USDA Natural Resources
Conservation Service

Ecological site R010XA083OR
Juniper Shrubby North 9-12 PZ

Accessed: 05/11/2025

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

R010XA007OR	**Juniper Pumice South 9-12 PZ**
R010XA009OR	**Juniper Shrubby Pumice Flat 10-12 PZ**
R010XA023OR	**Juniper Lava Shrubby Blisters 10-12 PZ**
R010XA026OR	**Juniper Pumice North 10-12 PZ**

Similar sites

R010XA026OR	**Juniper Pumice North 10-12 PZ**
R010XA025OR	**Juniper Shallow North 10-12 PZ**

Table 1. Dominant plant species

Tree	(1) *Juniperus occidentalis*
Shrub	(1) *Purshia tridentata* (2) *Artemisia tridentata var. vaseyana*
Herbaceous	(1) *Festuca idahoensis* (2) *Pseudoroegneria spicata ssp. spicata*

Physiographic features

This site occurs on gentle to moderately steep north aspects of buttes, ridges, and canyons.

Table 2. Representative physiographic features

Landforms	(1) Butte (2) Ridge (3) Canyon
Elevation	2,800–4,500 ft
Slope	15–50%
Aspect	N

Climatic features

The annual precipitation ranges from 9 to 12 inches which occurs mainly between the months of November and June, mostly in the form of rain and snow. The soil temperature regime is mesic. The average annual air temperature is 48 degrees F. with extreme temperatures ranging from -10 to 104 degrees F. The frost free period is 60 to 100 days. The optimum period for plant growth is from November through June.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	12 in

Influencing water features

Soil features

The soils of this site are moderately deep to deep, well drained and coarse textured. They are generally formed in vocanic ash and colluvium. Permeability is moderate and the available water holding capacity is 3 to 6 inches for the profile. The potential for water erosion is low and for wind erosion is low to high.

Table 4. Representative soil features

Drainage class	Well drained
Permeability class	Moderate
Soil depth	40–60 in
Available water capacity (0-40in)	3–6 in

