

Ecological site R021XY414OR

PINE/SEDGE-FESCUE 16-24 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.

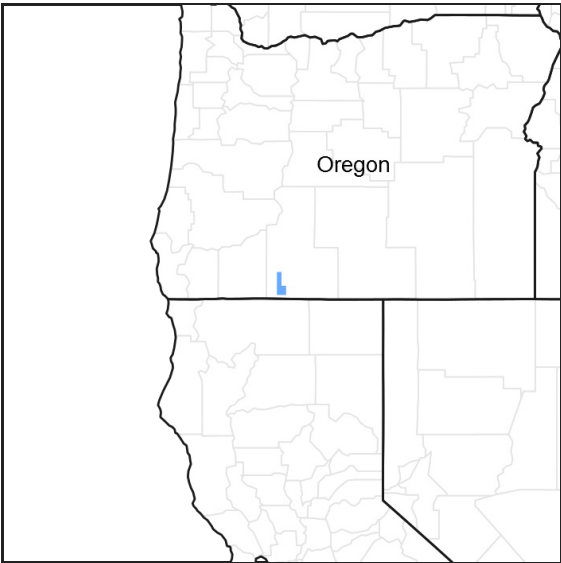


Figure 1. Mapped extent

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.

Associated sites

R021XY410OR	DEEP LOAMY 16-20 PZ
R021XY412OR	LOAMY 18+ PZ

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in/on mountain slopes, rolling uplands, plateaus and valleys. Slopes range from 1-45 percent. Elevations range from 4400 to 6000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope (2) Plateau (3) Valley
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Elevation	1,341–1,829 m
Slope	1–45%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 16 to 24 inches which occurs mainly between the months of November and June, mostly in the form of rain and snow. The soil temperature regime is frigid. The average annual air temperature is 43-46 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 late July.

Table 3. Representative climatic features

Frost-free period (average)	80 days
Freeze-free period (average)	120 days
Precipitation total (average)	610 mm

Influencing water features

Soil features

The soils of this site are moderately deep or deep, well drained, stony loam surface textures and loam to clay loam subsoils. They are generally formed in/from tuff, breccia, rhyolite or basalt. Permeability is slow. The potential for water erosion ranges from low to high depending on the slope.

