

Ecological site R010XY121OR

Droughty Clayey Fan

9-12 PZ

Last updated: 4/10/2025
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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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Atriplex confertifolia</i>
Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> (2) <i>Poa secunda</i>

Physiographic features

This site occurs on low elevation fans composed of early Cenozoic tuffaceous sediments. Slopes range from 1 to 5%. Elevation varies from 1300 to 2400 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Hillside
Flooding frequency	None
Ponding frequency	None
Elevation	400 – 730 m
Slope	0 – 10 %
Water table depth	150 cm
Aspect	Aspect is not a significant factor

Climatic features

Elevation and aspect affect precipitation and the relative effectiveness of the precipitation and temperatures. Temperature changes can occur rapidly. In addition, the topography also results in localized cold air drainages, along with occasional cold air entrapment and inversions in the valleys. Annual snowfall is 13 inches to 17 inches, with most coming in the winter and spring. Snow cover is of short duration and melts quickly at low elevations.

Table 3 Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	210 days
Precipitation total (average)	310 mm

Influencing water features

Soil features

Soils on this site are Mollisols with predominantly very stony clay of clay textures. The soils are very deep with very fine textures and well drained. These soils are formed from Cenozoic Tuffaceous Sediments that are weathered from John Day (mid-Oligocene) or Clarno (late Eocene) geological formations. The soils are generally sridic. The major taxonomic units correlated to this site include very fine, smectitic, mesic Chromic Haploxererts.

Table 4. Representative soil features

Surface texture	(1) Very stony clay
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Slow to very slow
Soil depth	180 cm
Surface fragment cover <=3"	30 %
Surface fragment cover >3"	10 %
Available water capacity (0-101.6cm)	15.24 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 – 10
Subsurface fragment volume <=3" (Depth not specified)	10 %
Subsurface fragment volume >3" (Depth not specified)	20 %

Ecological dynamics

The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). Grasses with few forbs and shrubs dominate this plant community. Fluctuations in species composition and relative production may change from year to year dependent upon abnormal precipitation or other climatic factors. The historic climax plant community has been determined by study of rangeland relic areas, or areas protected from excess grazing. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal pastures, and historical accounts have also been used.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1				45-56	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	17-28	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	17-28	–
2				202-314	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	179-269	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	11-22	–
Forb					
3				22-67	
	onion	ALLIU	<i>Allium</i>	1-6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	1-6	–
	spinystar	ESVIV	<i>Escobaria vivipara</i> var. <i>vivipara</i>	1-6	–
	desertparsley	LOMAT	<i>Lomatium</i>	1-6	–
	pricklypear	OPUNT	<i>Opuntia</i>	1-6	–

	globemallow	SPHAE	<i>Sphaeralcea</i>	1-6	–
	clover	TRIFO	<i>Trifolium</i>	1-6	–
Shrub/Vine					
4				67-202	
	shadscale saltbush	ATCO	<i>Atriplex confertifolia</i>	45-135	–
	yellow rabbitbrush	CHV18	<i>Chrysothamnus viscidiflorus</i>	17-28	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	17-28	–

Animal community

Grazing Livestock grazing is suitable for this site as long as management objectives include the improvement or maintenance of this site. It is easy to overuse this site and cause a shift in vegetation that is difficult to change. This site has the potential to produce a large amount of high quality forage. Management should be aimed at harvesting the forage as quickly as possible, letting the site recover from the grazing event prior to fall dormancy. Initial stocking rates will be determined with the landowner or decisionmaker. They will be based on past use histories and type and condition of the vegetation. Calculations used to determine an initial starting stocking rate will be based on forage preference ratings. Wildlife The main wildlife species of concern on this site are large herbivores. These are mule deer and elk. These wildlife species can possibly overuse this site before the time cattle or sheep are planned to be grazed. Being an open grassland, this site is home to a variety of small herbivores, birds, and their associated predators. This site is mainly a forage area for the larger wildlife. No threatened or endangered wildlife species rely on this site for any of their habitat requirements.

Hydrological functions

The site has a high potential in low seral condition to produce run-off to receiving waters. The hydrology of this site is characterized by high intensity thunderstorms during the summer months and by low intensity frontal storms during the winter.

Recreational uses

None

Wood products

No wood products are associated with this site.

Other products

None

Other information

Increase in western juniper and subsequent competition for moisture will lead to a reduction of available forage. Overgrazing can easily reduce ground cover and accelerate soil loss. Improving infiltration and permeability, and reducing run-off should be the immediate goal of juniper control.

Type locality

Location 1: Wheeler County, OR	
Township/Range/Section	T10S R21E S31
General legal description	SW 1/4 SW 1/4 Sec 31. Painted Hills tour route. (40% SI)

Other references

Soil Conservation Service, Relative Forage Preference of Plants for Grazing Use by Season, Range Technical Note No. 16, 1982. Western Regional Climate Center, NOAA, National Weather Service, Portland, OR. Web site -

Contributors

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Approval

Kirt Walstad, 4/10/2025

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	08/23/2026
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:

17. Perennial plant reproductive capability:
