USDA Natural Resources Conservation Service

Ecological site R011XY016OR
Sandy 8-11 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.

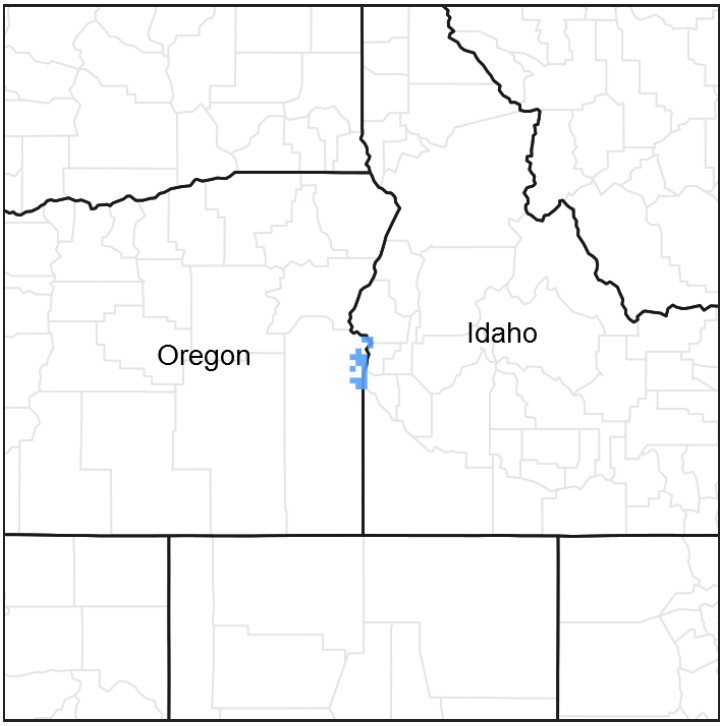

Figure 1. Mapped extent

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

R011XY012OR	**Silty 8-11 PZ** Silty 8-11 PZ
R011XY020OR	**South Slopes 8-11 PZ** South Slopes 8-11 PZ

R011XY034OR	**Sandy North Slopes 8-11 PZ** Sandy North Slopes 8-11 PZ

Similar sites

R011XY034OR	**Sandy North Slopes 8-11 PZ** Sandy North 8-11 PZ (north aspect, higher production)
R011XY012OR	**Silty 8-11 PZ** Silty 8-11 PZ (silty to fsl surface, different composition - beardless wheatgrass dominant)

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Artemisia tridentata ssp. wyomingensis*
Herbaceous	(1) *Hesperostipa comata* (2) *Poa secunda*

Physiographic features

This site occurs on low elevation terraces in the Malheur, Owyhee and adjacent Snake River drainage. Slopes typically range from 0 to 12%. Elevations vary from 2,100 to 3,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Terrace
Elevation	2,100–3,000 ft
Slope	0–12%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 8 to 11 inches, most of which occurs in the form of rain during the months of December through April. The soil temperature regime is mesic with a mean air temperature of 53 degrees F. Temperature extremes range from 110 to -10 degrees F. The frost free period ranges from 150 to 190 days. The optimum growth period for plant growth is late March through June.

Table 3. Representative climatic features

Frost-free period (average)	190 days
Freeze-free period (average)	0 days
Precipitation total (average)	11 in

Influencing water features

Soil features

The soils of this site are typically deep and well to somewhat excessively drained. Typically the surface layer is a fine sandy loam to a loamy fine sand. The subsoil is a loamy sand to sand 15 to 40 inches thick. Depth to lacustrine, alluvial or tuffaceous sediments ranges from 40 to greater than 60 inches. An indurate pan may be present. Permeability is moderately rapid to rapid. The available water holding capacity (AWC) is about 4 to 6 inches for the profile. The erosion potential, both wind and water, is severe.

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderately rapid to rapid
Soil depth	40–60 in
Available water capacity (0-40in)	4–6 in

Ecological dynamics

The potential native plant community is dominated by four-wing saltbush and needle and thread. Wyoming big sagebrush, Indian ricegrass and Thurber’s needlegrass are prominent. Sandberg bluegrass, a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 80 percent grasses, 5 percent forbs and 15 percent shrubs. The approximate ground cover is 60 to 70 percent (basal and crown).

Range in Characteristics:
Variability in plant composition on this site results from variations in soil surface texture. Four-wing saltbush and needle and thread increase on loamy sand surfaces. Indian ricegrass increases on coarse sandy surfaces. Thurber’s needlegrass increases on fine sandy loam surfaces. Antelope bitterbrush occurs over gravels. Production increases at the upper end of the precipitation zone.

Fourwing saltbush and Wyoming Sagebrush are the dominant shrubs.

