# Ecological site R009XY026ID
# Shallow South Slope Stony 16-22 PZ PSSPS-POSE

Last updated: 9/23/2020
Accessed: 05/19/2024

## 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.

## 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** |
| 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** |

## Similar sites

| | |
|---|---|
| R009XY010ID | **South Slope Schist 16-22 PZ PSSPS-POSE** |

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | Not specified |
| Herbaceous | Not specified |

## Physiographic features

This site occurs on canyonsides and hills on plateaus with southerly or westerly exposures. Slopes range from 30 to 75 percent. Elevations range from 1000 to 4800 feet (300-1450 meters).

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Canyon<br>(2) Hill |
| Elevation | 305–1,463 m |
| Slope | 30–75% |
| Water table depth | 152 cm |
| Aspect | S, W |

## 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) | 660 mm |

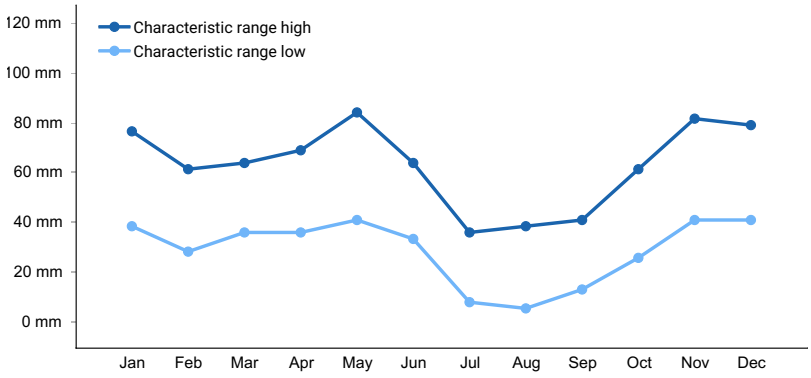



**Figure 1. Monthly precipitation range**

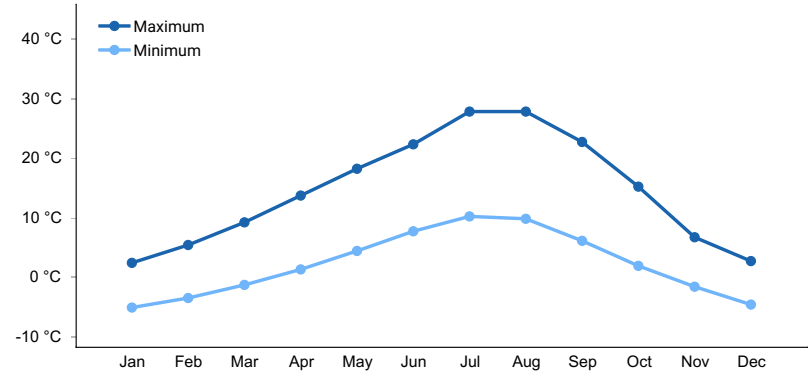



**Figure 2. Monthly average minimum and maximum temperature**

## Influencing water features

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

## Soil features

The soils are generally well drained shallow, very stony silt loams to coarse sandy loams formed in shallow stony colluvium derived from basalt or granite mixed with loess. Available water capacity is very low and permeability is moderately slow to moderately rapid. They are loamy-skeletal to sandy and runoff is medium to very 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

**Table 4. Representative soil features**

| | |
|---|---|
| Surface texture | (1) Stony silt loam<br>(2) Gravelly loam<br>(3) Sandy loam |
| Family particle size | (1) Loamy |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Moderately slow to moderately rapid |
| Soil depth | 25–51 cm |
| Surface fragment cover <=3" | 0–21% |
| Surface fragment cover >3" | 0–21% |
| Available water capacity (0-101.6cm) | 2.79–4.06 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) | 5.6–7.3 |
| Subsurface fragment volume <=3" (Depth not specified) | 15–70% |
| Subsurface fragment volume >3" (Depth not specified) | 15–70% |

## Ecological dynamics

The visual aspect is grassland with bluebunch wheatgrass the most dominant species. Composition by weight is approximately 70-80 percent grasses and 20 to 30 percent forbs. Shrubs are minor in the community.

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 (State1), 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 and Sandberg bluegrass. Subdominant species include arrowleaf balsamroot, cous biscuitroot, Wyeth buckwheat, narrowleaf skullcup, silky lupine, and bent milkvetch. The plant species composition of Phase A is listed later under “Reference Plant Community Phase Plant Species Composition”.

