USDA Natural Resources
Conservation Service

Ecological site R006XB010OR
Meadow Fan 14-26 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.

Associated sites

R006XB012OR	**Dry Pumice Meadow 14-26 PZ** Dry Pumice Meadow
R006XB013OR	**Wet Pumice Meadow 14-26 PZ** Wet Pumice Meadow
R006XB014OR	**Meadow Swale 14-26 PZ** Meadow Swale

Similar sites

R006XB011OR	**Meadow Knoll 14-26 PZ** Meadow Knoll

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Table 2. Representative physiographic features

Landforms	(1) Basin floor (2) Alluvial fan (3) Terrace

Flooding duration	Brief (2 to 7 days)
Flooding frequency	Rare
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	Occasional
Elevation	1,219–1,829 m
Slope	0–3%
Ponding depth	3–5 cm
Water table depth	122–152 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 thunderstorms 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

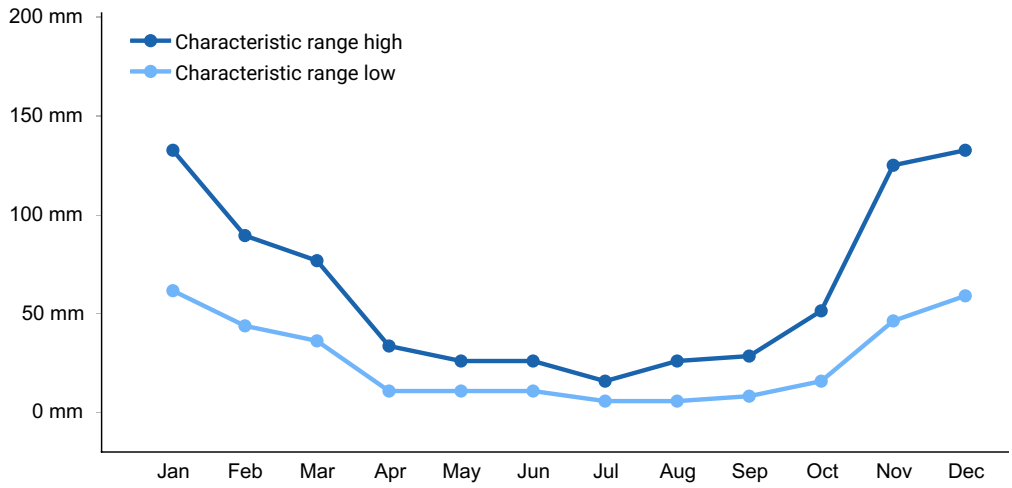

Figure 1. Monthly precipitation range

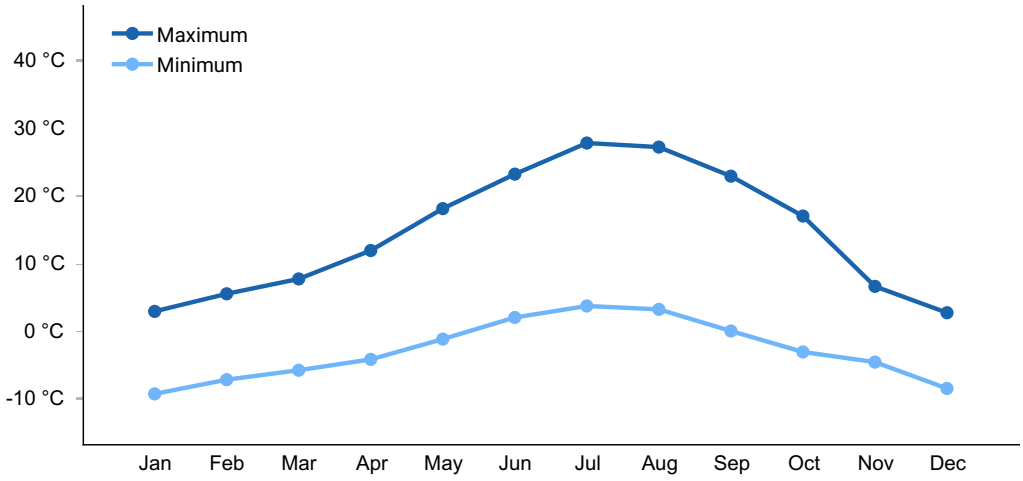

Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The soil has a well-developed argilic horizon with small amounts of glassy pumice (pre-Mazama). The soil is relatively old; Mazama pumice is eroded off the surface of the soil. There is a semi-impermeable layer in the soil at about 20 inches (it almost classifies as a duranode) that turns most roots away from the subsoil (allowing the Low Sagebrush to grow on the site). The apparent water table can penetrate the layer and saturate the surface for short periods. The water table comes to within 24 inches of the surface early in the growing season.

