

## Ecological site R009XY045OR North 17-24 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.

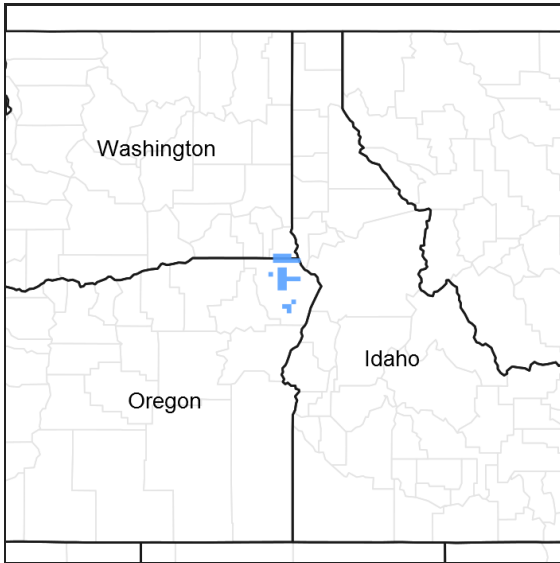


Figure 1. Mapped extent

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

|             |  |
|-------------|--|
| R009XY030OR | <b>South 17-22 PZ</b><br>South 17-22" PZ                         |
| R009XY031OR | <b>Shallow South 14+ PZ</b><br>Shallow South 14"+ PZ             |
| R009XY046OR | <b>Shrubby Moist North 15+ PZ</b><br>Shrubby Moist North 15"+ Pz |
| R009XY060OR | <b>Shrubby North 15+ PZ</b><br>Shrubby North 15"+ PZ             |

### Similar sites

|             |  |
|-------------|--|
| R009XY046OR | <b>Shrubby Moist North 15+ PZ</b><br>Shrubby Moist North 15" PZ (higher production, greater subsurface flow) |
| R009XY060OR | <b>Shrubby North 15+ PZ</b><br>Shrubby North 15"+ PZ (higher production, higher elevation)                   |

Table 1. Dominant plant species

|            |               |
|------------|---------------|
| Tree       | Not specified |
| Shrub      | Not specified |
| Herbaceous | Not specified |

## Physiographic features

This site occurs on the upper slopes of prairies, canyons and mountain plateaus. It is typically on slopes range from 15 to 60%. Elevation varies from 2000 to 5000 feet.

**Table 2. Representative physiographic features**

|           |                             |
|-----------|-----------------------------|
| Landforms | (1) Plateau<br>(2) Mountain |
| Elevation | 2,000–5,000 ft              |
| Slope     | 15–60%                      |
| Aspect    | N, NE                       |

## Climatic features

The annual precipitation ranges from 17 to 30 inches with 17 to 24 inches being most typical. Seasonal subsurface flows which augment the precipitation are minimal. The precipitation occurs as snow during the months of November through March followed by ample spring rainfall. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 43 degrees F. Extreme temperatures range from 90 degrees F. to -30 degrees F. Soil temperature regimes are frigid. The frost-free period ranges from 30 to 100 days. The period of optimum plant growth is from mid April through mid July.

**Table 3. Representative climatic features**

|                               |          |
|-------------------------------|----------|
| Frost-free period (average)   | 100 days |
| Freeze-free period (average)  | 0 days   |
| Precipitation total (average) | 24 in    |

## Influencing water features

### Soil features

The soils of this site are formed in loess and colluvium over basalt bedrock. They are moderately deep to very deep. Typically the surface layer is a silt loam about 10 inches thick over a silty clay loam or cobbly silty clay loam subsoil. Stoniness is variable. Soil permeability is moderate. The available water holding capacity (AWC) is 6 to 10 inches. Erosion potential is high.

