USDA Natural Resources
Conservation Service

Ecological site R021XY508OR
JUNIPER DRY PINE 14-16 PZ

Accessed: 05/19/2024

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 tablelands, plateaus, ridges and upland slopes. Slopes range from 1-45 percent. Elevations range from 4100 to 5500 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Ridge
Elevation	1,250–1,676 m
Slope	1–45%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from about 14 to 16 inches occurring mainly between the months of November and June as both rain and snow. The soil temperature regime is frigid. The average annual air temperature is 44-46 degrees F with extreme temperatures ranging from 90 to -30 degrees F. the frost free period is 20 to 60 days. The optimum period for plant growth is from May through late July.

Table 3. Representative climatic features

Frost-free period (average)	60 days
Freeze-free period (average)	90 days
Precipitation total (average)	406 mm

Influencing water features

Soil features

The soils of this site are moderately deep or shallow, usually but not always stony, and well drained. Textures are loam or sandy loam in the A horizon with loam or clay loam subsoils. they are generally formed in/from tuff, breccia, rhyolite or basalt. Permeability is slow to moderate. The potential for water erosion is low, moderate or high depending on slope.

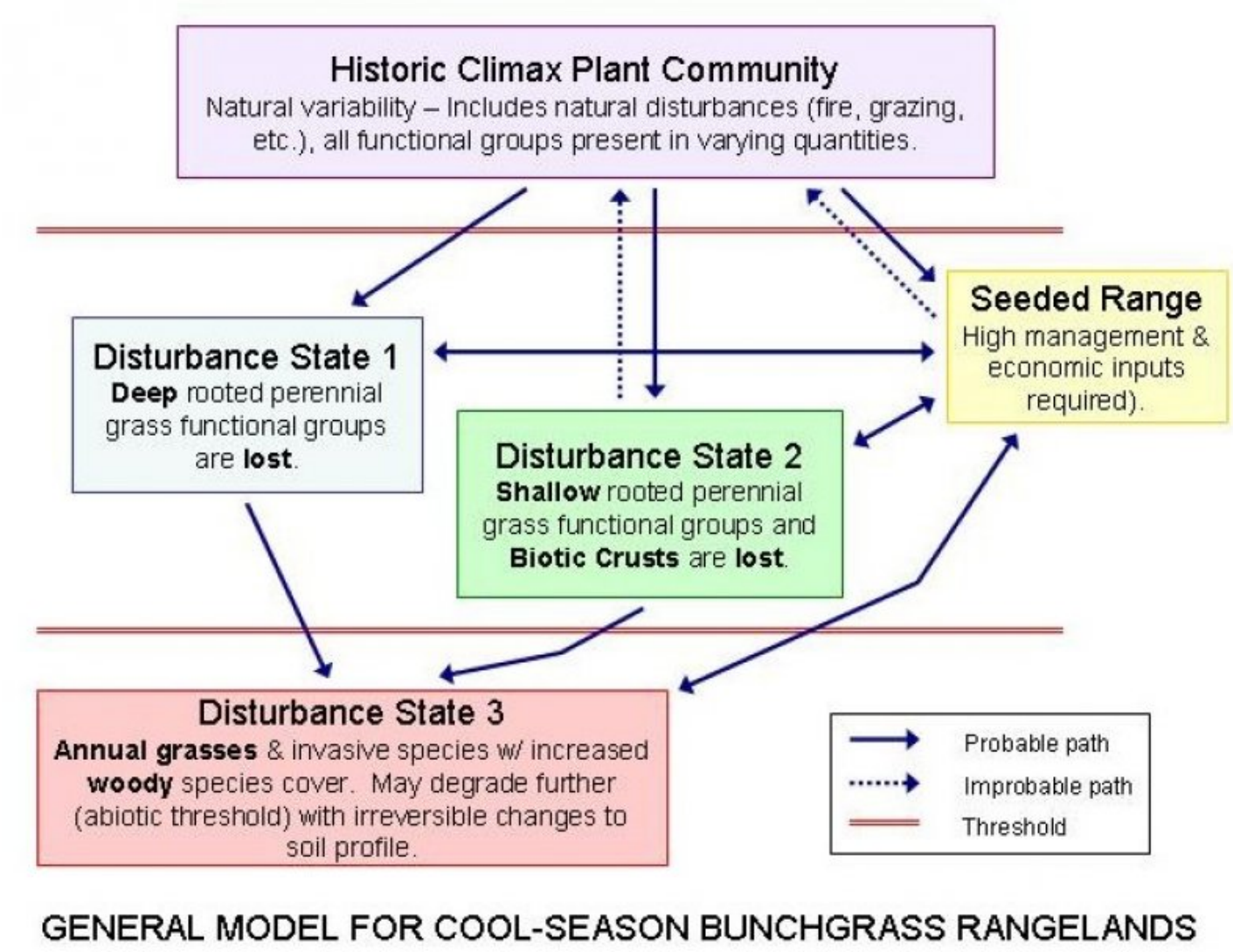
Table 4. Representative soil features

Surface texture	(1) Stony loam (2) Stony sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderate
Soil depth	0 cm
Available water capacity (0-101.6cm)	0 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

Ecological dynamics

Pine growth rates are favored by juniper removal. Pine is more resistent to burning than juniper and will survive fires with less damage. Sustained heavy grazing pressure by livestock or poor grazing management may reduce fescue, wheatgrass, needlegrass, bitterbrush, and/or palatable forbs, depending on season of use and growing conditions. Green and gray rabbitbrush invade after major fires nd ground disturbance along with cheatgrass and other weeds.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, FEID-PSSP6/PUTR2-CELE3/JUOC-PIPO

Community 1.1
HCPC, FEID-PSSP6/PUTR2-CELE3/JUOC-PIPO