Table 4. Representative soil features

Surface texture	(1) Loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained
Permeability class	Moderate
Soil depth	91–127 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	12.7–15.24 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)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

The sites are on remnant terraces and alluvial fans and are adjacent to or are islands within wetland sites. Elevations may differ by only 2 or 3 feet from adjacent wet sites. The sites are particularly dry in the summer; however, there is an apparent seasonal water table that has a marked influence on plant growth early in the growing season. All states have relatively thick clay layers in the subsoil and small amounts of pre-Mazama pumice. The interpretative plant community for this site is the Historic Climax Plant Community (HCPC).

State and transition model

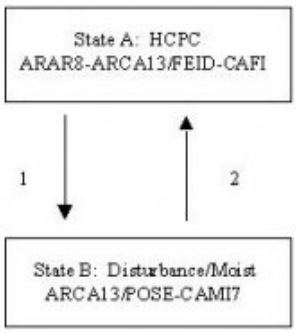

Figure 3. Meadow Fan State and Transition Model:

State 1
State B, ARCA13/POSE3-CAMI7

Community 1.1
State B, ARCA13/POSE3-CAMI7

Dominated by Silver Sagebrush Nevada bluegrass and Small-wing Sedge. Sites in this state receive excess water and may have impermeable layer in the subsoil. Ponding duration is increased.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	785	1009	1233
Shrub/Vine	168	196	224
Forb	56	84	112
Total	**1009**	**1289**	**1569**

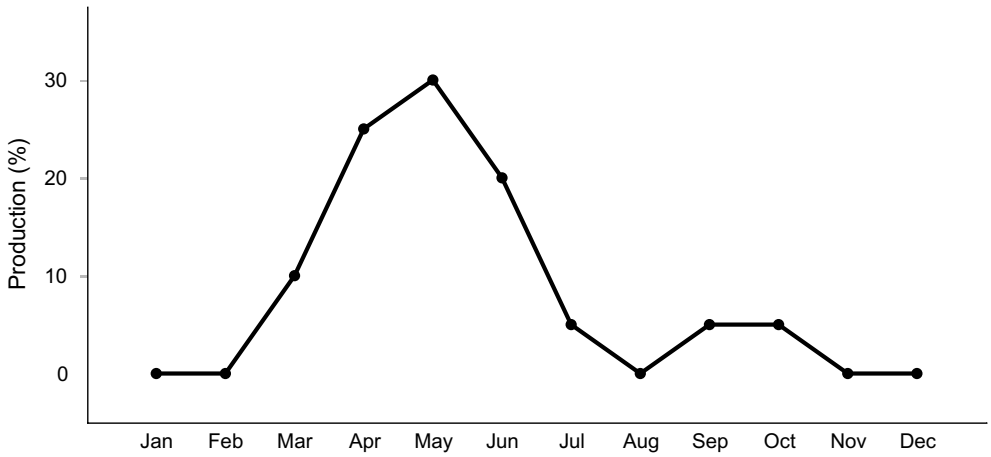

Figure 5. Plant community growth curve (percent production by month). OR1852, B6 Meadow Fan B. State B: Disturbance/Dry (ARCA13/POSE3-CAMI7) .

State 2
HCPC, ARAR8-ARCA13/FEID/CAFI

Community 2.1
HCPC, ARAR8-ARCA13/FEID/CAFI

Dominated by Low sagebrush, Silver Sagebrush, Idaho Fescue, and Threadleaf Sedge. A weak cemented layer allow the Low sagebrush to thrive.

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	336	476	616
Shrub/Vine	196	239	280
Forb	112	146	179
Total	**644**	**861**	**1075**

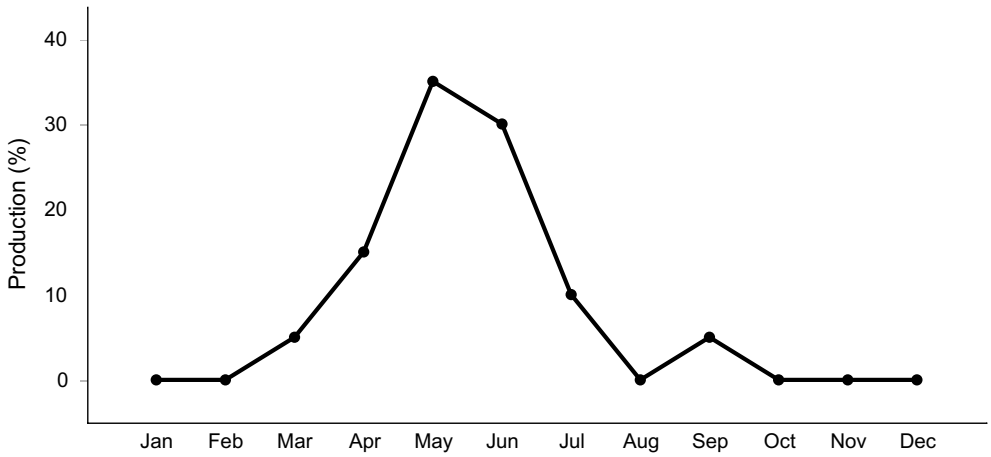

Figure 7. Plant community growth curve (percent production by month).

