

## **Ecological site R009XY005ID North Slope Loamy 12-16 PZ**

Last updated: 9/23/2020  
 Accessed: 05/06/2024

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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.

### Ecological site concept

This ecological site meets the NESH 2014 requirements for PROVISIONAL. A provisional ecological site is established after ecological site concepts are developed and an initial state-and-transition model is drafted. Following quality control and quality assurance reviews of the ecological site concepts, an identification number and name for the provisional ecological site are entered into ESIS. A provisional ecological site may include literature reviews, land use history information, some soils data, legacy data, ocular estimates for canopy and/or species composition by weight, and even some line-point intercept information. A provisional ecological site does not meet the NESH 2014 standards for an Approved ESD, but does provide the conceptual framework of soil-site correlation for the development of the ESD.

### Associated sites

R009XY006ID	<b>Loamy 12-16 PZ</b>
R009XY011ID	<b>Stony Loam 12-16 PZ PSSPS-POSE</b>
R009XY012ID	<b>South Slope Loamy 12-16 PZ PSSPS-POSE</b>

### Similar sites

R009XY002ID	<b>North Slope Loamy 16-22 PZ</b>
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**Table 1. Dominant plant species**

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Festuca idahoensis</i> (2) <i>Koeleria macrantha</i>

### Physiographic features

This site generally occurs on moderate to steep north and east facing slopes with elevations ranging from 1000 to 2000 feet (300-600 meters). Slopes range from 30 to 70 percent.

**Table 2. Representative physiographic features**

Landforms	(1) Canyon
Elevation	1,000–2,000 ft
Slope	30–70%
Water table depth	60 in

Aspect	N, E
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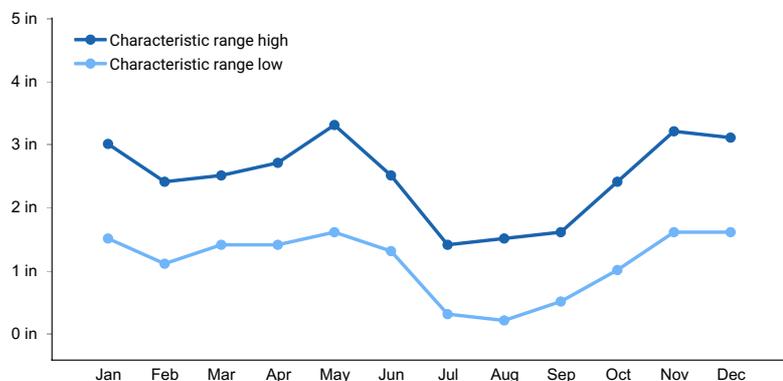
## Climatic features

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.

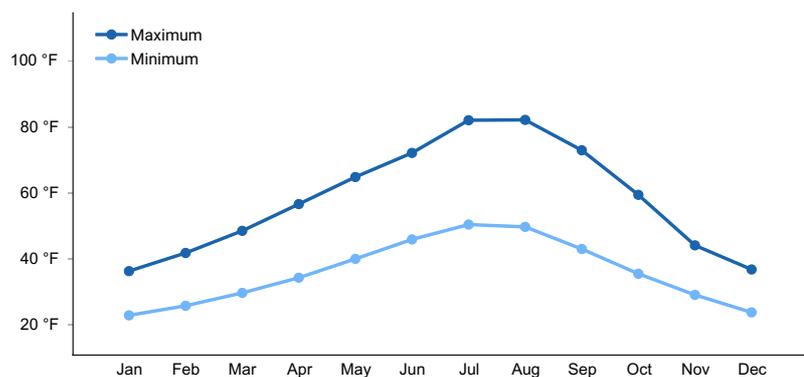
The maximum average annual temperature is 58 degrees Fahrenheit while the average minimum temperature is 35 degrees F. The average annual temperature is 46.8 degrees F. The frost free period ranges from 107 to 134 days and the freeze free period ranges from 143 to 173 days.

