USDA Natural Resources Conservation Service

Ecological site R024XY015OR
DESERT LOAM 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.

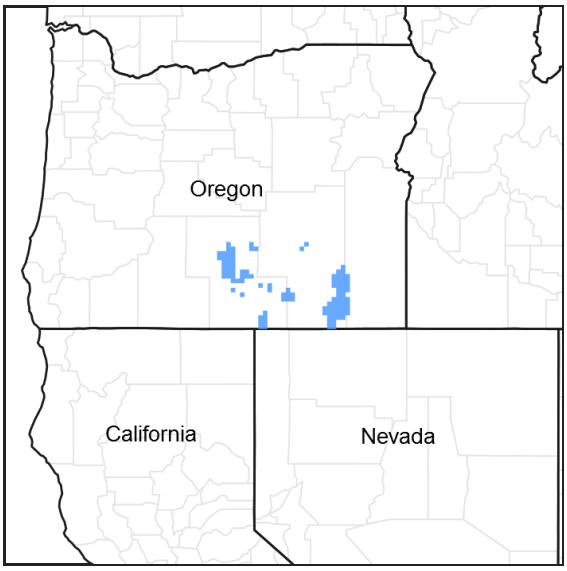


Figure 1. Mapped extent

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

R024XY016OR	**LOAMY 8-10 PZ** Loamy 8-10 PZ (deeper soil, lower salts and carbonates, higher production, different composition- ARTRW8/ACTH7-PSSPS-ACHY association)
R024XY017OR	**SHALLOW LOAM 8-10 PZ** Shallow Loam 8-10 PZ (lower salts and carbonates, different composition- ARTRW8/ACTH7-ACHY-PSSPS association)
R024XY021OR	**THIN SURFACE 8-14 PZ** Thin Surface 8-14 PZ (very shallow soil, lower salts and carbonates, different composition – ARNO4/ELEL5-POSE association)
R024XY653OR	**ARID FAN 8-10 PZ** Arid Fan 8-10 PZ (lithic toe slope position, lower salts and carbonates, different composition – ARTRW8/ACHY-ACTH7 association, LECI4 common)

Similar sites

R024XY017OR	**SHALLOW LOAM 8-10 PZ** Shallow Loam 8-10 PZ (lower salts and carbonates, different composition- ARTRW8/ACTH7-ACHY-PSSPS association)

R024XY016OR	**LOAMY 8-10 PZ** Loamy 8-10 PZ (deeper soil, lower salts and carbonates, higher production, different composition-ARTRW8/ACTH7-PSSPS-ACHY association)
R024XY653OR	**ARID FAN 8-10 PZ** Arid Fan 8-10 PZ (lithic toe slope position, lower salts and carbonates, different composition – ARTRW8/ACHY-ACTH7 association, LECI4 common)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex confertifolia* (2) *Picrothamnus desertorum*
Herbaceous	(1) *Elymus elymoides*

Physiographic features

This site occurs on upland fan remnants, terraces, fans and rolling hills. It is typically found on topography with gentle slopes. Slopes typically range from 2 to 15%. Elevation varies from 3500 to 4500 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan remnant (2) Terrace (3) Hill
Elevation	3,500–4,500 ft
Slope	2–15%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 6 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)	105 days
Freeze-free period (average)	0 days
Precipitation total (average)	8 in

Influencing water features

Soil features

The soils of this site are typically shallow over a weakly to strongly cemented duripan or bedrock. Substratum's can be either compacted alluvial sediments or bedrock. Soils have a loamy to fine loamy surface texture and are sodium affected. Desert pavement is common. Small playettes are usually present. Permeability is moderately slow to moderate. The available water holding capacity (AWC) is about 2 to 4 inches for the profile. Depth to a water table is greater than 72 inches. The potential for water and wind erosion is moderate.

