USDA Natural Resources Conservation Service

Ecological site R021XY212OR
SHALLOW LOAM 14-18 PZ

Accessed: 05/11/2024

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.

Associated sites

R021XY308OR	**SOUTH SLOPES 14-18 PZ**
R021XY312OR	**NORTH SLOPES 14-18 PZ**
R021XY314OR	**DRY MEADOW 14-30 PZ**

Similar sites

R021XY410OR	**DEEP LOAMY 16-20 PZ** Deeper soil, thicker surface.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in mountainous sideslopes, rolling plateaus and colluvial slopes.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope (2) Plateau
Elevation	1,219–1,829 m
Slope	0–30%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 14 to 18 inches, most of which occurs in the form of snow during the months of October through May. The soil temperature regime is mesic with the mean annual air temperature of 47 degrees F. Temperature extremes range from 90 to -30 degrees F. The frost free period ranges from 70 to 140 days. The optimum period for plant growth is from mid-April through late June.

Table 3. Representative climatic features

Frost-free period (average)	140 days
Freeze-free period (average)	0 days
Precipitation total (average)	457 mm

Influencing water features

Soil features

The soils of this site range from shallow to moderately deep over bedrock or a restrictive layer and well drained. The subsoil is loamy to clayey and may contain up to 35 percent coarse fragments. Depth to bedrock or an indurated pan is about 20 inches. Permeability is moderate to moderately slow. The available water holding capacity is about 4 to 6 inches. The potential for erosion is slight to moderately severe.

Table 4. Representative soil features

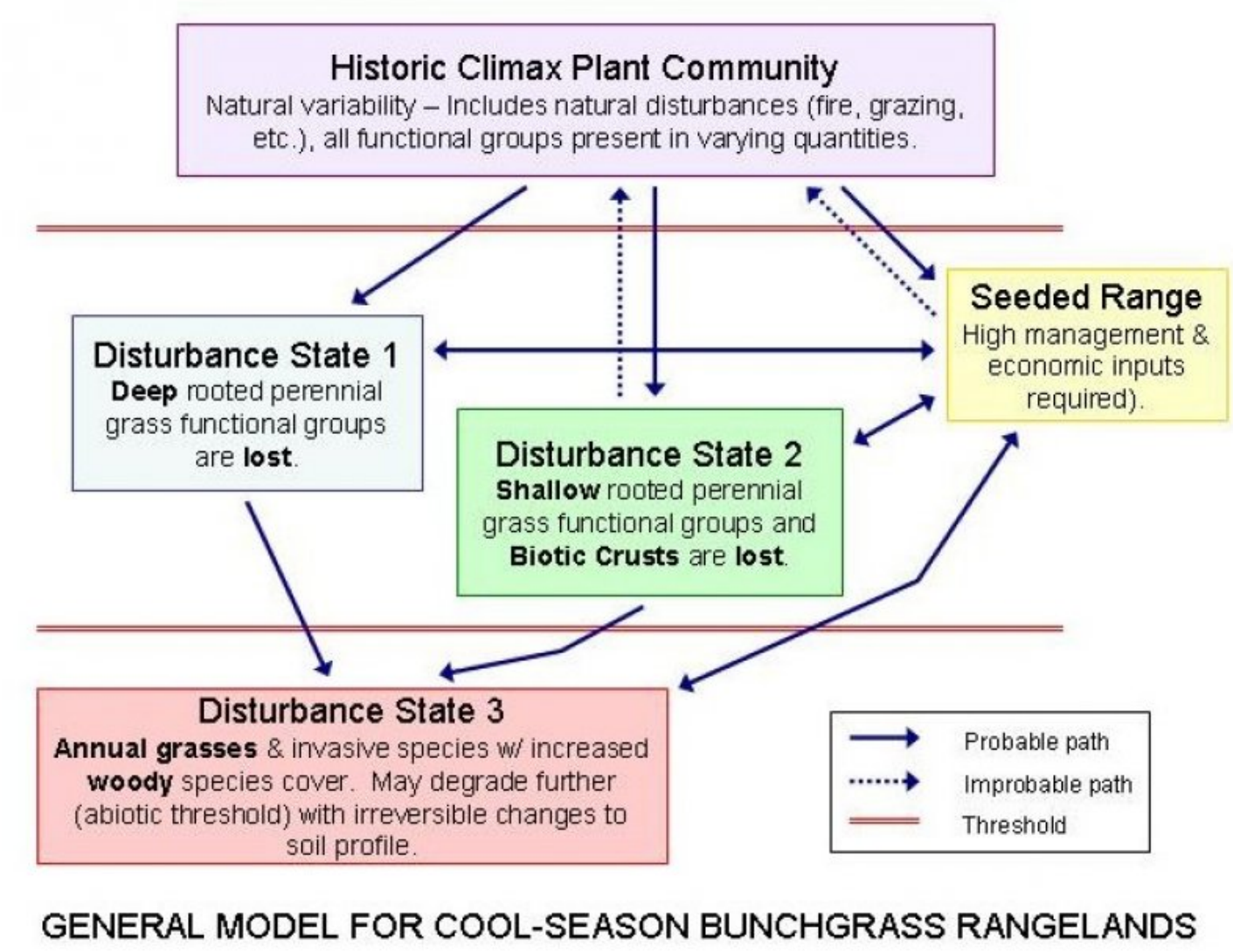
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	51–102 cm
Available water capacity (0-101.6cm)	10.16–15.24 cm
Subsurface fragment volume <=3" (Depth not specified)	35%

