bedrock. They are well drained. The surface texture is a loam to a fine-sandy loam. Subsoils are very cobbly loams to very cobbly sandy loams. A desert pavement is common. Permeability is moderately rapid. The available water holding capacity (AWC) is about 2 to 4 inches for the profile. The potential for both wind and water erosion is moderate.

Table 4. Representative soil features

Parent material	(1) Eolian deposits – rhyolite (2) Alluvium – basalt
Surface texture	(1) Loam (2) Fine sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately rapid
Soil depth	30 – 50 cm

Ecological dynamics

The potential native plant community is dominated by Wyoming big sagebrush, Inian ricegrass and Thurber needlegrass. Basin wildrye, bluebunch wheatgrass, and bottlebrush squirreltail are common in the stand. Spiny hopsage and a variety of forbs are present. Vegetative composition of the community is approximately 70 percent grasses, 10 percent forbs and 20 percent shrubs. The approximate ground cover is 30-40% (basal and crown).

Range in Characteristics:
Production will increase in areas with greater soil depth, over fractured bedrock and at the upper end of the precipitation zone. Indian ricegrass increases on sandy gravelly surfaces, Thurber's needlegrass increases on loamy surfaces and bluebunch wheatgrass increases on silty surfaces. Basin wildrye increases were additional moisture accumulates in fractured bedrock.

Response to Disturbance - States:
If the condition of the site deteriorates as a result of over grazing, Indian ricegrass, Thurber's needlegrass and other deep rooted perennial bunchgrasses decrease in the stand. Wyoming big sagebrush, Sandberg bluegrass and squirreltail increase. With further deterioration, minor amounts of annuals invade, bare ground increases, vesicular crusts enlarge, erosion accelerates and site productivity decreases. The invasion of annuals and the reestablishment of perennials are limited in areas of strong vesicular crusts and heavy erosion pavement.

STATES: ARTRW8/ELEL5-POSE-bare ground; Annuals-bare ground with fire

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, moderate rooted bunchgrasses**			90-179	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	45-90	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	45-90	–
2	**Sub-dominant, moderate & deep rooted bunchgrasses**			45-135	
	basin wildrye	LECI4	*Leymus cinereus*	22-67	–
	bluebunch wheatgrass	PSSPS	*Pseudoroegneria spicata ssp. spicata*	22-67	–
3	**Other perennial grasses**			36-117	
	squirreltail	ELEL5	*Elymus elymoides*	13-36	–
	needle and thread	HECO26	*Hesperostipa comata*	13-36	–
	beardless wildrye	LETR5	*Leymus triticoides*	0-22	–
	Sandberg bluegrass	POSE	*Poa secunda*	9-22	–
Forb					
4	**Perennial forbs**			34-45	
	milkvetch	ASTRA	*Astragalus*	4-9	–
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	4-9	–
	buckwheat	ERIOG	*Eriogonum*	4-9	–
	desertparsley	LOMAT	*Lomatium*	4-9	–
	lupine	LUPIN	*Lupinus*	4-9	–
	granite prickly phlox	LIPU11	*Linanthus pungens*	0-7	–
	fleabane	ERIGE2	*Erigeron*	2-4	–
	common yarrow	ACMI2	*Achillea millefolium*	2-4	–
	phlox	PHLOX	*Phlox*	2-4	–
	scarlet globemallow	SPCO	*Sphaeralcea coccinea*	2-4	–
	deathcamas	ZIGAD	*Zigadenus*	1-2	–
	silverpuffs	MICRO6	*Microseris*	0-2	–
	pussytoes	ANTEN	*Antennaria*	1-2	–
	Douglas' dustymaiden	CHDO	*Chaenactis douglasii*	0-2	–

Shrub/Vine					
5	**Dominant, evergreen, non-sprouting shrub**			22-45	
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	22-45	–
6	**Sub-dominant,evergreen, non-sprouting shrubs**			22-58	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	13-36	–
	spiny hopsage	GRSP	*Grayia spinosa*	9-22	–
7	**Other shrubs**			13-45	
	shadscale saltbush	ATCO	*Atriplex confertifolia*	0-13	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	7-13	–
	bud sagebrush	PIDE4	*Picrothamnus desertorum*	0-11	–
	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	0-11	–
	shortspine horsebrush	TESP2	*Tetradymia spinosa*	0-9	–

Animal community

Livestock Grazing: This site is suitable for livestock grazing use in spring, fall and early winter under a planned grazing system. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Grazing management should be keyed for Indian ricegrass and Thurber's needlegrass. These bunchgrasses can be severely damaged if heavily grazed during periods of flowering and grass seed formation before root reserves have accumulated and soil moisture is low. Deferred grazing or rest is recommended at least once every three years. Wildlife: This site offers food and cover for antelope, mule deer, sage grouse and a variety of other birds and rodents. It is an important spring, fall and winter use area for sage grouse, antelope and mule deer.

Hydrological functions

The soils of this site have a high runoff potential. The hydrologic cover condition is fair to good when the deep rooted bunchgrass component is greater than 70 percent of potential. The soils are in hydrologic group D.

Other information

This site has low potential for range seeding because it is very droughty and stony. In areas where a heavy erosion pavement exists, the potential for natural seeding reestablishment is low.

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)	
Contact for lead author	
Date	
Approved by	

Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

   _____

2. **Presence of water flow patterns:**

   _____

3. **Number and height of erosional pedestals or terracettes:**

   _____

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

   _____

5. **Number of gullies and erosion associated with gullies:**

   _____

6. **Extent of wind scoured, blowouts and/or depositional areas:**

   _____

7. **Amount of litter movement (describe size and distance expected to travel):**

   _____

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

   _____

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

   _____

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

    _____

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

    _____

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:

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):**

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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):**

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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:**

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17. **Perennial plant reproductive capability:**
