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Ecological site R024XY007OR
DRY PONDED CLAY
6-10 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

Ecological site is not mapped within MLRA 24. It possibly represents a 23 concept or a transition. Field check correlation to Overallflat with is also correlated to 024XY008NV.

Associated sites

R024XY004OR	**DRY FLOODPLAIN 6-10 PZ** Dry Floodplain (floodplain position, flooding frequent, medium textured soil, moderately well to well drained, higher production, different composition - ARTRT/LECI4-LETR5 association)
R024XY011OR	**SILTY 6-10 PZ** Silty 6-10 PZ (low terrace position, silty soil, different composition – KRLA2/ACHY association)
R024XY122OR	**DRY LAKEBED 6-10 PZ** Dry Lakebed 6-10 PZ (low terrace position, clayey soil, different composition –KRLA2-ATNU2/ELEL5 association)
R024XY126OR	**FLOODED CLAY SWALE** Flooded Clay Swale (moist swale position, clayey soil, flooding frequent, higher production, different composition - ARCA/POSE(PONE)-LETR5 association)

Similar sites

R024XY126OR	**FLOODED CLAY SWALE** Flooded Clay Swale (moist swale position, clayey soil, flooding frequent, higher production, different composition - ARCA/POSE(PONE)-LETR5 association)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia tridentata subsp. tridentata*

Herbaceous	(1) *Leymus triticoides*

Physiographic features

This site occurs on low elevation dry lake basins on valley floors at the lower end of drainage systems. It typically occurs on dry swales, overflow channels, and depression areas. Short duration ponding is occasional. Extended long duration ponding from upstream runoff is rare. A seasonal water table is occasionally present. Slopes typically range from 0 to 2 percent. Elevations typically range from 4400 to 5300 feet.

Table 2. Representative physiographic features

Landforms	(1) Lakebed (2) Lake terrace (3) Basin floor
Flooding frequency	None
Ponding duration	Brief (2 to 7 days)
Ponding frequency	Occasional
Elevation	1,340 – 1,620 m
Slope	0 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 12 inches, most of which occurs in the form of rain and snow during the months of December through April. Limited ephemeral surface flows from upstream drainages and adjoining sites occasionally augments the precipitation. The soil temperature is mesic to frigid near mesic with a mean air temperature of 47 degrees F. Temperature extremes range from 100 to -10 degrees F. The frost-free period ranges from 50 to 100 days. The optimum period for plant growth is from late April to early July.

Table 3 Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	310 mm

Influencing water features

Soil features

The soils of this site are fine textured and very deep. The surface layer is a thin silt to silty clay loam 2 to 6 inches over a contrasting silty clay subsoil. Substratums are lacustrine sediments. Soils are neutral at the surface to moderately alkaline with increasing depths. Shallow ponding occasionally occurs for short periods in the spring. Extended long duration ponding from upstream runoff is infrequent. Permeability is slow. The available water holding capacity (AWC) is 6 to 10 inches. A seasonal water table is often available for a short period of time. The potential for wind and water erosion is slight.

Table 4. Representative soil features

Parent material	(1) Volcanic ash – basalt (2) Lacustrine deposits – acidic tuff (3) Alluvium – rhyolite
Surface texture	(1) Silt loam (2) Loam (3) Very fine sandy loam
Family particle size	(1) Clayey
Drainage class	Moderately well drained to well drained
Permeability class	Slow to moderately slow
Soil depth	150 cm
Available water capacity (0-101.6cm)	14.99 – 25.91 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	6.6 – 8.4

Ecological dynamics

The reference native plant community is dominated by basin big sagebrush and beardless (creeping) wildrye. Basin wildrye and bottlebrush squirreltail are common. Other grasses and forbs are minor. Vegetative composition is greater than 80 percent grass/grass-like, 5 percent forbs and 15 percent shrubs. The approximate ground cover is 40 to 60 percent (basal and crown).

Three states have been identified for this site: a reference state; a state with the presence of annuals weeds; and a state with annual dominance. Annual production will fluctuate with the extent and duration of ponding, surface ephemeral flows, or seasonal depth to ground water.

Reference State: Community phase changes are primarily a function of climate. Multiple wet years may reduce sagebrush where present and increase production of native grass plants. Long-term drought favors sagebrush. Bunchgrass density may decline under prolonged drought; however, rhizomatous species such as creeping wildrye maintain density with reduced production. The role of fire is unknown. The introduction of invasive annual weeds transitions into state 2.