The potential native plant community is co-dominated by western juniper and ponderosa pine. The midstory is dominated by pine and juniper reproduction along with an abundance of curlleaf mtn. mahogany. Bitterbrush dominates the understory which also includes Klamath plum, buckwheat, serviceberry, wax currant, desert gooseberry and mountain big sagebrush. Herbaceous species are codominated by Idaho fescue and bluebunch wheatgrass, but Canby bluegrass, squirreltail, Ross sedge, Junegrass, and sometimes western needlegrass are also present. Common forbs include fleabane, phlox, yarrow, lomatium, wooly eriophyllum, arrowleaf balsamroot, agoseris, lupine and hawksbeard. Idaho fescue is most abundant and more common than wheatgrass in the highest precipitation areas and on more northerly aspects. Bluebunch wheatgrass increases as aspect changes to south. Bitterbrush increases in more stony/gravelly areas. Juniper increases in abundance over pine in the more droughty positions and locations.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	392	633	874
Shrub/Vine	135	263	392
Tree	78	151	224
Forb	11	45	78
Total	**616**	**1092**	**1568**

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 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant deep rooted perennial grasses**			280–616	
	Idaho fescue	FEID	*Festuca idahoensis*	168–336	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	112–280	–
2	**Sub-dominant deep rooted perennial grasses**			45–112	
	western needlegrass	ACOC3	*Achnatherum occidentale*	22–56	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	22–56	–
3	**Dominant shallow rooted perennial grasses**			56–112	
	Sandberg bluegrass	POSE	*Poa secunda*	56–112	–
5	**Other perennial grasses**			11–34	
	squirreltail	ELEL5	*Elymus elymoides*	0–6	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0–6	–
Forb					
9	**Other perennial forbs**			11–78	
	common yarrow	ACMI2	*Achillea millefolium*	0–6	–
	agoseris	AGOSE	*Agoseris*	0–6	–
	pussytoes	ANTEN	*Antennaria*	0–6	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	0–6	–
	blue eyed Mary	COLLI	*Collinsia*	0–6	–
	hawksbeard	CREPI	*Crepis*	0–6	–
	fleabane	ERIGE2	*Erigeron*	0–6	–
	buckwheat	ERIOG	*Eriogonum*	0–6	–
	common woolly sunflower	ERLA6	*Eriophyllum lanatum*	0–6	–
	Lewis flax	LILE3	*Linum lewisii*	0–6	–
	desertparsley	LOMAT	*Lomatium*	0–6	–
	lupine	LUPIN	*Lupinus*	0–6	–
	beardtongue	PENST	*Penstemon*	0–6	–

