

## **Ecological site R024XY123OR** **LOW CLAYEY TERRACE 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.

### Ecological site concept

This site occurs on lake terraces. Soils are very deep, well drained and formed in lacustrine sediment. Soils are characterized by a silty clay loam surface, an ochric epipedon and an argillic horizon. This ES only occurs in MLRA 23. Limited extent in one MU OR645 5007.

### Associated sites

R024XY004OR	<b>DRY FLOODPLAIN 6-10 PZ</b> Dry Floodplain (thicker surface horizon, higher production, different composition – LECI4 dominant grasses)
R024XY008OR	<b>CLAYEY PLAYETTE</b> Clayey Playette (thin vesicular crust over clayey subsoil, lower production, different composition - ELEM5 dominant grass)
R024XY016OR	<b>LOAMY 8-10 PZ</b> Loamy 8-10 PZ (upland site, thicker surface horizon, higher production, different composition – ACTH7-PSSPS-ACHY dominant grasses)
R024XY019OR	<b>SILT LOAM TERRACE 8-11 PZ</b> Silt Loam Terrace 8-11 PZ (thicker surface horizon, higher production, different composition – PSSPS-LECI4 dominant grasses)

### Similar sites

R024XY008OR	<b>CLAYEY PLAYETTE</b> Clayey Playette (thin vesicular crust over clayey subsoil, lower production, different composition - ELEM5 dominant grass)
R024XY019OR	<b>SILT LOAM TERRACE 8-11 PZ</b> Silt Loam Terrace 8-11 PZ (thicker surface horizon, higher production, different composition – PSSPS-LECI4 dominant grasses)

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata subsp. wyomingensis</i>
Herbaceous	(1) <i>Pseudoroegneria spicata subsp. spicata</i> (2) <i>Poa secunda</i>

### Physiographic features

This site occurs in dry lake basins and valley floors. It is typically found on the first slight low terrace on flat valley floors. The site appears as a relatively low dry playa with regular patterns of small coppices and playettes. Slopes

range from 0-3 percent and elevations from 4000 to 4600 feet.

Table 2. Representative physiographic features

Landforms	(1) Basin floor (2) Valley floor (3) Terrace
Ponding duration	Very brief (4 to 48 hours)
Ponding frequency	Rare to occasional
Elevation	1,219–1,402 m
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. Localized convection storms occasionally occur during the summer. The soil temperature is mesic to frigid near mesic with a mean air temperature of 48 degrees F. Temperature extremes range from 100 to -10 degrees F. The frost-free period ranges from 90 to 120 days. The optimum period for plant growth is from April through early June.

Table 3. Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	0 days
Precipitation total (average)	254 mm

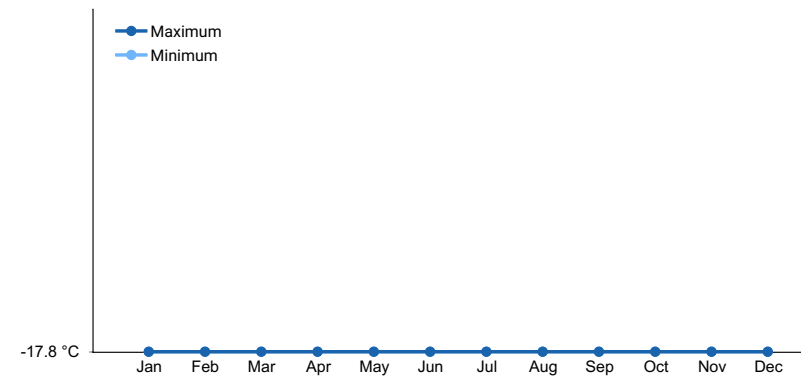


Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The soils of this site are fine textured, very deep and somewhat poorly drained. The surface layer varies from a very fine sandy loam to a clay loam 1 to 4 inches thick over a clay subsoil. A strong vesicular crust is present. Slight wind deposited coppice mounds with sage occur in a regular pattern. Ponding typically occurs for short periods in the spring. Permeability is moderately slow to slow. The available water holding capacity (AWC) is 6 to 10 inches. Depth to a water table is normally greater than 60 inches. The potential for wind and water erosion is slight.

Table 4. Representative soil features

Parent material	(1) Lacustrine deposits–rhyolite
Surface texture	(1) Very fine sandy loam (2) Clay loam

Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained to poorly drained
Permeability class	Moderately slow to slow
Soil depth	183 cm
Available water capacity (0-101.6cm)	15.24–25.4 cm

## Ecological dynamics

The potential native plant community on the scattered small coppice mounds is dominated by Wyoming big sagebrush. Bluebunch wheatgrass dominates the grass/forb layer under the Wyoming sagebrush and is scattered on the playettes. Bottlebrush squirreltail and Sandberg bluegrass are present. Forbs are a minor component. The potential vegetative composition is approximately 75 percent grass, 20 percent shrubs and 5 percent forbs. The approximate ground cover is 40 to 50 percent (basal and crown).

