

Ecological site R009XY008ID Schist 16-22 PZ PSSPS-FEID

Last updated: 9/23/2020
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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.

Classification relationships

No data.

Associated sites

R009XY001ID	Shallow Stony Loam 16-22 PZ
R009XY002ID	North Slope Loamy 16-22 PZ
R009XY003ID	Loamy 16-22 PZ
R009XY004ID	South Slope Loamy 16-22 PZ
R009XY008ID	Schist 16-22 PZ PSSPS-FEID
R009XY009ID	North Slope Schist 16-22 PZ FEID-PSSPS
R009XY010ID	South Slope Schist 16-22 PZ PSSPS-POSE
R009XY016ID	Loamy 22+ PZ FEID-PSSPS
R009XY017ID	Very Shallow 12-22 PZ PSSPS-POSE

Similar sites

R009XY003ID	Loamy 16-22 PZ
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on gently sloping to moderately steep topography. Slopes generally range between 2 to 30 percent. Elevations usually range between 1800 to 4000 feet (550-1200 meters).

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Hill (3) Valley
Elevation	1,800–4,000 ft

Slope	2–30%
Water table depth	60 in

Climatic features

The elevation of MLRA 9 ranges from 2000 to 4000 feet with an average elevation of 3000 feet. Elevation along major streams averages only 650 feet above sea level. Average annual precipitation ranges from 20 to 25 inches with an average of 23 based on 9 long term climate stations located throughout the MLRA. Summers are relatively dry while precipitation is evenly distributed between fall, winter, and spring.

The maximum average annual temperature is 58 degrees Fahrenheit while the average minimum temperature is 35 degrees F. The average annual temperature is 46.8 degrees F. The frost free period ranges from 107 to 134 days and the freeze free period ranges from 143 to 173 days.

Table 3. Representative climatic features

Frost-free period (average)	134 days
Freeze-free period (average)	173 days
Precipitation total (average)	26 in

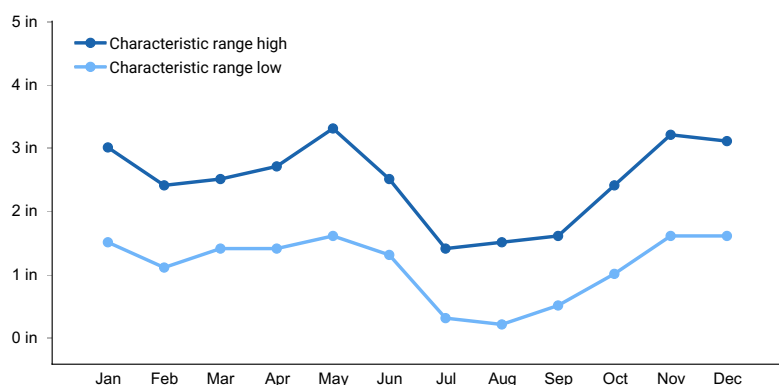


Figure 1. Monthly precipitation range

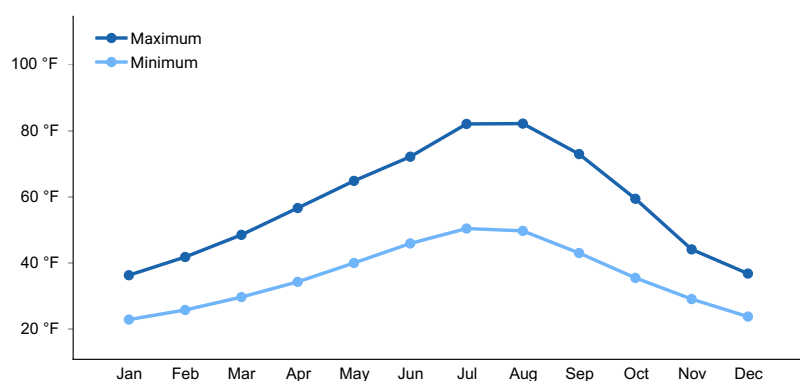


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

This site is not influenced by adjacent wetlands, streams, or run on.