**Table 4. Representative soil features**

|                      |               |
|----------------------|---------------|
| Surface texture      | (1) Silt loam |
| Family particle size | (1) Clayey    |
| Drainage class       | Well drained  |
| Permeability class   | Moderate      |

## Ecological dynamics

Range in Characteristics:

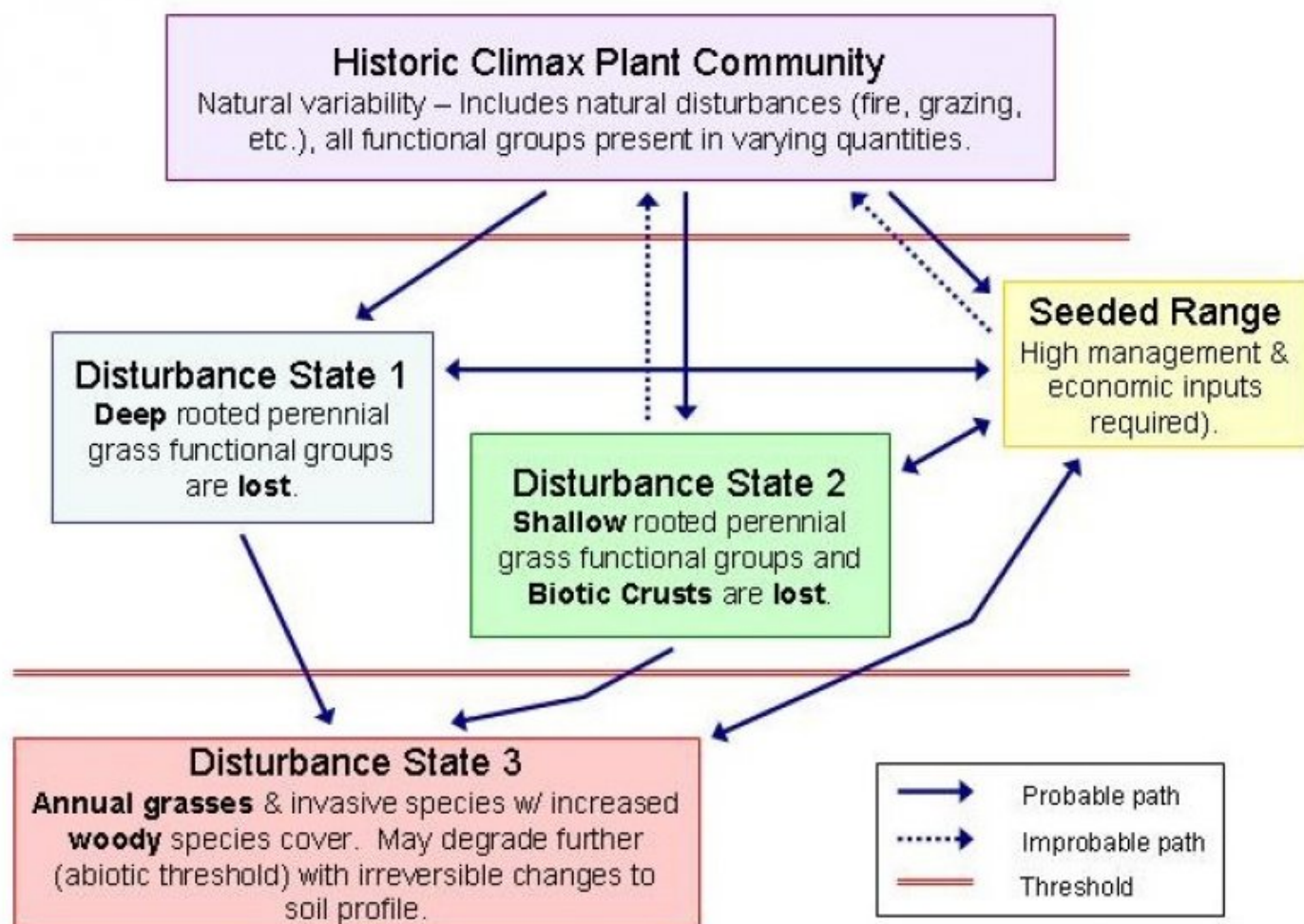
Variability in plant composition and yield is dependent on aspect and soil depth. Late season subsurface moisture flows which augment the precipitation are minimal. Snowberry, rose and taller shrubs increase on steep due north

slopes with greater soil depth and water holding capacity. Idaho fescue increases on shallower soils and as aspect changes to northeast and northwest. Shrubs can occur in dense patches presenting strong competition to the grass/forb component of the site. As a site highly susceptible to fire, fire frequency will influence vegetative production and cover. Snow berry, orse and other low growing, root sprouting rhizomatous shrubs will increase under a moderate fire frequency.