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				392–628	
	Sandberg bluegrass	POSE	*Poa secunda*	314–471	–
	smallwing sedge	CAMI7	*Carex microptera*	235–392	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	78–157	–
	squirreltail	ELEL5	*Elymus elymoides*	39–78	–
	slender wheatgrass	ELTRT	*Elymus trachycaulus ssp. trachycaulus*	39–78	–
2				39–157	
	prairie Junegrass	KOMA	*Koeleria macrantha*	157–235	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	39–78	–
	Kentucky bluegrass	POPR	*Poa pratensis*	39–78	–
	Nebraska sedge	CANE2	*Carex nebrascensis*	39–78	–
	squirreltail	ELEL5	*Elymus elymoides*	39–78	–
	slender wheatgrass	ELTRT	*Elymus trachycaulus ssp. trachycaulus*	39–78	–
3				275–471	
	smallwing sedge	CAMI7	*Carex microptera*	235–392	–
	Nebraska sedge	CANE2	*Carex nebrascensis*	39–78	–
4				38–78	
Forb					
3				56–112	
	common yarrow	ACMI2	*Achillea millefolium*	31–47	–
		ANTEN	*Antennaria*	31–47	

	pussytoes	ANTEN	*Antennaria*	31–47	–
4				1–47	
	buckwheat	ERIOG	*Eriogonum*	1–31	–
	old man's whiskers	GETR	*Geum triflorum*	1–31	–
	cinquefoil	POTEN	*Potentilla*	1–31	–
5				63–94	
	common yarrow	ACMI2	*Achillea millefolium*	31–47	–
	pussytoes	ANTEN	*Antennaria*	31–47	–
6				1–47	
	buckwheat	ERIOG	*Eriogonum*	1–31	–
	old man's whiskers	GETR	*Geum triflorum*	1–31	–
	cinquefoil	POTEN	*Potentilla*	1–31	–
Shrub/Vine					
5				168–224	
	silver sagebrush	ARCA13	*Artemisia cana*	157–235	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	16–31	–
7				168–224	
	silver sagebrush	ARCA13	*Artemisia cana*	157–235	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	16–31	–

Table 8. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				286–504	
	Idaho fescue	FEID	*Festuca idahoensis*	252–404	–
	Sandberg bluegrass	POSE	*Poa secunda*	50–101	–
	threadleaf sedge	CAFI	*Carex filifolia*	50–101	–
	squirreltail	ELEL5	*Elymus elymoides*	17–50	–
2				34–101	

2				34–101	
	squirreltail	ELEL5	*Elymus elymoides*	17–50	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	17–50	–
	Kentucky bluegrass	POPR	*Poa pratensis*	17–50	–
	Sandberg bluegrass	POSE	*Poa secunda*	17–50	–
3				50–101	
	threadleaf sedge	CAFI	*Carex filifolia*	50–101	–
4				17–50	
Forb					
3				112–179	
	old man's whiskers	GETR	*Geum triflorum*	50–81	–
	pussytoes	ANTEN	*Antennaria*	30–50	–
4				3–71	
	common yarrow	ACMI2	*Achillea millefolium*	3–30	–
	buckwheat	ERIOG	*Eriogonum*	3–30	–
	cinquefoil	POTEN	*Potentilla*	3–30	–
6				3–71	
	common yarrow	ACMI2	*Achillea millefolium*	3–30	–
	buckwheat	ERIOG	*Eriogonum*	3–30	–
	cinquefoil	POTEN	*Potentilla*	3–30	–
Shrub/Vine					
5				196–280	
	little sagebrush	ARAR8	*Artemisia arbuscula*	202–252	–
	silver sagebrush	ARCA13	*Artemisia cana*	30–50	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	10–20	–
7				196–280	
	little sagebrush	ARAR8	*Artemisia arbuscula*	202–252	–
	silver sagebrush	ARCA13	*Artemisia cana*	30–50	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	10–20	–

Animal community

Several grazing animals seasonally use the site. 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 int he late winter and early spring. 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 water. IN some years, the site may be flooded with water backed up in the adjacent wetter sites. Adjacent wetter and lower sites surrounding the site provide extra ground water that may move laterally through the Meadow Fan site.

Recreational uses

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

Other information

Due to the relatively dry nature of this site, there is a possibility that American Indians used this site for temporary, seasonal hunting camps. Survey the area carefully before recommending ground disturbing practices. The aid of an archaeologist maybe be needed.
Grazing- 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 havily used because the slightly higher elevation of this site makes it drier than adjacent meadow sites and therefore more attractive for resting, ruminating, and grazing.
Wildlife- There is little use by wildlife other than by grazing animals (see above). 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.

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:

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17. **Perennial plant reproductive capability:**
