

# Ecological site R010XC042OR

## SR Juniper Tableland

### 12-16 PZ

Last updated: 4/07/2025  
Accessed: 08/19/2026

#### 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.

#### MLRA notes

Major Land Resource Area (MLRA): 010X–Central Rocky and Blue Mountain Foothills

This MLRA is characterized by gently rolling to steep hills, plateaus, and low mountains at the foothills of the Blue Mountains in Oregon and the Central Rocky Mountains in Idaho. The geology of this area is highly varied and ranges from Holocene volcanics to Cretaceous sedimentary rocks. Mollisols are the dominant soil order and the soil climate is typified by mesic or frigid soil temperature regimes, and xeric or aridic soil moisture regimes. Elevation ranges from 1,300 to 6,600 feet (395 to 2,010 meters), increasing from west to east. The climate is characterized by dry summers and snow dominated winters with precipitation averaging 8 to 16 inches (205 to 405 millimeters) and increasing from west to east. These factors support plant communities with shrub-grass associations with considerable acreage of sagebrush grassland. Big sagebrush, bluebunch wheatgrass, and Idaho fescue are the dominant species. Stiff sagebrush, low sagebrush, and Sandberg bluegrass are often dominant on sites with shallow restrictive layers. Western juniper is one of the few common tree species and since European settlement has greatly expanded its extent in Oregon. Nearly half of the MLRA is federally owned and managed by the Bureau of Land Management. Most of the area is used for livestock grazing with areas accessible by irrigation often used for irrigated agriculture.

#### Classification relationships

Plant Associations of the Blue and Ochoco Mountains, Johnson and Clausnitzer, 1992: CJS8 - Juniperus occidentalis/Artemisia rigida plant community Bunchgrass Plant Communities of the Blue and Ochoco Mountains: A Guide for Managers, Johnson and Swanson, 2005: CJS811- Juniperus occidentalis/Artemisia rigida plant community type Landfire Biophysical Setting Model: Note: This model was developed specifically for the Columbia Plateau but fits the characteristics of this site very well despite the absence of old growth juniper 0810650: Columbia Plateau Scabland Shrubland

#### Ecological site concept

This site occurs on upland tablelands with very shallow soils over hard igneous extrusive geologies (basalt, andesite, rhyolite, tuff, etc.). In the reference state, the site is characterized by old growth juniper (Juniperus occidentalis), scabland sagebrush (Artemisia rigida), Sandberg bluegrass (Poa secunda) and one-spoke oatgrass (Danthonia unispicata). Highly fractured bedrock and low fuel loads would have historically facilitated the persistence of old growth juniper on this site. This is a low production site (potentially the lowest of the juniper community types at the foothills of the Blue and Ochoco mountains, Johnson and Swanson 2005) with production limited by the low water holding capacity of the soil. Precipitation comes in the form of snow and rain primarily in the winter and early spring. The soil profile is not able to store all the moisture that the site receives, and excess moves to adjacent sites. Historically, plant community dynamics were driven primarily by drought disturbance and very infrequent fire due to patchy fuel distribution.