Total annual production is 650 pounds per acre (728 kilograms per hectare) in a normal year. Production in a favorable year is 850 pounds per acre (952 kilograms per hectare). Production in an unfavorable year is 400 pounds per acre (448 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are more dominant than forbs followed by shallow rooted perennial grasses.

This site is suited for big game in the fall, winter, and spring. Livestock can use the site in the spring and fall. It has limited value for recreational use.

Due to the rainfall, shallow soils, and steep slopes, this site is susceptible to erosion from degradation. The site has moderate to severe limitation for livestock grazing due to steep slopes and surface stones. This site is one of the first to green up in the spring and animals often seek out the site for the nutritional value of the forage at this time. 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, bluebunch wheatgrass can become decadent. This is apparent by dead centers in the bluebunch wheatgrass plants.

When fires become more frequent than historic levels, bluebunch wheatgrass can be reduced in the plant community. Sandberg bluegrass will increase in the plant community. With continued short fire frequency, bluebunch wheatgrass 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. These fine fuels will increase the fire frequency. Some rabbitbrush may be in the plant community.

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 bluebunch wheatgrass. With reduced vigor, recruitment of this species declines. As this species declines, an increase in Sandberg bluegrass 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. This type of proper grazing management will help maintain the integrity of the plant community.

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 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.

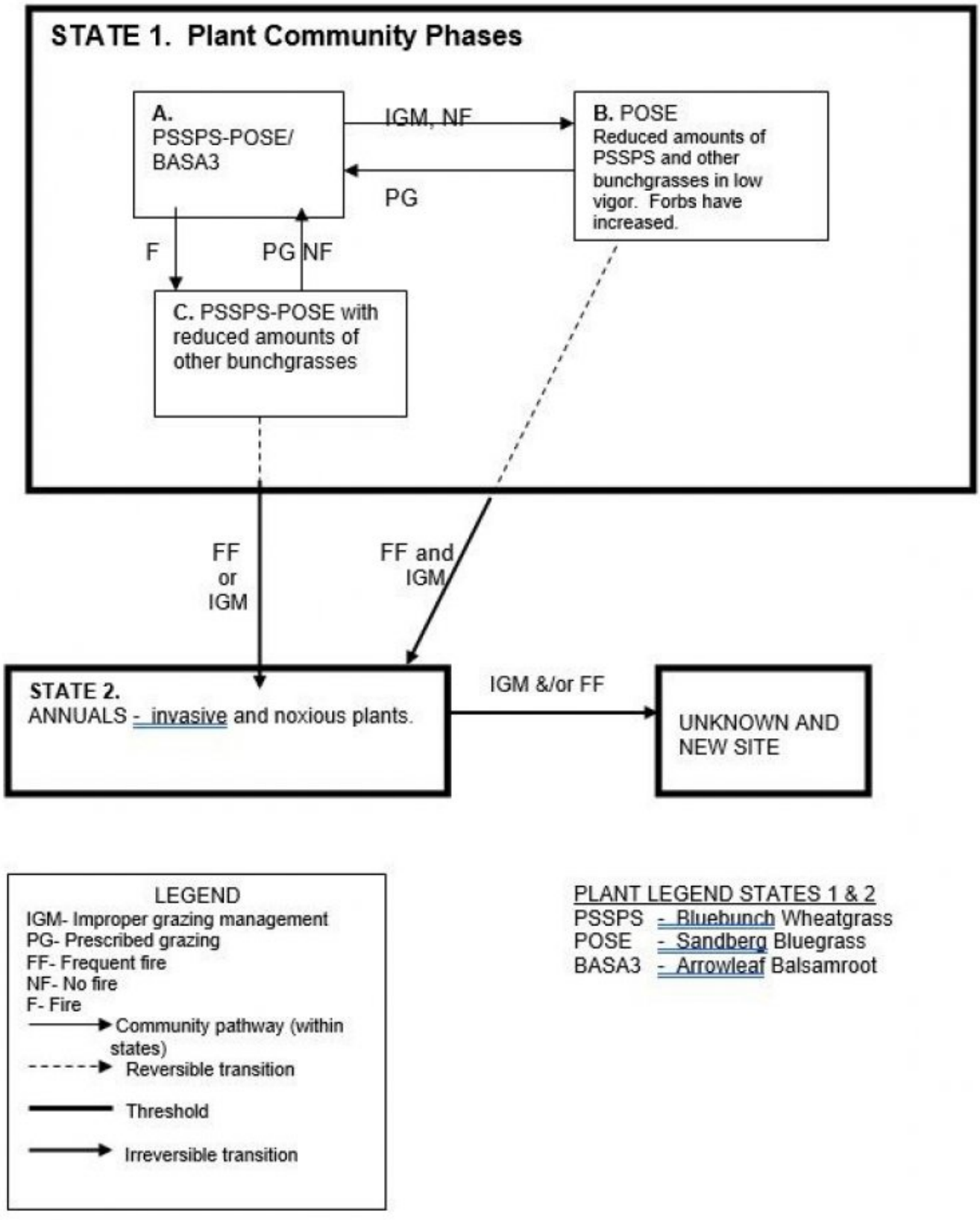
State 1, Phase C to 2. Develops through frequent fire or continued improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