Table 4. Representative soil features

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

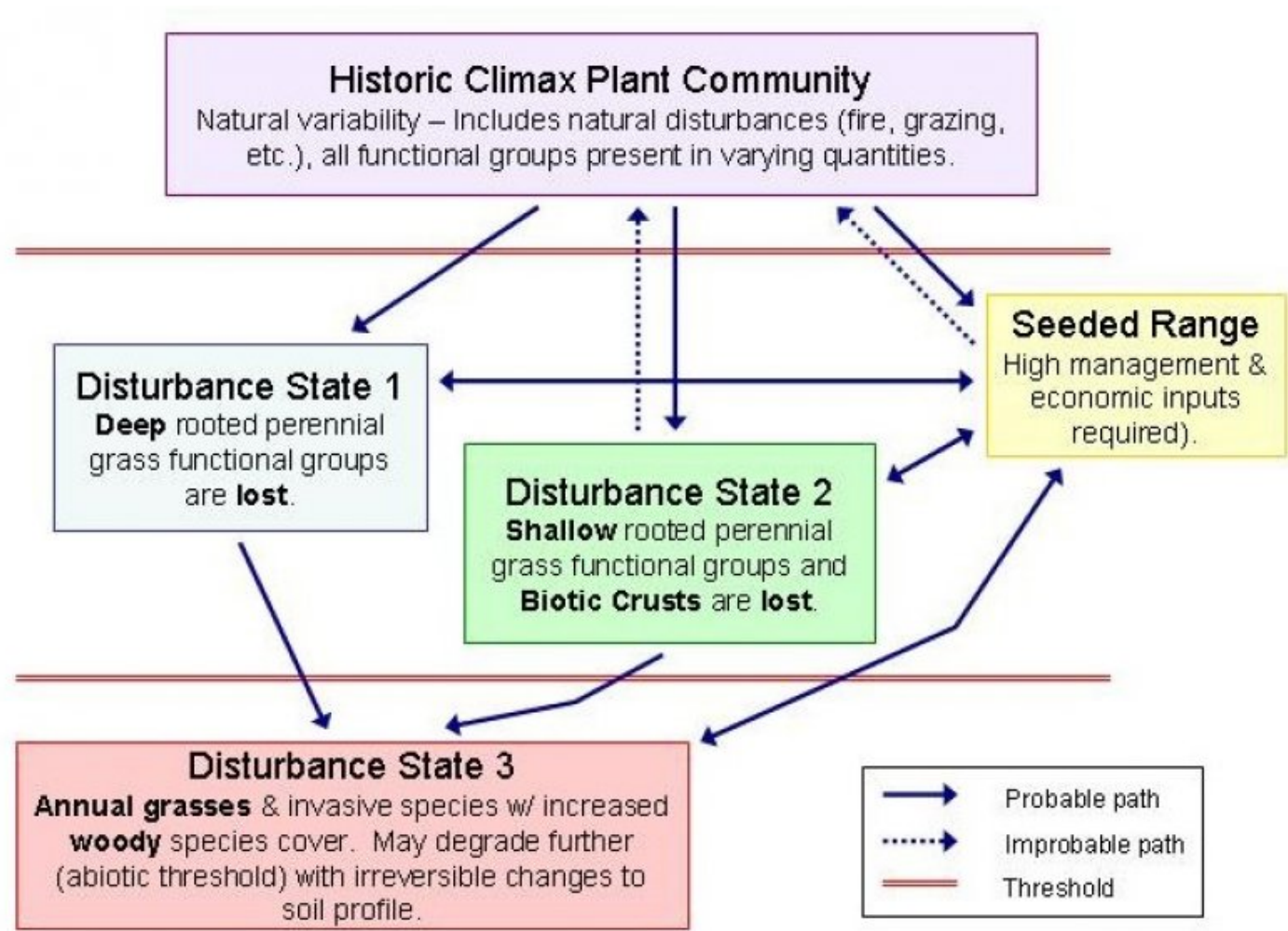
Ecological dynamics

The potential native plant community is dominated by ponderosa pine. An occasional single white fir or incense cedar sometimes occurs in the understory of the stand. The midstory is dominated by pine reproduction, curleaf mtn. mahogany and traces of tall shrubs such as choke cherry and bitter cherry. Other shrubs present include bitterbrush, snowberry, Klamath plum, serviceberry, green manzanita, wax currant, Oregon grape and squaw carpet. Herbaceous species include Ross sedge, Idaho fescue, mountain brome, Wheeler bluegrass, western needlegrass, heartleaf arnica, strawberry, hawkweed and numerous other species.

Marginal areas for the site (droughty, low elevation) and south aspects will have greater grass cover and an

absence of white fir and incense cedar.
Pine regeneration is favored by heavy thinnings and patch cuts. White fir regeneration is removed by understory burning. Heavy grazing pressure by livestock may reduce fescue, bluegrass, sedge, brome, and palatable forbs. Rabbitbrush, snowbrush, and manzanita invade after major fires.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, FEID-CARO5/PUTR2-CELE3/PIPO

Community 1.1
HCPC, FEID-CARO5/PUTR2-CELE3/PIPO

Variability in plant composition and production is influenced by the density of the tree overstory. Perennial grasses and bitterbrush decrease where dense stands of ponderosa pine have developed. White fir increases with elevation.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	332	520	708
Shrub/Vine	63	161	260
Tree	54	103	152
Forb	45	76	108
Total	494	860	1228