#### Associated sites

|             |                                                                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R010XC059OR | <p><b>SR Mahogany Rockland 12+ PZ</b></p> <p>SR Mahogany Rockland 12+ PZ (shallow soil over fractured bedrock with areas of exposed rock outcrop, higher production, different composition – JUOC/CELE3-PUTR2/PSSPS-FEID association)</p> |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                    |                                                                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R010XC068OR</b> | <b>SR Cool Mountain North 12-16 PZ</b><br><br>SR Cool Mountain North 12-16 PZ (moderate deep to deep soil, north aspect, higher production, different composition ARTRV-X,T/FEID association)                     |
| <b>R010XC075OR</b> | <b>SR Mountain Shallow North 12-16 PZ</b><br><br>SR Mountain Shallow North 12-16 PZ (shallow soil, north aspect higher production, different composition – ARTRV/FEID-PSSPS-POSE association)                     |
| <b>R010XC041OR</b> | <b>SR Very Shallow Rockland 12-16 PZ</b><br><br>SR Very Shallow Rockland 12-16 PZ (very shallow soil depth with areas of exposed bedrock, lower production, different composition – ACTH7-POSE/ERIOG association) |
| <b>R010XC029OR</b> | <b>SR Shallow Cool 12-16 PZ</b><br><br>SR Shallow Cool 12-16 PZ (shallow soil, higher production, different composition – ARTRV-X,T/FEID-PSSPS association)                                                       |
| <b>R010XC033OR</b> | <b>SR Cool 12-16 PZ</b><br><br>SR Cool 12-16 PZ (moderate deep soil, higher production, different composition – ARTRV-X,T/FEID association)                                                                       |
| <b>R010XC037OR</b> | <b>SR Mountain Shallow 12-16 PZ</b><br><br>SR Mountain Shallow 12-16 PZ (shallow soil, higher production, different composition – ARTRV/FEID association)                                                         |
| <b>R010XC039OR</b> | <b>SR Very Shallow 12-16 PZ</b><br><br>SR Very Shallow 12-16 PZ (very shallow soil with less substratum fracture, lower production, different composition – ARRI2/POSE-DAUN-FEID association)                     |
| <b>R010XC047OR</b> | <b>SR Mountain South 12-16 PZ</b><br><br>SR Mountain South 12-16 PZ (moderate deep soil, south aspect, higher production, different composition – ARTRV-X,T/PSSPS association)                                    |
| <b>R010XC054OR</b> | <b>SR Mountain Shallow South 12-16 PZ</b><br><br>SR Mountain Shallow South 12-16 PZ (shallow soil, south aspect, higher production, different composition – ARTRV-X,T/PSSPS association)                          |

#### Similar sites

|                    |                                                                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R010XC041OR</b> | <b>SR Very Shallow Rockland 12-16 PZ</b><br><br>SR Very Shallow Rockland 12-16 PZ (very shallow soil depth with areas of exposed bedrock, lower production, different composition – ACTH7-POSE/ERIOG association) |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                    |                                                                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R010XC040OR</b> | <b>SR Very Shallow 16-20 PZ</b><br><br>SR Very Shallow 16-20 PZ (higher elevation, greater precipitation and production)                                                                      |
| <b>R010XC038OR</b> | <b>SR Very Shallow 9-12 PZ</b><br><br>SR Very Shallow 9-12 PZ (lower elevation and precipitation, less production, different composition – DAUN absent)                                       |
| <b>R010XC039OR</b> | <b>SR Very Shallow 12-16 PZ</b><br><br>SR Very Shallow 12-16 PZ (very shallow soil with less substratum fracture, lower production, different composition – ARRI2/POSE-DAUN-FEID association) |

**Table 1. Dominant plant species**

|            |                                                           |
|------------|-----------------------------------------------------------|
| Tree       | (1) <i>Juniperus occidentalis</i>                         |
| Shrub      | (1) <i>Artemisia rigida</i>                               |
| Herbaceous | (1) <i>Poa secunda</i><br>(2) <i>Danthonia unispicata</i> |

## Physiographic features

This site occurs on tablelands and rolling uplands. Slopes are typically from 2 to 12 percent with a range of 2 to 20 percent. Elevations range from 4,000 to 6,000 feet.