Response to Disturbance:

If the condition of the site deteriorates as a result of vergrazing, Idaho fescue decreases along with other palatable understory grasses and forbs. Kentucky bluegrass, annuals and unpalatable forbs will invade. Rhizomatous shrubs increase through shading and root competition of the weakened understory component. With further deterioration, areas of bare ground increase, forage production decreases and soil erosion and slumping accelerates.

## 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 a complex of low-growing shrubs and Idaho fescue in a mosaic pattern. The dominant low-growing shrubs are common snowberry and rose. Other shrubs present include serviceberry, mallow ninebark and spirea. Blue bunch wheatgrass, prairie junegrass and a variety of forbs are also present. The potential vegetative composition is approximately 60 percent grass, 35 percent shrubs and 5 percent forbs.

Table 5. Annual production by plant type

| Plant Type      | Low<br>(Lb/Acre) | Representative Value<br>(Lb/Acre) | High<br>(Lb/Acre) |
|-----------------|------------------|-----------------------------------|-------------------|
| Grass/Grasslike | 980              | 1230                              | 1480              |
| Shrub/Vine      | 460              | 890                               | 1320              |
| Forb            | 80               | 150                               | 220               |
| <b>Total</b>    | <b>1520</b>      | <b>2270</b>                       | <b>3020</b>       |

## Additional community tables

Table 6. Community 1.1 plant community composition

| Group                  | Common Name                                  | Symbol | Scientific Name                | Annual Production (Lb/Acre) | Foliar Cover (%) |
|------------------------|--|--------|--------------------------------|-----------------------------|------------------|
| <b>Grass/Grasslike</b> |  |        |                                |                             |                  |
| 1                      | <b>Perennial Deep-rooted Dominant</b>        |        |                                | 800–1000                    |                  |
|                        | Idaho fescue                                 | FEID   | <i>Festuca idahoensis</i>      | 800–1000                    | –                |
| 2                      | <b>Perennial Deep-rooted Sub-dominant</b>    |        |                                | 100–300                     |                  |
|                        | bluebunch wheatgrass                         | PSSP6  | <i>Pseudoroegneria spicata</i> | 100–300                     | –                |
| 4                      | <b>Perennial Shallow-rooted Sub-dominant</b> |        |                                | 40–100                      |                  |
|                        | prairie Junegrass                            | KOMA   | <i>Koeleria macrantha</i>      | 40–100                      | –                |
| 5                      | <b>PPGG</b>                                  |        |                                | 40–80                       |                  |
|                        | sedge  | CAREX  | <i>Carex</i>                   | 20–40                       | –                |
|                        | bluegrass                                    | POA    | <i>Poa</i>                     | 20–40                       | –                |
| <b>Forb</b>            |  |        |                                |                             |                  |
| 7                      | <b>Perennial All Dominant</b>                |        |                                | 60–120                      |                  |
|                        | arrowleaf balsamroot                         | BASA3  | <i>Balsamorhiza sagittata</i>  | 20–40                       | –                |
|                        | lupine                                       | LUPIN  | <i>Lupinus</i>                 | 20–40                       | –                |
|                        | cinquefoil                                   | POTEN  | <i>Potentilla</i>              | 20–40                       | –                |
| 9                      | <b>PPFF</b>                                  |        |                                | 20–100                      |                  |
|                        | common yarrow                                | ACMI2  | <i>Achillea millefolium</i>    | 2–9                         | –                |
|                        | onion  | ALLIU  | <i>Allium</i>                  | 2–9                         | –                |
|                        | milkvetch                                    | ASTRA  | <i>Astragalus</i>              | 2–9                         | –                |
|                        | kittentail                                   | BESSE  | <i>Besseyia</i>                | 2–9                         | –                |
|                        | aster  | EUCEP2 | <i>Eucephalus</i>              | 2–9                         | –                |
|                        | green gentian                                | FRASE  | <i>Frasera</i>                 | 2–9                         | –                |
|                        | old man's whiskers                           | GETR   | <i>Geum triflorum</i>          | 2–9                         | –                |
|                        | hawkweed                                     | HIERA  | <i>Hieracium</i>               | 2–9                         | –                |
|                        | western stoneseed                            | LIRU4  | <i>Lithospermum ruderales</i>  | 2–9                         | –                |
|                        | beardtongue                                  | PENST  | <i>Penstemon</i>               | 2–9                         | –                |
|                        | ragwort                                      | SENEC  | <i>Senecio</i>                 | 2–9                         | –                |
| <b>Shrub/Vine</b>      |  |        |                                |                             |                  |
| 13                     | <b>Perennial Deciduous Dominant</b>          |        |                                | 300–700                     |                  |
|                        | common snowberry                             | SYAL   | <i>Symphoricarpos albus</i>    | 200–400                     | –                |
|                        | rose   | ROSA5  | <i>Rosa</i>                    | 100–300                     | –                |
| 14                     | <b>Perennial Deciduous Sub-dominant</b>      |        |                                | 120–420                     |                  |
|                        | Saskatoon serviceberry                       | AMAL2  | <i>Amelanchier alnifolia</i>   | 40–160                      | –                |
|                        | mallow ninebark                              | PHMA5  | <i>Physocarpus malvaceus</i>   | 40–160                      | –                |
|                        | spirea                                       | SPIRA  | <i>Spiraea</i>                 | 40–100                      | –                |
| 15                     | <b>SSSS</b>                                  |        |                                | 40–200                      |                  |
|                        | hawthorn                                     | CRATA  | <i>Crataegus</i>               | 10–50                       | –                |
|                        | oceanspray                                   | HOLOD  | <i>Holodiscus</i>              | 10–50                       | –                |
|                        | wax currant                                  | RICE   | <i>Ribes cereum</i>            | 10–50                       | –                |
|                        | elderberry                                   | SAMBU  | <i>Sambucus</i>                | 10–50                       | –                |