Table 4. Representative soil features

Parent material	(1) Eolian deposits–rhyolite

Surface texture	(1) Gravelly loam (2) Very cobbly clay loam (3) Sandy loam
Family particle size	(1) Clayey
Drainage class	Well drained to moderately well drained
Permeability class	Moderate to moderately slow
Soil depth	10–20 in
Available water capacity (0-40in)	2–4 in

Ecological dynamics

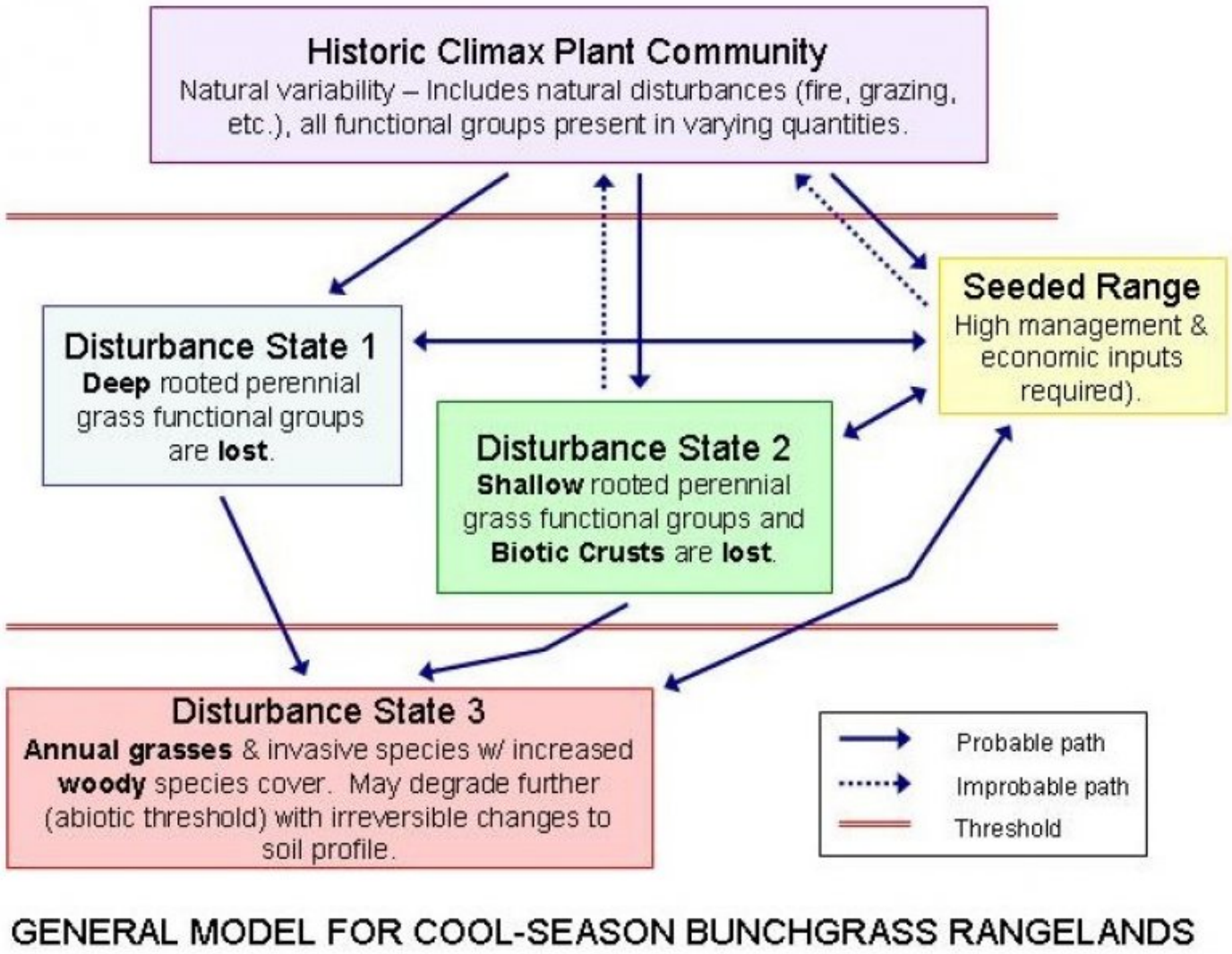
The potential native plant community is strongly dominated by shadscale and bud sagebrush. Bottlebrush squirreltail is common in the stand. Lesser amounts of Indian rice grass is present. Other moderate rooted perennial bunchgrasses are sparse. Sandberg bluegrass and a variety of forbs are present. Vegetative composition of the community is approximately 65% shrubs, 30% grass and 5 percent forbs. The approximate ground cover is 30-40% (basal and crown).