Soil features

The soils on this site are deep to very deep loams over decomposed schist bedrock. They are well drained, with moderately slow to moderately rapid permeability and low to moderate available water capacity. Runoff is medium to high depending on slope. The surface layers are moderately acid to neutral in reaction. These soils are characterized by xeric moisture and mesic temperature regimes.

Soil Series Correlated to this Ecological Site

Brownlee and Oland Variant

Table 4. Representative soil features

Surface texture	(1) Loam (2) Loamy sand
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	40–60 in
Surface fragment cover <=3"	0–15%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	4.9–7.1 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	0–25%
Subsurface fragment volume >3" (Depth not specified)	0–5%

Ecological dynamics

Ecological Dynamics of the Site:

The visual aspect is grassland with bluebunch wheatgrass the dominant species and Idaho fescue subdominant. Composition by weight is approximately 70 to 80 percent grasses, 15 to 25 percent forbs, and trace to 3 percent shrubs.

During the last few thousand years, this site has evolved in a semi-arid climate characterized by dry summers and cold, moist winters. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include mule deer, white-tailed deer, Rocky Mountain elk, and lagomorphs.

Fire has historically occurred on the site at intervals of 20 - 50 years.

The Reference State (State 1), moves through many phases depending on the natural and man-made forces that impact the community over time. State 1, described later, indicates some of these phases. The Reference Plant Community Phase is Phase A. This plant community is dominated by bluebunch wheatgrass with Idaho fescue subdominant. Other major species include prairie junegrass, Sandberg bluegrass, arrowleaf balsamroot, silky lupine, and biscuitroot. Shrubs make up a very small proportion of the plant community. The plant species composition of Phase A is listed later under “Reference Plant Community Phase Plant Species Composition”.

Total annual production is 1200 pounds per acre (1344 kilograms per hectare) in a normal year. Production in a favorable year is 1500 pounds per acre (1680 kilograms per hectare). Production in an unfavorable year is 900

pounds per acre (1008 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are more dominant than forbs followed by shallow rooted perennial grasses more dominant than shrubs.

Early spring use by mule deer occurs and the site may be used by Rocky mountain elk in moderate to severe winters. Livestock use the site in late spring, early summer, and fall. This site has slight recreational value or aesthetic value.

Due to ease of access by livestock, the site can be easily degraded without proper grazing management. The site has slight limitations for vegetative management and facilitating practices. Moderate to severe limitations exist for rangeland seeding due to low available water holding capacity (AWC) of the soil.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency and ungulate grazing, bluebunch wheatgrass and Idaho fescue can become decadent. This is apparent by dead centers in the bunchgrasses. Woods' rose, green rabbitbrush and snowberry will usually be maintained in the stand.

When fires become more frequent than historic levels (20-50 years), Idaho fescue and bluebunch wheatgrass can be reduced in the plant community. Sandberg bluegrass and Fendler threeawn will increase in the plant community. With continued short fire frequency, bluebunch wheatgrass and Idaho fescue can be completely eliminated along with some forbs. These species may be replaced by bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants. Cheatgrass may invade the site as well as some Kentucky bluegrass. Some snowberry, Woods' rose, and green rabbitbrush may still be in the plant community. These fine fuels will increase the fire frequency.

Influence of improper grazing management:

Season-long grazing and/or excessive utilization can be very detrimental to this site. This type of management leads to reduced vigor of the bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, an increase in Sandberg bluegrass and Fendler threeawn will occur and noxious and invasive species will invade.

Continued improper grazing management influences fire frequency by increasing fine fuels. As annuals increase, fires become more frequent.

Proper grazing management that addresses frequency, duration, and intensity of grazing can also keep fine fuels from developing, thereby reducing fire frequency. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn. Prescribed burns need careful planning. Areas without a suitable understory of perennial grasses are low priority areas for prescribed burns, especially if reseeding is not a possibility.

Weather influences:

Above normal precipitation in April, May, and June can dramatically increase total annual production of the plant community. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Likewise, below normal precipitation during these spring months can significantly reduce total annual production and be detrimental to viable seed production. Overall plant composition is normally not affected when perennials have good vigor.

