

Ecological site R011XY005OR **Swale 8-11 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

| | |
|-------------|---|
| R011XY012OR | Silty 8-11 PZ Silty 8-11 PZ |
| R011XY013OR | Clayey 8-11 PZ Clayey 8-11 PZ |
| R011XY016OR | Sandy 8-11 PZ Sandy 8-11 PZ |
| R011XY020OR | South Slopes 8-11 PZ South Slopes 8-11 PZ |
| R011XY032OR | Silty North Slopes 8-11 PZ Silty North Slopes 8-11 PZ |
| R011XY034OR | Sandy North Slopes 8-11 PZ Sandy North Slopes 8-11 PZ |

Similar sites

| | |
|-------------|--|
| R011XY012OR | Silty 8-11 PZ Silty 8-11 PZ (subsurface flows absent, lower production, different composition - beardless wheatgrass dominant) |
|-------------|--|

| | |
|-------------|--|
| R010XY005OR | Loamy Bottom Loamy Bottom (longer subsurface flow duration, higher Production) |
|-------------|--|

Table 1. Dominant plant species

| | |
|------------|--|
| Tree | Not specified |
| Shrub | (1) <i>Artemisia tridentata</i> ssp. <i>tridentata</i> |
| Herbaceous | (1) <i>Leymus cinereus</i> (2) <i>Pseudoroegneria spicata</i> ssp. <i>inermis</i> |

Physiographic features

This site occurs on low elevation terrace swales in the Malheur, Owyhee and adjacent Snake River drainage. Slopes typically range from 0 to 8%. Elevations vary from 2,100 to 3,200 feet.

Table 2. Representative physiographic features

| | |
|--------------------|---|
| Landforms | (1) Swale |
| Flooding duration | Brief (2 to 7 days) to very brief (4 to 48 hours) |
| Flooding frequency | Frequent to occasional |
| Ponding duration | Brief (2 to 7 days) to very brief (4 to 48 hours) |
| Ponding frequency | Occasional to rare |
| Elevation | 2,100–3,200 ft |
| Slope | 0–8% |
| Aspect | Aspect is not a significant factor |

Climatic features

The annual precipitation ranges from 8 to 11 inches, most of which occurs in the form of rain during the months of December through April. An ephemeral supply of subsurface moisture augments the precipitation. The soil temperature regime is mesic with a mean air temperature of 53 degrees F. Temperature extremes range from 110 to -10 degrees F. The frost free period ranges from 150 to 190 days. The optimum growth period for plant growth is late March through June.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 190 days |
| Freeze-free period (average) | 0 days |
| Precipitation total (average) | 11 in |

Influencing water features

Soil features

The soils of this site are typically deep to very deep and well drained. Typically the surface layer is a silt loam to a very fine sandy loam 8 to 16 inches thick. The subsoil is a silt loam to silty clay loam over 40 inches thick. Depth to lacustrine and alluvial sediments or bedrock ranges from 40 to greater than 60 inches. Permeability is moderate. The available water holding capacity (AWC) is about 6 to 8 inches for the profile. The erosion potential is moderate to severe.

Table 4. Representative soil features

| | |
|--------------------------------------|---|
| Parent material | (1) Loess–rhyolite |
| Surface texture | (1) Silt loam (2) Very fine sandy loam |
| Family particle size | (1) Loamy |
| Drainage class | Moderately well drained to well drained |
| Permeability class | Moderate to moderately rapid |
| Soil depth | 40–60 in |
| Available water capacity (0-40in) | 6–8 in |

Ecological dynamics

The potential native plant community is dominated by basin wildrye, beardless wheatgrass and needle and thread. Basin big sagebrush, Thurber's needlegrass and bluebunch wheatgrass are common. Sandberg bluegrass, a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 85 percent grasses, 10 percent forbs and 5 percent shrubs. The approximate ground cover is 80 to 90 percent (basal and crown).

Range in Characteristics:

