

Ecological site R006XB012OR

Dry Pumice Meadow 14-26 PZ

Accessed: 04/28/2024

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.

Associated sites

R006XB011OR	<p>Meadow Knoll 14-26 PZ</p> <p>The site is situated at the edges of wetter, marshy areas and is adjacent to Ponderosa and Lodgepole pine forestlands (Pine Fescue sites are most common). It may also be associated with Meadow Knoll sites on remnant fans and terraces (from pre-Mazama materials). Complexes of Dry Pumice Meadow, Wet Pumice Meadow, and Meadow Swale are common, often with only micro-relief between sites.</p>
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Similar sites

R006XB013OR	<p>Wet Pumice Meadow 14-26 PZ</p> <p>There are similar sites on similar positions (Wet Pumice Meadow) but none will have the predominance of Cusick's Bluegrass exhibited by Dry Pumice Meadow.</p>
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan
Flooding frequency	None
Ponding duration	Long (7 to 30 days) to very long (more than 30 days)
Ponding frequency	Frequent
Elevation	1,219–1,829 m
Slope	0–1%
Ponding depth	3–8 cm
Water table depth	0–152 cm
Aspect	Aspect is not a significant factor

Climatic features

This site is characterized by relatively short, hot summers and cold, snowy winters. The site receives approximately 20 inches of precipitation per year, the bulk of which is snowfall. There are frequent thundrstorms in the summer months.

There may be ground fogs in the mornings during the growing season which affect stomatal gas exchange and photosynthetic activity.

Table 3. Representative climatic features

Frost-free period (average)	20 days
Freeze-free period (average)	49 days
Precipitation total (average)	635 mm

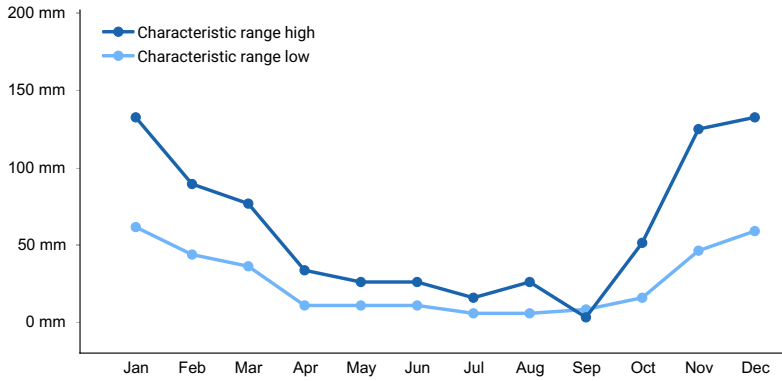


Figure 1. Monthly precipitation range

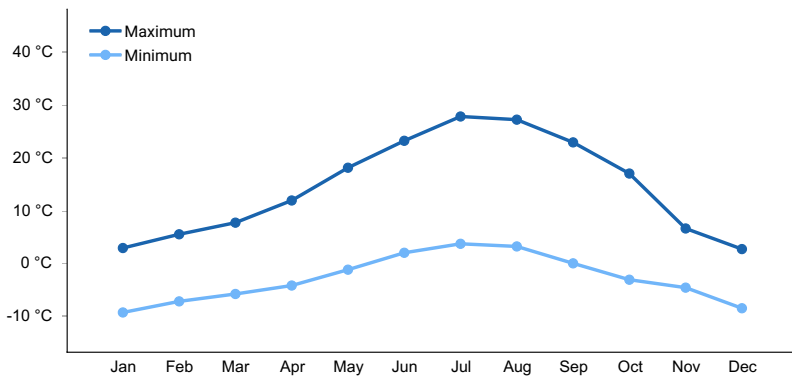


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils for this site typically have a thin organic layer over loams, layers of coarse pumice over heavy clay loams. There is an apparent water table present for most of the year. These relatively young soils have been deposited over older, remnant fans and terraces. Variations and intergrades of soil characteristics are common.