Prolonged drought adversely affects this plant community in several ways. Vigor, recruitment, and production are usually reduced. Mortality can occur. An early, hard freeze can occasionally kill some plants. Prolonged drought can lead to a reduction in fire frequency.

Influence of Insects and disease:

Outbreaks can affect vegetation health. Grasshopper outbreaks occur periodically. Outbreaks seldom cause plant mortality since defoliation of the plant occurs only once during the year of the outbreak.

Influence of noxious and invasive plants:

Many of these species add to the fine-fuel component and lead to increased fire frequency. Annual and perennial invasive species compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory.

Influence of wildlife:

Big game animals will use this site in the fall, winter, and spring. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

Decreased infiltration and increased runoff occur with a decrease in perennial bunchgrasses. This composition change can affect nutrient and water cycles. Increased runoff also causes sheet and rill erosion. Abnormally short fire frequency also gives the same results, but to a lesser degree. The long-term effect is a transition to a different state.

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.

Phase A to B. Develops with improper grazing management and no fire.

Phase A to C. Develops with fire.

Phase B to A. Develops with prescribed grazing.

Phase C to A. Develops with prescribed grazing and no fire.

State 1, Phase B to State 2. Develops through frequent fire and improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

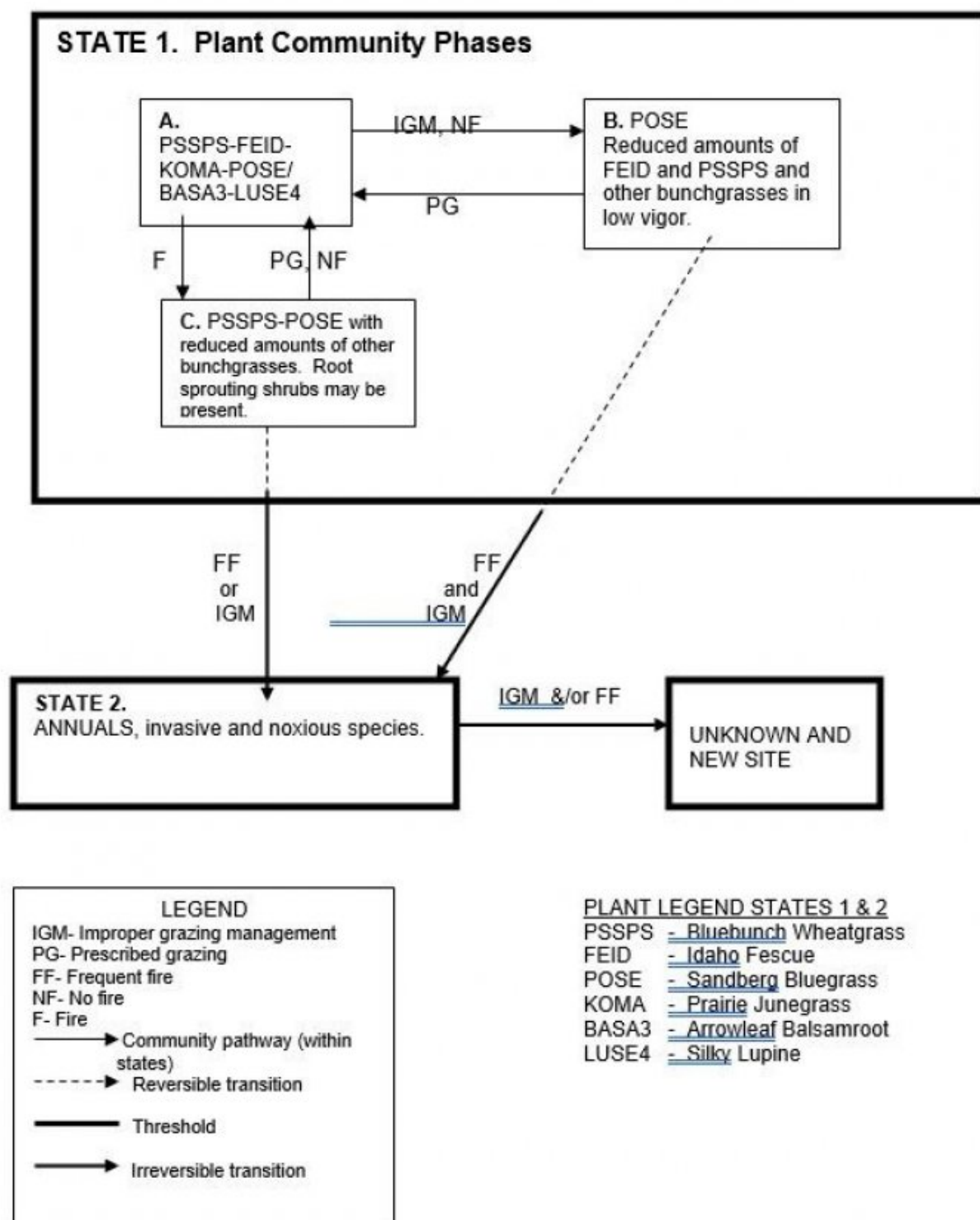
State 1, Phase C to State 2. Develops through frequent fire or continued improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and/or frequent fire cause this state to cross a threshold and retrogress to a new site with reduced potential. It is economically impractical to return this plant community to State 1 with accelerating practices.