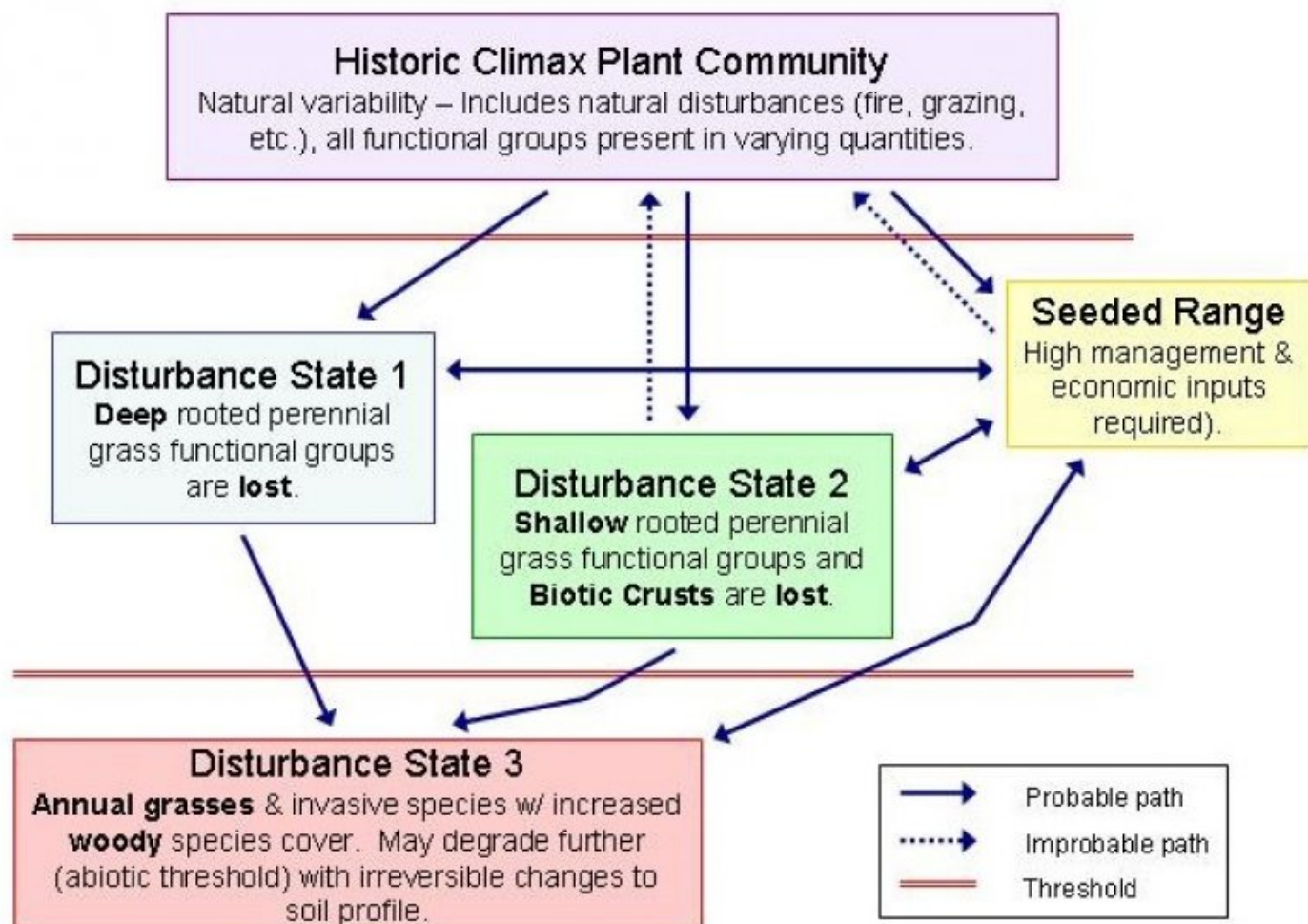
Basin wildrye increases with the extent and duration of subsurface moisture. Beardless wheatgrass increases on silty surfaces and as the extent and duration of subsurface moisture decreases. Needle and thread increases on sandy surfaces and in lower precipitation areas. As a site highly susceptible to fire, the amount of basin big sagebrush significantly decreases with increasing fire frequency. Production increases at the upper end of the precipitation zone.

Response to Disturbance:

When the condition of the site deteriorates as a result of over grazing basin wildrye, beardless wheatgrass and needle and thread rapidly decrease. Basin big sagebrush cheatgrass, other annuals, biennial weeds and bulbous bluegrass invade. With fire and continued disturbance big sagebrush is severely impacted. Rabbitbrush increases slightly and annuals and noxious biennial forbs strongly invade. Bare ground increases and excessive erosion contributes to downstream sedimentation. The excessive erosion is most pronounced in drainage areas where deep incised gulley's form.

States: ARTRT/POSE-BRTE (degraded without fire); POSE-POBU/biennial forbs and BRTE/biennial forbs (following fire on degraded range)

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1

Reference plant community

Community 1.1

Reference plant community

The reference plant community is dominated by basin wildrye, beardless wheatgrass and needle and thread. Basin big sagebrush, Thurber's needlegrass and bluebunch wheatgrass are common. Sandberg bluegrass, a variety of forbs and other shrubs are present. Vegetative composition of the community is approximately 85 percent grasses, 10 percent forbs and 5 percent shrubs. The approximate ground cover is 80 to 90 percent (basal and crown).

Table 5. Annual production by plant type

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|-----------------|------------------|-----------------------------------|-------------------|
| Grass/Grasslike | 850 | 1275 | 1700 |
| Forb | 100 | 150 | 200 |
| Shrub/Vine | 50 | 75 | 100 |
| Total | 1000 | 1500 | 2000 |

