USDA Natural Resources Conservation Service

Ecological site R021XY412OR
LOAMY 18+ PZ

Accessed: 05/19/2024

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.

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.

Similar sites

R021XY210OR	**LOAMY 14-18 PZ** Lower precipitation.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs as openings within forested mountainous areas and on ridgetops.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Ridge
Elevation	1,676–2,195 m

Slope	10–40%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 24 to 40 inches, most of which occurs in the form of snow during the months of October through May. The soil temperature regime is frigid with a mean annual air temperature of about 43 degrees F. Temperature extremes range from 85 to -30 degrees F. The frost free period ranges from 30 to 70 dyas. The optimum period for plant growth is from June through July.

Table 3. Representative climatic features

Frost-free period (average)	70 days
Freeze-free period (average)	0 days
Precipitation total (average)	1,016 mm

Influencing water features

Soil features

The soils of this site are very deep and well drained. The soils are loamy throughout and contain over 35 percent rock fragments in the subsoil. Organic matter content is high and ranges form 2 to 5 percent throughout the upper 20 to 40 inches of the soil profile. Permeability is moderate to moderately slow. The available water holding capacity is about 4 to 8 inches. Runoff is medium. Erosion hazard by water is moderate.

Table 4. Representative soil features

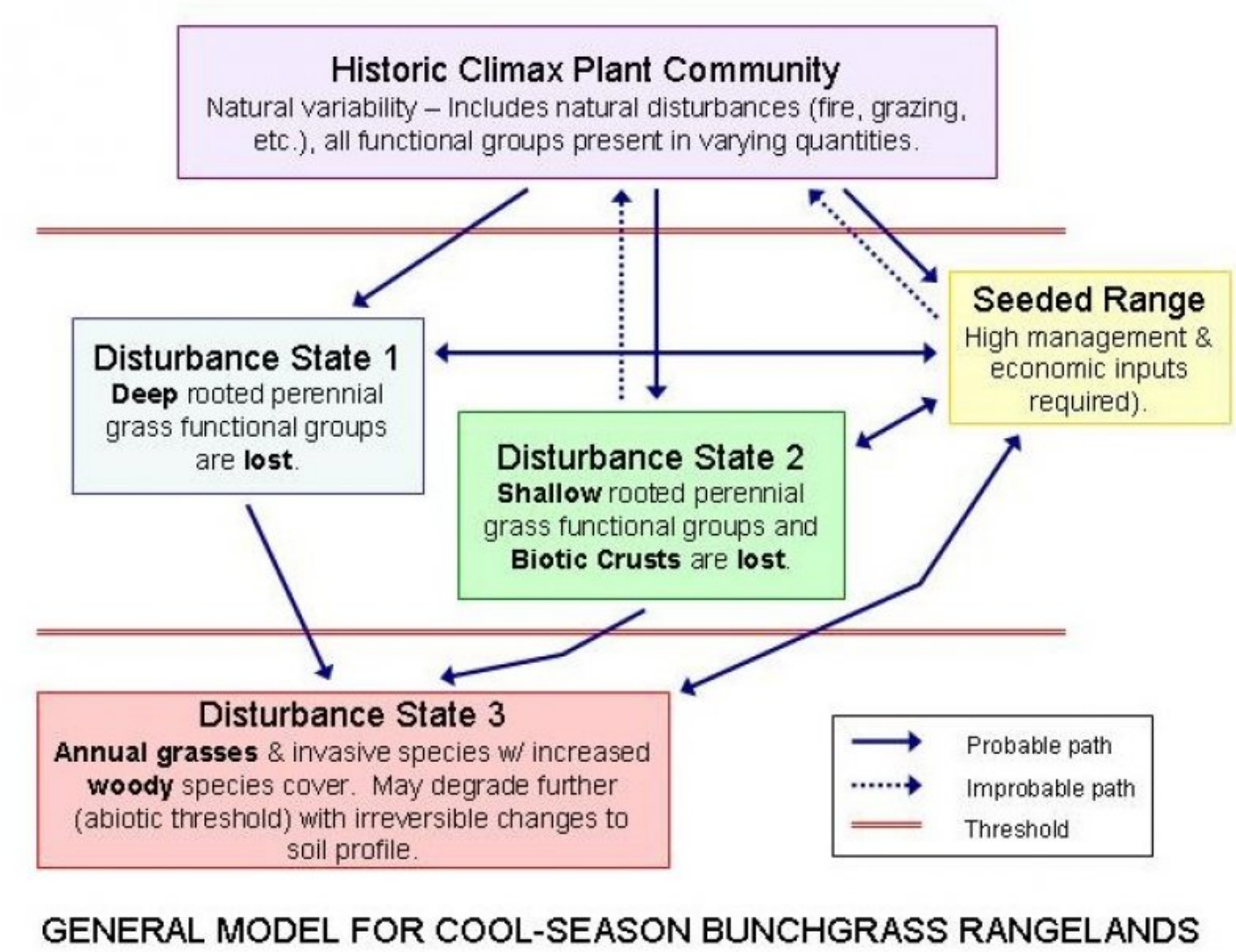
Surface texture	(1) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to moderately slow
Soil depth	152 cm
Available water capacity (0-101.6cm)	10.16–20.32 cm
Subsurface fragment volume <=3" (Depth not specified)	0–35%

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue and Ross sedge decrease while bottlebrush squirreltail increase. With further deterioration, mountain big sagebrush and snowberry increase.

