USDA Natural Resources Conservation Service

Ecological site R008XY230OR
Droughty North 10-14 PZ

Last updated: 5/02/2025
Accessed: 05/21/2025

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

R008XY110OR	**Loamy 10-12 PZ**
R008XY120OR	**Loamy 12-14 PZ**
R008XY150OR	**Very Shallow Loam 10-14 PZ**

R008XY200OR	**South 10-14 PZ**
R008XY220OR	**North 10-14 PZ**
R010XY005OR	**Loamy Bottom** B10

Similar sites

R008XY220OR	**North 10-14 PZ** More fescue

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on moderate to steep slopes of canyons and rigdes or hills.

Table 2. Representative physiographic features

Landforms	(1) Canyon (2) Ridge (3) Hill
Elevation	152–914 m
Slope	15–70%
Aspect	N, NE, NW

Climatic features

The annual precipitation ranges from 10 to 14 inches which occurs mainly between the months of November and May, mostly in the form of rain and some snow. The soil temperature is 48 regime is mesic. The average annual air temperature is 48 degges F. with extreme temperatures ranging from -19 degrees F. to 107 degrees F. The frost free period is 120 to 180 days. The optimum period for plant growth is from April through May.

Table 3. Representative climatic features

Frost-free period (average)	180 days
Freeze-free period (average)	
Precipitation total (average)	356 mm

Influencing water features

Soil features

The soils of this site are shallow to moderately deep, well drained and medium textured. They are generally formed from colluvium. Rock fragments on the surface range from 0 to 60% and from 0 to 25% in the subsoil. Permeability is moderate and the available water holding capacity is 2 to 4.5 inches for the profile. The potential for water erosion is high.

Table 4. Representative soil features

Drainage class	Well drained
Permeability class	Moderate
Soil depth	51–102 cm
Surface fragment cover <=3"	0–60%
Available water capacity (0-101.6cm)	5.08–11.43 cm
Subsurface fragment volume <=3" (Depth not specified)	0–25%