### Range in Characteristics-

This site is uniform in appearance with little variation. Production varies with soil surface depth, coppice mound depth and the extent of the vesicular crust in the playette area. Wyoming big sagebrush occurs on coppice mounds and deeper surfaces. Bluebunch wheatgrass increases where the surface and subsoil contact is not extremely abrupt and where an increase of a very fine sandy loam or silt loam surface that masks the polygons of the vesicular crust in the playette area.

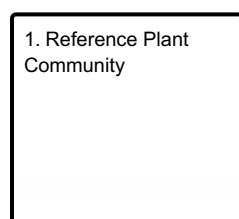
### Reponse to Disturbance-States

If heavy grazing causes site deterioration, bluebunch wheatgrass decreases. Wyoming big sagebrush, bottlebrush squirreltail and Sandberg bluegrass increase. With further deterioration perennials decrease. Annual forbs and grasses weakly invade and the extent of bare playette area rapidly increases.

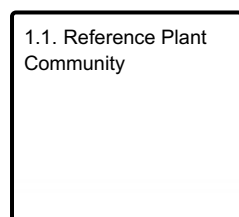
States: ARTRW8/ELEL5-POSE – bare ground; ARTRW8/Annuals – extensive playette areas

## State and transition model

### Ecosystem states



### State 1 submodel, plant communities



## State 1 Reference Plant Community

### Community 1.1 Reference Plant Community

The reference native plant community on the scattered small coppice mounds is dominated by Wyoming big sagebrush. Bluebunch wheatgrass dominates the grass/forb layer under the Wyoming sagebrush and is scattered on the playettes. Bottlebrush squirreltail and Sandberg bluegrass are present. Forbs are a minor component. The

potential vegetative composition is approximately 75 percent grass, 20 percent shrubs and 5 percent forbs. The approximate ground cover is 40 to 50 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	168	336	420
Shrub/Vine	45	90	112
Forb	11	22	28
<b>Total</b>	<b>224</b>	<b>448</b>	<b>560</b>

## Additional community tables

**Table 6. Community 1.1 plant community composition**

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Dominant, moderate rooted bunchgrass</b>			291–336	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	291–336	–
2	<b>Dominant, shallow to moderate rooted bunchgrasses</b>			27–72	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	13–36	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	13–36	–
3	<b>Other perennial grasses</b>			18–54	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	4–13	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0–13	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0–13	–
	beardless wildrye	LETR5	<i>Leymus triticoides</i>	4–13	–
	foxtail wheatgrass	PSSA2	× <i>Pseudelymus saxicola</i>	0–13	–
<b>Forb</b>					
4	<b>Perennial forbs</b>			9–45	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	3–9	–
	onion	ALLIU	<i>Allium</i>	3–9	–
	hawksbeard	CREPI	<i>Crepis</i>	3–9	–
	buckwheat	ERIOG	<i>Eriogonum</i>	3–9	–
	desertparsley	LOMAT	<i>Lomatium</i>	3–9	–
	phlox	PHLOX	<i>Phlox</i>	3–9	–
<b>Shrub/Vine</b>					
5	<b>Dominant, evergreen, non-sprouting shrub</b>			90–135	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	90–135	–
6	<b>Other shrubs</b>			3–9	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	3–9	–

## Animal community

Livestock grazing-

This site is suitable for livestock grazing use in the late 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 to bluebunch wheatgrass. Bluebunch wheatgrass 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 is commonly occupied by small mammals and their associated predators. Mule deer and antelope will use this site during the fall and winter. This site provides limited cover and food for wildlife. Various birds, rabbits, and rodents make use of this site.

## Hydrological functions

#### Watershed-

The soils of this site are typically on the first slight terrace above the lowest topographic position. They have reduced runoff potential when ponded because of their position and low intake rates. Low plant densities result in only fair hydrologic cover condition even when the ecological condition is high. The soils are in hydrologic group C.

## Other information

This site has poor potential for range seeding because of the thick vesicular crust, contrasting clay subsoil and droughtiness of the site. Disturbing the vesicular crust and mixing it with the subsoil provides a slightly improved micro-environment for seedling establishment.

## 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:

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### 2. Presence of water flow patterns:

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

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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:**
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6. **Extent of wind scoured, blowouts and/or depositional areas:**
- 
7. **Amount of litter movement (describe size and distance expected to travel):**
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**
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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):**
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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:**
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