

Ecological site R010XB047OR **JD Shallow South 12-16 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

| | |
|-------------|--|
| R010XB045OR | JD Clayey South 12-16 PZ JD Clayey South 12-16" PZ |
| R010XB048OR | JD Loamy South 12-16 PZ JD Mahogany rockland 12"+ PZ |
| R010XB027OR | JD Clayey 12-16 PZ JD Clayey 12-16" PZ |
| R010XB030OR | JD Loamy 12-16 PZ JD Loamy 12-16" PZ |
| R010XB031OR | JD Shallow 12-16 PZ JD Shallow 12-16" PZ |
| R010XB032OR | JD Very Shallow 12-16 PZ JD Very Shallow 12-16" PZ |

Similar sites

| | |
|-------------|---|
| R010XB045OR | JD Clayey South 12-16 PZ JD Clayey South 12-16" PZ (deeper soil, higher production) |
|-------------|---|

Table 1. Dominant plant species

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

Physiographic features

This site occurs on south facing aspects of uplands, tablelands, and upper canyon side slopes. Slopes range from 10 to 70 percent with slopes of 30 to 60 percent being most typical. Elevation varies from 2700 to 4800 feet.

Table 2. Representative physiographic features

| | |
|-------------------|----------------|
| Landforms | (1) Canyon |
| Elevation | 2,700–4,800 ft |
| Slope | 10–70% |
| Water table depth | 60 in |
| Aspect | S |

Climatic features

The annual precipitation ranges from 10 to 16 inches. The precipitation occurs as rain and snow during the months of November and March. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 50 degrees F. Extreme temperatures range from 100 degrees F to -10 degrees F. Soil temperature regimes are mesic. The frost-free period ranges from 90 to 150 days. The period of optimum plant growth is from April through June.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 150 days |
| Freeze-free period (average) | |
| Precipitation total (average) | 16 in |

Influencing water features

Soil features

The soils of this site are formed in colluvium and loess over basalt and tuffaceous bedrock. They are shallow. Typically the surface layer is a very stony loam over a very stony clay loam subsoil. Depth to bedrock is 10 to 20 inches. Soil permeability is moderate. The available water holding capacity (AWC) is 2 to 4 inches. The erosion potential is severe.

Table 4. Representative soil features

| | |
|-----------------------------------|----------------|
| Surface texture | (1) Stony loam |
| Family particle size | (1) Clayey |
| Drainage class | Well drained |
| Permeability class | Moderate |
| Soil depth | 10–20 in |
| Available water capacity (0-40in) | 2–4 in |