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, Idaho fescue and bluebunch wheatgrass decrease in the stand to be replaced by needlegrass and Sandberg bluegrass. If deterioration continues, shrubs such as big sagebrush and rabbitbrush will dominant the stand. In the absence of periodic fire, western juniper will invade the site.

This site is typically dominated by Idaho fescue, at the upper end of the precipitation range and bluebunch wheatgrass increases in proportion on 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, FEID/PUTR2-ARTRV

Community 1.1
HCPC, FEID/PUTR2-ARTRV

The potential native plant community is dominated by Idaho fescue. Mountain big sagebrush and antelope bitterbrush often dominate the aspect. Vegetative composition of the community is approximately 75% grasses, 10% 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	494	681	868
Shrub/Vine	131	192	252
Forb	50	91	131
Tree	20	36	50
Total	**695**	**1000**	**1301**

Figure 4. Plant community growth curve (percent production by month). OR5551, D21 Mid Elev., NA, Good Condtion. RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	40	45	5	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**			404–656	
	Idaho fescue	FEID	*Festuca idahoensis*	303–504	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	101–151	–
2	**Sub-dominant deep rooted perennial grasses**			40–101	
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	20–50	–
	basin wildrye	LECI4	*Leymus cinereus*	20–50	–
4	**Sub-dominant shallow rooted perennial grasses**			30–61	
	Sandberg bluegrass	POSE	*Poa secunda*	30–61	–
5	**Other perennial grasses**			20–50	
	western needlegrass	ACOC3	*Achnatherum occidentale*	0–6	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0–6	–
Forb					
7	**Dominant perennial forbs**			40–81	
	milkvetch	ASTRA	*Astragalus*	10–20	–
	desertparsley	LOMAT	*Lomatium*	10–20	–
	lupine	LUPIN	*Lupinus*	10–20	–
	phlox	PHLOX	*Phlox*	10–20	–
9	**Other perennial forbs**			10–50	
	tapertip hawksbeard	CRAC2	*Crepis acuminata*	0–6	–
	fleabane	ERIGE2	*Erigeron*	0–6	–
	buckwheat	ERIOG	*Eriogonum*	0–6	–
	flax	LINUM	*Linum*	0–6	–
	woolly plantain	PLPA2	*Plantago patagonica*	0–6	–
Shrub/Vine					
12	**Sub-dominant evergreen shrubs**			20–50	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	20–50	–
13	**Dominant deciduous (or 1/2 shrubs) shrubs**			101–151	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	101–151	–
15	**Other shrubs**			10–50	
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	0–6	–
	Klamath plum	PRSU2	*Prunus subcordata*	0–6	–
	chokecherry	PRVI	*Prunus virginiana*	0–6	–
	wax currant	RICE	*Ribes cereum*	0–6	–
	rose	ROSA5	*Rosa*	0–6	–
	mountain snowberry	SYOR2	*Symphoricarpos oreophilus*	0–6	–
	horsebrush	TETRA3	*Tetradymia*	0–6	–
Tree					
16	**Dominant evergreen trees**			20–50	
	western juniper	JUOC	*Juniperus occidentalis*	20–50	–

Animal community

This site provides forage for deer, sage grouse and pronghorn antelope and cover for various bird species.

Hydrological functions

The soils are in hydrologic groups C and D.

Recreational uses

This site provides opportunity for observing and hunting mule deer, pronghorn antelope and various game birds.

Other products

This site is suited to livestock grazing in late spring, summer and fall under a planned grazing system.

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
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Date	08/22/2012
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 moderately severe sheet & rill erosion hazard

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

3. **Number and height of erosional pedestals or terracettes:** None to few (shallow rooted grasses)

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-10%

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

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6. **Extent of wind scoured, blowouts and/or depositional areas:** None, slight wind erosion hazard

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - limited movement

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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 = 4-5

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow t moderately deep, well drained loams (sometimes gravelly or stony on the surface): Low OM (1-2%)

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** High amount of plant cover (70-90%), rock gragments, and moderate slopes (0-30%) effectively limit rainfall impact and overland flow; infiltration is moderate to moderately slow

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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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 > Bluebunch wheatgrass = Antelope bitterbrush > dominant grasses > dominant forbs > Mountain big sagebrush = other grasses > other forbs = other shrubs

    Sub-dominant:

    Other:

    Additional:

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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: 600 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 groups.

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

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