

Ecological site R010XB064OR **JD North 9-12 PZ**

Accessed: 05/18/2024

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

| | |
|-------------|---|
| R010XB022OR | JD Clayey 9-12 PZ Site is on Moderately deep to deep soils with a predominance of Bluebunch wheatgrass. |
| R010XB044OR | JD Droughty South 9-12 PZ Soils on this site are very deep with a predominance of Thurber needlegrass. |

Similar sites

| | |
|-------------|--|
| R010XB065OR | JD Droughty Clayey North 9-12 PZ Soils are typically very shallow with a predominance of Bluebunch wheatgrass. |
|-------------|--|

Table 1. Dominant plant species

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

Physiographic features

This site occurs on northerly exposures of low elevation terraces and canyon slopes composed of early Cenezoic tuffaceous sediments. Slopes range from 5 to 70% with slopes of 12 to 60% being most typical. Elevation varies from 1300 to 3000 feet.

Table 2. Representative physiographic features

| | |
|--------------------|---|
| Landforms | (1) Hill (2) Hillside (3) Terrace |
| Flooding frequency | None |
| Ponding frequency | None |
| Elevation | 396–914 m |
| Slope | 5–70% |
| Ponding depth | 0 cm |
| Water table depth | 183 cm |
| Aspect | N, NE, E |

Climatic features

Elevation and aspect affect precipitation and the relative effectiveness of the precipitation and temperatures. Temperature changes can occur rapidly. In addition, the topography also results in localized cold air drainages, along with occasional cold air entrapment and inversions in the valleys. Annual snowfall is 13 inches to 17 inches, with most coming in the winter and spring. Snow cover is of short duration and melts quickly at low elevations.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 150 days |
| Freeze-free period (average) | 209 days |
| Precipitation total (average) | 305 mm |

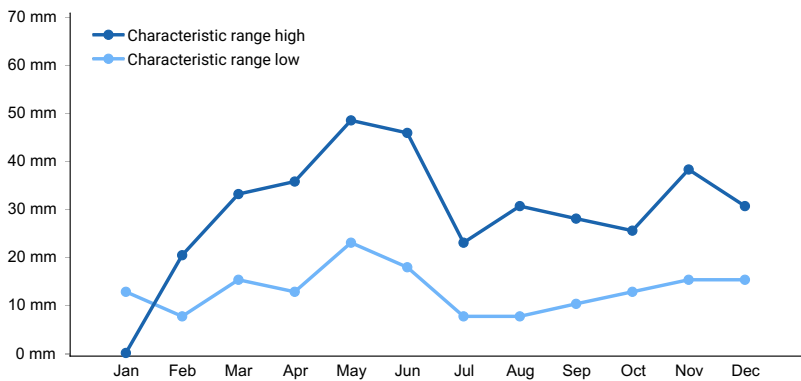


Figure 1. Monthly precipitation range

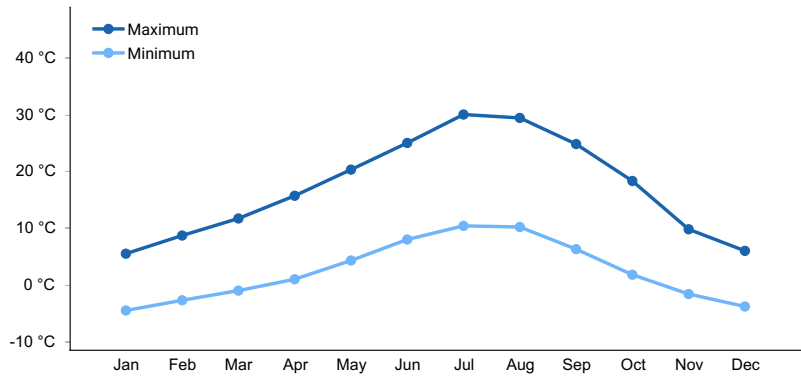


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Soils on this site are Mollisols with predominantly gravelly loam over clay textures. The soils are shallow to very deep with fine textures and well drained. These soils are formed from Cenezoic Tuffaceous Sediments that are weathered from John Day (mid-Oligocene) or Clarno (late Eocene) geological formations. Cobbles are present. The soils are generally aridic. The major taxonomic units correlated to this site include fine, smectitic, mesic Vertic Palexerolls.

