

Ecological site R010XC025OR SR Sandy 9-12 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.

Associated sites

| | |
|-------------|---|
| R010XC022OR | SR Silty 9-12 PZ SR Silty 9-12 PZ |
| R010XC043OR | SR South 9-12 PZ SR South 9-12" PZ |
| R010XC063OR | SR Droughty North 9-12 PZ SR Droughty North 9-12 PZ |
| R010XC064OR | SR North 9-12 PZ SR North 9-12" PZ |

Similar sites

| | |
|-------------|--|
| R010XC022OR | SR Silty 9-12 PZ SR Silty 9-12 PZ (silty to fsl surface, different composition- beardless wheatgrass dominant) |
|-------------|--|

Table 1. Dominant plant species

| | |
|------------|--|
| Tree | Not specified |
| Shrub | (1) <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> (2) <i>Artemisia tridentata</i> ssp. <i>tridentata</i> |
| Herbaceous | (1) <i>Hesperostipa comata</i> (2) <i>Achnatherum thurberianum</i> |

Physiographic features

This site occurs on low to mid elevation terraces in the Malheur and Snake River drainages. Slopes typically range from 2 to 12%. Elevations vary from 2,000 to 3,500 feet.

Table 2. Representative physiographic features

| | |
|-----------|------------------------------------|
| Landforms | (1) Terrace (2) Hill |
| Elevation | 2,000–3,500 ft |
| Slope | 2–12% |
| Aspect | Aspect is not a significant factor |

Climatic features

The annual precipitation ranges from 9 to 12 inches, most of which occurs in the form of rain and snow during the

months of December through April. Localized convection storms occasionally occur during the summer. The soil temperature regime is mesic with a mean air temperature of 52 degrees F. Temperature extremes range from 100 to -10 degrees F. The frost free period ranges from 110 to 140 days. The optimum growth period for plant growth is April through June.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 140 days |
| Freeze-free period (average) | 0 days |
| Precipitation total (average) | 12 in |

Influencing water features

Soil features

The soils of this site are typically deep and well to somewhat excessively drained. Typically the surface layer is a loamy fine sand to a gravelly loam 8 to 16 inches thick. The subsoil is a loamy sand to sand or gravels 15 to 40 inches thick. Depth to lacustrine, alluvial or tuffaceous sediments ranges from 40 to greater than 60 inches. An indurate pan may be present. Permeability is moderately rapid to rapid. The available water holding capacity (AWC) is about 4 to 6 inches for the profile. The erosion potential, both wind and water, is severe.

Table 4. Representative soil features

| | |
|-----------------------------------|--|
| Surface texture | (1) Loamy fine sand (2) Sand (3) Coarse sandy loam |
| Family particle size | (1) Loamy |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Moderately rapid to rapid |
| Soil depth | 40–60 in |
| Available water capacity (0-40in) | 4–6 in |

Ecological dynamics

The potential native plant community is dominated by needle and thread. Thurber's needlegrass is prominent. Wyoming big sagebrush is common. Sandberg bluegrass is the dominant shallow rooted perennial grass. A variety of forbs and shrubs are present. Vegetative composition of the community is approximately 80 percent grasses, 10 percent forbs and 10 percent shrubs. The approximate ground cover is 70 to 80 percent (basal and crown).

Range in Characteristics:

Needle and thread increases on loamy sand and sandy surfaces. Thurber's needlegrass increases on very fine sandy loam surfaces and on droughtier sites. Beardless wheatgrass increases on silty surfaces. Needle and thread is present on coarser surfaces. Basin big sagebrush increases with precipitations. Antelope bitterbrush occasionally occurs over gravels. 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 needle and thread and Thurber's needlegrass rapidly decrease. Wyoming and basin big sagebrush increases. Sandberg bluegrass decreases on coarser textured surfaces. Cheatgrass strongly invades along with other annuals and biennial weeds. With fire and continued disturbance sagebrush is severely impacted, rabbitbrush increases slightly and annuals and noxious biennial forbs continue to invade. Under deteriorated conditions excessive wind erosion in the bare soil interspaces reduces the site potential and small migration dunes and hummocks develop. Water erosion increases with excessive erosion most pronounced in drainage areas. Deep incised gulley's form.

States: ARTRW/POSE-BRTE; BRTE/biennial forbs (following fire on degraded range)

State and transition model

Ecosystem states

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|------------------------------------|
| 1. Historic Climax Plant Community |
|------------------------------------|

State 1 submodel, plant communities

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|--------------------------------------|
| 1.1. Historic Climax Plant Community |
|--------------------------------------|

State 1 Historic Climax Plant Community

Community 1.1 Historic Climax Plant Community

The potential native plant community is dominated by needle and thread. Thurber's needlegrass is prominent. Wyoming big sagebrush is common. Sandberg bluegrass is the dominant shallow rooted perennial grass. A variety of forbs and shrubs are present. Vegetative composition of the community is approximately 80 percent grasses, 10 percent forbs and 10 percent shrubs. The approximate ground cover is 70 to 80 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 | 560 | 800 | 1120 |
| Shrub/Vine | 70 | 100 | 140 |
| Forb | 70 | 100 | 140 |
| Total | 700 | 1000 | 1400 |

