

Ecological site R021XY216OR

STONY CLAYPAN 14-20 PZ

Accessed: 05/14/2024

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

R021XY210OR	LOAMY 14-18 PZ Loamy 14-18" PZ
R021XY214OR	CLAYPAN 14-18 PZ Claypan 14-18" PZ
R021XY308OR	SOUTH SLOPES 14-18 PZ South Slopes 14-18" PZ
R021XY312OR	NORTH SLOPES 14-18 PZ North Slopes 14-18" PZ

Similar sites

R021XY214OR	CLAYPAN 14-18 PZ Claypan 14-18" PZ (Fewer surface stones)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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Physiographic features

This site occurs on tablelands, benches and terraces. Slopes range from 1 to 40%. Elevations range from 4000 to 6500 feet.

Table 2. Representative physiographic features

Landforms	(1) Terrace
Elevation	1,219–1,981 m
Slope	1–40%

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 followed by ample spring and fall rainfall. The soil temperature regime is frigid and mesic with the mean annual air temperature ranging from 45 to 47 degrees F. Temperature extremes range from 100 to -30 degrees F. The frost free period ranges from 50 to 110 days. The optimum period for plant growth is from early May to mid-June

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	457 mm

Influencing water features

Soil features

The soils of this site are very shallow to a claypan, which restricts root penetration. Bedrock or a duripan immediately underlie the claypan. Typically the surface layer is loamy and contains over 35% rock fragments, which are primarily stone size. Permeability is slow. The available water holding capacity is 2 to 4 inches. Runoff is medium to rapid. Erosion hazard by water is moderate.

Table 4. Representative soil features

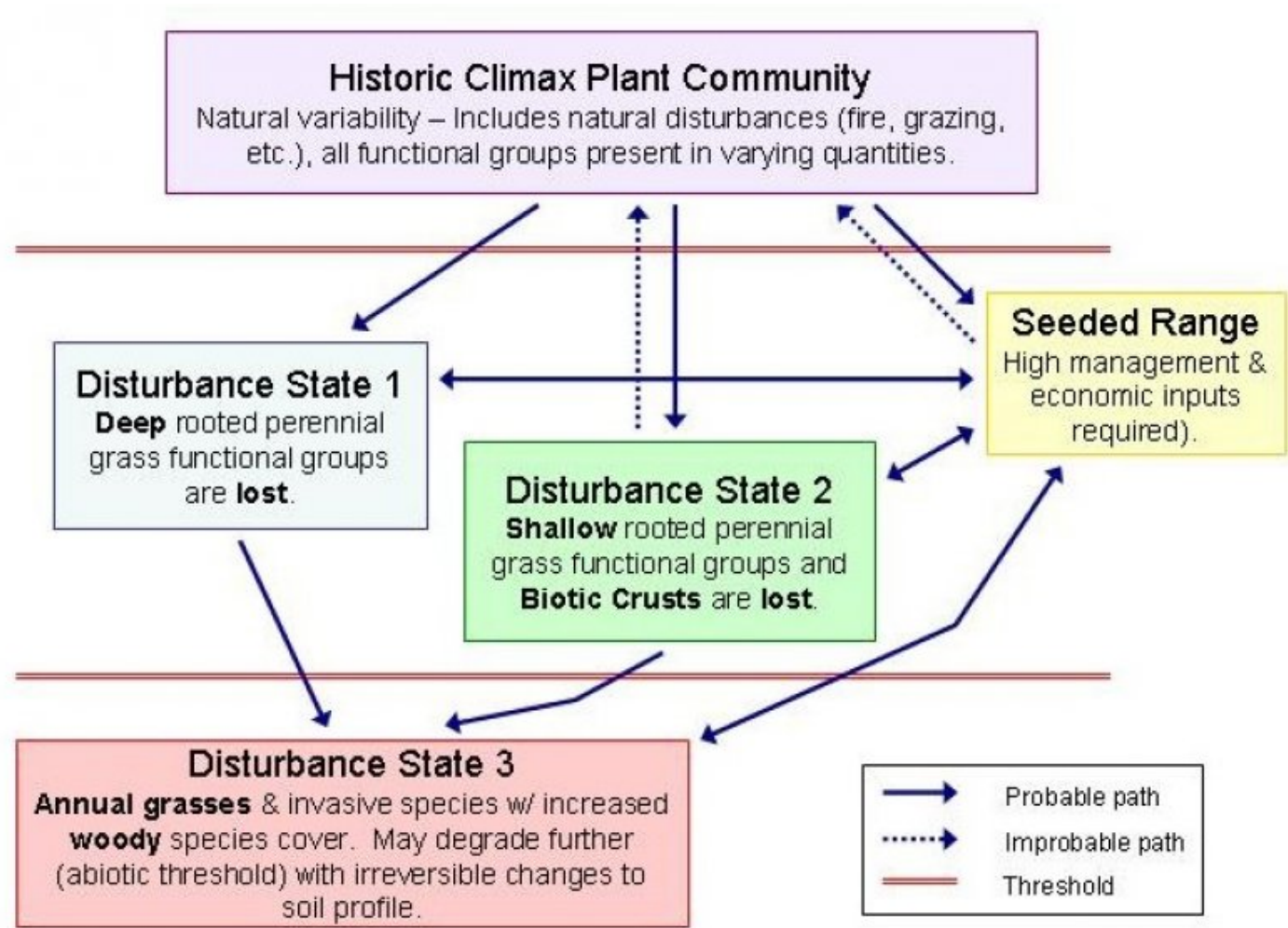
Surface texture	(1) Fine sandy loam
Family particle size	(1) Clayey
Permeability class	Slow
Surface fragment cover >3"	0–35%
Available water capacity (0–101.6cm)	5.08–10.16 cm