Table 4. Representative soil features

| | |
|----------------------|--|
| Surface texture | (1) Ashy loam (2) Gravelly loam (3) Very stony clay loam |
| Family particle size | (1) Clayey |
| Drainage class | Well drained |

| | |
|--|-------------------|
| Permeability class | Very slow to slow |
| Soil depth | 46–152 cm |
| Surface fragment cover <=3" | 10% |
| Surface fragment cover >3" | 10% |
| Available water capacity (0-101.6cm) | 15.24–17.78 cm |
| Calcium carbonate equivalent (0-101.6cm) | 0–5% |
| Electrical conductivity (0-101.6cm) | 0 mmhos/cm |
| Sodium adsorption ratio (0-101.6cm) | 0 |
| Soil reaction (1:1 water) (0-101.6cm) | 6.6–8.4 |
| Subsurface fragment volume <=3" (Depth not specified) | 15% |
| Subsurface fragment volume >3" (Depth not specified) | 7% |

Ecological dynamics

The interpretative plant community for this site is the Historic Climax Plant Community (HCPC). Grasses with few forbs and shrubs dominate this plant community. Fluctuations in species composition and relative production may change from year to year dependent upon abnormal precipitation or other climatic factors. The historic climax plant community has been determined by study of rangeland relic areas, or areas protected from excess disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal pastures, and historical accounts have also been used. State and transition model: 1) Over grazing without frequent fire. 2) Proper grazing or rest. 3) Continued mis-management. 4) Proper grazing or rest with brush control. 5) Continued mis-management with fire.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC: PSSP6-FEID

Community 1.1
HCPC: PSSP6-FEID



Figure 3. JD Droughty North 9-12" PZ State A

HCPC - Dominated by Bluebunch wheatgrass and Idaho fescue. This plant community evolved with limited grazing by large herbivores and with fire frequency of every 5 to 10 years. About 5% of the plant composition is made up of forbs and 8% of shrubs. Bluebunch wheatgrass increases with clay surface. Idaho fescue increases on due north

steep slopes with silty surface.

Table 5. Annual production by plant type

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|-----------------|---------------------|--------------------------------------|----------------------|
| Grass/Grasslike | 953 | 1143 | 1524 |
| Shrub/Vine | 112 | 135 | 179 |
| Forb | 56 | 67 | 90 |
| Total | 1121 | 1345 | 1793 |

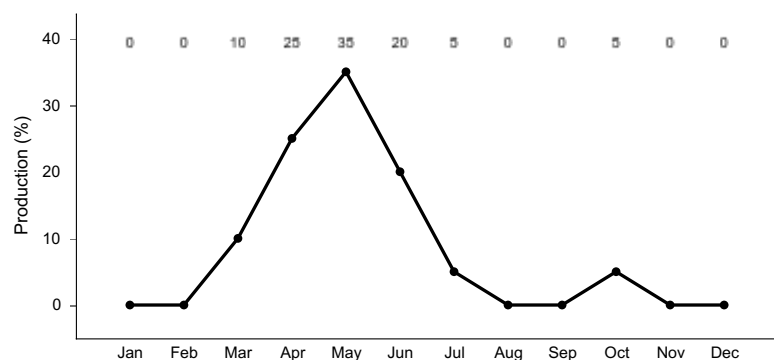


Figure 5. Plant community growth curve (percent production by month). OR4271, B10 JD Droughty North 9-12 A. JD Droughty North 9-12 A RPC Growth Curve.

State 2

Juniper - Basin Big Sagebrush / Bluebunch wheatgrass - Cheatgrass

Community 2.1

Juniper - Basin Big Sagebrush / Bluebunch wheatgrass - Cheatgrass



Figure 6. JD Droughty North 9-12" PZ State B

A community dominated by Western Juniper, Basin big sagebrush and cheatgrass. Continued mis-management of this site associated with fire disturbance has caused the deterioration. The site has passed a threshold. Proper grazing with brush control will, over time, eventually bring the site back towards the historic climax plant community.