Ecological dynamics

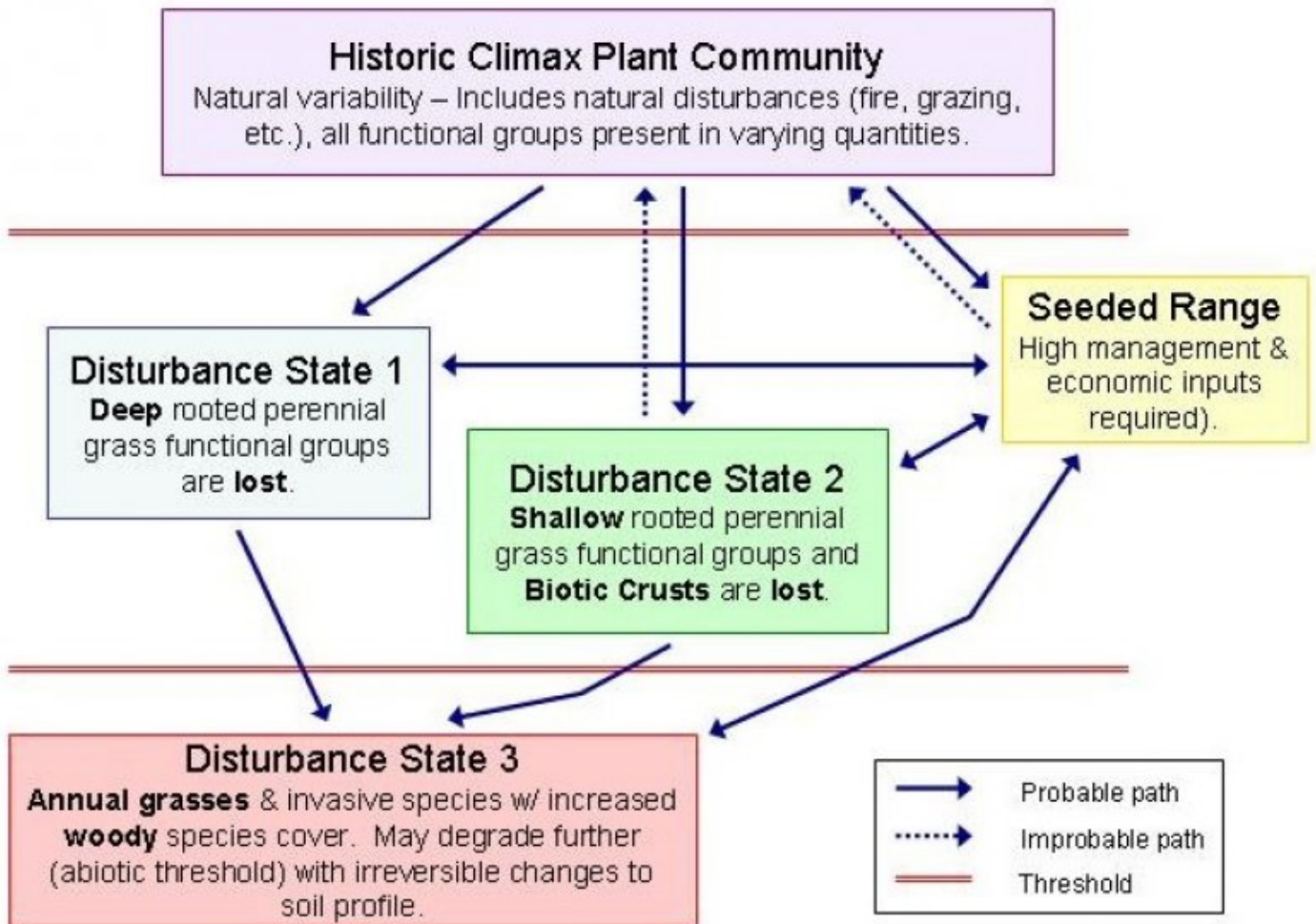
Range in Characteristics:

Variability in plant composition and production is dependent on soil depth, texture, and bedrock conditions. Bluebunch wheatgrass increases on fine textured surfaces. Thurber needlegrass increases on coarse textured surfaces. Juniper and antelope bitterbrush increase with bedrock fracturing. Production increases with soil depth.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass, and Thurber needlegrass decrease while Sandberg bluegrass, broom snakeweed, and western juniper increase. Cheatgrass, annual brome, medusa-head and other annuals invade. In the absence of fire, western juniper strongly increases and areas of bareground appear between the juniper. Soil erosion rapidly accelerates and inherent site productivity decreases.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1

Reference State

Community 1.1

Reference Plant Community

The potential native plant community is dominated by bluebunch wheatgrass. Thurber needlegrass and Sandberg bluegrass are common. Juniper and bitterbrush occur sporadically. Other shrubs are minor. The potential

vegetative composition is approximately 90 percent grass, 5 percent forbs, and 5 percent shrubs. Approximate ground cover is 40-50 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 | 410 | 660 | 985 |
| Forb | 50 | 75 | 115 |
| Shrub/Vine | 35 | 55 | 85 |
| Tree | 5 | 10 | 15 |
| Total | 500 | 800 | 1200 |

**Figure 3. Plant community growth curve (percent production by month).
OR4281, JD Claypan South 10-14 PZ.**

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 10 | 20 | 35 | 15 | 5 | 0 | 10 | 5 | 0 | 0 |

