

## **Ecological site R021XY506OR CLAYPAN BOTTOM 12-18 PZ**

Accessed: 05/04/2024

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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	Not specified
Herbaceous	Not specified

### Physiographic features

This site occurs as elongated areas along intermittent streams, and as depressional areas in lake basins, valleys and on plateaus. typical slopes are 1 to 2%. Elevations typically range from 4200 to 5300 feet.

**Table 2. Representative physiographic features**

Landforms	(1) Plateau (2) Valley (3) Basin floor
Elevation	1,280–1,615 m
Slope	1–2%
Aspect	Aspect is not a significant factor

### Climatic features

The average annual precipitation is typically 12-18 inches. It occurs mainly between the months of November and June as both rain and snow. The soil temperature regime is mesic or frigid. The average annual air temperature is 43-48 degrees F with extreme temperatures ranging from 90 to -30 degrees F. The frost free period is typically 30 to 100 days. The optimum period for plant growth is from late April through July.

**Table 3. Representative climatic features**

Frost-free period (average)	100 days
Freeze-free period (average)	120 days
Precipitation total (average)	457 mm

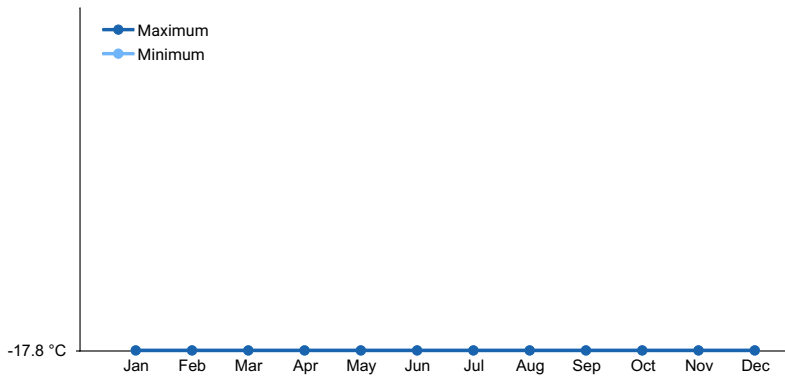


Figure 1. Monthly average minimum and maximum temperature

## Influencing water features

### Soil features

The soils of this site are moderately deep and moderately well drained, being wet for short periods in the spring because of runoff from adjacent uplands. They have medium surface textures and clay subsoils, or are clay vertisols that overlie bedrock or cemented hardpans. Soils here are formed in lacustrine sediments weathered from tuff, basalt, and/or diatomite and may include some ash. Permeability is slow and the available water holding capacity is 3-4 inches for the profile.