**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 are moderate to deep silt loams to loams, usually with gravelly to very gravelly clay loam subsoils. They were formed in loess and colluvium and residuum from fine-grained igneous rocks. The available water holding capacity (AWC) is moderate to high. Occasional mass soil movement (slip areas) occurs during periods of excessive moisture.

Soil Series Correlated to this Ecological Site

**Table 4. Representative soil features**

Surface texture	(1) Sandy loam (2) Coarse sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to slow
Soil depth	40–60 in
Surface fragment cover <=3"	5–35%
Surface fragment cover >3"	5–25%
Available water capacity (0-40in)	4.1–4.51 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)	6.2–7.2
Subsurface fragment volume <=3" (Depth not specified)	35–65%
Subsurface fragment volume >3" (Depth not specified)	25–50%

## Ecological dynamics

The dominant visual aspect of this site is grassland with Idaho fescue, bluebunch wheatgrass, and prairie junegrass being dominant. Composition by weight is approximately 75 to 85 percent grasses, 10 to 20 percent forbs, and 1 to 5 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, 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 Idaho fescue, bluebunch wheatgrass, and prairie junegrass. Subdominant species include Sandberg bluegrass, arrowleaf balsamroot, western yarrow, silky lupine, northwest cinquefoil, and hyacinth brodiaea. A variety of other forbs occur in minor amounts. Woods' rose and common snowberry can be present in small amounts on the site. The plant species composition of Phase A is listed later under "Reference Plant Community Phase Plant Species Composition".

Total annual production is 1800 pounds per acre (2016 kilograms per hectare) in a normal year. Production in a favorable year is 2400 pounds per acre (2688 kilograms per hectare). Production in an unfavorable year is 1300 pounds per acre (1456 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.

This site is suited for big game in the early spring, summer, and fall. Livestock use the site in the spring, summer and fall. It is also well suited for recreation use in the summer and fall.

Due to the steep slopes on this site, it is susceptible to degradation from erosion. The site has moderate to severe limitation for livestock grazing due to steep slopes and this often reduces accessibility by livestock. Most degradation occurs on the foot slopes of the site where it is adjacent to the drainage bottom. Runoff, when it does occur can be erosive particularly during high intensity convection storms.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency and ungulate grazing, Idaho fescue and bluebunch wheatgrass can become decadent. This is apparent by dead centers in the bunchgrasses. Woods' rose 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 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 species. Cheatgrass may invade the site as well as some Kentucky bluegrass. Some snowberry and Woods' rose may still be in the plant community. These fine fuels will cause fires to become more frequent.

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 will occur and noxious and invasive plants can come into the community.

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 to be carefully evaluated. Areas without a suitable stand of perennial grasses would be low priority areas for prescribed burns.

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.