Range in Characteristics:
This site is uniform in appearance with little variability. Production will increase in areas with greater soil depth and less restrictive layers. Bottlebrush squirreltail will increase on older higher fan remnants and terraces with stable erosion pavement. The old erosion pavement has developed a distinctive desert varnish. The distinctive dark color is due to precipitated concentrates of manganese and lesser amounts of iron.

Response to Disturbance - States:
If the condition of the site deteriorates as a result of over grazing, bud sagebrush and Indian ricegrass will decrease in the stand. With further deterioration, shadscale, squirreltail and Sandberg bluegrass will decrease. Minor amounts of annuals will 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: ATCO-PIDE4/ELEL5-POSE-bare ground (ACHY absent); ATCO/annuals-bare ground

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference native plant community is strongly dominated by shadscale and bud sagebrush. Bottlebrush squirreltail is common in the stand. Lesser amounts of Indian rice grass is present. Other moderate rooted perennial bunchgrasses are sparse. Sandberg bluegrass and a variety of forbs are present. Vegetative composition of the community is approximately 65% shrubs, 30% grass and 5 percent forbs. The approximate ground cover is 30-40% (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	260	325	455
Grass/Grasslike	120	150	210
Forb	20	25	35
Total	**400**	**500**	**700**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant, moderate rooted bunchgrass**			50–100	
	squirreltail	ELEL5	*Elymus elymoides*	50–100	–
2	**Sub-dominant, moderate rooted bunchgrass**			25–50	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	25–50	–
3	**Prominent, shallow rooted bunchgrass**			10–25	
	Sandberg bluegrass	POSE	*Poa secunda*	10–25	–
4	**Other perennial grasses**			5–40	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	5–25	–
	needle and thread	HECO26	*Hesperostipa comata*	0–15	–
Forb					
5	**Perennial forbs**			5–25	
	milkvetch	ASTRA	*Astragalus*	0–5	–
	buckwheat	ERIOG	*Eriogonum*	0–5	–
	phlox	PHLOX	*Phlox*	0–5	–
	scarlet globemallow	SPCO	*Sphaeralcea coccinea*	0–2	–
	thelypody	THELY	*Thelypodium*	0–2	–
	evening primrose	OENOT	*Oenothera*	0–2	–
	mountain ball cactus	PESI	*Pediocactus simpsonii*	0–2	–
	Indian paintbrush	CASTI2	*Castilleja*	0–2	–
	Douglas' dustymaiden	CHDO	*Chaenactis douglasii*	0–2	–
Shrub/Vine					
6	**Dominant, deciduous, non-sprouting shrubs**			250–350	
	shadscale saltbush	ATCO	*Atriplex confertifolia*	150–200	–
	bud sagebrush	PIDE4	*Picrothamnus desertorum*	100–150	–
7	**Other shrubs**			10–75	
	spiny hopsage	GRSP	*Grayia spinosa*	10–25	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	0–10	–
	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	0–10	–
	shortspine horsebrush	TESP2	*Tetradymia spinosa*	0–10	–
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	0–10	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	0–10	–

Animal community

Livestock Grazing:
This site is suitable for livestock grazing use in the early spring, fall and winter under a planned grazing system. The key species are bud sagebrush and Indian ricegrass or squirreltail if Indian ricegrass is not present. Heavy late winter/early spring grazing during periods of “bark slippage” can severely damage bud sagebrush and shadscale. Indian ricegrass and squirreltail can be severely damaged if heavily grazed during periods of grass seed formation before root reserves have accumulated and soil moisture is low. Care should be taken to avoid trampling damage and soil compaction when soils are wet. 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 antelope, mule deer and desert bighorn sheep.

Hydrological functions

The soils of this site have a high runoff potential. The hydrologic cover condition is fair to good when shadscale, bud sagebrush and the deep rooted bunchgrass components are 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:

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:**

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17. **Perennial plant reproductive capability:**