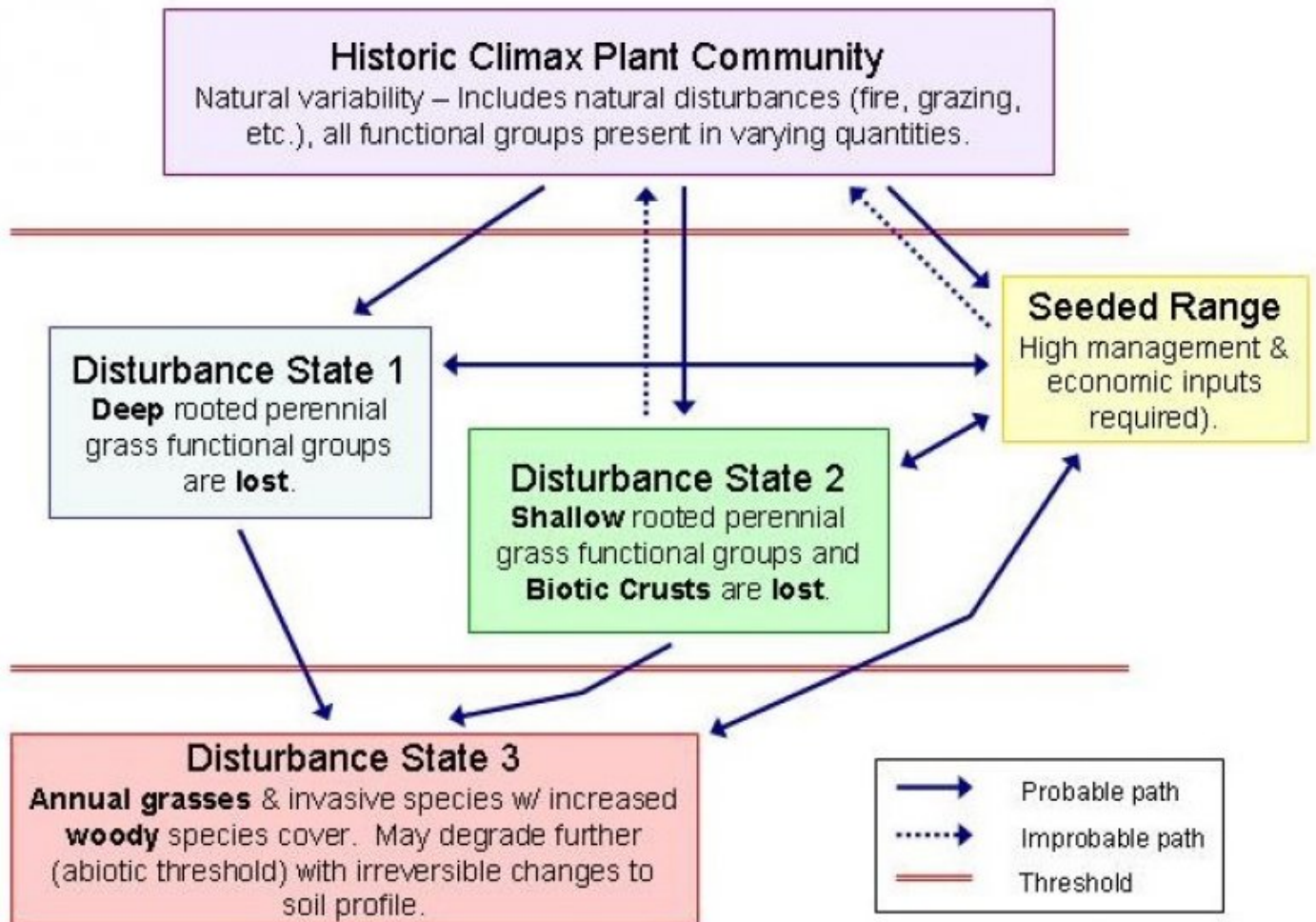
Table 4. Representative soil features

Surface texture	(1) Loam
Family particle size	(1) Clayey
Drainage class	Moderately well drained
Permeability class	Slow
Soil depth	0 cm
Available water capacity (0-101.6cm)	7.62–10.16 cm
Calcium carbonate equivalent (0-101.6cm)	2%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	7

### Ecological dynamics

Sustained heavy, annual (or early) grazing pressure by livestock, especially when the site is wet, or other types of poor grazing management may reduce fescue, Nevada bluegrass, oatgrass and bitterbrush. After major disturbance or site deterioration, Canby bluegrass and squirreltail may increase, and willowweed, busy birdbeak, annual brome, medusa-head and other weeds may invade the site.

### State and transition model



## GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

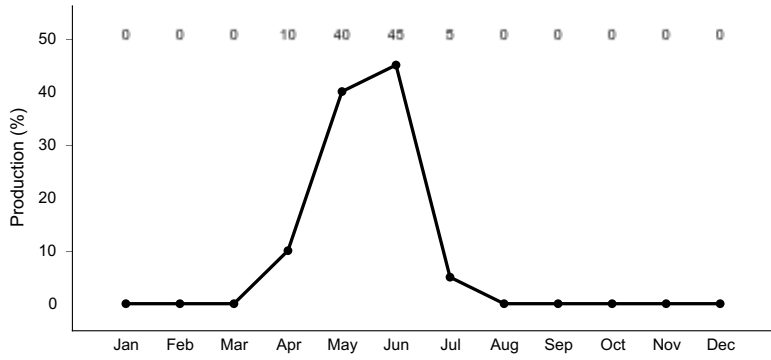
### State 1 HCPC, POSE-FEID/ARAR8

### Community 1.1 HCPC, POSE-FEID/ARAR8

The potential native plant community is dominated by low sagebrush. Buckwheat is common and an occasional bitterbrush is sometimes present. Few other shrubs occur except as inclusions. Idaho fescue dominates the understory along with Canby (or Sandberg) bluegrass and Nevada bluegrass as secondary species. Onespike oatgrass may be present, especially in moist flats or slight swales. Small amounts of dryland sedge, squirreltail and Junegrass are also present. Some of the common forbs include pearleverlasting, sandwort, yarrow, lomatium, agoseris, lupine, checkermallow, hawksbeard, yampa and pussytoes. Juniper is normally absent but may occur where this site is adjacent to juniper areas. Nevada bluegrass may be more common in wetter locations. Some site variation may occur with the soil change from deeper clay to shallow claypan soils, but this difference has not yet been determined.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	504	673	841
Shrub/Vine	191	241	291
Forb	11	62	112
<b>Total</b>	<b>706</b>	<b>976</b>	<b>1244</b>



**Figure 3. Plant community growth curve (percent production by month).**  
 OR5551, D21 Mid Elev., NA, Good Condition. RPC Growth Curve.

