

# Ecological site R010XC059OR

## SR Mahogany Rockland

### 12+ PZ

Last updated: 5/13/2025  
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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

|                    |                                                                            |
|--------------------|----------------------------------------------------------------------------|
| <b>R010XC047OR</b> | <b>SR Mountain South 12-16 PZ</b><br>Mountain South 12-16" PZ              |
| <b>R010XC051OR</b> | <b>SR High Mountain South 16-20 PZ</b><br>Shallow Mountain South 12-16" PZ |

Table 1. Dominant plant species

|            |                                                                                         |
|------------|-----------------------------------------------------------------------------------------|
| Tree       | (1) <i>Juniperus occidentalis</i>                                                       |
| Shrub      | (1) <i>Cercocarpus ledifolius</i><br>(2) <i>Purshia tridentata</i>                      |
| Herbaceous | (1) <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i><br>(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<br>(2) Mountain slope |
| Elevation | 910 – 1,830 m                    |
| Slope     | 10 – 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)  |         |
| Precipitation total (average) | 510 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<br>(2) Stony clay loam |
| Family particle size                    | (1) Loamy                             |
| Drainage class                          | Well drained                          |
| Permeability class                      | Slow to moderate                      |
| Soil depth                              | 30 – 80 cm                            |
| Available water capacity<br>(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

## Additional community tables

Table 5. Community 1.1 plant community composition

| Group                  | Common Name                                            | Symbol | Scientific Name                 | Annual Production () | Foliar Cover (%) |
|------------------------|--------------------------------------------------------|--------|---------------------------------|----------------------|------------------|
| <b>Grass/Grasslike</b> |                                                        |        |                                 |                      |                  |
| 1                      | <b>Dominant, deep-rooted, perennial grasses</b>        |        |                                 | 232-404              |                  |
|                        | bluebunch wheatgrass                                   | PSSP6  | <i>Pseudoroegneria spicata</i>  | 202-303              | –                |
|                        | Idaho fescue                                           | FEID   | <i>Festuca idahoensis</i>       | 30-101               | –                |
| 2                      | <b>Sub-dominant, deep-rooted, perennial grasses</b>    |        |                                 | 40-91                |                  |
|                        | Thurber's needlegrass                                  | ACTH7  | <i>Achnatherum thurberianum</i> | 20-50                | –                |
|                        | squirreltail                                           | ELEL5  | <i>Elymus elymoides</i>         | 10-20                | –                |
|                        | western needlegrass                                    | ACOC3  | <i>Achnatherum occidentale</i>  | 10-20                | –                |
| 4                      | <b>Sub-dominant, shallow-rooted, perennial grasses</b> |        |                                 | 20-40                |                  |
|                        | prairie Junegrass                                      | KOMA   | <i>Koeleria macrantha</i>       | 10-20                | –                |
|                        | Sandberg bluegrass                                     | POSE   | <i>Poa secunda</i>              | 10-20                | –                |
| 5                      | <b>All other perennial grasses</b>                     |        |                                 | 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                  | –                |
| <b>Forb</b>            |                                                        |        |                                 |                      |                  |
| 7                      | <b>All dominant, perennial forbs</b>                   |        |                                 | 20-40                |                  |
|                        | arrowleaf balsamroot                                   | BASA3  | <i>Balsamorhiza sagittata</i>   | 20-40                | –                |
|                        | arrowleaf balsamroot                                   | BASA3  | <i>Balsamorhiza sagittata</i>   | 20-40                | –                |
| 8                      | <b>All sub-dominant, perennial forbs</b>               |        |                                 | 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                      | <b>All other perennial forbs</b>                       |        |                                 | 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          | <b>Dominant, evergreen, perennial shrubs</b>     |        |                                             | 50-151  |
|             | antelope bitterbrush                             | PUTR2  | <i>Purshia tridentata</i>                   | 50-151  |
| 12          | <b>Sub-dominant, evergreen, perennial shrubs</b> |        |                                             | 30-81   |
|             | mountain big sagebrush                           | ARTRV  | <i>Artemisia tridentata ssp. vaseyana</i>   | 20-50   |
|             | basin big sagebrush                              | ARTRT  | <i>Artemisia tridentata ssp. tridentata</i> | 10-30   |
| 13          | <b>Dominant, deciduous, perennial shrubs</b>     |        |                                             | 303-504 |
|             | curl-leaf mountain mahogany                      | CELE3  | <i>Cercocarpus ledifolius</i>               | 303-504 |
| 14          | <b>Sub-dominant, deciduous, perennial shrubs</b> |        |                                             | 20-40   |
|             | wax currant                                      | RICE   | <i>Ribes cereum</i>                         | 10-20   |
|             | common snowberry                                 | SYAL   | <i>Symphoricarpos albus</i>                 | 10-20   |
| 15          | <b>All other perennial shrubs</b>                |        |                                             | 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    |
| <b>Tree</b> |                                                  |        |                                             |         |
| 16          | <b>Dominant, evergreen, perennial trees</b>      |        |                                             | 20-81   |
|             | western juniper                                  | JUOC   | <i>Juniperus occidentalis</i>               | 20-81   |
| 17          | <b>Sub-dominant, evergreen, perennial trees</b>  |        |                                             | 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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## Approval

Kirt Walstad, 5/13/2025

## 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                                 |                                                   |
| 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

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2. Presence of water flow patterns: None to some

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

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

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

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6. Extent of wind scoured, blowouts and/or depositional areas: None, moderate wind erosion hazard

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7. Amount of litter movement (describe size and distance expected to travel): Fine - limited movement

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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

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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%)

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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

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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:

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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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