USDA Natural Resources
Conservation Service

Ecological site R021XY505OR
JUNIPER CLAYPAN 12-16 PZ

Accessed: 05/18/2024

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.

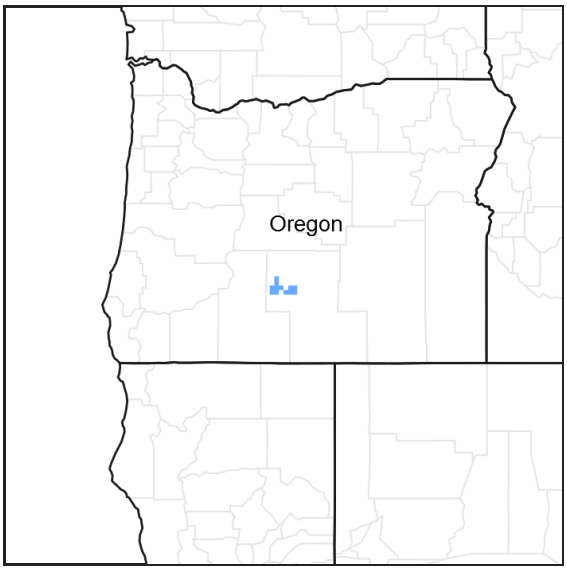


Figure 1. Mapped extent

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on rock benches, plateaus, and tablelands. Slopes range from 1 to 15%. Elevations typically range from 4300 to 5200 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau
Elevation	1,280–1,524 m
Slope	0–10%
Water table depth	152 cm
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation is typically 11-14 inches. It occurs mainly between the months of November and june as both rain and snow. The soil temperature regime is drigid. The average annual air temperature is 43-45 degrees F with extreme temperatures ranging from 85 to -30 degrees F. The frost free period is 20 to 50 days. The optimum period for plant growth is from May through July.

Table 3. Representative climatic features

Frost-free period (average)	50 days
Freeze-free period (average)	80 days
Precipitation total (average)	406 mm

Influencing water features

Soil features

The soils of this site range from moderate to deep, they are well drained and have loamy surface textures and clayey subsoils.They have very cobbly surfaces. Soils are formed by weathering of residual parent materials including tuff, breccia or basalt. Permeability is slow and the available water holding capacity is 3 to 5 inches for the profile. The potential for water erosion is low.

Table 4. Representative soil features

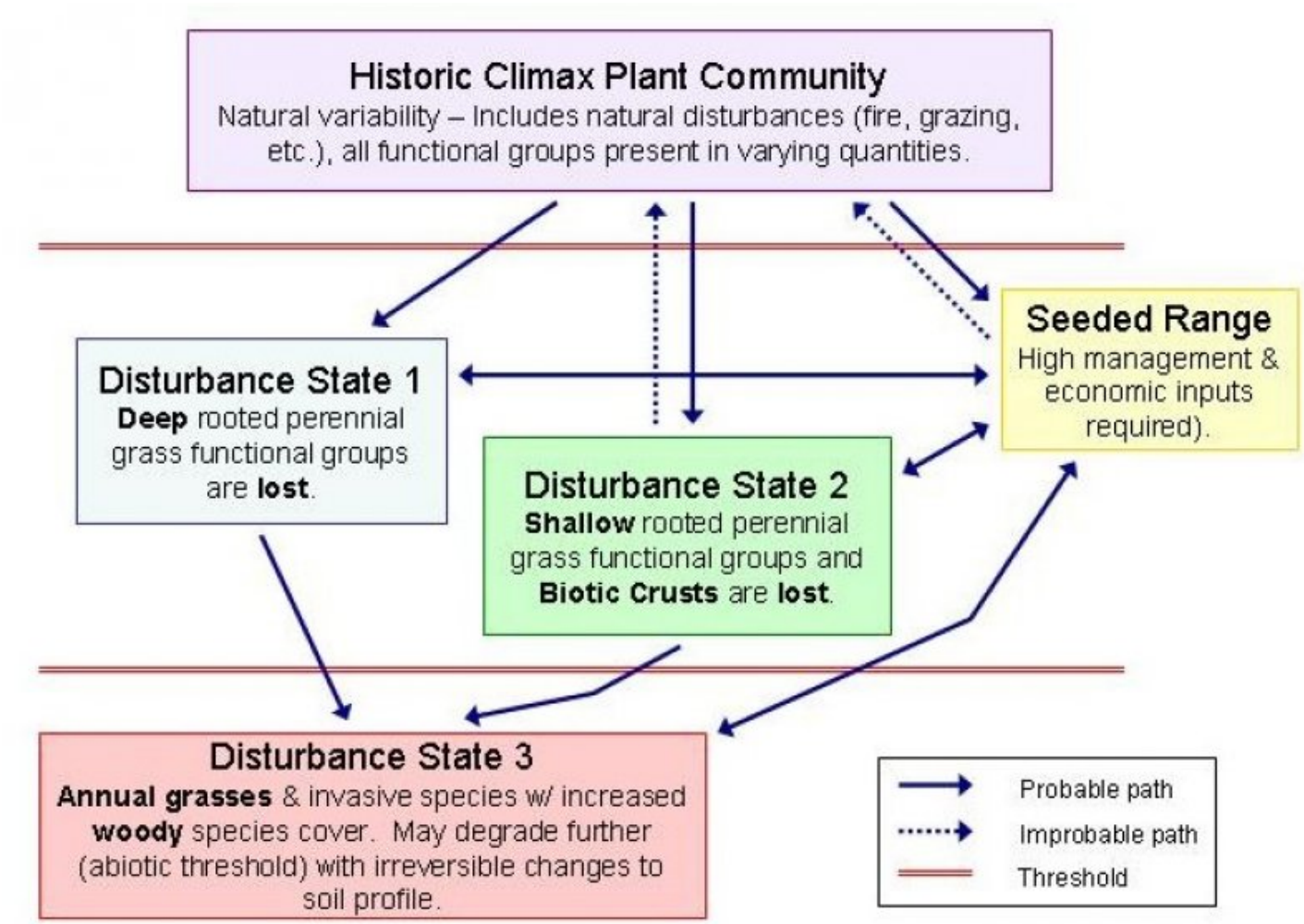
Surface texture	(1) Very stony clay loam (2) Very cobbly loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Slow
Soil depth	30–76 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	7.62–12.7 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	7–7.8
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