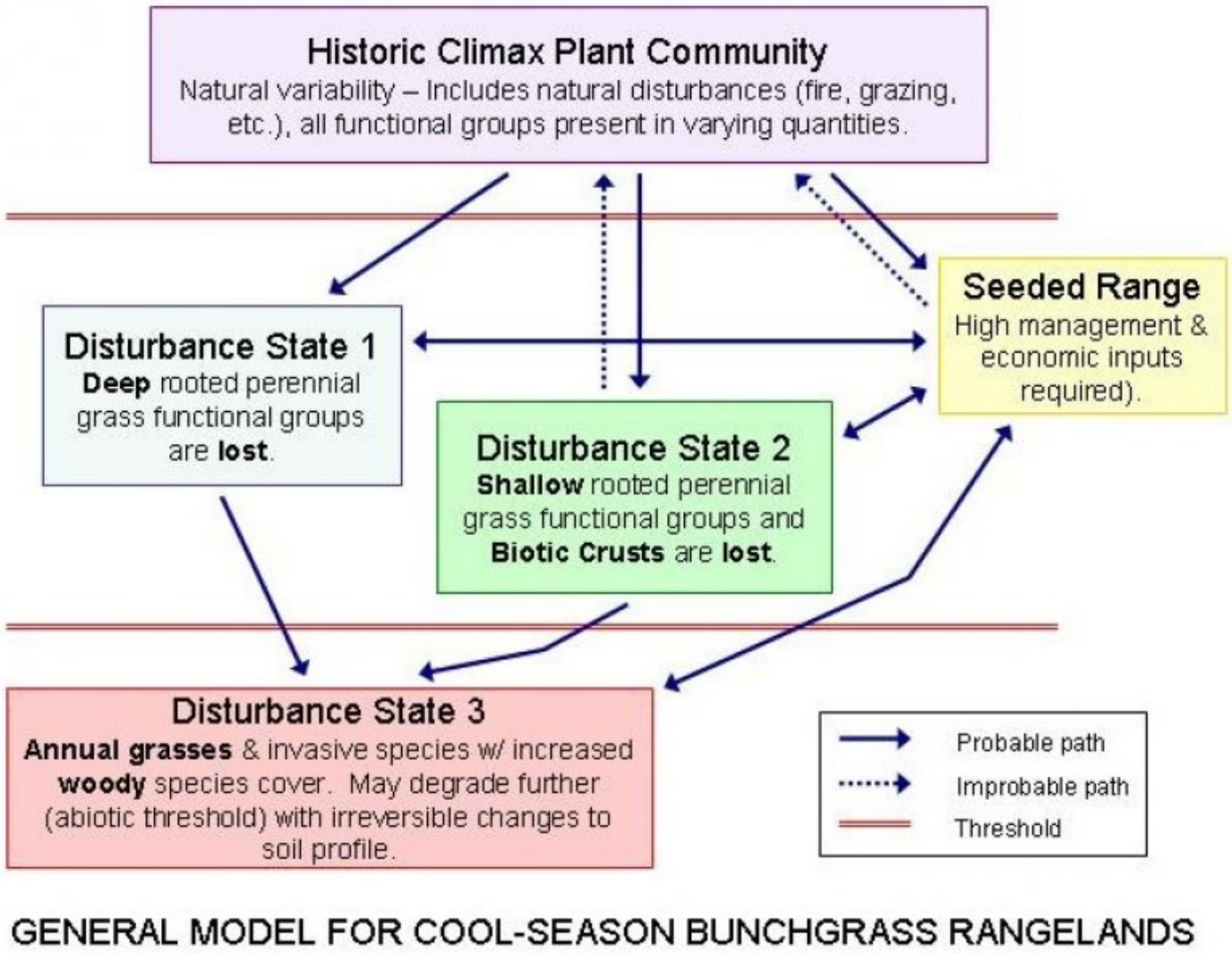
Ecological dynamics

Juniper and big sagebrush decline following burning while rabbitbrush increases.

Increasers and invaders include cheatgrass and prickly gilia.

Increases in sand or pumice content of the soil will increase cover of Idaho fescue and bitterbrush.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference State

Community 1.1
Reference Plant Community

The potential native plant community is dominated by western juniper, antelope bitterbrush, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass, big bluegrass and needlegrass. Vegetative composition is approximately 65% grasses, 10% forbs, and 25% shrubs/trees.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	585	780	910
Shrub/Vine	180	240	280
Forb	90	120	140
Tree	45	60	70
Total	**900**	**1200**	**1400**

Figure 3. Plant community growth curve (percent production by month). OR4041, B10A Mesic, Low Elev., North Good Condition. B10A Mesic, Low Elev., North Good Condition RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	30	50	13	2	0	0	0	0

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant deep rooted perennial grasses**			360–420	
	Idaho fescue	FEID	*Festuca idahoensis*	360–420	–
2	**Sub-dominant deep rooted perennial grasses**			96–264	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	60–180	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	24–60	–
	needle and thread	HECO26	*Hesperostipa comata*	12–24	–
4	**Sub-dominant shallow rooted perennial grasses**			84–240	
	Sandberg bluegrass	POSE	*Poa secunda*	60–180	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	24–60	–
Forb					
9	**Other perennial forbs**			24–120	
	common yarrow	ACMI2	*Achillea millefolium*	0–5	–
	agoseris	AGOSE	*Agoseris*	0–5	–
	woollypod milkvetch	ASPU9	*Astragalus purshii*	0–5	–
	Carey's balsamroot	BACA3	*Balsamorhiza careyana*	0–5	–
	parsnipflower buckwheat	ERHE2	*Eriogonum heracleoides*	0–5	–
	fleabane	ERIGE2	*Erigeron*	0–5	–
	lupine	LUPIN	*Lupinus*	0–5	–
	phacelia	PHACE	*Phacelia*	0–5	–
	salsify	TRPO	*Tragopogon porrifolius*	0–5	–
Shrub/Vine					
11	**Dominant evergreen shrubs**			120–240	
	antelope bitterbrush	PUTR2	*Purshia tridentata*	120–240	–
12	**Sub-dominant evergreen shrubs**			60–144	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	24–60	–
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	12–36	–
	slender buckwheat	ERMI4	*Eriogonum microthecum*	12–24	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	12–24	–
14	**Sub-dominant deciduous (or 1/2 shrubs) shrubs**			12–24	
	wax currant	RICE	*Ribes cereum*	12–24	–
Tree					
16	**Dominant evergreen trees**			60–120	
	western juniper	JUOC	*Juniperus occidentalis*	60–120	–

Hydrological functions

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

Wood products

Firewood and posts.

Other products

Late season grazing will result in much greater use of bitterbrush then will spring or early summer grazing of the site.

Other information

Adapted species for range seedings include crested wheatgrass, sheep fescue, intermediate wheatgrass, big bluegrass, and secar bluebunch wheatgrass.

Other references

B10B site also similar to this site:
Droughty North 9-12 PZ #010XB084OR

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 and Bruce Franssen
Contact for lead author	State Rangeland Management Specialist
Date	08/03/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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2. **Presence of water flow patterns:** Rarely some on steeper slopes

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3. **Number and height of erosional pedestals or terracettes:** None

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-15%

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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 to some, Slight to severe 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):** Slightly resistant to erosion; aggregate stability = 2-4

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Moderately deep and deep, well drained, loam, sandy loam, and fine sandy loams; 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:** Significant ground cover (70-85%) and moderate to steep slopes (15-50%) moderately limit rainfall impact and overland flow

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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 > Antelope bitterbrush > Bluebunch wheatgrass = Sandberg bluegrass > other dominant grasses > Western Juniper > forbs > Mountain big sagebrush > other dominant 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: 1400, Normal: 1200, Unfavorable: 900 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 increases on 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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