The consistent soil depth and dependable precipitation lend stability to site production and species composition.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, CARO5-FEID/ARTRV-SYAL

Community 1.1
HCPC, CARO5-FEID/ARTRV-SYAL

The potential native plant community is dominated by mountain big sagebrush and snowberry. Ross sedge, Idaho fescue, mountain brome, aspen, snowberry, and a variety of forbs are common in the stand. The vegetative composition of the community is approximately 50% grasses, 20% forbs, and 30% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	247	504	762
Shrub/Vine	213	375	538
Forb	146	235	325
Tree	45	73	101
Total	**651**	**1187**	**1726**

Figure 4. Plant community growth curve (percent production by month). OR5557, D21 High Elev, NA / South, Good Condition. HPCP Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	5	30	50	15	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**			224–650	
	Idaho fescue	FEID	*Festuca idahoensis*	56–168	–
	mountain brome	BRMA4	*Bromus marginatus*	56–168	–
	Ross' sedge	CARO5	*Carex rossii*	56–168	–
	squirreltail	ELEL5	*Elymus elymoides*	22–56	–
	western needlegrass	ACOC3	*Achnatherum occidentale*	22–56	–
	basin wildrye	LECI4	*Leymus cinereus*	11–34	–
5	**Other perennial grasses**			22–112	
	slender wheatgrass	ELTR7	*Elymus trachycaulus*	0–6	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0–6	–
	melicgrass	MELIC	*Melica*	0–6	–
	timothy	PHLEU	*Phleum*	0–6	–
Forb					
7	**Dominant perennial forbs**			112–224	
	lupine	LUPIN	*Lupinus*	56–112	–
	mule-ears	WYAM	*Wyethia amplexicaulis*	56–112	–
8	**Sub-dominant perennial forbs**			22–45	
	columbine	AQUIL	*Aquilegia*	11–22	–
	phlox	PHLOX	*Phlox*	11–22	–
9	**Other perennial forbs**			11–56	
	common yarrow	ACMI2	*Achillea millefolium*	0–6	–
	heartleaf arnica	ARCO9	*Arnica cordifolia*	0–6	–
	strawberry	FRAGA	*Fragaria*	0–6	–
	geranium	GERAN	*Geranium*	0–6	–
	cinquefoil	POTEN	*Potentilla*	0–6	–
	ragwort	SENEC	*Senecio*	0–6	–
	meadow-rue	THALI2	*Thalictrum*	0–6	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			112–224	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	112–224	–
13	**Dominant deciduous (or 1/2 shrubs) shrubs**			78–224	
	common snowberry	SYAL	*Symphoricarpos albus*	56–168	–
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	22–56	–
15	**Other shrubs**			22–90	
	rabbitbrush	CHRYS9	*Chrysothamnus*	0–6	–

	bitter cherry	PREM	*Prunus emarginata*	0–6	–
	Klamath plum	PRSU2	*Prunus subcordata*	0–6	–
	chokecherry	PRVI	*Prunus virginiana*	0–6	–
	currant	RIBES	*Ribes*	0–6	–
	rose	ROSA5	*Rosa*	0–6	–
Tree					
16	**Dominant evergreen trees**			11–22	
	ponderosa pine	PIPO	*Pinus ponderosa*	11–22	–
18	**Dominant deciduous trees**			34–78	
	quaking aspen	POTR5	*Populus tremuloides*	22–56	–
	willow	SALIX	*Salix*	11–22	–

Animal community

This site offers food and cover for mule deer and blue grouse.

Hydrological functions

The soils are in hydrologic group B.

Other products

This site is suited to use by cattle, sheep and horses in summer under a planned grazing system.

Contributors

Barrett, Carlson
E Ersch
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	09/05/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, moderate 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):** 5-15%

---

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):** 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):** Very deep, well drained loams (>35% rock fragments in the subsoil): Moderate to High OM (2-5%)

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant vegetative cover (60-90%), litter cover, and moderate slopes (10-40%) effectively limit rainfall impact and overland flow; infiltration is moderately slow

---

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: Mountain big sagebrush > dominant forbs > Snowberry = Ross sedge = Idaho fescue = Mountain brome > trees > other grasses > other shrubs > other 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: 1200, Normal: 1000, 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