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

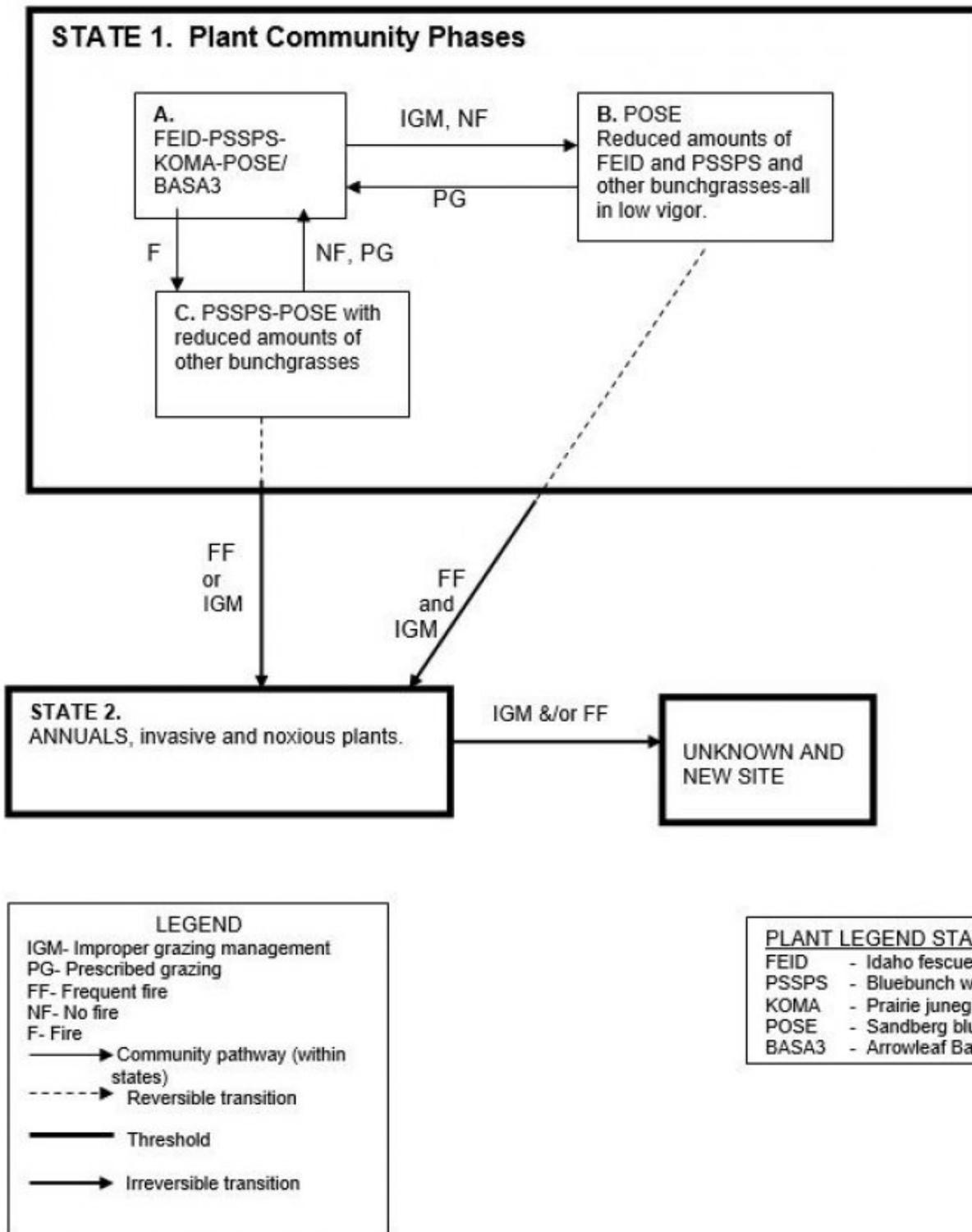
State 1, Phase C to State 2. Develops through frequent fire or continued improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

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:

Severe limitations exist on this site for accelerating and facilitating practices due to steep slopes. Moderate limitations exist on this site for vegetative management practices due to steep slopes.