	phacelia	PHACE	*Phacelia*	0–6	–
	spreading phlox	PHDI3	*Phlox diffusa*	0–6	–
	lambstongue ragwort	SEIN2	*Senecio integerrimus*	0–6	–
	Oregon checkerbloom	SIOR	*Sidalcea oregana*	0–6	–
Shrub/Vine					
12	**Sub-dominant evergreen shrubs**			11–22	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	11–22	–
13	**Dominant deciduous (or 1/2 shrubs) shrubs**			112–280	
	curl-leaf mountain mahogany	CELE3	*Cercocarpus ledifolius*	56–168	–
	antelope bitterbrush	PUTR2	*Purshia tridentata*	56–168	–
15	**Other shrubs**			11–90	
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	0–6	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0–6	–
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	0–6	–
	sulphur-flower buckwheat	ERUM	*Eriogonum umbellatum*	0–6	–
	Klamath plum	PRSU2	*Prunus subcordata*	0–6	–
	wax currant	RICE	*Ribes cereum*	0–6	–
	desert gooseberry	RIVE	*Ribes velutinum*	0–6	–
Tree					
16	**Dominant evergreen trees**			78–224	
	western juniper	JUOC	*Juniperus occidentalis*	56–112	–
	ponderosa pine	PIPO	*Pinus ponderosa*	22–112	–

Animal community

Livestock grazing- This site is normally suitable for grazing in the late spring, early summer, and/or fall, depending on location. Use may be light under more shaded areas since cattle prefer forage grown in open or semi-open areas.
Wildlife- Primarily spring, winter, fall. Fall range for deer.

Hydrological functions

The soils of this site have low to medium infiltration rates and low, medium or high runoff potential, depending on slope. The hydrologic soil group is C for Royst and Fuego and D for Nuss.

Recreational uses

Hiking and hunting.

Wood products

Low quality lumber, poles, firewood, and posts.

Other information

For road stabiliazation, critical area stabilization or range seedings- choices include pubescent wheatgrass, intermediate wheatgrass, hard fescue, sheep fescue, smooth brome and/or crested wheatgrass (all non-natives), or bluebunch wheatgrass (native).

Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T38S R11E S4
General legal description	Bly Mountain highway 1-2 miles east of Yonna Valley T38S, R11E, Sec 4 (N half)
Location 2: Klamath County, OR	
Township/Range/Section	T38S R13E S23
General legal description	Paddock Butte on SW slope north of Gerber Reservoir T38S, R13E, Sec 23 (SE 1/4)

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
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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 to some, depending on slope (to 45%), slight to moderate sheet & rill erosion hazard

2. **Presence of water flow patterns:** None to some, depending on slope (to 45%)

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):** 1-3%

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

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Significantly resistant to erosion: aggregate stability = 4-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow t deep (usually stony), well drained stony or cobbly loams or ashy coarse sandy loams: Low to Moderate OM (1-2%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant vegetative cover of over 110% and gentle to moderate slopes (1-45%) effectively limit rainfall impact and overland flow; infiltration is slow to moderate

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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 > Antelope bitterbrush > Curlleaf mountain mahogany = Western Juniper = Sandberg bluegrass > other grasses > Ponderosa Pine > other shrubs > forbs

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Normal decadence and mortality expected

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):** Favorable: 1200, Normal: 1000, Unfavorable: 800 lbs/acre/year at high RSI (HCPC)

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 (and after fire). Ponderosa Pine and Western Juniper readily increase on the site (can be converted to woodland w/out fire). 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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