

Ecological site R024XY609OR

DROUGHTY BOTTOM 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

R024XY004OR	DRY FLOODPLAIN 6-10 PZ Dry Floodplain (longer available seasonal water table, higher production,different composition –LECI4 strongly dominant, ACHY absent)
R024XY016OR	LOAMY 8-10 PZ Loamy 8-10 PZ (shallower soil depth, upland position, lower production, different composition – moderate rooted bunchgrasses dominant/ACTH7-PSSPS-ACHY)
R024XY608OR	ARID BOTTOM 6-10 PZ Arid Bottom 6-10 PZ (shorter available easonal water table, lower production, different composition – LECI4 prominent along with ACHY)

Similar sites

R024XY608OR	ARID BOTTOM 6-10 PZ Arid Bottom 6-10 PZ (shorter available seasonal water table, lower production, different composition – LECI4 prominent along with ACHY)
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Table 1. Dominant plant species

Tree	Not specified
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Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>tridentata</i>
Herbaceous	(1) <i>Leymus cinereus</i>

Physiographic features

This site typically occurs on the floors and droughty floodplains of low elevation dry lake basins and valley bottoms. A short duration seasonal water table is often present. Slopes typically range from 0 to 3%. Elevations vary from 3,500 to 4,800 feet.

Table 2. Representative physiographic features

Landforms	(1) Basin floor (2) Fan
Flooding duration	Very brief (4 to 48 hours) to extremely brief (0.1 to 4 hours)
Flooding frequency	Occasional to very rare
Elevation	1,067–1,463 m
Slope	0–3%
Water table depth	102–152 cm
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 rain and snow during the months of December through April. A limited supply of ephemeral surface and subsurface moisture augments the precipitation. The soil temperature regime is mesic to frigid near mesic with a mean air temperature of 47 degrees F. Temperature extremes range from 110 to -20 degrees F. The frost-free period ranges from less than 90 to 120 days. The optimum growth period for plant growth is from April to late June.

Table 3. Representative climatic features

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

Influencing water features

Soil features

The soils of this site are typically medium textured, very deep and non-sodic. They are moderately well drained. The surface layer is typically a loam to a fine sandy loam or loam over a variable loam to sandy clay loam subsoil. Substratums are deep alluvial and lacustrine sediments. Permeability is moderate to moderately slow. The available water holding capacity (AWC) is about 8 to 10 inches for the profile. Limited seasonal surface and subsurface moisture augments the precipitation. The water erosion potential is low to moderate.

Table 4. Representative soil features

Parent material	(1) Lacustrine deposits–rhyolite
Surface texture	(1) Loam (2) Fine sandy loam

Family particle size	(1) Loamy
Drainage class	Moderately well drained
Permeability class	Moderate to moderately slow
Soil depth	152 cm

Ecological dynamics

The potential native plant community is dominated by basin wildrye and basin big sagebrush. Beardless wildrye (creeping), Indian ricegrass and a variety of forbs are present. Spiny hopsage occurs sporadically. Thurber's needlegrass and a variety of other grasses and forbs are present. Vegetative composition of the community is approximately 75 percent grasses, 5 percent forbs and 20 percent shrubs. The approximate ground cover is 50 to 60 percent (basal and crown).

Range in Characteristics:

Production increases at the upper end of the precipitation zone and with increasing surface runoff. Basin wild rye increases with increasing available subsurface moisture. Indian ricegrass and creeping wildrye will increase on droughty sites and on sites with coarser surfaces. Spiny hopsage increases on calcareous arid sites. Basin big sagebrush increases with precipitation and available subsurface moisture.

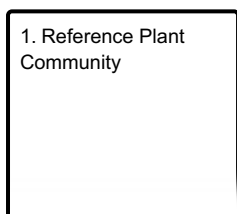
Response to Disturbance - States:

When the condition of the site deteriorates as a result of over grazing basin wildrye, Indian ricegrass and other deep rooted perennial bunchgrasses will decrease. Basin big sagebrush, spiny hopsage, squirreltail and bare ground increase. Annuals invade. With further deterioration shrubs continue to increase, annuals continue to invade and bare ground increases. Ephemeral channels actively degrade becoming deeper and wider. Production decreases and site deterioration continues to occur in a cyclic pattern.

