

Ecological site R023XY511OR
JUNIPER LAVA BENCHES 9-12 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.

Table 1. Dominant plant species

Tree	(1) <i>Juniperus occidentalis</i>
Shrub	(1) <i>Artemisia arbuscula</i> ssp. <i>arbuscula</i> (2) <i>Artemisia arbuscula</i> ssp. <i>longiloba</i>
Herbaceous	(1) <i>Festuca idahoensis</i>

Physiographic features

This site occurs on lava plateaus and gentle slopes.

Table 2. Representative physiographic features

Landforms	(1) Plateau
Flooding frequency	None
Ponding frequency	None
Elevation	1,219–1,676 m
Slope	0–15%
Aspect	Aspect is not a significant factor

Climatic features

Most of the annual precipitation occurs during the months of October through March. The mean annual air temperature is 44 degrees F. Temperature extremes range from 110 to -30 degrees F. The soil temperature regime is frigid. The period for optimum plant growth is from April through early June.

Table 3. Representative climatic features

Frost-free period (average)	120 days
Freeze-free period (average)	80 days
Precipitation total (average)	305 mm

Influencing water features

Soil features

The soils of this site are shallow and well drained. They have a course-textured surface and fine-textured subsoils, and may have stones or cobbles on the surface. They are generally composed of volcanic ash over residuum or colluvium from basalt or tuff. Permeability is moderately slow and the available water holding capacity is 2-6 inches for the profile. The potential for water or wind erosion is high.

Table 4. Representative soil features

Parent material	(1) Residuum–basalt
Surface texture	(1) Very gravelly sandy loam (2) Stony
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderately rapid
Soil depth	33–76 cm
Surface fragment cover <=3"	5–30%
Surface fragment cover >3"	0–25%
Available water capacity (0-101.6cm)	6.35–15.75 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	4–7%
Subsurface fragment volume >3" (Depth not specified)	1–10%

Ecological dynamics

Range in characteristics:

The reference native plant community is dominated by western juniper, low sagebrush, and Idaho fescue. Sandberg

bluegrass is common along with minor occurrences of Thurber needlegrass and bluebunch wheatgrass. Vegetative composition is approximately 70% grasses, 10% forbs, and 20% trees and shrubs.

Four states have been identified for this site: a reference state; a state with the presence of annuals; a state that has juniper and low sagebrush co-dominant on the site, and a state with annual dominance.

Reference State: Stable plant community affected infrequently by fire. Sites are dominated with low sagebrush with some sites exhibiting a small percentage of old growth juniper. Infrequent fire (> 80 to 100 year intervals) maintained site dynamics. Fire reduces shrub cover in a mosaic, patchy pattern. The introduction of invasive annual grasses and forbs transitions into state 2.

State 2: Compositionally similar to the reference state with a trace of cheatgrass and/or medusahead and other annual weeds. Ecological function has not changed, however the resiliency of the state has been reduced by the presence of invasive weeds. Infrequent fire (> 80 to 100 years) reduces shrub cover, removes young juniper and promotes grass production while time since fire allows shrub recovery. Mismanagement of grazing facilitates an increase in Sandberg bluegrass, weedy species, young juniper, and low sagebrush. Moderately-deep rooted bunchgrasses decline in production and density. Prescribed grazing can reverse the trend. Loss of deep-rooted perennial bunchgrasses and an increase in young juniper brings the site to State 3.

State 3: Low sagebrush and possibly young juniper dominated with minimal perennial, moderately-deep rooted bunchgrasses. Cheatgrass and/or medusahead along with other weedy forbs are increased in density and cover. Sandberg bluegrass cover and vigor is declining. Water flow paths are evident. Sagebrush, and possibly juniper, control site resources. Catastrophic wildfire leading to annual dominated plant community will take the site to State 4.

State 4: Cheatgrass and/or medusahead dominated. A few old growth juniper may be present. Rabbitbrush increased with few to no low sagebrush. Wind and water erosion drive site processes.

