

Ecological site R010XC059OR
SR Mahogany Rockland 12+ PZ

Accessed: 05/10/2024

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

R010XC047OR	SR Mountain South 12-16 PZ Mountain South 12-16" PZ
R010XC051OR	SR High Mountain South 16-20 PZ Shallow Mountain South 12-16" PZ

Table 1. Dominant plant species

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Cercocarpus ledifolius</i> (2) <i>Purshia tridentata</i>
Herbaceous	(1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> (2) <i>Festuca idahoensis</i>

Physiographic features

This site is on moderate to steep canyon walls and mountain sideslopes. Slopes range from 12 to 60%. Elevations range from 3000 to 6000 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon (2) Mountain slope
Elevation	914–1,829 m
Slope	12–60%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 12 to over 20 inches, most of which occurs in the form of snow during the months of November through March. The soil temperature regime is frigid to near frigid with a mean annual air temperature ranging from 43 to 48 degrees F. Temperature extremes range from 100 to -30 degrees F. The frost free period ranges from 50 to 90 days. The optimum period for plant growth is from April through June.

Table 3. Representative climatic features

Frost-free period (average)	90 days
Freeze-free period (average)	0 days
Precipitation total (average)	508 mm

Influencing water features

Soil features

The soils of this site are typically shallow to moderately deep and well drained with areas of rock outcrop. Typically the surface layer is a stony, extremely stony loam, very stony clay loam, or very shaley loam from 3 to 7 inches thick. The subsoil is a loam, very gravelly loam; very stony, gravelly, channery clay loam from 6 to 27 inches thick. Depth to bedrock typically ranges from 10 to 30 inches. Permeability is slow to moderate. The available water holding capacity is about 3 to 5 inches for the profile. The potential for erosion is severe.

Table 4. Representative soil features

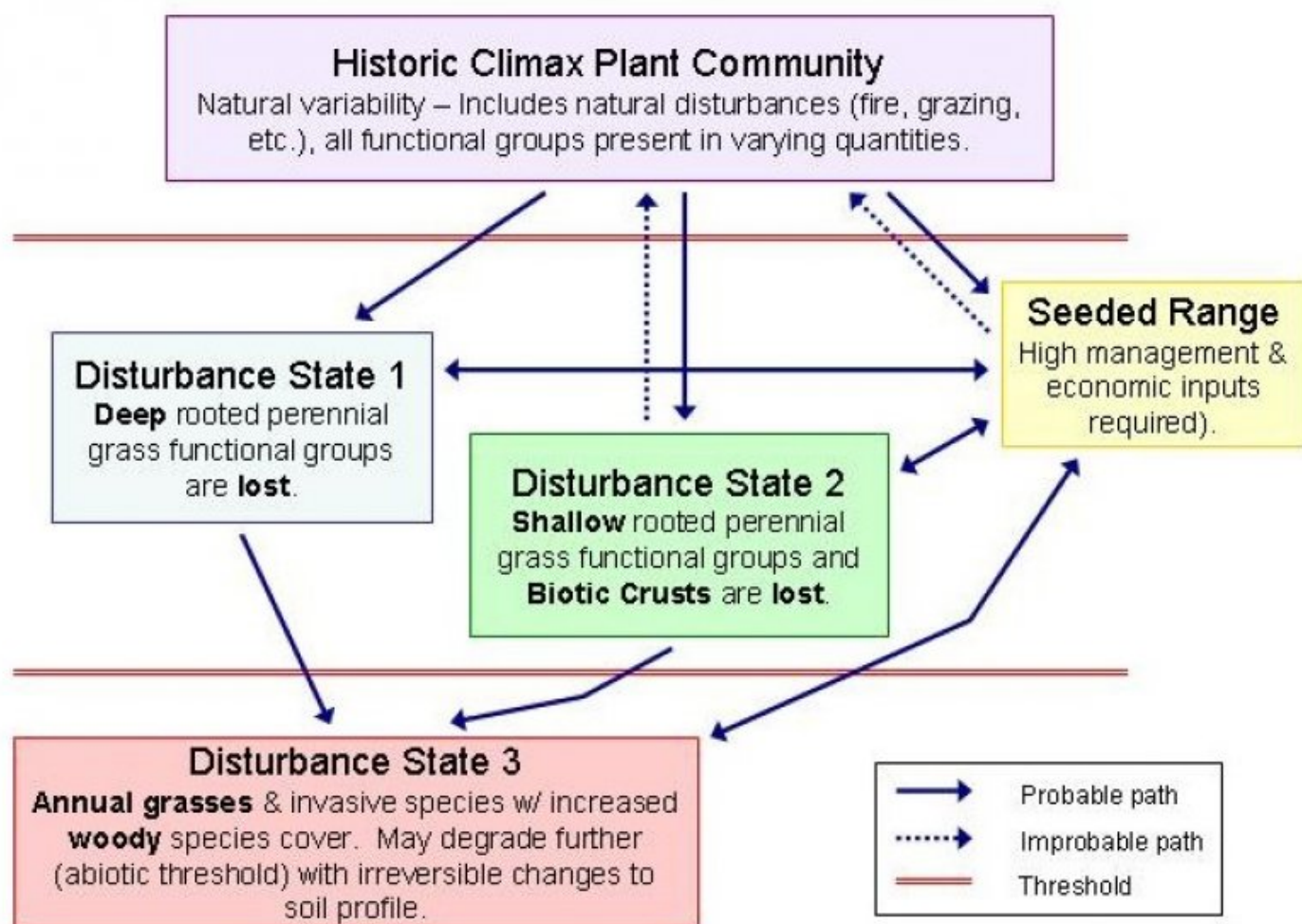
Surface texture	(1) Stony loam (2) Stony clay loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderate
Soil depth	25–76 cm
Available water capacity (0-101.6cm)	7.62–12.7 cm

Ecological dynamics

Idaho fescue increases on northerly aspects. Mountain mahogany increases on fractured rock. Antelope bitterbrush follows a similar pattern on both fractured and deeper gravelly areas. Ponderosa pine occurs at upper elevations and precipitation zones.