**Table 2. Representative physiographic features**

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Landforms          | (1) Tableland > Plateau<br>(2) Tableland > Hill |
| Flooding frequency | None                                            |
| Ponding frequency  | None                                            |
| Elevation          | 1,220 – 1,830 m                                 |
| Slope              | 0 – 10 %                                        |
| Aspect             | W, NW, N, NE, E, SE, S, SW                      |

**Table 3. Representative physiographic features (actual ranges)**

|                    |               |
|--------------------|---------------|
| Flooding frequency | Not specified |
| Ponding frequency  | Not specified |
| Elevation          | Not specified |
| Slope              | 0 – 20 %      |

### Climatic features

The annual precipitation ranges from 12 to 16 inches, most of which occurs in the form of snow during the months of December through March. Localized convection storms occasionally occur during the summer. The soil temperature regime is frigid to mesic near frigid with a mean air temperature of 45 degrees F. Temperature extremes range from 90 to -20 degrees F. The frost free period ranges from less than 30 to 90 days. The optimum growth period for plant growth is late April through June. Climate graphs below are based on the nearest available climate stations to mapped site locations and are provided to indicate general climate patterns rather than representative values.

**Table 4 Representative climatic features**

|                                            |            |
|--------------------------------------------|------------|
| Frost-free period (characteristic range)   | 30-90 days |
| Freeze-free period (characteristic range)  |            |
| Precipitation total (characteristic range) | 310-410 mm |
| Frost-free period (average)                | 50 days    |
| Freeze-free period (average)               |            |
| Precipitation total (average)              | 410 mm     |

- (1) DREWSEY [USC00352415], Drewsey, OR
- (2) MASON DAM [USC00355258], Baker City, OR

### Influencing water features

This site is not influenced by adjacent or onsite water features.

### Wetland description

Not applicable

### Soil features

The soils of this site are very shallow over bedrock and well drained. The surface layer is typically a thin surface very cobbly loam to stony loam 2 to 6 inches thick. The subsoil is a very cobbly silty clay loam to stony clay loam over an extremely cobbly clay. Where this site occurs on Rockly soils, the entire profile may be a very gravelly to extremely gravelly loam. Depth to bedrock is less than 10 inches

with extensive areas less than 4 inches. Permeability is moderately slow to slow. The available water holding capacity (AWC) is about 2 inches for the profile. The erosion potential is moderate to severe.

**Table 5. Representative soil features**

|                                                          |                                                                     |
|----------------------------------------------------------|---------------------------------------------------------------------|
| Parent material                                          | (1) Volcanic ash<br>(2) Colluvium – basalt<br>(3) Residuum – basalt |
| Surface texture                                          | (1) Very stony loam<br>(2) Very cobbly silty clay loam              |
| Family particle size                                     | (1) Clayey                                                          |
| Drainage class                                           | Well drained to moderately well drained                             |
| Permeability class                                       | Moderately slow to slow                                             |
| Depth to restrictive layer                               | 10 – 30 cm                                                          |
| Soil depth                                               | 10 – 30 cm                                                          |
| Surface fragment cover <=3"                              | 10 – 30 %                                                           |
| Surface fragment cover >3"                               | 10 – 30 %                                                           |
| Available water capacity<br>(0-101.6cm)                  | 1.27 – 5.08 cm                                                      |
| Electrical conductivity<br>(0-101.6cm)                   | Not specified                                                       |
| Sodium adsorption ratio<br>(0-101.6cm)                   | Not specified                                                       |
| Subsurface fragment volume <=3"<br>(Depth not specified) | 10 – 30 %                                                           |

|                                                         |           |
|---------------------------------------------------------|-----------|
| Subsurface fragment volume >3"<br>(Depth not specified) | 10 – 40 % |
|---------------------------------------------------------|-----------|

## Ecological dynamics

The potential native plant community is dominated by old growth juniper (*Juniperus occidentalis*), scabland sagebrush (*Artemisia rigida*), Sandberg bluegrass (*Poa secunda*) and one-spike oatgrass (*Danthonia unispicata*). The density of old growth juniper (greater than 150 years old) is equal to or greater than five trees per acre. Idaho fescue is common particularly under juniper. Bluebunch wheatgrass (*Pseudoroegneria spicata*), bottlebrush squirreltail (*Elymus elymoides*), and a variety of forbs are present. Vegetative composition of the community is approximately 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Approximate ground cover is 40 to 60 percent (basal and crown). There is a strong diversified soil microbiotic crust on the interspaces between plant bases.