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 | Perennial, deep-rooted, dominant | | | 480–560 | |
| | bluebunch wheatgrass | PSSP6 | <i>Pseudoroegneria spicata</i> | 480–560 | – |
| 2 | Perennial, deep-rooted, sub-dominant | | | 80–120 | |
| | Thurber's needlegrass | ACTH7 | <i>Achnatherum thurberianum</i> | 80–120 | – |
| 4 | Perennial, shallow-rooted, sub-dominant | | | 16–40 | |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 16–40 | – |
| 5 | Other perennial grasses, all | | | 24–72 | |
| | squirreltail | ELEL5 | <i>Elymus elymoides</i> | 0–36 | – |
| | Idaho fescue | FEID | <i>Festuca idahoensis</i> | 0–36 | – |
| Forb | | | | | |
| 7 | Perennial, all, dominant | | | 32–96 | |
| | milkvetch | ASTRA | <i>Astragalus</i> | 8–24 | – |
| | arrowleaf balsamroot | BASA3 | <i>Balsamorhiza sagittata</i> | 8–24 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 8–24 | – |
| | lupine | LUPIN | <i>Lupinus</i> | 8–24 | – |
| 9 | Other perennial forbs, all | | | 8–40 | |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 0–4 | – |
| | agosaris | AGOSE | <i>Agoseris</i> | 0–4 | – |
| | cryptantha | CRYPT | <i>Cryptantha</i> | 0–4 | – |
| | Blue Mountain prairie clover | DAOR2 | <i>Dalea ornata</i> | 0–4 | – |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 0–4 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 0–4 | – |
| | grasswidow | OLSYN | <i>Olsynium</i> | 0–4 | – |
| | phacelia | PHACE | <i>Phacelia</i> | 0–4 | – |
| | phlox | PHLOX | <i>Phlox</i> | 0–4 | – |
| Shrub/Vine | | | | | |
| 11 | Perennial, deep-rooted, dominant | | | 16–56 | |
| | antelope bitterbrush | PUTR2 | <i>Purshia tridentata</i> | 16–56 | – |
| 15 | Other perennial shrubs, all | | | 8–40 | |
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata ssp. tridentata</i> | 0–16 | – |
| | rubber rabbitbrush | ERNA10 | <i>Ericameria nauseosa</i> | 0–16 | – |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 0–16 | – |
| Tree | | | | | |
| 16 | Evergreen | | | 8–16 | |
| | ponderosa pine | PIPO | <i>Pinus ponderosa</i> | 8–16 | – |

Animal community

Livestock Grazing:

This site is suited to spring, summer, and fall use by cattle, sheep, and horses under a planned grazing system.

Bluebunch wheatgrass can be damaged if heavily grazed during periods of flowering and seed formation when root reserves and soil moisture is low. Use in the spring should be postponed until the soils are firm enough to prevent plant crown trampling damage, soil compaction, and soil mass movement.

Native Wildlife Associated with the Potential Climax Community:

Mule deer
Elk
Upland birds

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

Threatened and Endangered Animals:

Listed endangered species (1993), which may occur on this site include the peregrine falcon. Listed threatened species is the bald eagle.

Hydrological functions

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

Other information

When in poor condition this site has low potential for range seeding because it is shallow, stony, and usually steep. Technology for seeding on steep slopes is currently not available.

Contributors

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Approval

Kirt Walstad, 12/13/2023

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 and Bruce Fransen |
| Contact for lead author | State Rangeland Management Specialist for NRCS - Oregon |
| Date | 08/06/2012 |
| Approved by | Kirt Walstad |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

1. **Number and extent of rills:** None to few on steeper slopes, significant sheet & rill erosion hazard

2. **Presence of water flow patterns:** None to few on steeper slopes

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

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

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):** Shallow to very shallow very stony or very cobbly loams or silt loams: moderate OM (1-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate ground cover (50-60%) and gentle to very steep slopes (12-70%) 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: Bluebunch wheatgrass > Thurber needlegrass > shrubs > forbs > other grasses

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: 1200, Normal: 800, Unfavorable: 500 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:** Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

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