If the condition of the site deteriorates as a result of overgrazing, bunchgrasses decrease while big sagebrush, squirreltail and Sandberg bluegrass increase. Bluebunch wheatgrass and Idaho fescue are the preferred species during the spring and summer. With further deterioration, annuals and Canadian and Kentucky bluegrasses invade and bare interspaces markedly increase. Excessive erosion in the bare soil interspaces reduces the site productivity and contributes to downstream sedimentation.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1

Historic Climax Plant Community

Community 1.1

Historic Climax Plant Community

The potential native plant community is dominated by curlleaf mountain mahogany, antelope bitterbrush and bluebunch wheatgrass. Western juniper is common in the stand. Vegetative composition of the community is approximately 30% grasses, 5% forbs, and 65% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	424	625	827
Grass/Grasslike	313	439	565
Forb	71	101	131
Tree	20	61	101
Total	828	1226	1624

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			232–404	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	202–303	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	30–101	–
2	Sub-dominant, deep-rooted, perennial grasses			40–91	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	20–50	–
	squirreltaill	ELEL5	<i>Elymus elymoides</i>	10–20	–
	western needlegrass	ACOC3	<i>Achnatherum occidentale</i>	10–20	–
4	Sub-dominant, shallow-rooted, perennial grasses			20–40	
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	10–20	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	10–20	–
5	All other perennial grasses			20–30	
	needlegrass	ACHNA	<i>Achnatherum</i>	4–6	–
	mountain brome	BRMA4	<i>Bromus marginatus</i>	4–6	–
	elk sedge	CAGA3	<i>Carex garberi</i>	4–6	–
	pinegrass	CARU	<i>Calamagrostis rubescens</i>	4–6	–
	Cusick's bluegrass	POCU3	<i>Poa cusickii</i>	4–6	–
Forb					
7	All dominant, perennial forbs			20–40	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	20–40	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	20–40	–
8	All sub-dominant, perennial forbs			30–61	
	buckwheat	ERIOG	<i>Eriogonum</i>	10–20	–
	phlox	PHLOX	<i>Phlox</i>	10–20	–
	ragwort	SENEC	<i>Senecio</i>	10–20	–
	buckwheat	ERIOG	<i>Eriogonum</i>	10–20	–
	phlox	PHLOX	<i>Phlox</i>	10–20	–
	ragwort	SENEC	<i>Senecio</i>	10–20	–
9	All other perennial forbs			20–30	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	1–4	–
	heartleaf arnica	ARCO9	<i>Arnica cordifolia</i>	1–4	–
	waterleaf	HYDRO4	<i>Hydrophyllum</i>	1–4	–
	woodland-star	LITHO2	<i>Lithophragma</i>	1–4	–
	phacelia	PHACE	<i>Phacelia</i>	1–4	–
	cinquefoil	POTEN	<i>Potentilla</i>	1–4	–
	buttercup	RANUN	<i>Ranunculus</i>	1–4	–
Shrub/Vine					
11	Dominant, evergreen, perennial shrubs			50–151	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	50–151	–
12	Sub-dominant, evergreen, perennial shrubs			30–81	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp.</i>	20–50	–

			<i>vaseyana</i>		
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	10–30	–
13	Dominant, deciduous, perennial shrubs			303–504	
	curl-leaf mountain mahogany	CELE3	<i>Cercocarpus ledifolius</i>	303–504	–
14	Sub-dominant, deciduous, perennial shrubs			20–40	
	wax currant	RICE	<i>Ribes cereum</i>	10–20	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	10–20	–
15	All other perennial shrubs			20–50	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	7–17	–
	peraphyllum	PERAP	<i>Peraphyllum</i>	7–17	–
	rose	ROSA5	<i>Rosa</i>	7–17	–
Tree					
16	Dominant, evergreen, perennial trees			20–81	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	20–81	–
17	Sub-dominant, evergreen, perennial trees			0–20	
	ponderosa pine	PIPO	<i>Pinus ponderosa</i>	0–10	–
	Douglas-fir	PSME	<i>Pseudotsuga menziesii</i>	0–10	–

Animal community

This site provides critical cover and forage for deer and elk during the winter and early spring.

Hawks
Rodents
Songbirds

Hydrological functions

The soils are in hydrologic group D. The soils of this site have high runoff potential.

Other products

This site is suited to limited use by cattle in the late spring and summer. It is very fragile site. Care should be taken to avoid trampling damage when soils are wet.

Other information

This site is not conducive to mechanical improvement measures due to steepness of slope and unstable soils.

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	08/07/2012
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, severe sheet & rill erosion hazard

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

3. **Number and height of erosional pedestals or terracettes:** None to very few (some frost heaving)

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10-25%

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, moderate 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 = 3-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow to moderately deep well drained extremely stony loam, very stony clay loam, or very shaly loam (3-7 inches thick): Moderate OM (2-4%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Low to moderate ground cover (40-60%) and gentle to steep slopes (12-60%) slightly to moderately limit rainfall impact and overland flow

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: Curlleaf Mountain Mahogany > Bluebunch wheatgrass > other shrubs > other grasses > 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: 1300, Normal: 900, 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 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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