USDA Natural Resources Conservation Service

Ecological site R008XY130OR
Sandy Loam 10-12 PZ

Last updated: 5/02/2025
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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

R008XY110OR	**Loamy 10-12 PZ**
R008XY150OR	**Very Shallow Loam 10-14 PZ**
R008XY200OR	**South 10-14 PZ**

R008XY220OR	**North 10-14 PZ**

Similar sites

R008XY110OR	**Loamy 10-12 PZ** Finer texture

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on nearly level to gently rolling uplands.

Table 2. Representative physiographic features

Landforms	(1) Hill
Elevation	305–762 m
Slope	2–20%

Climatic features

The annual precipitation ranges from 10 to 12 inches, most of which occurs as rain with snow during the months of November through May. Spring and fall rains are common. The temperature regime is mesic with temperature extremes ranging from 110 degrees F. to -10 degrees F. The frost-free period is 140 to 200 days and the optimum period for plant growth is early April through mid-June.

Table 3. Representative climatic features

Frost-free period (average)	200 days
Freeze-free period (average)	
Precipitation total (average)	305 mm

Influencing water features

Soil features

The soils of this site are very deep, well drained fine sandy loams formed in loess over basalt bedrock. The permeability is moderate and the available water holding capacity is 10 to 12 inches for the profile. The erosion hazard is moderate for wind and slight for water.

Table 4. Representative soil features

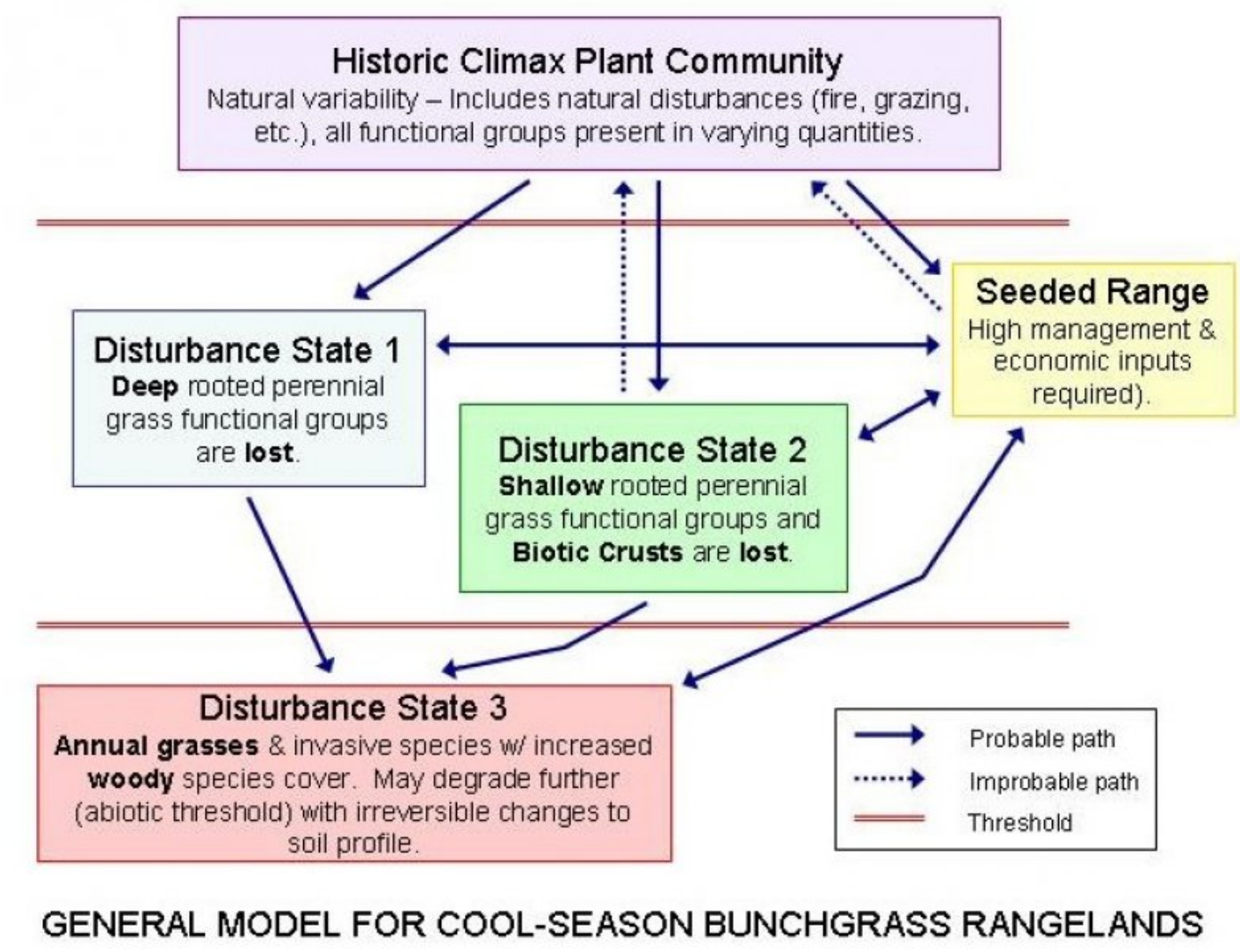
Soil depth	152 cm
Available water capacity (0-101.6cm)	25.4–30.48 cm