Table 4. Representative soil features

Surface texture	(1) Loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained
Permeability class	Slow
Soil depth	97–152 cm
Surface fragment cover <=3"	2%
Surface fragment cover >3"	2%

Available water capacity (0-101.6cm)	11.43–13.97 cm
Calcium carbonate equivalent (0-101.6cm)	2%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	1
Soil reaction (1:1 water) (0-101.6cm)	2
Subsurface fragment volume <=3" (Depth not specified)	2%
Subsurface fragment volume >3" (Depth not specified)	2%

Ecological dynamics

This site occurs on alluvial fans leading to deeper and lower marshy sites. It is intermediate between these wetter sites and adjacent Ponderosa Pine forest sites. The water table is apparently below the effective rooting depth for the grass species present for a major portion of the growing season (depth to water table during the period of rapid growth appears to have a significant influence on the plant community). Dry Pumice Meadows are the driest types of grasslands within larger complexes of wetlands sites. The interpretative plant community for this site is the Historic Climax Plant Community (HCPC).

State and transition model

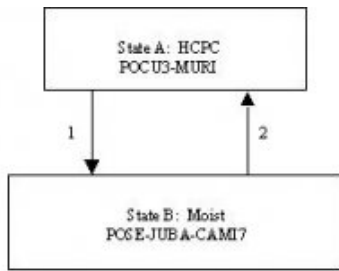


Figure 3. Dry Pumice Meadow State and Transition Model

State 1
HCPC: POCU3-MUSQ2

Community 1.1
HCPC: POCU3-MUSQ2

This site is a widely spread intergrade between dryer pine forestland and wetter marshlands. It is dominated by Cusicks Bluegrass and Matt Muhly with a moderate component of perennial forbs (particularly *Antennaria* sp.).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2914	3363	3699
Total	2914	3363	3699

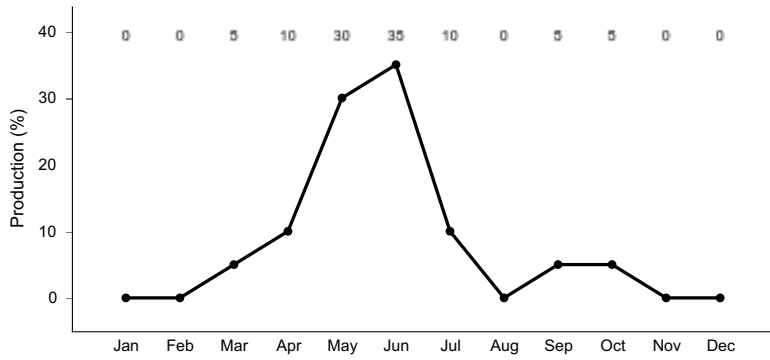


Figure 5. Plant community growth curve (percent production by month). OR1871, B6 Dry Pumice Meadow RPC. State A: RPC (POCU3-MUSQ2) B6 Dry Pumice Meadow RPC.

State 2

State B: POSE3-JUBA-CAMI7

Community 2.1

State B: POSE3-JUBA-CAMI7

This site is characterized on areas where excess grazing has removed the Cusicks Bluegrass and hydrologic modification has added sub-surface water during the growing season. the site is dominated by Nevada Bluegrass, Baltic Rush, and Small-winged Sedge.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	3363	3811	4147
Total	3363	3811	4147

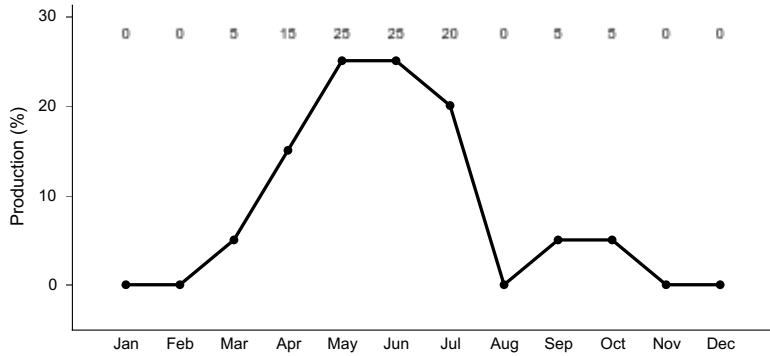


Figure 7. Plant community growth curve (percent production by month). OR1872, B6 Dry Pumice Meadow B. State B: Disturbance/Moist (POSE3-JUBA-CAMI7).