State and transition model

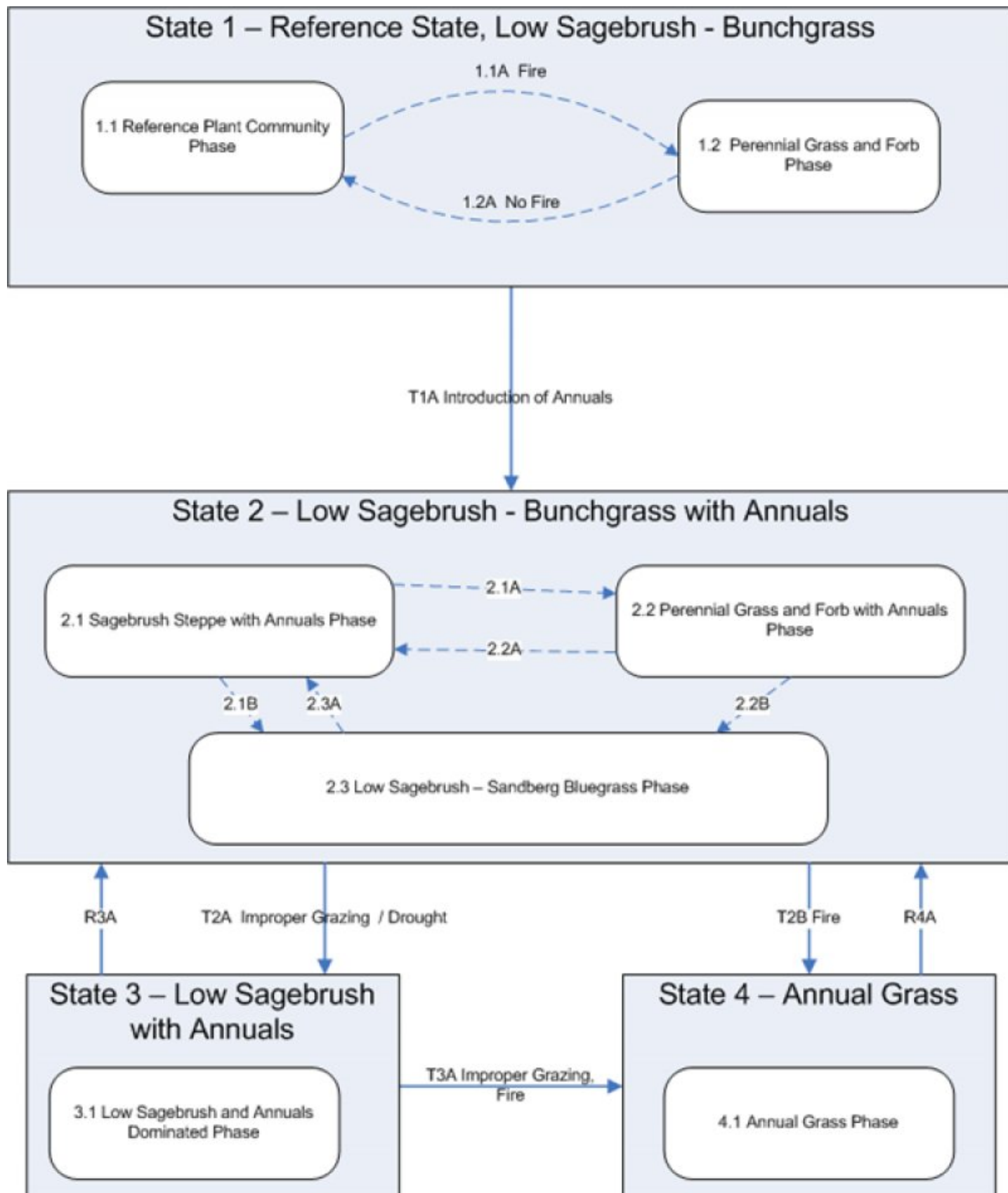


Figure 3. Group 10, STM

State 1 Reference State

Community 1.1 Reference Plant Community

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	392	549	706
Shrub/Vine	56	78	101
Tree	56	78	101
Forb	56	78	101
Total	560	783	1009

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, moderately-deep rooted, bunchgrass			353–432	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	353–432	–
2	Perennial, shallow rooted, bunchgrass			39–78	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	39–78	–
3	Perennial, moderately-deep rooted, bunchgrasses			24–63	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	16–39	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	8–24	–
4	Other perennial bunchgrasses			16–39	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–16	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–16	–
	Cusick's bluegrass	POCU3	<i>Poa cusickii</i>	0–16	–
Forb					
5	Perennial			16–78	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	18–27	–
	agoseris	AGOSE	<i>Agoseris</i>	0–16	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–16	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–16	–
	mariposa lily	CALOC	<i>Calochortus</i>	0–16	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0–16	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–16	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–16	–
	lupine	LUPIN	<i>Lupinus</i>	0–16	–
	spreading phlox	PHDI3	<i>Phlox diffusa</i>	0–16	–
Shrub/Vine					
6	Evergreen			78–118	
	little sagebrush	ARARA	<i>Artemisia arbuscula</i> ssp. <i>arbuscula</i>	0–118	–
	little sagebrush	ARARL	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i>	0–118	–
7	Other Shrubs			16–39	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	0–16	–
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	0–16	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–16	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–16	–
Tree					
8	Evergreen			78–118	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	78–118	–

Animal community

Wildlife- This site will offer food and cover for mule deer, elk, rodents, and a variety of birds and their associated predators.

Livestock grazing-

This site is suited for use by cattle, sheep, and horses under a planned grazing system and is suitable for use in any season which meets the nutritional needs of the livestock and the long term physiological needs of the vegetative species. Care should be exercised if spring use is planned to ensure that sufficient root reserves are present, and that soils are sufficiently dry to reduce hoof damage impacts. The key forage species is Idaho fescue.

Hydrological functions

The soils of this site have a moderately slow infiltration rates, and a moderate to high runoff potential. The hydrologic cover is good when ecological condition is high.

Wood products

This site is suitable for firewood and fence post collection.

Other information

Bluebunch wheatgrass increases on more southerly aspects, and Idaho fescue decreases. The reverse is true for the more northerly aspects. If the condition of the site deteriorates as a result of overgrazing, Idaho fescue and bluebunch wheatgrass will decrease, bottlebrush squirreltail and Thurber needlegrass will increase. Burning causes decreases in juniper, sagebrush, and bitterbrush.

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)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**
-
5. **Number of gullies and erosion associated with gullies:**
-
6. **Extent of wind scoured, blowouts and/or depositional areas:**
-
7. **Amount of litter movement (describe size and distance expected to travel):**
-
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**
-
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**
-
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:
- Sub-dominant:
- Other:
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**
-
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):**

-
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:
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17. **Perennial plant reproductive capability:**
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