USDA Natural Resources
Conservation Service

Ecological site R023XY221OR
GRAVELLY TERRACE 10-12 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

R023XY211OR	**PUMICE CLAYPAN 10-12 PZ** Pumice Claypan 10-12" PZ
R023XY514OR	**PUMICE 8-10 PZ** Pumice 8-10" PZ
R023XY516OR	**STONY LOAM 10-12 PZ** Stony Loam 10-12" PZ
R023XY607OR	**PUMICE PLAINS 8-11 PZ** Pumice Plains 8-11" PZ

Similar sites

R023XY514OR	**PUMICE 8-10 PZ** Pumice 8-10" PZ
R023XY607OR	**PUMICE PLAINS 8-11 PZ** Pumice Plains 8-11" PZ

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs as low hills, ridges, or terraces within large basins. It is nearly level except where terraces have been dissected. Slopes range from 0 to 5 percent, but some small areas may have slope gradients up to 35 percent. Elevations range from 4300 to 4500 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge (3) Terrace
Elevation	1,311–1,372 m
Slope	0–5%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 9 to 11 inches, which occurs mainly between the months of November and June, mostly in the form of snow and spring-fall rains. The soil temperature regime is frigid and the site seems to be located in an area of cold air drainage. The average annual air temperature is 43 degrees F with extreme temperatures ranging from -30 to 103 degrees F. The frost-free period is 50 to 90 days. The optimum period for plant growth is from mid-April through early July.

Table 3. Representative climatic features

Frost-free period (average)	90 days
Freeze-free period (average)	0 days
Precipitation total (average)	279 mm

Influencing water features

Soil features

The soils of this site are shallow to a pan, well-drained and have loamy sand surface. The subsoil is moderately alkaline and has a zone of carbonate accumulation in places. They are generally formed from volcanic ash and residuum. Permeability is moderate and the availabe water holding capacity (AWC) is 1 to 3 inches for the profile. The potential for water erosion is low and for wind erosion is high.

Table 4. Representative soil features

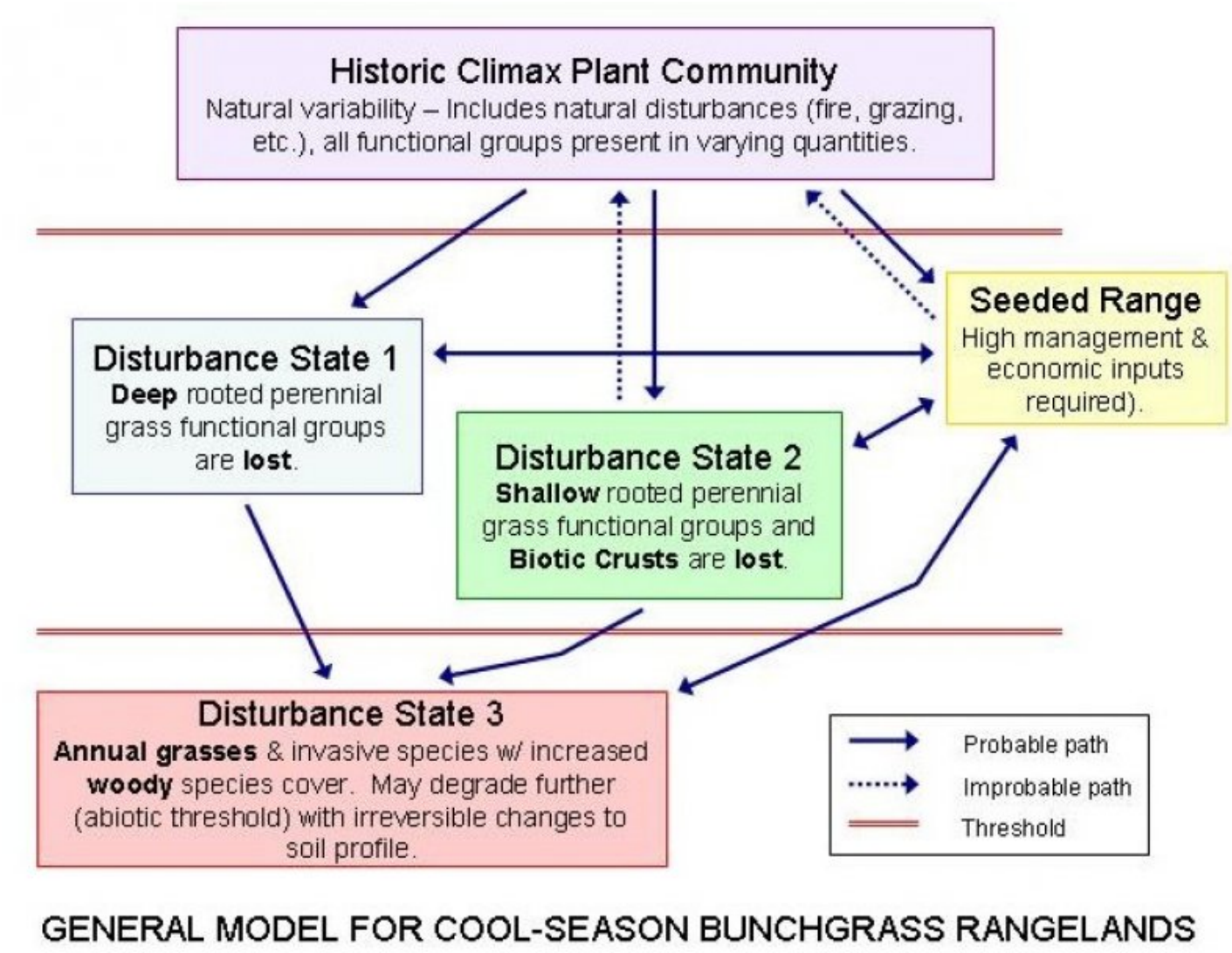
Surface texture	(1) Loamy sand
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate
Available water capacity (0-101.6cm)	2.54–7.62 cm

