

Ecological site R024XY602OR NORTH SLOPES 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

R024XY015OR	DESERT LOAM 6-10 PZ Desert Loam 6-10 PZ (non-aspect, higher salts and carbonates, lower production, different composition – ATCO and PIDE4 dominant)
R024XY016OR	LOAMY 8-10 PZ Loamy 8-10 PZ (non-aspect, different composition – ACTH7 dominant, PSSPS prominent)
R024XY017OR	SHALLOW LOAM 8-10 PZ Shallow Loam 8-10 PZ (non-aspect, lower production, different composition – ACTH7 dominant, ACHY and PSSPS prominent)
R024XY019OR	SILT LOAM TERRACE 8-11 PZ Silt Loam Terrace 8-11 PZ (non-aspect, fine loamy, higher production, different composition – LECI4 prominent)
R024XY020OR	SHRUBBY LOAM 8-10 PZ Shrubby Loam 8-10 PZ (non-aspect, different composition - EPHED present, ACTH7 dominant, PSSPS prominent)
R024XY032OR	ARID SOUTH SLOPES 6-10 PZ Arid South Slopes 6-10 PZ (lower production, warmer slope, different composition – ARTRW8 and ACHY dominant w/ACTH7 prominent, PSSPS and SADO4 present)
R024XY033OR	ARID NORTH SLOPES 6-10 PZ Arid North Slopes 6-10 PZ (shallow to very shallow, erosion pavement present, lower production, warmer slopes, different composition – ARTRW8 and PSSPS dominant w/ACTH7 near co-dominant)
R024XY124OR	CLAYEY TERRACE 8-10 PZ Clayey Terrace 8-10 PZ (fine textured, different composition – PSSPS strongly dominant, ACTH7 minor)
R024XY638OR	SOUTH SLOPES 8-10 PZ South Slopes 8-10 PZ (lower production, warmer south slope, different composition – ARTRW8 and PSSPS dominant w/ACTH7 near co-dominant)

Similar sites

R024XY638OR	SOUTH SLOPES 8-10 PZ South Slopes 8-10 PZ (lower production, warmer south slope, different composition – ARTRW8 and PSSPS dominant w/ACTH7 near co-dominant)
R024XY033OR	ARID NORTH SLOPES 6-10 PZ Arid North Slopes 6-10 PZ (shallow to very shallow, erosion pavement present, lower production, warmer slopes, different composition – ARTRW8 and PSSPS dominant w/ACTH7 near co-dominant)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata ssp. wyomingensis</i>

Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> (2) <i>Poa cusickii</i>
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Physiographic features

This site occurs on north facing aspects of terraces, basin hills and low mountain slopes. Slopes typically range from 15 to 40%. Elevation varies from 3500 to 5200 feet.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Hill (3) Mountain slope
Elevation	1,067–1,585 m
Slope	15–40%
Aspect	N

Climatic features

The annual precipitation ranges from 8 to 10 inches, most of which occurs in the form of rain and snow during the months of December through March. The soil temperature regime is mesic to frigid near mesic with a mean air temperature of 48 degrees F. Temperature extremes range from 110 to -20 degrees F. The frost free period ranges from 80 to 110 days. The optimum growth period for plant growth is from April through mid June.

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	254 mm

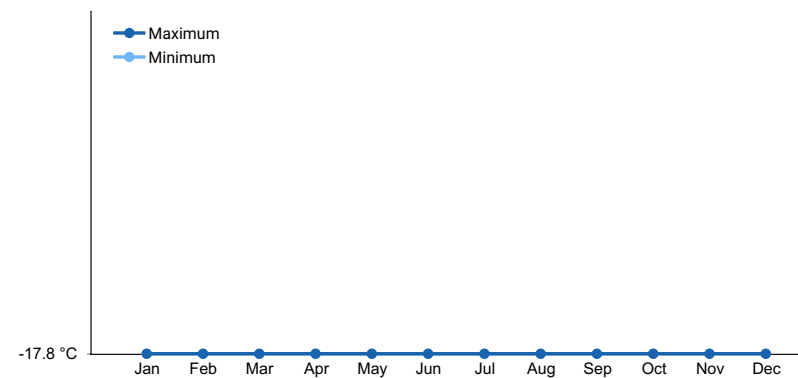


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The soils of this site are typically moderately deep over a strongly cemented duripan or bedrock. Substratum’s can be either compacted alluvial sediments or bedrock. The surface texture is a cobbly ashy loam over a cobbly loam to cobbly clay loam subsoil. Permeability is moderate. The available water holding capacity (AWC) is about 4 to 6 inches for the profile. The potential for erosion is moderate to severe.