The potential plant community is dominated by open stands of western juniper (>5 mature juniper/AC). Juniper reproduction is sparse. Low sagebrush is promintent with bitterbrush and buckwheat. Few other shrubs occur except as inclusions. Idaho fescue dominates the understory, but Sandberg bluegrass and blueburnch wheatgrass

are important secondary species. Onespike oatgrass is more common in low moist areas of the stand or in light swales. Small amounts of squirreltail and junegrass are present. Some of the common forbs include scab balsamroot, fleabane, phlox, yarrow, lomatium, agoseris, lupine, onion, yampa and pussytoes. The interpretative plant community for this site is the Historic Climax Plant Community (HCPC).

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
State B: Disturbance/overgrazed

Community 1.1
State B: Disturbance/overgrazed

Dominated by western juniper, low sagebrush, antelpe bitterbrush, Idaho fescue, bottlebursh squirreltail, and Sandberg bluegrass.

State 2
State C: Disturbance/continued overgrazed:

Community 2.1
State C: Disturbance/continued overgrazed:

Dominated by western juniper, low sagebrush, and bottlebursh squirreltail.

State 3
HCPC, FEID-PSSP6/ARAR8-PUTR2/JUOC

Community 3.1
HCPC, FEID-PSSP6/ARAR8-PUTR2/JUOC

Dominated by western juniper, low sagebrush, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass, and Sandberg bluegrass.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	439	632	825
Shrub/Vine	108	157	206
Tree	45	67	90
Forb	9	27	45
Total	**601**	**883**	**1166**

Figure 4. Plant community growth curve (percent production by month). OR5621, D21 Juniper Sites 8-16. D21 Juniper Sites 8-16 pz RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	30	40	20	0	0	0	0	0

Additional community tables

Table 6. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant deep rooted perennial grasses**			359–628	
	Idaho fescue	FEID	*Festuca idahoensis*	269–359	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	90–269	–
2	**Sub-dominant deep rooted perennial grasses**			18–72	
	squirreltail	ELEL5	*Elymus elymoides*	9–27	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	9–18	–
4	**Sub-dominant shallow rooted perennial grasses**			54–135	
	Sandberg bluegrass	POSE	*Poa secunda*	45–90	–
	onespike danthonia	DAUN	*Danthonia unispicata*	9–45	–
5	**Other perennial grasses**			9–18	
	prairie Junegrass	KOMA	*Koeleria macrantha*	9–18	–
Forb					
9	**Other perennial forbs**			9–45	
	common yarrow	ACMI2	*Achillea millefolium*	0–6	–
	agoseris	AGOSE	*Agoseris*	0–6	–
	milkvetch	ASTRA	*Astragalus*	0–6	–
	serrate balsamroot	BASE2	*Balsamorhiza serrata*	0–6	–
	Indian paintbrush	CASTI2	*Castilleja*	0–6	–
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	0–6	–
	fleabane	ERIGE2	*Erigeron*	0–6	–
	buckwheat	ERIOG	*Eriogonum*	0–6	–
	western stoneseed	LIRU4	*Lithospermum ruderale*	0–6	–
	lupine	LUPIN	*Lupinus*	0–6	–
	yampah	PERID	*Perideridia*	0–6	–
	phacelia	PHACE	*Phacelia*	0–6	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			45–90	
	little sagebrush	ARAR8	*Artemisia arbuscula*	45–90	–
12	**Sub-dominant evergreen shrubs**			18–27	
	slender buckwheat	ERMI4	*Eriogonum microthecum*	18–27	–
13	**Dominant deciduous (or 1/2 shrubs) shrubs**			45–90	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	45–90	–
Tree					
16	**Dominant evergreen trees**			45–90	
	western juniper	JUOC	*Juniperus occidentalis*	45–90	–

Animal community

Wildlife-
This site provides nesting and feeding cover to a variety of wildlife species. It is particularly important in fall and winter for deer which feed heavily on the bitterbrush. Use should be managed in such a manner as to maintain or improve conditions for wildlife populations.
Grazing-

This site is suited to use under a planned grazing system by cattle in the late spring, summer or fall. Care should be taken to avoid use until soils are sufficiently dry and stable to reduce the impacts of trampling and root reserves have been established. Excessive early use or season long use, are the primary factors in the deterioration of this site.

Wood products

This site has llimited potential for fence posts and firewood, although collection is generally unfeasible.

Contributors

BLM ESI Team
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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, slight sheet & rill erosion hazard

2. **Presence of water flow patterns:** None

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

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-10%

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, slight wind erosion hazard

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):** Moderatley 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):** Shallow t moderately deep, well drained stony to cobbly loams and clay loams; Low OM (1%)

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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 (50-70%) and gentle slopes (1-10%) 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: Idaho fescue > Bluebunch wheatgrass > Low sagebrush > Western Juniper = Antelope bitterbrush = Sandberg bluegrass > other grasses > shrubby buckwheat > forbs

    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: 1000, Normal: 800, Unfavorable: 500 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 species will increase with deterioration of plant community. Western Juniper

readily increases on 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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