USDA Natural Resources Conservation Service

Ecological site R021XY202OR
SHALLOW LOAM 10-14 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

R021XY204OR	**SHALLOW STONY 10-20 PZ**
R021XY208OR	**SANDY 10-14 PZ**
R021XY300OR	**SOUTH SLOPES 10-14 PZ**
R021XY302OR	**NORTH SLOPE 10-14 PZ**

Similar sites

R021XY302OR	**NORTH SLOPE 10-14 PZ** Slopes greater than 30%
R021XY210OR	**LOAMY 14-18 PZ** Higher precipitation
R021XY402OR	**ROCKY RIDGES 14+ PZ** Shallow soils
R021XY208OR	**SANDY 10-14 PZ** Coarser soil textures
R021XY300OR	**SOUTH SLOPES 10-14 PZ** Slopes greater than 30%

R021XY206OR	**DEEP LOAMY 10-14 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site typically occurs on lake terraces, hills and fans adjacent to lake basins. Slopes range from 1 to 35 percent, but are typically 2 to 20 percent.

Table 2. Representative physiographic features

Landforms	(1) Lake terrace (2) Hill (3) Fan
Elevation	1,250–1,463 m
Slope	1–35%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 14 inches, but may range to 16 inches on soils which have low water holding capacities. Most of the precipitation occurs in the form of snow during the months of October through April. The soil temperature regime is mesic with a mean annual air temperature of about 47 degrees F. Temperature extremes range from 110 to -30 degrees F. The frost free period ranges from 70 to 120 days. The optimum period for plant growth is from late April to June.

Table 3. Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	0 days
Precipitation total (average)	356 mm

Influencing water features

Soil features

The soils of this site are shallow to moderately deep over bedrock, an indurate pan, or a restrictive layer and are well drained. Root restrictive layers or horizons are absent within the upper 20 inches of the soil profile. The available water holding capacity is 2 to 4 inches. Runoff is slow to medium. Erosion hazard by water is slight to moderate.

Table 4. Representative soil features

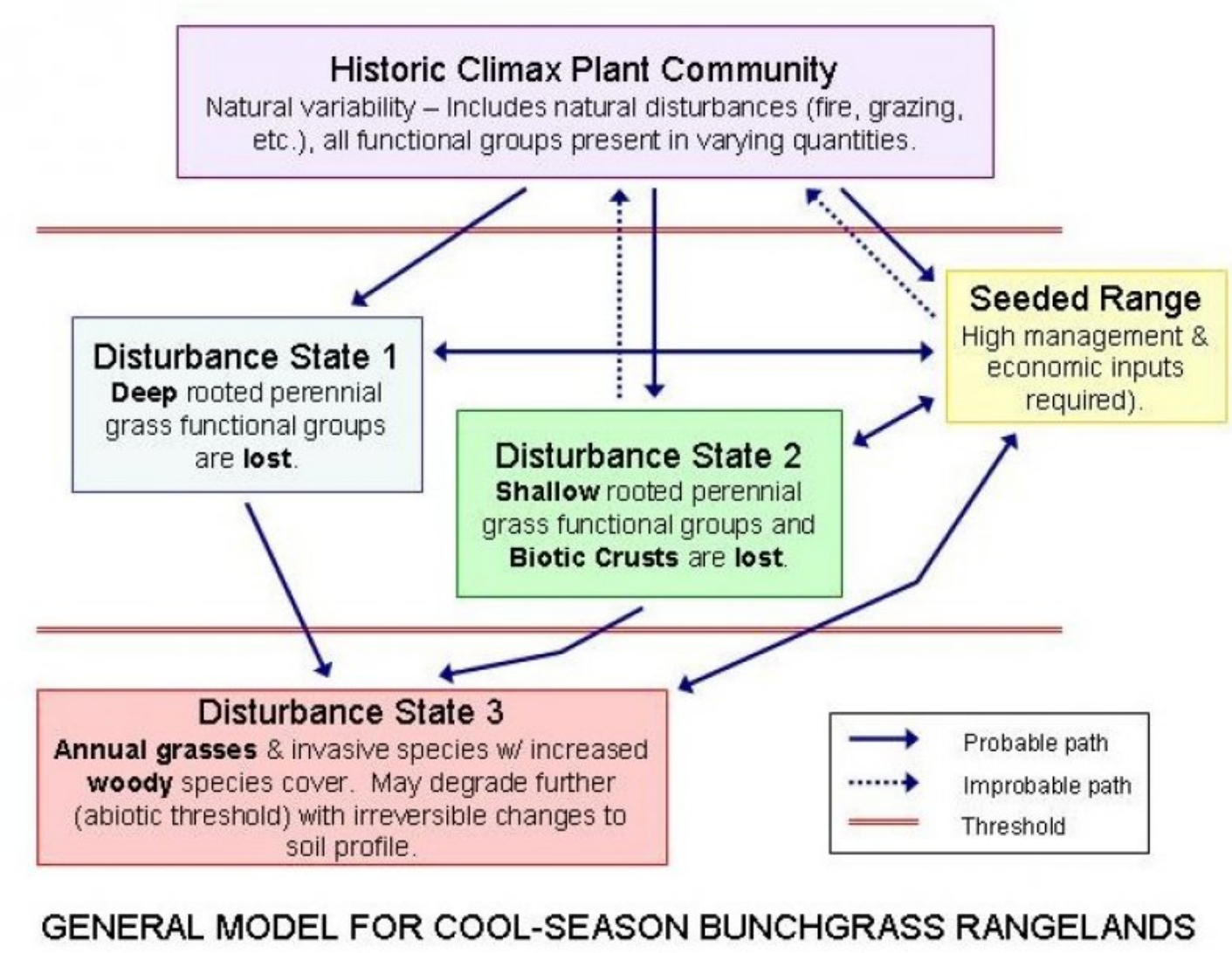
Drainage class	Well drained
Soil depth	152 cm
Available water capacity (0-101.6cm)	5.08–10.16 cm