Response to Disturbance:
When the condition of the site deteriorates as a result of over grazing four-wing saltbush, needle and thread and Indian ricegrass decrease. Wyoming big sagebrush, rabbitbrush, broom snakeweed and sand dropseed increase. Cheatgrass invades along with other annuals and biennial weeds. Bare ground increases. With fire and continued disturbance fourwing saltbush sagebrush is severely impacted. Rabbitbrush increases slightly and annuals and noxious biennial forbs continue to invade. Under deteriorated conditions excessive wind erosion in the bare soil interspaces reduces the site potential. Small migration dunes, blowouts and hummocks develop. Water erosion increases with excessive erosion most pronounced in drainage areas where deep incised gulley's form.

States: ARTRW/BRTE-bare ground; BRTE/biennial forbs-bare ground (following fire on degraded range)

State and transition model

Ecosystem states

1. Historic Climax Plant Community

State 1 submodel, plant communities

1.1. Historic Climax Plant Community

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

The potential native plant community is dominated by four-wing saltbush and needle and thread. Wyoming big sagebrush, Indian ricegrass and Thurber's needlegrass are prominent. Sandberg bluegrass, a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 80 percent grasses, 5 percent forbs and 15 percent shrubs. The approximate ground cover is 60 to 70 percent (basal and

crown).

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	400	560	800
Shrub/Vine	75	105	150
Forb	25	35	50
Total	**500**	**700**	**1000**

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, perennial, deep rooted bunchgrass**			420–560	
	needle and thread	HECO26	*Hesperostipa comata*	420–560	–
2	**Sub-dominant, perennial, deep-rooted bunchgrass**			70–140	
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	35–70	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	35–70	–
4	**Sub-dominant, perennial, shallow-rooted grass**			14–35	
	Sandberg bluegrass	POSE	*Poa secunda*	14–35	–
5	**Other perennial grasses**			15–90	
	squirreltail	ELEL5	*Elymus elymoides*	5–14	–
	thickspike wheatgrass	ELLA3	*Elymus lanceolatus*	5–14	–
	basin wildrye	LECI4	*Leymus cinereus*	5–14	–
	beardless wheatgrass	PSSPI	*Pseudoroegneria spicata ssp. inermis*	0–14	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–10	–
	foxtail wheatgrass	PSSA2	×*Pseudelymus saxicola*	0–10	–
Forb					
8	**Dominant, perennial forb**			31–55	
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	14–21	–

	buckwheat	ERIOG	*Eriogonum*	7–14	–
	phlox	PHLOX	*Phlox*	5–10	–
	fleabane	ERIGE2	*Erigeron*	5–10	–
9	**Other forbs**			12–55	
	milkvetch	ASTRA	*Astragalus*	3–7	–
	common yarrow	ACMI2	*Achillea millefolium*	3–7	–
	desertparsley	LOMAT	*Lomatium*	3–7	–
	lupine	LUPIN	*Lupinus*	3–7	–
	plains pricklypear	OPPO	*Opuntia polyacantha*	0–7	–
	showy penstemon	PESP3	*Penstemon spectabilis*	0–4	–
	scarlet globemallow	SPCO	*Sphaeralcea coccinea*	0–4	–
	deathcamas	ZIGAD	*Zigadenus*	0–4	–
	onion	ALLIU	*Allium*	0–4	–
	common woolly sunflower	ERLA6	*Eriophyllum lanatum*	0–4	–
Shrub/Vine					
11	**Dominant shrubs**			49–105	
	fourwing saltbush	ATCA2	*Atriplex canescens*	35–70	–
15	**Other shrubs**			12–28	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	3–7	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	3–7	–
	spiny hopsage	GRSP	*Grayia spinosa*	3–7	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–7	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	0–7	–
	antelope bitterbrush	PUTR2	*Purshia tridentata*	0–7	–
	littleleaf horsebrush	TEGL	*Tetradymia glabrata*	0–7	–

Animal community

Livestock Grazing:
This site is suitable for livestock grazing use in the late winter, 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. Grazing management should be keyed to four wing saltbush, needle and thread and Thurber’s needlegrass. Deferred grazing or rest

is recommended at least once every three years.

Native Wildlife Associated with the Potential Climax Community:
This site is commonly used by pronghorn antelope, mule deer, rabbits, rodents, upland birds and various predators. Antelope and mule deer make excellent use of the site for winter and spring forage.

Hydrological functions

The soils of this site are subject to both wind and water erosion. When the hydrologic cover is high they have high wind erosion resistance, low runoff potential and high infiltration rates. Hydrologic cover is high when needle and thread, Thurber's needlegrass and other deep rooted bunchgrass components is greater than 70 percent of potential.

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:**

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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):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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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):**

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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:**