Practice Limitations:

Moderate to severe limitations exist on this site for accelerating practices due to undecomposed schist material and low available water holding capacity. Slight to moderate limitations exist for facilitating practices due to schist materials in soil. Slight limitations exist for vegetative management practices.

State and transition model



State 1

State 1 Phase A

Community 1.1

State 1 Phase A

State 1, Phase A. Reference Plant Community Phase. This plant community is dominated by bluebunch wheatgrass with Idaho fescue subdominant. Other major species include prairie junegrass, Sandberg bluegrass, arrowleaf balsamroot, silky lupine, and Biscuitroot. Shrubs make up a very small proportion of the plant community. A wide variety of forbs occur in small amounts. Natural fire frequency is 20-50 years.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	700	935	1170
Forb	180	240	300
Shrub/Vine	20	25	30
Total	900	1200	1500

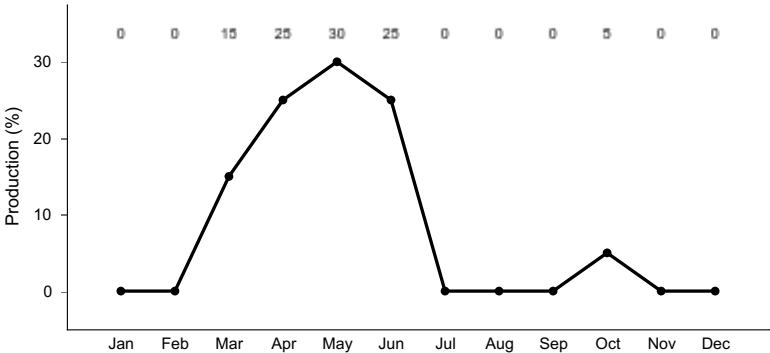


Figure 4. Plant community growth curve (percent production by month).
 ID0105, B9 SOUTH SLOPES PSSPS-FEID.

State 2
State 1 Phase B

Community 2.1
State 1 Phase B

State 1, Phase B. This plant community is dominated by Sandberg bluegrass with reduced amounts of bluebunch wheatgrass and Idaho fescue. All deep-rooted bunchgrasses are typically in low vigor. Forbs have increased. Some cheatgrass may have invaded the site as well as Kentucky bluegrass. This state has developed due to improper grazing management and no fire.