### Range in Characteristics

Plant composition and production is dependent on soil depth, precipitation and bedrock fracture. As soil depth decreases to 2 to 4 inches, Sandberg bluegrass increases. One-spike oatgrass increases on similar shallow depths at higher precipitation and in areas receiving additional spring runoff. Old growth juniper, Idaho fescue (*Festuca idahoensis*) and scabland sagebrush will increase on deeper soils and over fractured bedrock. Idaho fescue in particular increases in the shade and litter under juniper. Bluebunch wheatgrass increases at lower elevations and on slight south and west exposures. Production increases with soil depth, precipitation and old growth juniper density.

Bluebunch wheatgrass is considered to be a highly fire adapted grass species with low buds often protected from fire. Recovery following fire is rapid and it often increases relative to other plants post fire, especially after spring burning. While burning may improve the nutritional quality of bluebunch, defoliation during the regeneration period can be very detrimental to the stand and grazing should be avoided immediately after (Zlatnik 1999). Stiff sagebrush is killed by fire and does not sprout (Young 1983). Establishment after fire is from seed, generally blown in and not from the seed bank (Bradley et al. 1992). Juniper is sensitive to fire and most young trees are killed by even low severity fire. As Juniper trees mature and bark thickens, however, they become resistant to low severity fire yet are still killed by crown fires or high severity surface fires (Fryer and Tirmenstein 2019).

Climate cycles would have been an important driver of ecological dynamics historically, with drought periods possibly leading to reductions in sagebrush cover and wet years increasing fire occurrence due to increased perennial grass production and fine fuels loads. Historically these communities would have likely encountered very infrequent fire due to patchy fuel and low fuel loads, possibly on the order of 250 years between fires (Landfire 2014). When infrequent fires do occur flame length is low, scarring the old juniper and eliminating young juniper.

If the condition of the site deteriorates as a result of inappropriate grazing management, one-spike oatgrass and Idaho fescue initially decrease. Scattered bluebunch wheatgrass and Thurber's needlegrass (*Achnatherum thurberianum*) subsequently decrease. Sandberg bluegrass and stiff sagebrush increase. Exotic annual grasses such as cheatgrass (*Bromus tectorum*), North African grass (*Ventenata dubia*), medusahead (*Taeniatherum caput-medusae*) may invade and become problematic. Exotic annual grass invasion may increase the size and frequency of fires and extend the season when fires are likely by augmenting early season fine fuel loads and fuel continuity in this otherwise fuel limited system (Pilliod et al. 2017). Infill of young juniper increase with fire suppression and the lack of adequate fine fuels to carry a fire. With continued overgrazing stiff sagebrush and Sandberg bluegrass decrease and bare soil increases. Annual invasion is limited due to the lack of soil depth. Soil microbiotic crusts are easily disturbed and broken up, particularly by early spring grazing on saturated soils. Accelerated soil erosion on the bare soil interspaces markedly increases, reduces potential site productivity and contributes to downstream sedimentation. Rehabilitation of native plant communities will be very difficult on this site due to thin soils, high potential for invasive annual grass encroachment, susceptibility of soils to erosion and damaging frost heaving.

An understanding of the site specific ecological dynamics for this site are incomplete. Little is known about the historical ecological dynamics of old growth juniper/scabland sagebrush dominated sites. Current and anticipated effects of climate change are not included in this model, yet this site may experience significant impacts as climate continues to change. Ecological dynamics of this site are informed by disturbance response group 7 described in Stringham et al. 2016 yet are considerably different due to the presence of old growth juniper on this site and are likely to undergo refinements and revisions as more data becomes available.