Additional community tables

Table 6. Community 1.1 plant community composition

| | | | | Annual Production | Foliar Cover |
|--|--|--|--|-------------------|--------------|
|--|--|--|--|-------------------|--------------|

| Group | Common Name | Symbol | Scientific Name | (Lb/Acre) | (%) |
|------------------------|--|---------|--|-----------|-----|
| Grass/Grasslike | | | | | |
| 1 | Dominant, deep rooted, perennial bunchgrasses | | | 750–1050 | |
| | basin wildrye | LECI4 | <i>Leymus cinereus</i> | 450–600 | – |
| | beardless wheatgrass | PSSPI | <i>Pseudoroegneria spicata</i> ssp. <i>inermis</i> | 300–450 | – |
| 2 | Sub-dominant, deep rooted, perennial bunchgrass | | | 225–375 | |
| | needle and thread | HECO26 | <i>Hesperostipa comata</i> | 225–375 | – |
| 3 | Other perennial grasses | | | 30–150 | |
| | Thurber's needlegrass | ACTH7 | <i>Achnatherum thurberianum</i> | 45–120 | – |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> | 30–75 | – |
| | three-angle spikerush | ELTR5 | <i>Eleocharis tricostrata</i> | 0–45 | – |
| | Indian ricegrass | ACHY | <i>Achnatherum hymenoides</i> | 0–45 | – |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 15–30 | – |
| | foxtail wheatgrass | PSSA2 | × <i>Pseudelymus saxicola</i> | 0–30 | – |
| | squirreltail | ELEL5 | <i>Elymus elymoides</i> | 10–30 | – |
| Forb | | | | | |
| 4 | Dominant, perennial forbs | | | 45–90 | |
| | arrowleaf balsamroot | BASA3 | <i>Balsamorhiza sagittata</i> | 15–30 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 15–30 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 15–30 | – |
| 5 | Other perennial forbs | | | 45–150 | |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 5–15 | – |
| | hawksbeard | CREPI | <i>Crepis</i> | 5–15 | – |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 5–15 | – |
| | milkvetch | ASTRA | <i>Astragalus</i> | 5–15 | – |
| | western stoneseed | LIRU4 | <i>Lithospermum ruderales</i> | 5–15 | – |
| | lupine | LUPIN | <i>Lupinus</i> | 0–15 | – |
| | phlox | PHLOX | <i>Phlox</i> | 5–15 | – |
| | plains pricklypear | OPPO | <i>Opuntia polyacantha</i> | 0–10 | – |
| | bastard toadflax | COMAN | <i>Comandra</i> | 0–8 | – |
| | beardtongue | PENST | <i>Penstemon</i> | 0–5 | – |
| | scarlet globemallow | SPCO | <i>Sphaeralcea coccinea</i> | 0–5 | – |
| | woodland-star | LITHO2 | <i>Lithophragma</i> | 2–5 | – |
| | common woolly sunflower | ERLA6 | <i>Eriophyllum lanatum</i> | 0–5 | – |
| | haplopappus | HAPLO11 | <i>Haplopappus</i> | 0–5 | – |
| | povertyweed | IVAX | <i>Iva axillaris</i> | 0–5 | – |
| | onion | ALLIU | <i>Allium</i> | 2–5 | – |
| | pussytoes | ANTEN | <i>Antennaria</i> | 0–5 | – |
| | white sagebrush | ARLU | <i>Artemisia ludoviciana</i> | 0–5 | – |
| | mariposa lily | CALOC | <i>Calochortus</i> | 0–3 | – |
| Shrub/Vine | | | | | |
| 6 | Dominant, evergreen shrub | | | 30–75 | |

| | | | | | |
|---|-----------------------|--------|---|-------|---|
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata ssp. tridentata</i> | 30–75 | – |
| 7 | Other shrubs | | | 30–75 | |
| | fourwing saltbush | ATCA2 | <i>Atriplex canescens</i> | 0–45 | – |
| | spiny hopsage | GRSP | <i>Grayia spinosa</i> | 10–45 | – |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 0–30 | – |
| | rubber rabbitbrush | ERNA10 | <i>Ericameria nauseosa</i> | 0–30 | – |
| | littleleaf horsebrush | TEGL | <i>Tetradymia glabrata</i> | 5–20 | – |

Animal community

Livestock Grazing:

This site is suitable for livestock grazing use in the late fall, winter and early spring under a planned grazing system. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction. Grazing management should be keyed for basin wildrye, beardless wheatgrass and needle and thread. Deferred grazing or rest is recommended at least once every three years.

Native Wildlife Associated with the Potential Climax Community:

This site is commonly used by pronghorn antelope, mule deer, rabbits, rodents, upland birds and various predators. It provides excellent winter cover for sage grouse and other upland bird species. Antelope and mule deer make excellent use of the site for winter and early spring forage.

Hydrological functions

The soils of this site are typically in an upland topographic position. They have moderate runoff potential and medium infiltration rates when the hydrologic cover is high. Hydrologic cover is high when the basin wildrye, beardless wheatgrass and needle and thread deep rooted bunchgrass component is greater than 70 percent of potential. The soils are in hydrologic group B.

Other information

The soils of this site have excellent water holding capacities, accumulating off-site subsurface flows and providing late season water for plant growth. When incised channels are present, rehabilitation will markedly improve production and restore good hydrologic characteristics. On altered sites the reintroduction of desirable deep rooted plants may be needed to fully restore the site productivity.

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) | |
| Contact for lead author | |
| Date | |
| Approved by | |
| Approval date | |

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

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

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

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

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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:

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**
-

14. **Average percent litter cover (%) and depth (in):**
-

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**
-

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:**
-

17. **Perennial plant reproductive capability:**
-