Ecological dynamics

Range in Characteristics:

Dissected areas with more northerly aspects, will support a greater proportion of Idaho fescue and less needlegrass. More gravelly areas and dissected areas with southerly aspects, may support greater amounts of needlegrass, particularly needle-and-thread.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

The potential native plant community is dominated by Idaho fescue (about 35 percent), and needlegrasses. Indian ricegrass and squirreltail are prominent in the stand and make up about 10 percent. Big sagebrush is the dominant shrub (about 10 percent), along with smaller amounts of gray and green rabbitbrush, gray horsebrush, and pricklygilia. Vegetative composition is approximately 75 percent grasses, 5 percent forbs, and 20 percent shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	383	481	578
Shrub/Vine	87	118	148
Forb	13	24	34
Total	**483**	**623**	**760**

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	**Perennial, deep-rooted, dominant**			202–269	
	Idaho fescue	FEID	*Festuca idahoensis*	202–269	–
2	**Perennial, deep-rooted, sub-dominant**			182–309	
	western needlegrass	ACOC3	*Achnatherum occidentale*	101–135	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	34–67	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	13–34	–
	tufted wheatgrass	ELMA7	*Elymus macrourus*	13–34	–
	needle and thread	HECO26	*Hesperostipa comata*	7–13	–
	Ross' sedge	CARO5	*Carex rossii*	7–13	–
	squirreltail	ELEL5	*Elymus elymoides*	7–13	–
Forb					
7	**Perennial, all, dominant**			7–13	
	lupine	LUPIN	*Lupinus*	7–13	–
9	**Other perennial forbs, all**			7–20	
	curvepod milkvetch	ASCU4	*Astragalus curvicarpus*	0–3	–
	woollypod milkvetch	ASPU9	*Astragalus purshii*	0–3	–
	fleabane	ERIGE2	*Erigeron*	0–3	–
	buckwheat	ERIOG	*Eriogonum*	0–3	–
	aster	EUCEP2	*Eucephalus*	0–3	–
	common starlily	LEMO4	*Leucocrinum montanum*	0–3	–
	phlox	PHLOX	*Phlox*	0–3	–
Shrub/Vine					
11	**Perennial, evergreen, dominant**			67–101	
	Wyoming big sagebrush	ARTRW8	*Artemisia tridentata ssp. wyomingensis*	67–101	–
12	**Perennial, evergreen, sub-dominant**			7–13	
	slender buckwheat	ERMI4	*Eriogonum microthecum*	7–13	–
15	**Other perennial shrubs, all**			13–34	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	0–7	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0–7	–
	antelope bitterbrush	PUTR2	*Purshia tridentata*	0–7	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	0–7	–

Animal community

Livestock Grazing:

Water is not usually available on-site. Winter grazing is possilbe in mild winters with little snow, but protection from the cold for livestock is absent due to lack of tall cover.

Native Wildlife Associated with the Potential Climax Community:

Rabbits
Rodents
Mule deer
Sage grouse
Antelope

Pronghorn antelope use this site for winter range.

Hydrological functions

The soils of this site have rapid infiltration rates and low runoff potential.

Other information

Adapted species for seedings include crested wheatgrass, thickspike wheatgrass, Siberian wheatgrass, sheep fescue, and Indian ricegrass. Due to shallow soils, the site has low seeding potential.

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	08/16/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

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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):** 5-20%

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None to some, Severe 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):** Slight resistance to erosion: aggregate stability = 1-2

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow well drained loamy sands (shallow to pan), Neutral to moderately alkaline: Low OM (1-2%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate ground cover (60%) and gentle slopes (0-5%) 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: Idaho fescue > Western needlegrass > Wyoming big sagebrush > Thurber needlegrass > other grasses > other 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: 800, Normal: 600, Unfavorable: 400 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. 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