Additional community tables

Table 6. Community 1.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production (Lb/Acre) | Foliar Cover (%) |
|------------------------|---|--------|---------------------------------|-----------------------------|------------------|
| Grass/Grasslike | | | | | |
| 1 | Dominant, perennial deep rooted grass | | | 400–600 | |
| | needle and thread | HECO26 | <i>Hesperostipa comata</i> | 400–600 | – |
| 2 | Sub-dominant, perennial deep-rooted grass | | | 300–400 | |
| | Thurber's needlegrass | ACTH7 | <i>Achnatherum thurberianum</i> | 300–400 | – |
| 4 | Sub-dominant, perennial shallow-rooted grass | | | 20–50 | |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 20–50 | – |

| | | | | | |
|-------------------|--------------------------------------|--------|--|--------|---|
| 5 | Other perennial grasses | | | 25–360 | |
| | beardless wheatgrass | PSSPI | <i>Pseudoroegneria spicata</i> ssp. <i>inermis</i> | 20–100 | – |
| | Indian ricegrass | ACHY | <i>Achnatherum hymenoides</i> | 0–80 | – |
| | squirreltail | ELEL5 | <i>Elymus elymoides</i> | 5–20 | – |
| | basin wildrye | LECI4 | <i>Leymus cinereus</i> | 0–20 | – |
| | foxtail wheatgrass | PSSA2 | × <i>Pseudelymus saxicola</i> | 0–20 | – |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> | 0–20 | – |
| Forb | | | | | |
| 7 | Dominant, perennial forb | | | 20–30 | |
| | arrowleaf balsamroot | BASA3 | <i>Balsamorhiza sagittata</i> | 20–30 | – |
| 8 | Sub-dominant, perennial forbs | | | 50–100 | |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 10–20 | – |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 10–20 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 10–20 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 10–20 | – |
| | phlox | PHLOX | <i>Phlox</i> | 10–20 | – |
| 9 | Other perennial forbs | | | 15–98 | |
| | milkvetch | ASTRA | <i>Astragalus</i> | 5–10 | – |
| | tapertip hawksbeard | CRAC2 | <i>Crepis acuminata</i> | 5–10 | – |
| | common woolly sunflower | ERLA6 | <i>Eriophyllum lanatum</i> | 0–10 | – |
| | stoneseed | LITHO3 | <i>Lithospermum</i> | 0–10 | – |
| | lupine | LUPIN | <i>Lupinus</i> | 5–10 | – |
| | bastard toadflax | COMAN | <i>Comandra</i> | 0–8 | – |
| | woodland-star | LITHO2 | <i>Lithophragma</i> | 0–5 | – |
| | hoary tansyaster | MACA2 | <i>Machaeranthera canescens</i> | 0–5 | – |
| | showy penstemon | PESP3 | <i>Penstemon spectabilis</i> | 0–5 | – |
| | scarlet globemallow | SPCO | <i>Sphaeralcea coccinea</i> | 0–5 | – |
| | deathcamas | ZIGAD | <i>Zigadenus</i> | 0–5 | – |
| | agoseris | AGOSE | <i>Agoseris</i> | 0–5 | – |
| | onion | ALLIU | <i>Allium</i> | 0–5 | – |
| | pussytoes | ANTEN | <i>Antennaria</i> | 0–5 | – |
| Shrub/Vine | | | | | |
| 11 | Dominant, evergreen shrubs | | | 30–80 | |
| | Wyoming big sagebrush | ARTRW8 | <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> | 20–50 | – |
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata</i> ssp. <i>tridentata</i> | 10–30 | – |
| 15 | Other shrubs | | | 5–56 | |
| | fourwing saltbush | ATCA2 | <i>Atriplex canescens</i> | 0–10 | – |
| | rubber rabbitbrush | ERNA10 | <i>Ericameria nauseosa</i> | 5–10 | – |
| | spiny hopsage | GRSP | <i>Grayia spinosa</i> | 0–10 | – |
| | antelope bitterbrush | PUTR2 | <i>Purshia tridentata</i> | 0–10 | – |
| | littleleaf horsebrush | TEGL | <i>Tetradymia glabrata</i> | 0–8 | – |

Animal community

Livestock Grazing:

This site is suitable for livestock grazing use in the late winter, spring, and fall 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 needle and thread and Thurber's needlegrass. 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. Antelope and mule deer make excellent use of the site for winter and spring forage.

Hydrological functions

The soils of this site are subject to both wind and water erosion. When the hydrologic cover is high they have high wind erosion resistance, low runoff potential and high infiltration rates. Hydrologic cover is high when needle and thread, Thurber's needlegrass and other deep rooted bunchgrass components is >70 percent of potential.

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 Gillaspay |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

1. **Number and extent of rills:** None, moderate sheet & rill erosion hazard
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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): 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):** Moderately resistant to erosion: aggregate stability = 3-5

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep to very deep, skeletal, well drained gravelly or shaly loams about 30" thick: moderate OM (1-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (80-90%) and gentle slopes (2-15%) effectively 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: Basin wildrye > Bluebunch wheatgrass > other grasses > other shrubs > 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

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): Favorable: 4000, Normal: 3000, Unfavorable: 2000 lbs/acre/year at high RSI (HCPC)

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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