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 and surface stones. 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 bluebunch

wheatgrass with Sandberg bluegrass in the understory. Subdominant species include arrowleaf balsamroot, cous biscuitroot, Wyeth buckwheat, narrowleaf skullcup, silky lupine, and bent milkvetch. Natural fire frequency is 20-50 years.

**Table 5. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 336 | 544 | 717 |
| Forb | 112 | 185 | 235 |
| **Total** | **448** | **729** | **952** |

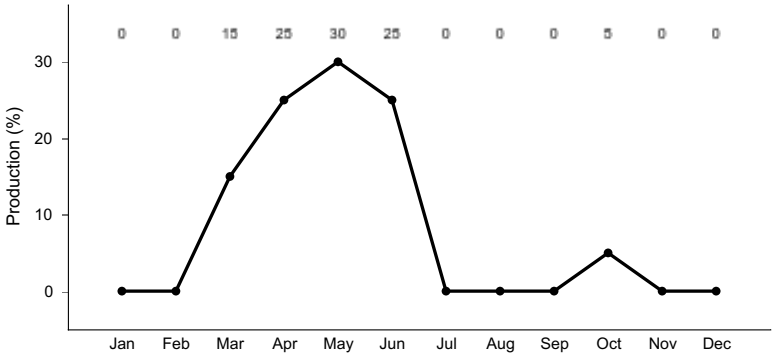



**Figure 4. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

## 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. All deep-rooted bunchgrasses are typically in low vigor. Forbs have increased. Some cheatgrass may have invaded the site. This state has developed due to improper grazing management and no fire.

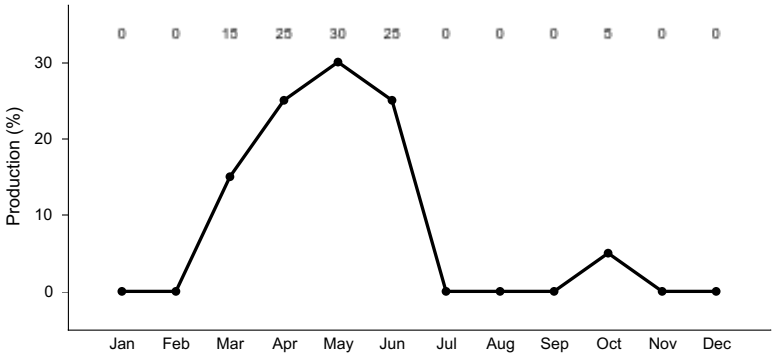



**Figure 5. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

## 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. Some bluebunch wheatgrass may be in low vigor. Sandberg bluegrass has increased. Forbs remain about in the same proportion as Phase A. Some

cheatgrass may have invaded the site. This plant community is the result of wildfire.