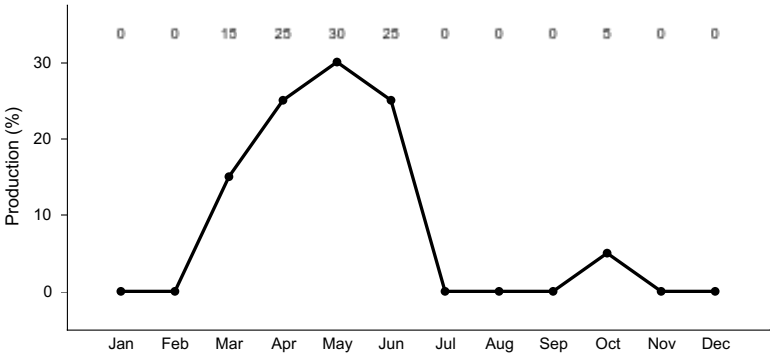


Figure 5. Plant community growth curve (percent production by month).
 ID0105, B9 SOUTH SLOPES PSSPS-FEID.

State 3
State 1 Phase C

Community 3.1
State 1 Phase C

State 1, Phase C. This plant community is dominated by bluebunch wheatgrass with a variety of other bunchgrasses in small amounts. Idaho fescue is still in the plant community but in reduced amounts and vigor and some may have died out due to fire. Sandberg bluegrass has increased. Forbs remain about in the same proportion as Phase A. If present, common snowberry, Woods' rose, and green rabbitbrush have re-sprouted from the roots or crowns. Some cheatgrass may have invaded the site. This plant community is the result of wildfire.

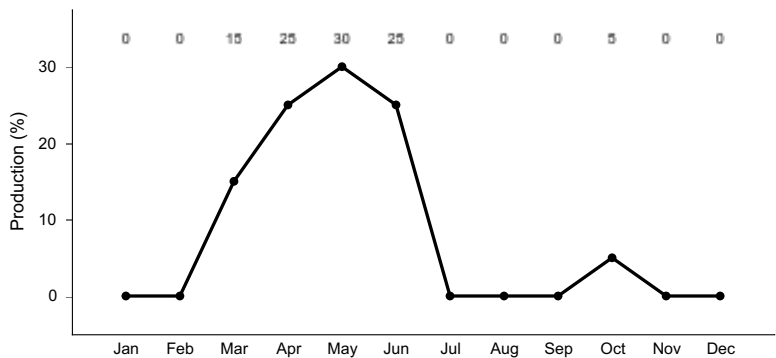


Figure 6. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

State 4
State 2

Community 4.1
State 2

State 2. This plant community is dominated by annual grasses and forbs including invasive and noxious plants. Root sprouting shrubs such as snowberry can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires and improper grazing management from Phase B, State 1. It also occurs with frequent fire or improper grazing management from Phase C, State 1. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

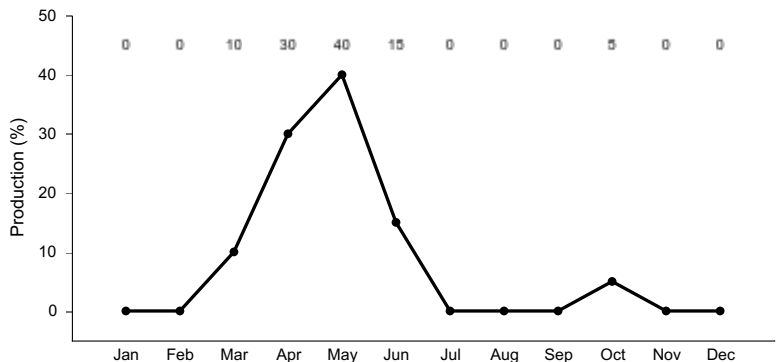


Figure 7. Plant community growth curve (percent production by month). ID0102, B9 BRTE-ANNUALS, State 2.

