

## Ecological site R010XY027ID North Slope Brush 16-20 PZ PREM/ELGLG

Last updated: 9/23/2020  
Accessed: 04/24/2024

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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.

### Classification relationships

*Artemisia vaseyana/ Symphoricarpos oreophilus/ Festuca idahoensis* HT in "Hironaka, M., M.A. Fosberg, A. H. Winward. 1983. Sagebrush-Grass Habitat Types of Southern Idaho. University of Idaho. Moscow, Idaho. Bulletin Number "35".

### Associated sites

R010XY002ID	Very Shallow 12-20 PZ ARRI2/POSE
R010XY003ID	Loamy 16-22 PZ PUTR2/FEID
R010XY005ID	North Slope Loamy 16-22 PZ ARTRV/FEID
R010XY013ID	North Slope Granitic 16-22 PZ ARTRV/FEID
R010XY021ID	Stony Loam 16-22 PZ ARTRT/PSSPS
R010XY024ID	Dry Meadow PONE3-PHAL2
R010XY025ID	Shallow Stony Loam 12-20 PZ ARTRX/PSSPS
R010XY028ID	South Slope Granitic 16-20 PZ ARTRX/PSSPS

### Similar sites

R010XY013ID	North Slope Granitic 16-22 PZ ARTRV/FEID
R010XY005ID	North Slope Loamy 16-22 PZ ARTRV/FEID

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

### Physiographic features

This site occurs on foothills, hillslopes, canyonlands, and canyon walls. They are either on slightly concave north facing slopes or convex north facing backslopes. Slopes range from 30 to 90 percent. Elevations range from 2700 to 5800 feet (800-1800 meters). This site occurs on north aspects.

**Table 2. Representative physiographic features**

Landforms	(1) Hill (2) Canyon (3) Mountain
Elevation	2,700–5,800 ft
Slope	30–90%
Aspect	N

### Climatic features

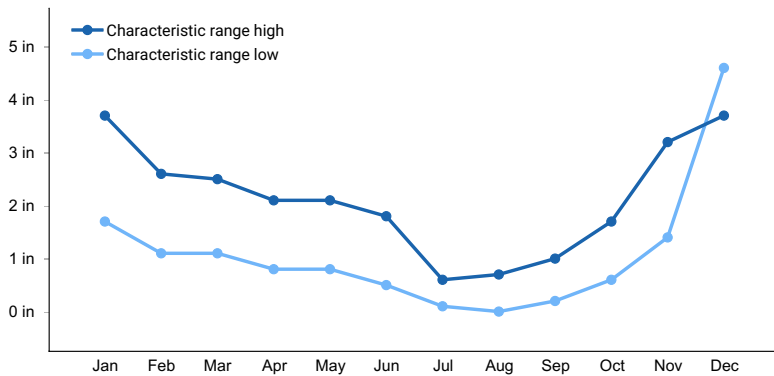
The elevation of MLRA 10 ranges from 1791 feet to 9236 feet, with a mean of 4602 feet. Overall, elevation increases from west to east. However, average annual precipitation decreases from west to east, ranging from 16.59 inches to 22.17 inches, with a mean of 19.56 inches, based on 7 long term climate stations throughout the MLRA. In general, precipitation peaks in December and January, with a steady decline to a low in July and August, then a steep increase during the autumn months. Most of the winter precipitation falls as snow, and maximum annual snowfalls of up to 82 inches have been recorded.

There is considerable variation in temperature throughout the year. Temperatures as low as -52° Fahrenheit and as high as 117° Fahrenheit are on record. Some areas have recorded the occurrence of more than 50 days with temperatures above 90° Fahrenheit. The average maximum annual temperature is 63 degrees F, while the average minimum temperature is 36.2 degrees F. The frost-free period can range from 128 to 152 days, while the freeze-free period can be from 164 to 189 days.

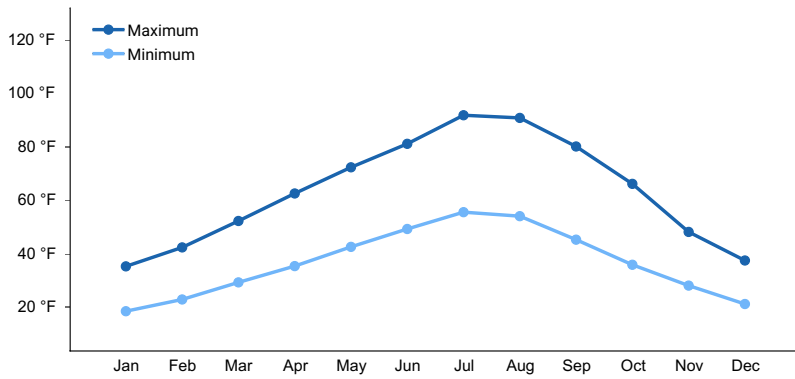
Both the average morning and average afternoon relative humidity values are lowest in July and August, and are below the national average. The number of clear, sunny days peaks during this same period, and is higher than the national average. During the Spring and Summer months high-intensity convective thunderstorms are not unusual.

