

Ecological site R021XY214OR
CLAYPAN
14-18 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

R021XY210OR	LOAMY 14-18 PZ Loamy 14-18" PZ
R021XY212OR	SHALLOW LOAM 14-18 PZ Shallow Loam 14-18" PZ
R021XY216OR	STONY CLAYPAN 14-20 PZ Stony Claypan 14-20" PZ

Similar sites

R021XY212OR	SHALLOW LOAM 14-18 PZ Shallow Loam 14-18" PZ (Frigid temperature regime)
R021XY216OR	STONY CLAYPAN 14-20 PZ Stony Claypan 14-20" PZ (surface stones)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on terraces, benches and tablelands. Slopes range from 0 to 15%. Elevations range from 4000 to 6500 feet.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Plateau
Elevation	1,220 – 1,980 m
Slope	0 – 20 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 14 to 18 inches, most of which occurs in the form of snow during the months of October through April. The soil temperature regime is frigid to mesic with the mean annual air temperature ranging from 45 to 47 degrees F. Temperature extremes range from 90 to -30 degrees F. The frost free period ranges from 50 to 110 days. The optimum period for plant growth is from May through June.

Table 3 Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	460 mm

Influencing water features

Soil features

The soils of this site are very shallow to a claypan or clayey layer which restricts root penetration. Bedrock or a duripan immediately underlie the claypan. Typically the surface layer is loamy and contains less than 30 percent rock fragments, which are primarily gravel size. Permeability is slow. The available water holding capacity is 2 to 5 inches. Runoff is medium. Erosion hazard by water is moderate.

Table 4. Representative soil features

Surface texture	(1) Loam
Family particle size	(1) Clayey
Permeability class	Slow
Surface fragment cover <=3"	0 – 30 %

Available water capacity (0-101.6cm)	5.08 – 12.7 cm
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Ecological dynamics

This site is typically dominated by Idaho fescue. At the lower end of its precipitation range, bluebunch wheatgrass may approach co-dominance. Soils in this site that have a gravelly surface will show an increase in Thurber needlegrass. Idaho fescue production increases with increased soil surface thickness.

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue and bluebunch wheatgrass will decline in the stand and low sagebrush and Sandberg bluegrass will increase. In the absence of periodic fire, western juniper will invade or increase in the stand.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Deep-rooted, dominant, perennial grasses			101-202	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	404-605	–
2	Deep-rooted, sub-dominant, perennial grasses			101-202	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	101-202	–
4	Sub-dominant shallow rooted perennial grasses			30-61	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	30-61	–
5	Other perennial grasses			10-50	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0-6	–
	sedge	CAREX	<i>Carex</i>	0-6	–
	onespike danthonia	DAUN	<i>Danthonia unispicata</i>	0-6	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0-6	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0-6	–
Forb					
7	Dominant perennial forbs			40-81	
	Hooker's balsamroot	BAHO	<i>Balsamorhiza hookeri</i>	10-20	–
	desertparsley	LOMAT	<i>Lomatium</i>	10-20	–
	phlox	PHLOX	<i>Phlox</i>	10-20	–
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	10-20	–
9	Other perennial forbs			10-50	
	milkvetch	ASTRA	<i>Astragalus</i>	0-6	–
	mariposa lily	CALOC	<i>Calochortus</i>	0-6	–
	fleabane	ERIGE2	<i>Erigeron</i>	0-6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0-6	–
	lupine	LUPIN	<i>Lupinus</i>	0-6	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	0-6	–
Shrub/Vine					
11	Dominant evergreen shrubs			101-202	
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	101-202	–

12	Sub-dominant evergreen shrubs			40-91	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	20-50	–
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	10-20	–
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	10-20	–
Tree					
16	Dominant evergreen trees			50-101	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	50-101	–

Animal community

Mule deer will feed on this site in the spring. Pronghorn antelope will use this site year-round. The site may serve as strutting grounds for sage grouse.

Hydrological functions

The soils are in hydrologic groups C and D. The soils of this site have moderate to high runoff potential.

Other products

This site is suited to grazing in late spring, summer and fall under a planned grazing system. Use should be postponed until soils are firm enough to prevent trampling damage and soil compaction.

Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T38S R14E S?
General legal description	NW of Gerber Reservoir in Dry Prairie basin: T38S, R14E
Location 2: Klamath County, OR	
Township/Range/Section	T41S R18E S15
General legal description	Lake County east of Goose Lake: T41S, R18E, Sec 15 (NW, SE)
Location 3: Klamath County, OR	
Township/Range/Section	T36S R10E S22
General legal description	South of Sprague River (town): T36S, R10E, Sec 22 (NE, SW)

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	08/22/2012
Approved by	
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: Some to few in interspaces

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): 5-15%

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): Very shallow (to claypan) loams, clay loams or silty clay loams (<30% rock fragments in the surface layer): Low OM (1-2%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: High amount of plant cover (70-90%), rock fragments, and gentle slopes (0-15%) effectively limit rainfall impact and overland flow; infiltration is moderately slow 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 > Bluebunch wheatgrass = Low sagebrush > dominant shrubs > dominant forbs > other grasses = other 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: 900, Unfavorable: 600 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. Western Juniper readily invades the site. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

17. Perennial plant reproductive capability: All species should be capable of reproducing annually