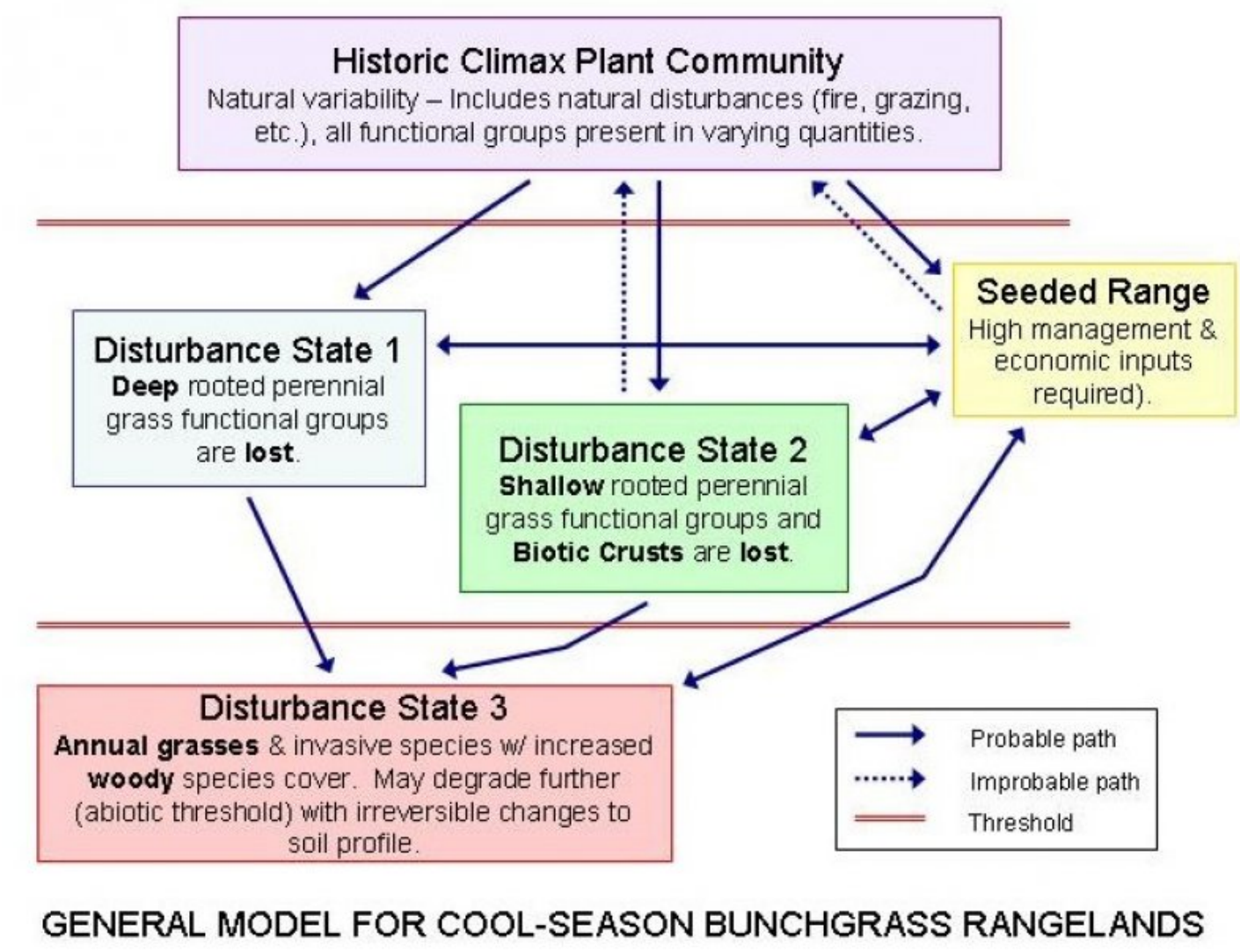
Ecological dynamics

When early spirng grazing causes site deterioration, bluebunch wheatgrass declines. Deterioration from heavy summer grazing reduces the vigor and stand of Idaho fescue and may allow bluebunch wheatgrass to increase. Severe perennial bunchgrasses with a corresponding increase in Sandberg's bluegrass, sagebrush, balsamroot, yarrow, and matchweed.

Stands with a recent fire history are likely to have the least amount of sagebrush and an increase of rabbitbrush and horsebrush. Bluebunch wheatgrass will increase after fire.

Stony soils have the highest cover of bluebunch wheatgrass and lowest cover of Idaho fescue. East and west facing slopes are transitional and have higher proportions of bluebunch wheatgrass and lower total cover.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference

Community 1.1
Reference Plant Community

The potential native plant community is dominated by bluebunch wheatgrass and Idaho fescue. Idaho fescue is usually less prominent, especially in stony areas. Sandberg bluegrass is common. Scattered big sagebrush may also occur. Numerous forbs such as milkvetch, balsamroot, yarrow, phlox, pussytoes, lupine, and lomatium commonly occurs in the stand. Vegetative composition is approximately 90% grasses, 10% forbs, and 1% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	813	1115	1317
Forb	62	90	106
Shrub/Vine	22	28	34
Total	**897**	**1233**	**1457**

Figure 3. Plant community growth curve (percent production by month). OR2501, B8 Loamy, Droughty North, Good Condition. RPC Growth Curve B8 Loamy, Droughty North, & South,Good Condition.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	10	20	25	20	10	5	0	5	5	0	0

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant deep rooted perennial grasses**			740–1233	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	493–740	–
	Idaho fescue	FEID	*Festuca idahoensis*	247–493	–
3	**Dominant shallow rooted perennial grasses**			62–102	
	Sandberg bluegrass	POSE	*Poa secunda*	62–102	–
5	**Other perennial grasses**			37–86	
	bluegrass	POA	*Poa*	25–62	–
	Cusick's bluegrass	POCU3	*Poa cusickii*	12–25	–
Forb					
7	**Dominant perennial forbs**			37–74	
	common yarrow	ACMI2	*Achillea millefolium*	12–25	–
	basalt milkvetch	ASFI	*Astragalus filipes*	12–25	–
	silky lupine	LUSE4	*Lupinus sericeus*	12–25	–
9	**Other perennial forbs**			0–74	
	agoseris	AGOSE	*Agoseris*	0–12	–
	pussytoes	ANTEN	*Antennaria*	0–12	–

	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	0–12	–
	hawksbeard	CREPI	*Crepis*	0–12	–
	buckwheat	ERIOG	*Eriogonum*	0–12	–
	desert yellow fleabane	ERLI	*Erigeron linearis*	0–12	–
	bigseed biscuitroot	LOMA3	*Lomatium macrocarpum*	0–12	–
	nineleaf biscuitroot	LOTR2	*Lomatium triternatum*	0–12	–
	longleaf phlox	PHLO2	*Phlox longifolia*	0–12	–
Shrub/Vine					
11	**Shrubs**			12–49	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	12–25	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0–12	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	0–12	–

Animal community

Resident deer will make use of this site in the summer and early fall.

Hydrological functions

The soils of this site have moderate infiltration rates and high runoff potential.

Wood products

None

Other products

This site is suitable for grazing from late spring through fall. Except in hot summer weather, cattle may avoid upper steep slopes if moderate terrain is accessible.

Contributors

E Ersch (OSU)
Gene Hickman
K.Kennedy

Approval

Kirt Walstad, 5/02/2025

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)	Jeff Repp
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	07/27/2012
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Some to none, significant sheet & rill erosion hazard

---

2. **Presence of water flow patterns:** Few to none, may increase as slope increases (to 70%)

---

3. **Number and height of erosional pedestals or terracettes:** Some - more common on deeper soils

---

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-12%

---

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: aggragate stability = 4-5

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow to moderately deep, well drained silt loams: Low to Moderate OM (1-4%)

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (60-80%) limits rainfall impact and overland flow, steeper slopes (to 70%) have high potential for run off

---

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 > Sandberg bluegrass > Cusick's bluegrass = forbs = shrubs

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: 1300, Normal: 1100, 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:** 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

---

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

---