## Animal community

#### Livestock Grazing:

This site is suited to late spring, summer and fall use by cattle, sheep and horses under a planned grazing system. The key species is Idaho fescue. Idaho fescue can be damaged if heavily grazed during periods of flowering and seed formation when root reserves are low. Periodic prescribed burns or other brush control measures will improve the forage production capability of the site. Care should be taken to avoid trampling damage and soil compaction when soils are wet.

#### Wildlife:

When the ecological condition is high this site provides food and cover for deer, elk, other mammals and upland birds. It is an important fall and winter use area for deer and elk.

#### Native Wildlife Associated With The Potential Climax Community:

Mule deer, white-tail deer, elk, rodents and a variety of upland birds use this site for food and cover.

### Hydrological functions

The soils of this site have excellent water holding capacities providing late season water for plant growth. The hydrologic cover condition is excellent when the ecological condition is high.

### Wood products

A few scattered ponderosa pine and/or Douglas-fir may be present. These provide limited economic benefits in terms of wood products, but are of value for diversity and wildlife cover.

### Other information

Periodic prescribed burns or other brush control measures will improve forage production. When in poor condition the site has a high potential for mechanical range seeding on moderate slopes and a low potential on steep slopes.

### 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  | 07/30/2012  |
| Approved by                                 | Bob Gillaspay                                     |
| 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 some
- 
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 0-5%
- 
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):** 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 very deep, well drained, with a thick (10") silt loam surface; moderate OM (2-4%)
- 
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (90-100%) and moderately steep slopes (15-60%) 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
- 
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 > Snowberry > Bluebunch wheatgrass = Rose > other shrubs > forbs > other grasses > trees
- 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: 2500, Normal: 2000, Unfavorable: 1000 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. Bluegrasses, annual bromes, and medusahead invade sites that have lost deep rooted perennial grass functional groups. Excessive erosion may occur, deteriorating site potential.

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

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