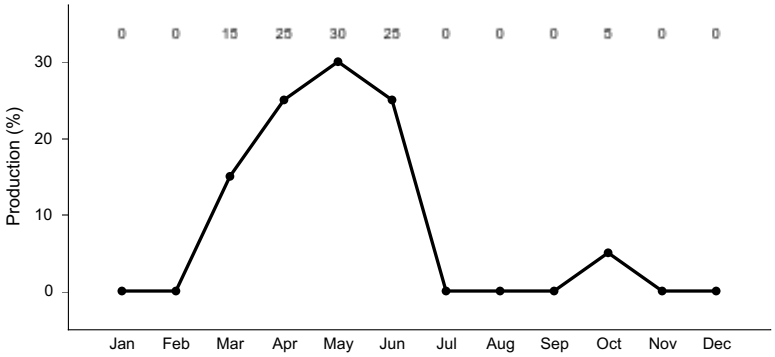



**Figure 6. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.**

## 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. 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.

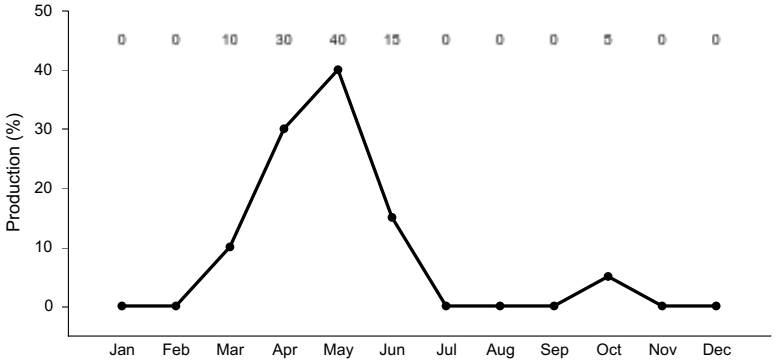



**Figure 7. Plant community growth curve (percent production by month). ID0102, B9 BRTE-ANNUALS. State 2.**

## 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 (Kg/Hectare) | Foliar Cover (%) |
|---|---|---|---|---|---|
| **Grass/Grasslike** | | | | | |
| 1 | **Grass and Grasslike** | | | – | |
| | bluebunch wheatgrass | PSSPS | *Pseudoroegneria spicata ssp. spicata* | 291–616 | – |
| | Sandberg bluegrass | POSE | *Poa secunda* | 67–146 | – |
| **Forb** | | | | | |
| 2 | **Forbs** | | | – | |
| | arrowleaf balsamroot | BASA3 | *Balsamorhiza sagittata* | 45–95 | – |
| | cous biscuitroot | LOCO4 | *Lomatium cous* | 11–28 | – |
| | Wyeth biscuitroot | LOAM | *Lomatium ambiguum* | 11–28 | – |
| | narrowleaf skullcap | SCAN3 | *Scutellaria angustifolia* | 11–28 | – |
| | silky lupine | LUSE4 | *Lupinus sericeus* | 11–28 | – |
| | bent milkvetch | ASIN5 | *Astragalus inflexus* | 11–28 | – |
| | common yarrow | ACMI2 | *Achillea millefolium* | 0–6 | – |
| | silvery lupine | LUAR3 | *Lupinus argenteus* | 0–6 | – |
| | longleaf phlox | PHLO2 | *Phlox longifolia* | 0–6 | – |
| | pale madwort | ALAL3 | *Alyssum alyssoides* | 0–6 | – |
| | white mariposa lily | CAEU | *Calochortus eurycarpus* | 0–6 | – |
| | Douglas' bladderpod | LEDO2 | *Lesquerella douglasii* | 0–6 | – |
| **Shrub/Vine** | | | | | |
| 3 | **Shrubs** | | | – | |
| | yellow rabbitbrush | CHVIV4 | *Chrysothamnus viscidiflorus ssp. viscidiflorus var. viscidiflorus* | 0–6 | – |
| | plains pricklypear | OPPO | *Opuntia polyacantha* | 0–6 | – |

## Animal community

Wildlife Interpretations.
Animal Community – Wildlife Interpretations

This rangeland ecological site provides diverse habitat for native wildlife species. The plant community dominated by herbaceous vegetation provides spring, fall, and winter forage for large herbivores. Important seasonal habitat is provided for resident and migratory animals including western toad, western rattlesnake, shrews, bats, jackrabbits, ground squirrels, mice, coyote, red fox, badger, Ferruginous hawk, prairie falcon, horned lark, and western meadowlark. Area sensitive species include Woodhouse’s toad, ring-necked snake, grasshopper sparrow, and Merriam’s shrew. Areas of noxious and invasive plant species (cheatgrass, ventenata, bulbous bluegrass, and yellow star-thistle) may replace native plant species which provide critical feed, brood-rearing, and nesting cover for a variety of native wildlife. Water features are sparse, provided by seasonal runoff, artificial water catchments, and springs.

State 1 Phase 1.2 - Bluebunch Wheatgrass/ Sandberg Bluegrass/ Arrowleaf Balsamroot Reference Plant Community (RPC): This plant community provides a diversity of grasses and forbs used by native insect communities that assist in pollination. The diversity of forbs provide spring, summer, and fall pollinator habitat. The reptile and amphibian community is represented by western rattlesnake, northern alligator lizard, ring-necked