Ecological dynamics

Surface stones limit plant density and site productivity. As the amount of area covered by stones increases, plant density and productivity decreases.

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue and bluebunch wheatgrass will decrease and Sandberg bluegrass and low sage will increase. In the absence of periodic fire, western juniper may invade the site.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, FEID-PSSP6/ARAR8

Community 1.1
HCPC, FEID-PSSP6/ARAR8

The potential native plant community is dominated by Idaho fescue with lesser amounts of bluebunch wheatgrass, Canby and Sandberg bluegrass. Low sagebrush is the dominant shrub. A wide variety of forbs occur. Vegetative composition of the community is approximately 70% grasses, 10% forbs and 20% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	395	601	807
Shrub/Vine	126	197	269
Forb	72	117	161
Tree	45	67	90
Total	638	982	1327

Figure 4. Plant community growth curve (percent production by month).
OR5551, D21 Mid Elev., NA, Good Condition. 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			269–493	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	269–493	–
2	Sub-dominant deep rooted perennial grasses			45–135	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	45–135	–
4	Sub-dominant shallow rooted perennial grasses			63–135	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	45–90	–
	onespike danthonia	DAUN	<i>Danthonia unispicata</i>	18–45	–
5	Other perennial grasses			18–45	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0–6	–
	smooth brome	BRIN2	<i>Bromus inermis</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			18–45	
	Hooker's balsamroot	BAHO	<i>Balsamorhiza hookeri</i>	18–45	–
8	Sub-dominant perennial forbs			45–90	
	agoseris	AGOSE	<i>Agoseris</i>	9–18	–
	onion	ALLIU	<i>Allium</i>	9–18	–
	buckwheat	ERIOG	<i>Eriogonum</i>	9–18	–
	desertparsley	LOMAT	<i>Lomatium</i>	9–18	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	9–18	–
9	Other perennial forbs			9–27	
	milkvetch	ASTRA	<i>Astragalus</i>	0–6	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–6	–
	lupine	LUPIN	<i>Lupinus</i>	0–6	–
	ragwort	SENEC	<i>Senecio</i>	0–6	–
Shrub/Vine					
11	Dominant evergreen shrubs			90–179	
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	90–179	–
12	Sub-dominant evergreen shrubs			18–45	
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	18–45	–
15	Other shrubs			18–45	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	0–6	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–6	–
	wax currant	RICE	<i>Ribes cereum</i>	0–6	–
Tree					
16	Dominant evergreen trees			45–90	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	45–90	–

Animal community

This site provides food for mule deer in the spring. Pronghorn antelope 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.

Other products

This site is suited to grazing by livestock in late spring, summer and fall under a planned grazing system.

Other information

Surface stones make fence construction, excavations and seeding difficult.

Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T39S R14E S15
General legal description	Gerber Reservoir road near Noble Reservoir and near DeVaul Lake: T39S, R14E, Sec 15
Location 2: Klamath County, OR	
Township/Range/Section	T38S R12E S25 26
General legal description	Just SW of Keno Meadow at edge of Capon Flat: T38S, R12E, Sec 25, 26
Location 3: Klamath County, OR	
Township/Range/Section	T36S R15E S31
General legal description	East of Bly 3 miles in Sprague Valley: T36S, R15E, Sec 31 (SE)

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	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

2. **Presence of water flow patterns:** Some to few in interspaces

3. **Number and height of erosional pedestals or terracettes:** None to some (shallow rooted grasses)

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

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), well drained (with 35+% surface rock fragments) loams: Low OM (1-2%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant vegetative (70-80%), rock fragment cover (20-40%, and gentle slopes (1-10%) effectively limit rainfall impact and overland flow; infiltration is 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 > Low sagebrush > Sandberg bluegrass > Onespoke oatgrass > Bluebunch wheatgrass = dominant forbs > Shrubby buckwheat = other grasses = other shrubs > 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
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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 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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