## State and transition model

### Additional community tables

Table 6. Community 1.1 plant community composition

| Group                  | Common Name                                       | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|------------------------|---------------------------------------------------|--------|-----------------|----------------------|------------------|
| <b>Grass/Grasslike</b> |                                                   |        |                 |                      |                  |
| 1                      | <b>Dominant, perennial shallow rooted grasses</b> |        |                 | 196-353              |                  |

|                   |                                             |        |                                             |         |   |
|-------------------|---------------------------------------------|--------|---------------------------------------------|---------|---|
|                   | Sandberg bluegrass                          | POSE   | <i>Poa secunda</i>                          | 118-196 | – |
|                   | onespike danthonia                          | DAUN   | <i>Danthonia unispicata</i>                 | 78-157  | – |
| 2                 | <b>Common, moderate rooted bunchgrasses</b> |        |                                             | 118-235 |   |
|                   | Idaho fescue                                | FEID   | <i>Festuca idahoensis</i>                   | 45-90   | – |
|                   | bluebunch wheatgrass                        | PSSPS  | <i>Pseudoroegneria spicata ssp. spicata</i> | 22-45   | – |
| 3                 | <b>Other perennial grasses</b>              |        |                                             | 11-50   |   |
|                   | Thurber's needlegrass                       | ACTH7  | <i>Achnatherum thurberianum</i>             | 0-17    | – |
|                   | squirreltail                                | ELEL5  | <i>Elymus elymoides</i>                     | 8-17    | – |
|                   | prairie Junegrass                           | KOMA   | <i>Koeleria macrantha</i>                   | 0-17    | – |
| <b>Forb</b>       |                                             |        |                                             |         |   |
| 5                 | <b>Dominant, perennial forbs</b>            |        |                                             | 22-56   |   |
|                   | serrate balsamroot                          | BASE2  | <i>Balsamorhiza serrata</i>                 | 4-13    | – |
|                   | buckwheat                                   | ERIOG  | <i>Eriogonum</i>                            | 4-13    | – |
|                   | desertparsley                               | LOMAT  | <i>Lomatium</i>                             | 4-13    | – |
|                   | phlox                                       | PHLOX  | <i>Phlox</i>                                | 4-9     | – |
|                   | fleabane                                    | ERIGE2 | <i>Erigeron</i>                             | 4-9     | – |
| 8                 | <b>Other perennial forbs</b>                |        |                                             | 6-22    |   |
|                   | common yarrow                               | ACMI2  | <i>Achillea millefolium</i>                 | 1-2     | – |
|                   | onion                                       | ALLIU  | <i>Allium</i>                               | 1-2     | – |
|                   | pussytoes                                   | ANTEN  | <i>Antennaria</i>                           | 1-2     | – |
|                   | balsamroot                                  | BALSA  | <i>Balsamorhiza</i>                         | 1-2     | – |
|                   | larkspur                                    | DELPH  | <i>Delphinium</i>                           | 0-2     | – |
|                   | bitter root                                 | LERE7  | <i>Lewisia rediviva</i>                     | 0-2     | – |
|                   | woodland-star                               | LITHO2 | <i>Lithophragma</i>                         | 1-2     | – |
|                   | bluebells                                   | MERTE  | <i>Mertensia</i>                            | 0-2     | – |
|                   | sagebrush buttercup                         | RAGL   | <i>Ranunculus glaberrimus</i>               | 1-2     | – |
|                   | stonecrop                                   | SEDUM  | <i>Sedum</i>                                | 0-2     | – |
|                   | blue-eyed grass                             | SISYR  | <i>Sisyrinchium</i>                         | 0-2     | – |
|                   | largehead clover                            | TRMA3  | <i>Trifolium macrocephalum</i>              | 0-2     | – |
| <b>Shrub/Vine</b> |                                             |        |                                             |         |   |
| 11                | <b>Dominant deciduous shrub</b>             |        |                                             | 78-157  |   |
|                   | scabland sagebrush                          | ARRI2  | <i>Artemisia rigida</i>                     | 78-157  | – |
| 15                | <b>Other shrubs</b>                         |        |                                             | 0-22    |   |
|                   | little sagebrush                            | ARAR8  | <i>Artemisia arbuscula</i>                  | 0-17    | – |
|                   | antelope bitterbrush                        | PUTR2  | <i>Purshia tridentata</i>                   | 0-17    | – |
| <b>Tree</b>       |                                             |        |                                             |         |   |
| 16                | <b>Dominant, evergreen tree</b>             |        |                                             | 78-157  |   |
|                   | western juniper                             | JUOC   | <i>Juniperus occidentalis</i>               | 78-157  | – |