Figure 4. Plant community growth curve (percent production by month).
 OR5551, D21 Mid Elev., NA, Good Condtion. RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	40	45	5	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			269–448	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	179–269	–
	Ross' sedge	CARO5	<i>Carex rossii</i>	90–179	–
2	Sub-dominant deep rooted perennial grasses			54–215	
	mountain brome	BRMA4	<i>Bromus marginatus</i>	18–72	–
	western fescue	FEOC	<i>Festuca occidentalis</i>	18–72	–
	Wheeler's bluegrass	POWH2	<i>Poa wheeleri</i>	18–72	–
5	Other perennial grasses			9–45	
	western needlegrass	ACOC3	<i>Achnatherum occidentale</i>	0–6	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–6	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	0–6	–
Forb					
7	Dominant perennial forbs			45–108	
	woolly mule-ears	WYMO	<i>Wyethia mollis</i>	9–27	–
	white hawkweed	HIAL2	<i>Hieracium albiflorum</i>	9–27	–
	white hawkweed	HIAL2	<i>Hieracium albiflorum</i>	9–27	–
	woolly mule-ears	WYMO	<i>Wyethia mollis</i>	9–27	–
	strawberry	FRAGA	<i>Fragaria</i>	9–18	–
	ragwort	SENEC	<i>Senecio</i>	9–18	–
	American vetch	VIAM	<i>Vicia americana</i>	9–18	–
	ragwort	SENEC	<i>Senecio</i>	9–18	–
	American vetch	VIAM	<i>Vicia americana</i>	9–18	–
	strawberry	FRAGA	<i>Fragaria</i>	9–18	–
Shrub/Vine					
13	Dominant deciduous (or 1/2 shrubs) shrubs			54–215	
	curl-leaf mountain mahogany	CELE3	<i>Cercocarpus ledifolius</i>	18–72	–
	prostrate ceanothus	CEPR	<i>Ceanothus prostratus</i>	18–72	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	18–72	–
15	Other shrubs			9–45	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	0–6	–
	greenleaf manzanita	ARPA6	<i>Arctostaphylos patula</i>	0–6	–
	Klamath plum	PRSU2	<i>Prunus subcordata</i>	0–6	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	0–6	–
Tree					
16	Dominant evergreen trees			45–135	
	ponderosa pine	PIPO	<i>Pinus ponderosa</i>	45–135	–
17	Sub-dominant evergreen trees			9–18	
	white fir	ABCO	<i>Abies concolor</i>	9–18	–

Animal community

Livestock grazing- This site is normally very accessible for grazing but use may be light under heavy shade except

for rest, travel and bedding. Most grazing is available in logged, burned or disturbed sites (except dense brush fields) and in plantations.

Wildlife-Mule deer, elk, bobcat, coyote, grouse-primarily summer range

Hydrological functions

The soils of this site have low to medium infiltration rates and low to high runoff potential depending on slope. The hydrologic soil group is C.

Recreational uses

hiking and hunting

Wood products

Lumber, poles, firewood, primarily summer range.

Other information

For road stabilization or critical area stabilization where competition with tree seedlings is not a concern- choices include pubescent wheatgrass, intermediate wheatgrass, hard fescue, sheep fescue, smooth brome and/or orchardgrass.

Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T39S R13E S5
General legal description	SE Klamath county at Goodlow Mtn. Natural Area along road through Natural Area in T39S, R13E, Sec 5 (E half of SW)
Location 2: Lake County, OR	
Township/Range/Section	T37S R16E S28
General legal description	Lake county along highway west of Quartz Mtn. Pass T37S, R16E, Sec 28, 29, 30

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 Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, moderate sheet & rill erosion hazard

2. **Presence of water flow patterns:** None to some on steeper slopes (to 60%)

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%

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):** Moderately to 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):**
Moderately deep to deep, well drained loams, gravelly loams and stony loams (15-50% rock fragments in the subsoil):
Moderate to High OM (2-5%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant vegetative cover of over 125% and moderate slopes (1-45%) effectively limit rainfall impact and overland flow; infiltration is moderate to slow

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 > Ross sedge > Ponderosa Pine > other dominant forbs > other dominant grasses = other dominant shrubs > other grasses = other shrubs > White Fir

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
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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: 600 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 and Ponderosa Pine 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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