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, big sagebrush and rabbitbrush will become dominant on the site. Sandberg bluegrass and unplalatable forbs will increase in the understory. Cheatgrass and annual forbs will invade the site. Western juniper may establish on the site in the absence of periodic fire.

This site is typically dominated by bluebunch wheatgrass. Idaho fescue will increase in proportion at the upper end of the precipitation range and Thurber needlegrass may increase in proportion at the drier end of the range or where gravels increase in the soil.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, PSSP6-FEID/PUTR2-ARTRW8

Community 1.1
HCPC, PSSP6-FEID/PUTR2-ARTRW8

The potential native plant community is dominated by bluebunch wheatgrass and Idaho fescue. Antelope bitterbrush, basin big sagebrush, and green rabbitbrush are common. Vegetative composition of the plant community is approximately 80% grasses, 5% forbs, and 15% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	377	491	605
Shrub/Vine	54	118	182
Forb	27	50	74
Tree	13	24	34
Total	**471**	**683**	**895**

Figure 4. Plant community growth curve (percent production by month). OR5511, D21 Low Elev., NA, Good Condition. RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	15	30	50	5	0	0	0	0	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**			336–504	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	269–404	–
	Idaho fescue	FEID	*Festuca idahoensis*	67–101	–
2	**Sub-dominant deep rooted perennial grasses**			13–34	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	13–34	–
4	**Sub-dominant shallow rooted perennial grasses**			13–34	
	Sandberg bluegrass	POSE	*Poa secunda*	13–34	–
5	**Other perennial grasses**			13–34	
	squirreltail	ELEL5	*Elymus elymoides*	0–6	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0–6	–
	melicgrass	MELIC	*Melica*	0–6	–
Forb					
7	**Dominant perennial forbs**			20–40	
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	7–13	–
	buckwheat	ERIOG	*Eriogonum*	7–13	–
	lupine	LUPIN	*Lupinus*	7–13	–
9	**Other perennial grasses**			7–34	
	milkvetch	ASTRA	*Astragalus*	0–6	–
	fleabane	ERIGE2	*Erigeron*	0–6	–
	aster	EUCEP2	*Eucephalus*	0–6	–
	desertparsley	LOMAT	*Lomatium*	0–6	–
	ragwort	SENEC	*Senecio*	0–6	–
	deathcamas	ZIGAD	*Zigadenus*	0–6	–
Shrub/Vine					
12	**Sub-dominant evergreen shrubs**			13–67	
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	13–67	–
13	**Dominant deciduous (or 1/2 shrubs) shrubs**			34–101	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	34–101	–
14	**Sub-dominant deciduous (or 1/2 shrubs) shrubs**			7–13	
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	7–13	–
Tree					
16	**Dominant evergreen trees**			13–34	
	western juniper	JUOC	*Juniperus occidentalis*	13–34	–

Animal community

This site offers forage for pronghorn antelope and mule deer and limited cover for various bird species.

Hydrological functions

The soils are in hydrologic groups C and D.

Other products

This site is suited to livestock grazing during all seasons under a planned grazing system.

Other information

Increase in western juniper and the subsequent competition for moisture will lead to a reduction of soil cover and accelerated soil loss. Improving infiltration and permeability, and reducing runoff should be the immediate goal of juniper control.

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	08/21/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, slight to moderate sheet & rill rosion 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, 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):** Significantly to moderately resistant to erosion: aggregate stability = 4-6

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow t moderately deep, well drained sandy loams, loams, and silty clay loams with significant rock content: Low to moderate OM (1-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Adequate cover (60-70%) and level to gentle slopes (1-20%) 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: Bluebunch wheatgrass > Idaho fescue > Antelope bitterbrush > Wyoming big sagebrush > other grasses > other forbs > dominant forbs = Green rabbitbrush

    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: 800, Normal: 600, Unfavorable: 450 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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