snake, pygmy short-horned lizard, western toad, Woodhouse's toad, tiger salamander, Columbia spotted frog, and northern leopard frog. Amphibians are associated with springs and isolated water bodies adjacent to this plant community. Spring developments that capture all available water would preclude the use of this site by amphibians. The plant community supports a variety of migratory and resident avian species that prefer grassland plant communities for food, brood-rearing and nesting cover. They may include savannah sparrow, lark sparrow, grasshopper sparrow, Say's phoebe, western kingbird, horned lark, and western meadowlark. The plant community provides spring, fall, and winter forage for mule deer, white-tailed deer, and elk. Bluebunch wheatgrass is desirable forage for elk, white-tailed deer, and mule deer. Arrowleaf balsamroot is desirable forage for mule deer year-round. The grazing management will determine the quality and duration of grazing available for large herbivores. A small mammal population including Preble's shrew, mountain cottontail, white-tailed jackrabbit, Merriam's shrew, western jumping mouse, and deer mouse may utilize this site.
State 1 Phase 1.2 - Sandberg Bluegrass Plant Community: This phase has developed due to improper grazing management and no fire. An increase in forbs would continue to support a variety of insects. The reptile and amphibian community is represented by western rattlesnake, gophersnake, terrestrial gartersnake, and western toad. Amphibians are associated with springs adjacent to the site. Spring developments that capture all available water would preclude the use of the area by amphibians. Quality of cover for ground-nesting birds is reduced due to improper grazing resulting in sparse herbaceous vegetation. The reduced vigor of the herbaceous plant community provides a shorter grazing season for large herbivores. The quality of winter forage for large herbivores is reduced due to improper grazing management and loss of native deep rooted grasses. Small mammal populations would be similar to those in State 1 Phase 1.1.

State 1 Phase 1.3 - Bluebunch Wheatgrass/ Sandberg Bluegrass Plant Community: This plant community is the result of fire. Insect diversity and populations would be similar to the State 1, Phase 1.1 insect community. The reptile community would be similar to the State 1 Phase 1.1 reptile community. The quality of cover and food habitat for birds is reduced due to low vigor and production of herbaceous vegetation. The reduced vigor of plants, improper grazing management, and increase in cheatgrass provides a shorter grazing season for mule deer, white-tailed deer, and elk. Small mammal populations would be similar to those in State 1 Phase 1.1.

State 2 – Cheatgrass/ Annuals/ Noxious Weeds Plant Community: This state has developed due to frequent fires and improper grazing management from Phase 1.2, State 1. It also occurs with frequent fire or improper grazing management from Phase 1.3, State 1. The plant community supports harmful insects, such as grasshoppers with improved breeding conditions. The plant community would support a very limited population of pollinators. Most reptilian species are not supported with food, water, or cover. Diversity of grassland avian species is reduced due to poor cover and food habitat. Birds of prey including hawks and falcons may range throughout these areas looking for prey species. Large herbivores may utilize the herbaceous vegetation in the early part of the year when the invasive annuals (cheatgrass) are more palatable. At other times of the year large herbivores would not regularly utilize these areas due to poor forage and cover conditions. The populations of small mammals would be reduced due to poor cover and food habitat. Large blocks of this plant community would fragment the reference plant community and reduce the quality of the habitat for animal species that historically used the site.

Grazing Interpretations.
This site has value for late spring and fall grazing for cattle, sheep, and horses. The plants are ready to graze about mid-April at lower elevations. Livestock distribution can be a problem on the steep slopes and stony surfaces. Avoid grazing when the soils are wet to minimize trampling damage.
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 D. When hydrologic conditions of the vegetation cover is good, natural erosion hazard is slight to moderate.

## Recreational uses

This site has slight recreational value or aesthetic value. There are limited hunting opportunities.

## 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: Nez Perce County, ID |
|---|

## 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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| Contact for lead author | Brendan Brazee, State Rangeland Management Specialist USDA-NRCS 9173 W. Barnes Drive, Suite C, Boise, ID 83709 |
| Date | 04/17/2009 |
| Approved by | Kendra Moseley |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** Rills are rare on this site. If rills are present they are likely to occur immediately following wildfire. Rills are most likely to occur on soils with silt loam surface textures. Stones and gravels on the surface reduce rill formation.

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

3. **Number and height of erosional pedestals or terracettes:** Both occur but neither is extensive. 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, large bunchgrasses, and large rocks.

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 30-40 percent.

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

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.

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.

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 3 to 5 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 2 to 6 inches thick. Structure ranges from_____ to _____. Soil organic matter (SOM) ranges from 2 to 4 percent.

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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. Perennial grasses produce 70-80 percent of the total production and forbs 20-30 percent.

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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:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bluebunch wheatgrass can become decadent in the absence of normal fire frequency and ungulate grazing. This is most noticeable in dead centers of the bunchgrass.

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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.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Is 650 pounds per acre (728 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, yellow star thistle, and Japanese brome.

17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in most years.