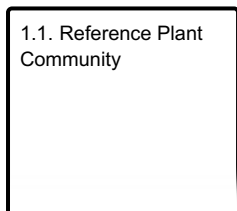
States: ARTRT(W8)-GRSP/ELEL5-annuals-bare ground

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 is dominated by basin wildrye and basin big sagebrush. Beardless wildrye (creeping), Indian ricegrass and a variety of forbs are present. Spiny hopsage occurs sporadically. Thurber's needlegrass and a variety of other grasses and forbs are present. Vegetative composition of the community is approximately 75 percent grasses, 5 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	588	925	1429
Shrub/Vine	157	247	381
Forb	39	62	95
Total	784	1234	1905

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, deep-rooted bunchgrass			616–740	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	616–740	–
2	Sub-dominant, perennial, moderate rooted grasses			74–185	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	25–62	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	25–62	–
	beardless wildrye	LETR5	<i>Leymus triticoides</i>	25–62	–
3	Perennial, shallow rooted grass			11–22	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	11–25	–
4	Other perennial grasses			22–67	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	11–22	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	0–22	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	11–22	–
Forb					
5	Perennial forbs			34–123	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	6–22	–
	milkvetch	ASTRA	<i>Astragalus</i>	6–22	–
	lupine	LUPIN	<i>Lupinus</i>	6–22	–
	phlox	PHLOX	<i>Phlox</i>	6–17	–
	hawksbeard	CREPI	<i>Crepis</i>	6–17	–
	fleabane	ERIGE2	<i>Erigeron</i>	6–17	–
	granite prickly phlox	LIPU11	<i>Linanthus pungens</i>	0–17	–
Shrub/Vine					
6	Dominant, evergreen shrub			56–146	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	56–146	–
7	Other shrubs			45–135	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	11–34	–
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	11–34	–
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	11–34	–
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	11–34	–
	horsebrush	TETRA3	<i>Tetradymia</i>	6–22	–

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. The site can be damaged if heavily grazed during periods of basin wildrye flowering and seed formation when root reserves are low. 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 used by mule deer, pronghorn antelope, rabbits, rodents, upland birds and various predators. It provides excellent forage and cover when the ecological condition is high.

Hydrological functions

Watershed-

The soils of this site are typically in or near the lowest topographic position accumulating off-site surface and subsurface flows. The soils have medium infiltration rates when vegetation cover is high. Hydrologic cover is high when the basin wildrye and secondary moderate rooted bunchgrass components are greater than 70 percent of potential. When the hydrologic cover is low ephemeral channels are subject to degradation. The soils are in hydrologic group B.

Other information

This site suitability for reseeding can be impacted due to droughty conditions, particularly at the lower end of the precipitation zone.

Contributors

MB Hale & CD Tackman -Data Entry AVB 5/09

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)	Bob Gillaspy
Contact for lead author	State Rangeland Management Specialist for NRCS Oregon
Date	11/10/2016
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None.

2. **Presence of water flow patterns:** None.

3. **Number and height of erosional pedestals or terracettes:** None.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 20-40% bare ground, typically bare patches are associated with shrubs. Larger bare patches may be associated with ant mounds, rodent, and/or other natural disturbances.

5. **Number of gullies and erosion associated with gullies:** None.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Wind erosion hazard is moderate.
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7. **Amount of litter movement (describe size and distance expected to travel):** Litter size is medium/moderate to coarse. Litter movement is limited, minimal, and short. Litter also may be moved during intense wind storms.
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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):** Site is Slightly to Moderately resistant to erosion. Stability class (Herrick et al. 2001) anticipated to be 3-6 at surface under perennial vegetation. Stability class at surface in the interspaces is anticipated to be less than or equal to that under perennial vegetation.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface layer structure is weak fine granular to weak fine subangular blocky. The A horizon has a dry color of 5 - 6 and is 2 - 12 inches thick. The Soil Organic Matter (SOM) content is low (0.2 to 1.5%).
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant foliar cover and basal cover with small gaps between plants should reduce raindrop impact and slow overland flow, providing increased time for infiltration to occur. High herbaceous vegetation on this site will retain more water from precipitation. Moderate ground cover (50-60%) and gentle slopes (0-3%) effectively limit rainfall impact and overland flow.
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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):** None.
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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: Deep rooted perennial bunch grasses
- Sub-dominant: Other perennial grasses = shrubs
- Other: Forbs
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Grasses will nearly always show some mortality and decadence. Normal decadence and mortality expected on other plants.
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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):** Low 700 lbs/acre, Representative Value 1100 lbs/acre, High 1700 lbs/acre
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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: Cheatgrass, Medusahead, and other non-native annuals invade sites that have lost deep rooted perennial grass functional groups.
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually.
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