Table 4. Representative soil features

Parent material	(1) Eolian deposits–rhyolite
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Surface texture	(1) Cobbly loam (2) Ashy
Family particle size	(1) Loamy
Drainage class	Moderately well drained to somewhat poorly drained
Permeability class	Moderate to moderately slow
Soil depth	51–102 cm
Available water capacity (0-101.6cm)	10.16–15.24 cm

Ecological dynamics

The potential native plant community is dominated by Wyoming big sagebrush and bluebunch wheatgrass. Thurber's needlegrass and Cusick's bluegrass are prominent. Spiny hopsage, Sandberg bluegrass, bottlebrush squirreltail 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 50 to 60 percent (basal and crown).

Range in Characteristics

The depth to a restrictive layer and aspect influences the composition and production of the site. Production will increase with greater soil depth, on steep due north slopes and at the upper end of the precipitation zone. Bluebunch wheatgrass and Cusick's bluegrass increase on a silty surface. Thurber's needlegrass increases on shallow coarser soil. Spiny hopsage increases at the lower end of the precipitation zone and on droughty slopes.

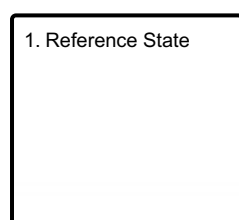
Response to Disturbance - States

If the condition of the site deteriorates as a result of over grazing, bluebunch wheatgrass, Cusick's bluegrass and Thurber needlegrass will decrease in the stand. Wyoming and basin big sagebrush, squirreltail and Sandberg bluegrass will increase. Annuals will invade. With further deterioration, annuals continue to invade and bare ground increases. Erosion accelerates and site productivity decreases.

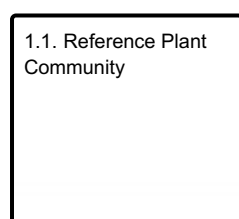
States: ARTRW8(T)-GRSP/ELEL5-POSE-bare ground; Annuals-bare ground with fire under deteriorated conditions

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1 Reference State

Community 1.1 Reference Plant Community

The reference native plant community is dominated by Wyoming big sagebrush and bluebunch wheatgrass.

Thurber's needlegrass and Cusick's bluegrass are prominent. Spiny hopsage, Sandberg bluegrass, bottlebrush squirreltail 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 50 to 60 percent (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	471	628	785
Shrub/Vine	135	179	224
Forb	67	90	112
Total	673	897	1121

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, perennial, moderate rooted bunchgrass			359–538	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	359–538	–
2	Sub-dominant, moderate rooted bunchgrasses			90–224	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	45–135	–
	Cusick's bluegrass	POCU3	<i>Poa cusickii</i>	45–90	–
3	Common, perennial, shallow rooted grass			17–45	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	17–45	–
4	Other perennial grasses			56–157	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0–45	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	0–34	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	6–28	–
	foxtail wheatgrass	PSSA2	× <i>Pseudelymus saxicola</i>	0–22	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	11–22	–
Forb					
5	Perennial forbs			22–90	
	buckwheat	ERIOG	<i>Eriogonum</i>	6–17	–
	lupine	LUPIN	<i>Lupinus</i>	6–17	–
	milkvetch	ASTRA	<i>Astragalus</i>	6–17	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	11–17	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	6–11	–
	fleabane	ERIGE2	<i>Erigeron</i>	6–11	–
	phlox	PHLOX	<i>Phlox</i>	6–11	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	3–9	–
	pussytoes	ANTEN	<i>Antennaria</i>	2–6	–
	mariposa lily	CALOC	<i>Calochortus</i>	2–6	–
	Indian paintbrush	CASTI2	<i>Castilleja</i>	0–6	–
	deathcamas	ZIGAD	<i>Zigadenus</i>	2–6	–
Shrub/Vine					
6	Dominant, evergreen, non-sprouting shrubs			67–135	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	45–90	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	17–45	–
7	Common, evergreen, non-sprouting shrub			11–28	
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	11–28	–
8	Other shrubs			28–45	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	6–17	–
	littleleaf horsebrush	TEGL	<i>Tetradymia glabrata</i>	6–17	–
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	0–11	–
	spineless horsebrush	TECA2	<i>Tetradymia canescens</i>	0–11	–

Animal community

Livestock Grazing

This site is suitable for livestock grazing use in the late spring and fall under a planned grazing system. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Care should be taken to avoid plant crown damage and soil movement when the soils are wet. Grazing management should be keyed to bluebunch wheatgrass, Thurber's needlegrass and Cusick's bluegrass. 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 mule deer, antelope, desert bighorn sheep and a variety of birds, rodents and associated predators. It is an important spring, fall and winter use area for mule deer and desert bighorn sheep.

Hydrological functions

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

Other information

This site has moderately low potential for range seeding because it is very droughty. Extended drought can inhibit germination and establishment of available species.

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:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**
-

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):**

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:**

17. **Perennial plant reproductive capability:**