**State and transition model**



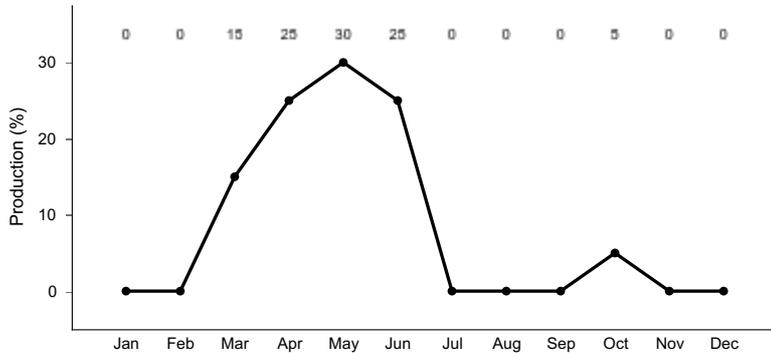
**State 1**  
**State 1 Phase A**

**Community 1.1**  
**State 1 Phase A**

State 1, Phase A, Reference Plant Community Phase. This plant community is dominated by Idaho fescue, bluebunch wheatgrass, and prairie junegrass. Subdominant species include Sandberg bluegrass, arrowleaf balsamroot, western yarrow, silky lupine, northwest cinquefoil, and hyacinth brodiaea. A variety of other forbs occur in minor amounts. Woods' rose and common snowberry can be present in small amounts on the site. 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	1040	1440	1920
Forb	195	270	360
Shrub/Vine	65	90	120
<b>Total</b>	<b>1300</b>	<b>1800</b>	<b>2400</b>

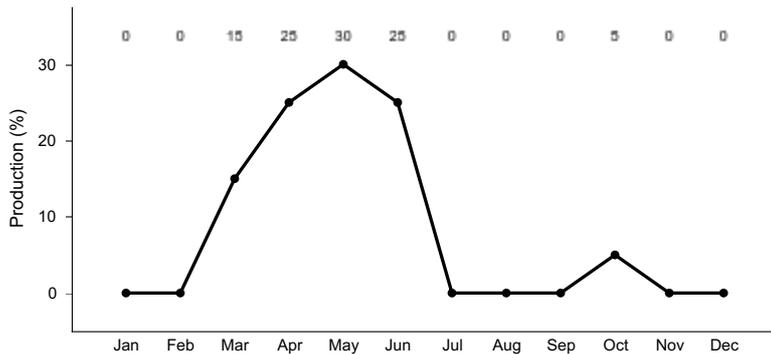


**Figure 4. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

**State 2  
State 1 Phase B**

**Community 2.1  
State 1 Phase B**

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

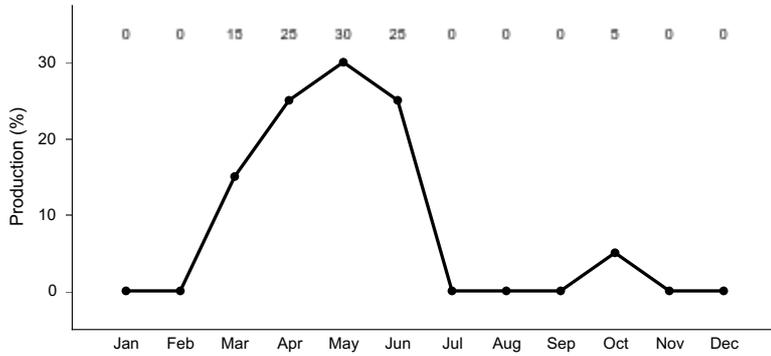


**Figure 5. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

**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 increased amounts of Sandberg bluegrass. Idaho fescue is still in the plant community but in reduced amounts and vigor. Forbs remain about in the same proportion as Phase A. Snowberry and Woods' rose, if present, have re-sprouted from the roots or crowns. Some cheatgrass may have invaded the site. This plant community is the result of wildfire.

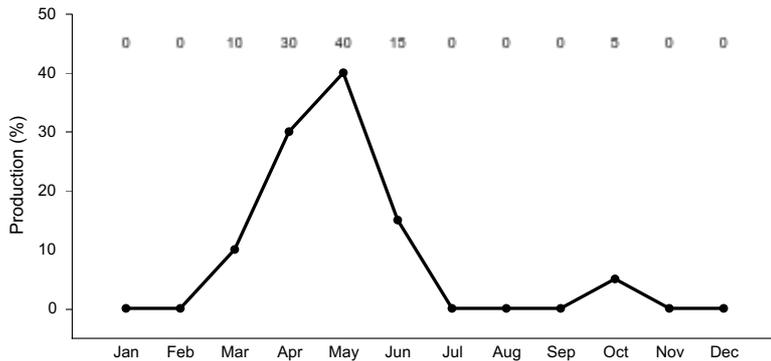


**Figure 6. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

**State 4  
State 2 Phase A**

**Community 4.1  
State 2 Phase A**

State 2. This plant community is dominated by annual grasses and forbs including invasive and noxious species. Root sprouting shrubs such as snowberry can be present. 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 fires 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 Phase A**