Table 6. Annual production by plant type

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|-----------------|---------------------|--------------------------------------|----------------------|
| Grass/Grasslike | 504 | 729 | 841 |
| Shrub/Vine | 101 | 112 | 179 |
| Forb | 45 | 56 | 78 |
| Total | 650 | 897 | 1098 |

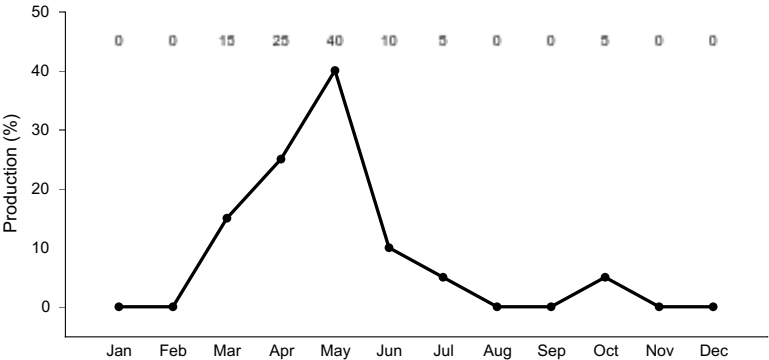


Figure 8. Plant community growth curve (percent production by month).
 OR4272, B10 JD Droughty North 9-12 B. State B: JUOC-ARTRT/PSSPS-BRTE.

Additional community tables

Table 7. Community 1.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production (Kg/Hectare) | Foliar Cover (%) |
|------------------------|--------------------------|--------|---|-----------------------------------|---------------------|
| Grass/Grasslike | | | | | |
| 1 | | | | 942–1480 | |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> | 807–1076 | – |
| | Idaho fescue | FEID | <i>Festuca idahoensis</i> | 67–269 | – |
| | Thurber's needlegrass | ACTH7 | <i>Achnatherum thurberianum</i> | 67–135 | – |
| 2 | | | | 22–45 | |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 22–45 | – |
| Forb | | | | | |
| 3 | | | | 22–67 | |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 1–3 | – |
| | onion | ALLIU | <i>Allium</i> | 1–3 | – |
| | pussytoes | ANTEN | <i>Antennaria</i> | 1–3 | – |
| | milkvetch | ASTRA | <i>Astragalus</i> | 1–3 | – |
| | blepharipappus | BLEPH2 | <i>Blepharipappus</i> | 1–3 | – |
| | mariposa lily | CALOC | <i>Calochortus</i> | 1–3 | – |
| | Indian paintbrush | CASTI2 | <i>Castilleja</i> | 1–3 | – |
| | prairie clover | DALEA | <i>Dalea</i> | 1–3 | – |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 1–3 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 1–3 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 1–3 | – |
| | locoweed | OXYTR | <i>Oxytropis</i> | 1–3 | – |
| | phlox | PHLOX | <i>Phlox</i> | 1–3 | – |
| Shrub/Vine | | | | | |
| 4 | | | | 39–136 | |
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata</i> ssp. <i>tridentata</i> | 27–108 | – |
| | rabbitbrush | CHRY9 | <i>Chrysothamnus</i> | 6–11 | – |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 6–11 | – |
| | shadscale saltbush | ATCO | <i>Atriplex confertifolia</i> | 1–6 | – |