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				1289–2018	
	Cusick's bluegrass	POCU3	<i>Poa cusickii</i>	841–1345	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	336–504	–
	slender wheatgrass	ELTRT	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	112–168	–
2				460–773	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	168–269	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	67–168	–
	Kentucky bluegrass	POPR	<i>Poa pratensis</i>	112–168	–
	meadow barley	HOBR2	<i>Hordeum brachyantherum</i>	112–168	–
3				314–504	
	smallwing sedge	CAMI7	<i>Carex microptera</i>	112–168	–
	Nebraska sedge	CANE2	<i>Carex nebrascensis</i>	101–168	–
	clustered field sedge	CAPR5	<i>Carex praegracilis</i>	101–168	–
4				168–269	
Forb					
5				67–336	
	pussytoes	ANTEN	<i>Antennaria</i>	34–168	–
	cinquefoil	POTEN	<i>Potentilla</i>	34–168	–
6				6–269	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	101–269	–
	aster	ASTER	<i>Aster</i>	101–269	–
	Virginia strawberry	FRVI	<i>Fragaria virginiana</i>	101–269	–
	Rainier pleated gentian	GECA	<i>Gentiana calycosa</i>	101–269	–
	dwarf hesperochiron	HEPU6	<i>Hesperochiron pumilus</i>	101–269	–
	buttercup	RANUN	<i>Ranunculus</i>	101–269	–

Table 8. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				956–1446	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	953–1334	–
	slender wheatgrass	ELTRT	<i>Elymus trachycaulus ssp. trachycaulus</i>	3–112	–
2				122–644	
	Kentucky bluegrass	POPR	<i>Poa pratensis</i>	112–308	–
	onespike danthonia	DAUN	<i>Danthonia unispicata</i>	3–112	–
	meadow barley	HOB2	<i>Hordeum brachyantherum</i>	3–112	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	3–112	–
3				572–1149	
	Nebraska sedge	CANE2	<i>Carex nebrascensis</i>	191–460	–
	smallwing sedge	CAMI7	<i>Carex microptera</i>	269–381	–
	clustered field sedge	CAPR5	<i>Carex praegracilis</i>	112–308	–
4				191–572	
Forb					
5				493–1031	
	pussytoes	ANTEN	<i>Antennaria</i>	191–381	–
	cinquefoil	POTEN	<i>Potentilla</i>	191–381	–
	buttercup	RANUN	<i>Ranunculus</i>	112–269	–
6				11–303	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	11–78	–
	aster	ASTER	<i>Aster</i>	11–78	–
	Rainier pleated gentian	GECA	<i>Gentiana calycosa</i>	11–78	–
	roundfruit hedgehyssop	GRVI	<i>Gratiola virginiana</i>	11–78	–
	bigleaf lupine	LUPO2	<i>Lupinus polyphyllus</i>	11–78	–

Animal community

The site is seasonally utilized by several grazing animals. Mule deer, elk, and antelope use the site for both grazing and resting. Antelope are perhaps the most frequent animals on the site. Mule deer and elk use the site in the late winter and early spring. The proximity of pine forest (for cover and shelter) makes these sites desirable for grazing by elk and mule deer. The position of the site makes it attractive to grazing animals when the adjacent sites are wet; it is often used as a resting and ruminating area. The site is marginal for nesting birds but may be seasonally used by waterfowl which nest in the adjacent meadow and marsh sites.

Hydrological functions

The site has a high potential in low seral condition to produce significant run-off to receiving waters. In some years, the site may be flooded with water backed up in the adjacent wetter sites. The site is important in its ability to store ground water in the lower portion of the soil profile and release it slowly. The high amounts of pumice in the soil allows lateral movement of large quantities of water throughout the meadow ecosystem.

Recreational uses

There is little recreational use on this site other than big game hunting and bird watching.

Wood products

None

Other products

None

Other information

There is little use by wildlife other than by grazing animals (see below). The elevated position of the site and its proximity to important wetter meadow sites makes it an important part of the entire meadow/marsh ecosystem. The site may have a notable number of ant mounds which are high enough to protect the colony when the water table rises. The significance of the mounds and the function of the ants in this ecosystem is not fully understood. The mounds are found on other, drier sites, but not the number of distribution in the Dry Pumice Meadow Site. The site is frequently used for grazing by domestic livestock and wildlife (mule deer, elk, and antelope). There are several species that are preferred that are available for most of the growing season. The site can be heavily used because the slightly higher elevation of this site makes it drier than adjacent meadow sites and therefore more attractive for resting, reminating, and grazing.

Contributors

Jeffrey P. Repp

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:

17. **Perennial plant reproductive capability:**