**Community 5.1  
State 3 Phase A**

**Additional community tables**

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Grasses and Grasslike</b>			–	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	550–1020	–
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	325–600	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	195–360	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	65–120	–
<b>Forb</b>					
2	<b>Forbs</b>			–	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	100–180	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	85–155	–
	silky lupine	LUSE4	<i>Lupinus sericeus</i>	80–145	–
	white brodiaea	TRHY3	<i>Triteleia hyacinthina</i>	45–85	–
	slender cinquefoil	POGR9	<i>Potentilla gracilis</i>	40–70	–
	houndstongue hawkweed	HICY	<i>Hieracium cynoglossoides</i>	25–50	–
	nineleaf biscuitroot	LOTR2	<i>Lomatium triternatum</i>	25–50	–
	harsh Indian paintbrush	CAHI9	<i>Castilleja hispida</i>	25–50	–
	shaggy fleabane	ERPU2	<i>Erigeron pumilus</i>	25–50	–
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	20–35	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	20–35	–
<b>Shrub/Vine</b>					
3	<b>Shrubs</b>			–	
	Woods' rose	ROWO	<i>Rosa woodsii</i>	1–35	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	1–35	–

## Animal community

Wildlife Interpretations.

Early spring, summer, and fall use by deer occurs. The site may be used by chukars and other upland game birds.

Grazing Interpretations.

This site is suitable for late spring, summer, and fall grazing by livestock. Annuals and forbs such as yarrow increase in composition during periods of excessive utilization by livestock. Grazing use intensities may need reductions on steeper slopes.

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 hydrologic conditions of the vegetative cover are good, natural erosion hazard is slight to moderate.

## Recreational uses

The site has slight recreational value. Some opportunities exist for hunting, hiking, and photography. Some aesthetic value does exist due to topographic setting on steep canyon slopes.

## Wood products

None.

## Other products

None.

## Other information

Field Offices

Grangeville, ID

Nezperce, ID

Orofino, ID

Lewiston, ID

Moscow, ID

Plummer, ID

Coeur d'Alene, ID

## Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include:

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC

Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC

Jim Cornwell, Range Management Specialist, IASCD

Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho

Bruce Knapp, Resource Soil Scientist, NRCS, Idaho

Lee Brooks, Range Management Specialist, IASCD

## Type locality

Location 1: Adams County, ID	
General legal description	Kleinschmit Grade.

## 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](http://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.

## Contributors

Dave Franzen And Jacy Gibbs

DF

## 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	03/24/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

- 1. Number and extent of rills:** Rills can occur on this site. If rills are present they are likely to occur immediately following wildfire. Rills are most likely to occur on soils with surface textures of silt loam and clay loam.

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

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- 3. Number and height of erosional pedestals or terracettes:** Both can occur on the site. In areas where flow patterns and/or rills are present, a few pedestals may be expected. Terracettes also occur on the site uphill from tall shrub bases and large bunchgrasses. Neither are extensive.

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- 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 areas in mid-seral status bare ground may range from 15to 25 percent.

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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:** Blowouts and depositional areas are usually not present. Immediately following wildfire some soil movement may occur on lighter textured soils.

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- 7. Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move

up to 3 feet following a significant run-off event. Coarse litter generally does not move.

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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):** Values should range from 4 to 6 but needs to be tested.
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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 6 inches thick. Structure ranges from strong very fine to fine granular. Soil organic matter (SOM) needs to be determined.
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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.
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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):** 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

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Little decadence is expected to occur.
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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 1800 pounds per acre (2016 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, rush skeletonweed, musk and scotch thistle, diffuse and spotted knapweed, leafy spurge, dalmation toadflax, 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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