Ecological dynamics

If heavy grazing causes site deterioration, Idaho fescue, bluebunch wheatgrass, and needle and thread will decrease in the stand in that order. Rabbitbrush, lupine, and big sagebrush will increase. Cheatgrass, fiddleneck, and Russian thistle will invade the site. A lack of occasional fire will encourage an increase of shrubs.

The plant composition on this site depends strongly on soil surface texture and toa lesser extent on apsect. Typically, the very fine sandy loam surface texture gives rise to the high proportion of needleandthread while a shift to finer texture promotes an increase in the amount of bluebunch wheatgrass. North-trending slopes tend to show an increase in Idaho fescue.

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 needleandthread with lesser amounts of bluebunch wheatgrass. Vegetative composition is about 90% grasses, 5% forbs, and 5% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	504	908	1211
Forb	34	67	90
Shrub/Vine	22	34	45
Total	**560**	**1009**	**1346**

Figure 3. Plant community growth curve (percent production by month). OR2521, B8 Sandy Loam. B8 Sandy Loam RPC, Good Condition .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	15	20	25	15	5	5	0	5	10	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**			706–1110	
	needle and thread	HECO26	*Hesperostipa comata*	504–706	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	202–404	–
2	**Sub-dominant deep rooted perennial grasses**			50–151	
	Idaho fescue	FEID	*Festuca idahoensis*	50–151	–
4	**Sub-dominant shallow rooted perennial grasses**			20–50	
	Sandberg bluegrass	POSE	*Poa secunda*	20–50	–
5	**Other perennial grasses**			0–50	
	squirreltail	ELEL5	*Elymus elymoides*	0–20	–
6	**Annual grasses**			10–20	
	sixweeks fescue	VUOC	*Vulpia octoflora*	10–20	–
Forb					
7	**Dominant perennial forbs**			30–61	
	common yarrow	ACMI2	*Achillea millefolium*	10–20	–
	fleabane	ERIGE2	*Erigeron*	10–20	–
	phlox	PHLOX	*Phlox*	10–20	–
9	**Other perennial forbs**			0–67	
	pussytoes	ANTEN	*Antennaria*	0–11	–
	milkvetch	ASTRA	*Astragalus*	0–11	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	0–11	–
	sagebrush mariposa lily	CAMA5	*Calochortus macrocarpus*	0–11	–

	willowherb	EPILO	*Epilobium*	0–11	–
	buckwheat	ERIOG	*Eriogonum*	0–11	–
	lupine	LUPIN	*Lupinus*	0–11	–
	woolly plantain	PLPA2	*Plantago patagonica*	0–11	–
Shrub/Vine					
11	**Dominant shrubs**			20–40	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	10–20	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	10–20	–
15	**Other shrubs**			0–20	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	0–10	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–10	–

Animal community

Where associated with croplands, this site is used by upland game birds including Hungarian partridge, chukars and ring-necked pheasants.

Hydrological functions

The soils of this site have modeate infiltration rates and low runoff potential. The hydrologic soil group is B.

Wood products

None

Other products

This site is suitable for grazing by livestock during all seasons of the year but most ideally, it is suited to fall, winter, and early spring use under a planned grazing system.

Contributors

Barrett, Bahn
E Ersch (OSU)
K.Kennedy

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	07/26/2012
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, slight sheet & rill erosion hazard

2. **Presence of water flow patterns:** None

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):** 10-15%

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):** Slightly to moderately resistant to erosion; aggregate stability = 3-4

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep, well drained very fine sandy loams; Low OM (2-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (40-60%) and level to gently rolling slopes (2-20%) 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: Needle and thread > Bluebunch wheatgrass > Idaho fescue > Sandberg bluegrass = other grasses = other forbs > annual grasses + dominant forbs = dominant shrubs = other 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

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

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 1200, Normal: 900, Unfavorable: 500 lbs/acre/year at high RSI (HCPC)

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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 group

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

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