Table 8. Community 2.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production (Kg/Hectare) | Foliar Cover (%) |
|------------------------|----------------------|--------|--|-----------------------------------|---------------------|
| Forb | | | | | |
| 1 | | | | 20–45 | |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 9–22 | – |
| | salsify | TRPO | <i>Tragopogon porrifolius</i> | 9–22 | – |
| | milkvetch | ASTRA | <i>Astragalus</i> | 1–9 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 1–9 | – |
| Grass/Grasslike | | | | | |
| 2 | | | | 67–135 | |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> | 34–67 | – |
| | Idaho fescue | FEID | <i>Festuca idahoensis</i> | 17–34 | – |
| | squirreltail | ELEL5 | <i>Elymus elymoides</i> | 11–22 | – |
| 3 | | | | 168–336 | |
| | cheatgrass | BRTE | <i>Bromus tectorum</i> | 78–135 | – |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 45–90 | – |
| | rattlesnake brome | BRBR5 | <i>Bromus briziformis</i> | 45–90 | – |
| Shrub/Vine | | | | | |
| 4 | | | | 303–448 | |
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata</i> ssp. <i>tridentata</i> | 168–224 | – |
| | western juniper | JUOC | <i>Juniperus occidentalis</i> | 90–135 | – |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 45–90 | – |

Animal community

GRAZING -

Livestock grazing is suitable for this site as long as management objectives include the improvement or maintenance of this site. It is easy to overuse this site and cause a shift in vegetation that is difficult to change. This site has the potential to produce a large amount of high quality forage. Management should be aimed at harvesting the forage as quickly as possible, letting the site recover from the grazing event prior to fall dormancy. Plant vigor, density and production can be maintained by utilizing livestock through proper grazing management.

Initial stocking rates will be determined with the landowner or decisionmaker. They will be based on past use histories and type and condition of the vegetation. Calculations used to determine an initial starting stocking rate will be based on forage preference ratings.

WILDLIFE -

The main wildlife species of concern on this site are large herbivores. These are mule deer and elk. These wildlife species can possibly overuse this site before the time cattle or sheep are planned to be grazed. Being an open grassland, this site is home to a variety of small herbivores, birds, and their associated predators. This site is mainly a foraging area for the larger wildlife. No threatened or endangered wildlife species rely on this site for any of their habitat requirements.

Hydrological functions

The site has a high potential in low seral condition to produce significant run-off to receiving waters. The hydrology of this site is characterized by high intensity thunderstorms during the summer months and by low intensity frontal storms during the winter.

Recreational uses

None

Wood products

No wood products are associated with this site.

Other products

None

Other information

Increase in western juniper and the subsequent competition for moisture will lead to a reduction of available forage. Overgrazing can easily reduce ground cover and accelerate soil loss. Improving infiltration and permeability, and reducing runoff should be the immediate goal of juniper control.

Type locality

| | |
|--------------------------------|---|
| Location 1: Wheeler County, OR | |
| Township/Range/Section | T7S R19E S33 |
| General legal description | NE 1/4 Sec 33, T7S, R19E WM National Monument, Clarno Unit (90% SI) |
| Location 2: Wheeler County, OR | |
| Township/Range/Section | T11S R20E S12 |
| General legal description | SE 1/4 NW 1/4 Sec 12, T11S, R20E Immediately south of Painted Hills Unit (90% SI) |

Other references

Soil Conservation Service, Relative Forage Preference of Plants for Grazing Use by Season, Range Technical Note No. 16, 1982.

Western Regional Climate Center, NOAA, National Weather Service, Portland, OR. Web site - <http://nimbo.wrh.noaa.gov/Portland/climate.html>. Natural Vegetation of Oregon and Washington, Jerry F. Franklin and C. T. Dyrness. The Ecological Provinces of Oregon, E. William Anderson, Michael M. Borman, and William C. Krueger.

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 and Bruce Frannsen |
| Contact for lead author | State Rangeland Management Specialist for NRCS – Oregon |
| Date | 08/06/2012 |

| | |
|---|-------------------|
| Approved by | Bob Gillaspy |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

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

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

3. **Number and height of erosional pedestals or terracettes:** None to some on steeper slopes (terraces)

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-10%

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, moderate 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, well drained clays, clay loams, ashy, cobbly, or stony loams, or loams: moderate OM (2-4%)

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 steep slopes (12-60%) 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: Bluebunch wheatgrass > Idaho fescue > other grasses > 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: 1600, Normal: 1200, Unfavorable: 800 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.
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually
-