State 2: Compositionally similar to the reference state with a trace of annual weeds. Cheatgrass more easily invades sites with an overstory of big sagebrush and less cover of creeping wildrye. Ecological function has not changed, however the resiliency of the state has been reduced by the presence of invasive weeds. Prescribed grazing maintains state dynamics. Long-term drought favors most shrubs over bunchgrasses. The timing and/or intensity of grazing practices can favor sagebrush and creeping wildrye over bunchgrasses. Prescribed grazing can reverse the trend. Improper grazing management leads to a decline in perennial grasses and an increase in sagebrush where present and an increase in annual weeds creating an at-risk community phase. Prescribed grazing may reverse this trend. Continued improper management of grazing practices leads to state 3.

State 3: Annual weeds control site resources and drive ecological dynamics. Bare ground is abundant. Creeping wildrye exists in patches. Bunchgrasses may be present in trace amounts. Decadent sagebrush may be present on some sites. Spatial and temporal energy capture and nutrient cycling has been truncated. Infiltration may be reduced due to lack of ground cover.

Range in Characteristics:
Production is dependent on the extent of seasonal surface flows from adjacent sites and upstream drainages. Upstream sites have greater production than lower downstream and isolated sites. Due to the typical distant droughty position of the site, the duration of the ephemeral flows are not long enough to reduce or eliminate basin big sagebrush. Infrequently a portion of the basin big sagebrush will be eliminated by long duration ponding from upstream flows. With increase in available moisture basin wildrye and production will increase. As the site becomes drier beardless wildrye increases.

Response to Disturbance-States:
When the condition of the site deteriorates as a result of over grazing, basin wildrye decreases. Beardless (creeping) wildrye, squirreltail and basin big sagebrush increase. With further deterioration, creeping wildrye decreases, basin big sagebrush continues to increase and areas of bare ground become prominent. Annual mustards, other annuals and forbs invade. Areas of bare ground become prominent. With occasional rare longer duration ponding events, basin big sagebrush is reduced. Typical post settlement off-site upstream hydrologic changes have limited the frequency and extent of downstream ponding. Hydrology changes include up-stream water withdrawls for irrigation, storage and drainage blockages.

States: ARTRT/LETR5-ELEL5-Annuals-Bare ground; ARTRT/IVAX-Annuals-Bare ground; Annuals-Bare ground

State and transition model

Figure 3. Group 4, STM

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	**Moderately-deep rooted rhizomatus grass**			471-549	
	beardless wildrye	LETR5	*Leymus triticoides*	471-549	–
2	**Deep rooted bunchgrass**			39-118	
	basin wildrye	LECI4	*Leymus cinereus*	39-118	–
4	**Moderately-deep rooted bunchgrasses**			56-118	
	squirreltail	ELEL5	*Elymus elymoides*	39-78	–
	bluegrass	POA	*Poa*	16-39	–

5	**Other, perennial grasses and grass-like**			16-31	
	rush	JUNCU	*Juncus*	0-16	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	0-16	–
Forb					
7	**Perennial forb**			8-16	
	povertyweed	IVAX	*Iva axillaris*	8-16	–
8	**Other forbs**			16-39	
	milkvetch	ASTRA	*Astragalus*	0-16	–
	lupine	LUPIN	*Lupinus*	0-16	–
	dock	RUMEX	*Rumex*	0-8	–
	scarlet globemallow	SPCO	*Sphaeralcea coccinea*	0-8	–
	hawksbeard	CREPI	*Crepis*	0-8	–
	common yarrow	ACMI2	*Achillea millefolium*	0-8	–
Shrub/Vine					
11	**Evergreen, non-sprouting shrub**			39-118	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	39-118	–
12	**Deciduous, sprouting shrubs**			8-24	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	0-8	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0-8	–
	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	0-8	–

Animal community

Livestock grazing: This site is suitable for livestock grazing use in the late spring, fall and 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 basin wildrye on the site and winterfat on closely associated sites. The site can be damaged if heavily grazed during periods of basin wildrye flowering and seed formation when root reserves are low. Winterfat on often associated Silty 6-10 PZ and Dry Lakebed 6-10 PZ sites can easily be damaged by heavy late winter/early spring grazing during periods of spring bark slippage. Basin wildrye provides excellent standing dried forage during winter dormancy. Deferred grazing or rest is recommended at least once every three years. Wildlife: This site is commonly used by pronghorn antelope, mule deer, rabbits, rodents, a variety of upland birds and various predators. Cover and forage is excellent when the ecological condition is high. The cover value is exceptional when the site occurs in mosaic with Silty 6-10 PZ and Dry Lakebed 6-10 PZ sites. These associated sites are dominated by winterfat which provides excellent winter forage.

Hydrological functions

The soils of this site are typically near the lowest topographic position and when occasionally ponded for short periods have little runoff potential. The hydrologic cover condition is good when the ecological condition is high. Hydrologic cover is high when the creeping wildrye and basin wildrye components are greater than 70 percent of potential. The soils are in hydrologic group D.

Other information

This site has limited potential for range seeding because of its droughty nature and present lack of creeping wildrye seed.

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):**

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

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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):**

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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:

    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:**