## Additional community tables

**Table 6. Community 1.1 plant community composition**

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
2	<b>Sub-dominant deep rooted perennial grasses</b>			78–168	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	56–112	–
	sedge	CAREX	<i>Carex</i>	22–56	–
3	<b>Dominant shallow rooted perennial grasses</b>			392–560	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	392–448	–
4	<b>Sub-dominant shallow rooted perennial grasses</b>			22–78	
	onespike danthonia	DAUN	<i>Danthonia unispicata</i>	11–56	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	11–22	–
5	<b>Other perennial grasses</b>			11–34	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–6	–
	rush	JUNCU	<i>Juncus</i>	0–6	–
	melicgrass	MELIC	<i>Melica</i>	0–6	–
<b>Forb</b>					
9	<b>Other perennial forbs</b>			11–112	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–6	–
	agoseris	AGOSE	<i>Agoseris</i>	0–6	–
	onion	ALLIU	<i>Allium</i>	0–6	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–6	–
	sandwort	ARENA	<i>Arenaria</i>	0–6	–
	hawksbeard	CREPI	<i>Crepis</i>	0–6	–
	common woolly sunflower	ERLA6	<i>Eriophyllum lanatum</i>	0–6	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–6	–
	lupine	LUPIN	<i>Lupinus</i>	0–6	–
	yampah	PERID	<i>Perideridia</i>	0–6	–
	phacelia	PHACE	<i>Phacelia</i>	0–6	–
	phlox	PHLOX	<i>Phlox</i>	0–6	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	0–6	–
<b>Shrub/Vine</b>					
11	<b>Dominant evergreen shrubs</b>			168–224	
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	168–224	–
12	<b>Sub-dominant evergreen shrubs</b>			11–34	
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	11–34	–
14	<b>Sub-dominant deciduous (or 1/2 shrubs) shrubs</b>			11–34	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	11–34	–

## Animal community

**Livestock grazing-** This site is normally suitable for grazing after soils dry enough to reduce mechanical damage in the late spring and summer. Key species for cattle use are fescue, Nevada bluegrass and oatgrass. Excessive use for long periods or annual early use when the soils are wet is a primary factor in deterioration of this site, increasing weed encroachment and reducing forage production.

**Wildlife-** This site is important in late spring, summer and fall for deer and antelope where grass, forbs and shrubs are important food sources.

## Hydrological functions

The soils of this site have low infiltration rates and low runoff potential.

## Recreational uses

Hunting and sight seeing.

## Wood products

None.

## Other information

For range seedings: choices are not determined or tested but may include pubescent wheatgrass, smooth brome, and/or tall wheatgrass (all non-natives), or Nevada bluegrass (native).

## Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T40S R14.5E S4
General legal description	Gerber Reservoir road south of Gerber Reservoir 3 miles: T40S, R14.5E, SEc 4 (center of NE)
Location 2: Klamath County, OR	
Township/Range/Section	T41S R14.5 S2
General legal description	Southeast of Antelope Flat along road in narrow valley: T41S, R14.5E, Sec 2 (NW)

## 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)	Jeff Repp
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	09/05/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:** None, moderate sheet & rill erosion hazard
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2. **Presence of water flow patterns:** None

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 15-25%

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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, slight wind erosion hazard

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - limited movement

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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):** Moderately resistant to erosion: aggregate stability = 3-5

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**  
Moderately deep (to duripan), well drained loams and silt loams: Moderate OM (1-2%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate vegetative cover (40-60%) and gentle slopes (0-2%) effectively limit rainfall impact and overland flow; infiltration is slow

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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: Sandberg bluegrass > Low sagebrush > Idaho fescue > sedge > other grasses = forbs > other shrubs

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):** Normal decadence and mortality expected

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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):** Favorable: 1200, Normal: 1000, Unfavorable: 700 lbs/acre/year at high RSI (HCPC)

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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:** Perennial brush and weedy forb species will increase with deterioration of plant community. Western Juniper readily invades the site. Cheatgrass and Medusahead 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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