Table 7. Community 1.2 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

Table 8. Community 1.3 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

## Animal community

**Livestock Grazing:** This site provides limited spring forage to livestock. The very shallow soils have low water holding capacity for extended plant growth. This site is easily damaged by early grazing and trampling when soils are saturated. Grazing management should be keyed for one-spike oatgrass and the limited amount of Idaho fescue. Deferred grazing or rest is recommended at least once every three years. **Wildlife:** This site is commonly used by mule deer, elk, rabbits, rodents, upland birds and various predators. Forbs are a nutritional food source for spring broods. Juniper berries provide a winter food source for Townsend's Solitaire and other birds. Mule deer and elk make use of the site for spring forage and during hard winters make limited use of lower juniper leaves and branchlets. Stiff sagebrush seed heads are palatable in August and September. Good browse is furnished during winter dormant periods following leaf drop.

## Hydrological functions

The soils of this site are typically in an upland topographic position. They have high runoff potential and low available water storage potential even when the hydrologic cover is good. Under frozen ground conditions runoff potential is significantly increased. This occurs for extended periods when perennial grass and microbiotic crust cover is negligible. Hydrologic cover is good when the onespike oatgrass, Sandberg bluegrass and microbiotic crust components are greater than 70 percent of potential. The soils are in hydrologic group D.

## Other information

Juniper invasion on deeper soils of this site is a risk. The primary control measure is cutting followed by rest to improve the vigor, density and seed production of existing perennial grasses. As the site acts as a natural fire break, prescribed burn is not a practical juniper control measure except under very limited conditions requiring a fine fuel buildup and more extreme fire weather conditions. This site is not suited for range seeding due to the very shallow soils. Special designs are needed for fence construction.

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## Contributors

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## Approval

Kirt Walstad, 4/07/2025

## 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)                       | James A. Cornwell, State Rangeland Management Specialist,<br>NRCS, Idaho (Retired) Lee Brooks, Assistant State<br>Conservationist, NRCS, Idaho (Retired). |
| Contact for lead author                        |                                                                                                                                                           |
| Date                                           | 09/12/2009                                                                                                                                                |
| Approved by                                    |                                                                                                                                                           |
| Approval date                                  |                                                                                                                                                           |
| Composition (Indicators 10 and<br>12) based on | Annual Production                                                                                                                                         |

## Indicators

1. Number and extent of rills: None.

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2. Presence of water flow patterns: None.

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3. Number and height of erosional pedestals or terracettes: None.

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4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): 50-70 %.

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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.

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7. Amount of litter movement (describe size and distance expected to travel): fine. Litter movement typically would be two feet.

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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): Soil stability values should range from 3-5 but needs to be verified.

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9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): The surface structure is moderate medium platy and moderately fine subangular blocky. SOM is 1 to 3 percent. The A horizon thickness is 2 to 4 inches.

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10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Above average plant cover (30-50 % basal and crown) mediates the rainfall impact. The root mass of perennial bunchgrasses provides significant soil stability.

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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. Depth to bedrock, an indurated pan or bedrock is less than 10 inches.

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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: perennial bunchgrasses=large bunchgrass>

Sub-dominant: deciduous shrub = small bunchgrass >

Other: forbs

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 would be expected in the perennial bunchgrasses and stiff sagebrush.

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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: 600; Normal: 400; Unfavorable: 200 lbs/ac/yr.

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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: cheatgrass and medusahead

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

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