State 5
State 3

Community 5.1
State 3

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	Grass and Grasslike			–	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata ssp. spicata</i>	585–975	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	105–175	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	40–70	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	30–45	–
	needle and thread	HECOC8	<i>Hesperostipa comata ssp. comata</i>	20–30	–
	Fendler threeawn	ARPUL	<i>Aristida purpurea var. longiseta</i>	1–15	–
Forb					
2	Forbs			–	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	70–115	–
	silky lupine	LUSE4	<i>Lupinus sericeus</i>	40–70	–
	desertparsley	LOMAT	<i>Lomatium</i>	30–55	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	20–30	–
	Ross' avens	GEROT	<i>Geum rossii var. turbinatum</i>	20–30	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	20–30	–
	white sagebrush	ARLUL2	<i>Artemisia ludoviciana ssp. ludoviciana</i>	20–30	–
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	15–25	–
	aster	ASTER	<i>Aster</i>	15–25	–
	milkvetch	ASTRA	<i>Astragalus</i>	15–25	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	1–15	–
Shrub/Vine					
3	Shrubs			–	
	Woods' rose	ROWO	<i>Rosa woodsii</i>	1–15	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	1–15	–
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	1–15	–

Animal community

Wildlife Interpretations.

Early spring use by mule deer occurs and the site may be used by Rocky mountain elk in moderate to severe winters.

Grazing Interpretations.

Livestock use the site in late spring, early summer, and fall.

Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use, and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrological functions

The soils in this site are in hydrologic group C. When the hydrologic condition of the vegetative cover is good, natural erosion hazard is slight to moderate.

Recreational uses

This site has slight recreational value or aesthetic value.

Wood products

None.

Other products

None.

Other information

Field Offices

Grangeville, ID
Craigmont, ID
Orofino, ID
Lewiston, ID
Moscow, ID
St. Maries, ID
Coeur d'Alene, ID

Type locality

Location 1: Idaho County, ID	
General legal description	Benchlands north of Little Salmon river above the mouth of Rapid river, John Carrey Ranch, Idaho County, Idaho.

Other references

USDA Forest Service, Rocky Mountain Research Station. 2004. Restoring Western Ranges and Wildlands. General Technical Report RMRS-GTR-136-vols. 1-3.

USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA, Forest Service, Fire Effects Information Database. 2004. www.fs.fed.us/database/feis.

USDI Bureau of Land Management, US Geological Survey; USDA Natural Resources Conservation Service, Agricultural Research Service; Interpreting Indicators of Rangeland Health. Technical Reference 1734-6; Version 4-2005.

Approval

Kendra Moseley, 9/23/2020

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.

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Date	04/15/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills usually do not occur on this site. If rills are present they are likely to occur immediately following wildfire or a major high intensity storm event on slopes greater than 15 percent. Rills are most likely to occur on soils with surface textures of silt loam and clay loam. Surface schist reduces rill development.

2. **Presence of water flow patterns:** Water-flow patterns usually do not occur on this site. When they occur, they are short and disrupted by cool season grasses and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** In areas where flow patterns and/or rills are present, a few pedestals may be expected. They are not extensive. Terracettes are rare.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Data is not available. On sites in mid-seral status bare ground may range from 25-35 percent.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Are usually not present. Immediately following wildfire some soil movement may occur on lighter textured soils.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 2 feet following a significant run-off event. Coarse litter generally does not move.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Values should range from 4 to 6 but needs to be tested.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The A or A1 horizon is typically 3 to 5 inches thick. Structure ranges from moderate very thin platy to moderate fine or very fine granular. Soil organic matter (SOM) ranges form 3 to 5 percent.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial**

distribution on infiltration and runoff: Bunchgrasses, especially deep-rooted perennials, slow run-off and increase infiltration. Perennial grasses produce 70-80 percent of the total production, forbs 15-25 percent, and shrubs trace to 3 percent.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Is not present.
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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: cool season deep-rooted perennial bunchgrasses

Sub-dominant: forbs

Other: shallow rooted grasses

Additional: tall shrubs

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bluebunch wheatgrass and Idaho fescue can become decadent in the absence of normal fire frequency and ungulate grazing. This is most noticeable in the dead centers of the bunches.
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14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 15-20 percent to a depth of 0.1 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Is 1200 pounds per acre (1344 kilograms per hectare) in a year with normal temperatures and precipitation.
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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:** Includes cheatgrass, bulbous bluegrass, Kentucky bluegrass, rush skeletonweed, musk and scotch thistle, diffuse and spotted knapweed, leafy spurge, and yellowstar thistle.
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17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in most years.
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