**Table 3. Representative climatic features**

Frost-free period (average)	152 days
Freeze-free period (average)	189 days
Precipitation total (average)	22 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 supporting this site are somewhat excessively drained to excessively drained coarse sandy loams to fine gravelly sandy loams over 20 inches deep. Permeability is moderately rapid to rapid. Available water holding capacity is low to high. Runoff is medium to very high. The surface horizon texture is coarse sandy loam or sandy loam. The subsoil is coarse sandy loam to extremely gravelly loamy sand. These soils are characterized by a xeric moisture regime. Soil temperature regime is mesic.

Soil Series Correlated to this Ecological Site

Olato Shimo

**Table 4. Representative soil features**

Surface texture	(1) Gravelly sandy loam (2) Very gravelly coarse sandy loam
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Moderately rapid to rapid
Soil depth	20–60 in
Surface fragment cover ≤3"	0–20%
Surface fragment cover >3"	0–25%
Available water capacity (0-40in)	3–9 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)	6–6.6
Subsurface fragment volume ≤3" (Depth not specified)	10–70%
Subsurface fragment volume >3" (Depth not specified)	0–50%

## Ecological dynamics

The dominant visual aspect is mixed shrubs. Composition by weight is approximately 15 to 25 percent grasses, 5 to 15 forbs, and 65 to 75 percent shrubs.

During the last few thousand years, this site has evolved in a montane 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 20-40 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 bitter cherry with common chokecherry, mallow ninebark, currant, and foothills big sagebrush prevalent. Blue wildrye, Idaho fescue, and bluebunch wheatgrass are subdominant. There are a variety of forbs that occur in minor amounts. The plant species composition of Phase A is listed later under "Reference Plant Community Phase Plant Species Composition".

Total annual production is 1000 pounds per acre (1220 kilograms per hectare) in a normal year. Production in a favorable year is 1300 pounds per acre (1456 kilograms per hectare). Production in an unfavorable year is 700 pounds per acre (784 kilograms per hectare). Structurally, tall shrubs are very dominant, followed by cool season deep-rooted perennial bunchgrasses being followed by perennial forbs.

This site is well suited for deer, elk, and other wildlife in summer and early fall. It is used by livestock in the summer and fall. The site has high value for hunting and limited value for hiking due to steep slopes.

Due to the relatively high rainfall, elevation, and favorable cool-season growing conditions, the site is fairly resistant to disturbances that can potentially degrade it.

Due to the relatively high amount of shrubs and moderately deep to deep soils, infiltration is normally high and runoff moderately low. Runoff, when it does occur is non-erosive except during high intensity convection storms or following wildfire. Snow accumulates on the site at the higher elevations due to the temperatures and presence of tall shrubs.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency, shrubs can gradually increase. A few Douglas fir can invade the site if a seed source is in the proximity. Grasses and forbs decrease as shrubs increase. When Douglas fir invades the site the trees are usually stunted, irregular, or poorly shaped.

Even with fire frequency greater than historic levels (20-40 years), most of the shrub species are usually maintained in the plant community due to sprouting from root crowns or rhizomes. Foothills big sagebrush however, will be killed and perennial bunchgrasses and some forbs may be eliminated with frequent fires. With continued short fire frequency or with spring fires, even the sprouting shrubs can be reduced in the community. If this occurs on a frequent basis, understory species can be completely eliminated. These species will be replaced by Kentucky bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants.

Influence of improper grazing management:

Most of the shrubs on the site have poor to fair forage value for livestock and big game. Regardless, season-long grazing and/or excessive utilization can be very detrimental to this site. Initially, shrubs will increase and

bunchgrasses will decrease.

Continued improper grazing management leads to reduced vigor of the bunchgrasses and shrubs. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to Kentucky bluegrass invasion and an increase in noxious and invasive plants. Continued improper grazing management influences fire frequency by increasing fine fuels.

Proper grazing management that addresses frequency, duration, and intensity of grazing can maintain the plant community. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn. A prescribed burn will help maintain a mixed shrub plant community.

Weather influences:

Above normal precipitation in 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.

Below normal temperatures in the spring can have an adverse impact on total production regardless of the precipitation. 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:

An outbreak of a particular insect is usually influenced by weather. Aphids, borers, tent caterpillars, trunk, and root rot fungus can influence the health of many of these shrubs, particularly bitter cherry. Mormon cricket and 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 summer and fall. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

Decreased infiltration and increased runoff occur with the reduction of the shrub component of the plant community. This can occur with frequent fire or continuous, heavy, season-long grazing. Douglas fir invasion has similar impacts on the watershed function of this site, 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 in the absence of fire.

Phase A to C. Results from a fire or prescribed burning.

Phase B to C. Results from a wildfire or brush management and prescribed grazing.  
Phase B to A. Occurs with prescribed grazing and brush management or prescribed burning.  
Phase C to A. Results from prescribed grazing and no fire.  
Phase C to B. Results from no fire and improper grazing management.

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

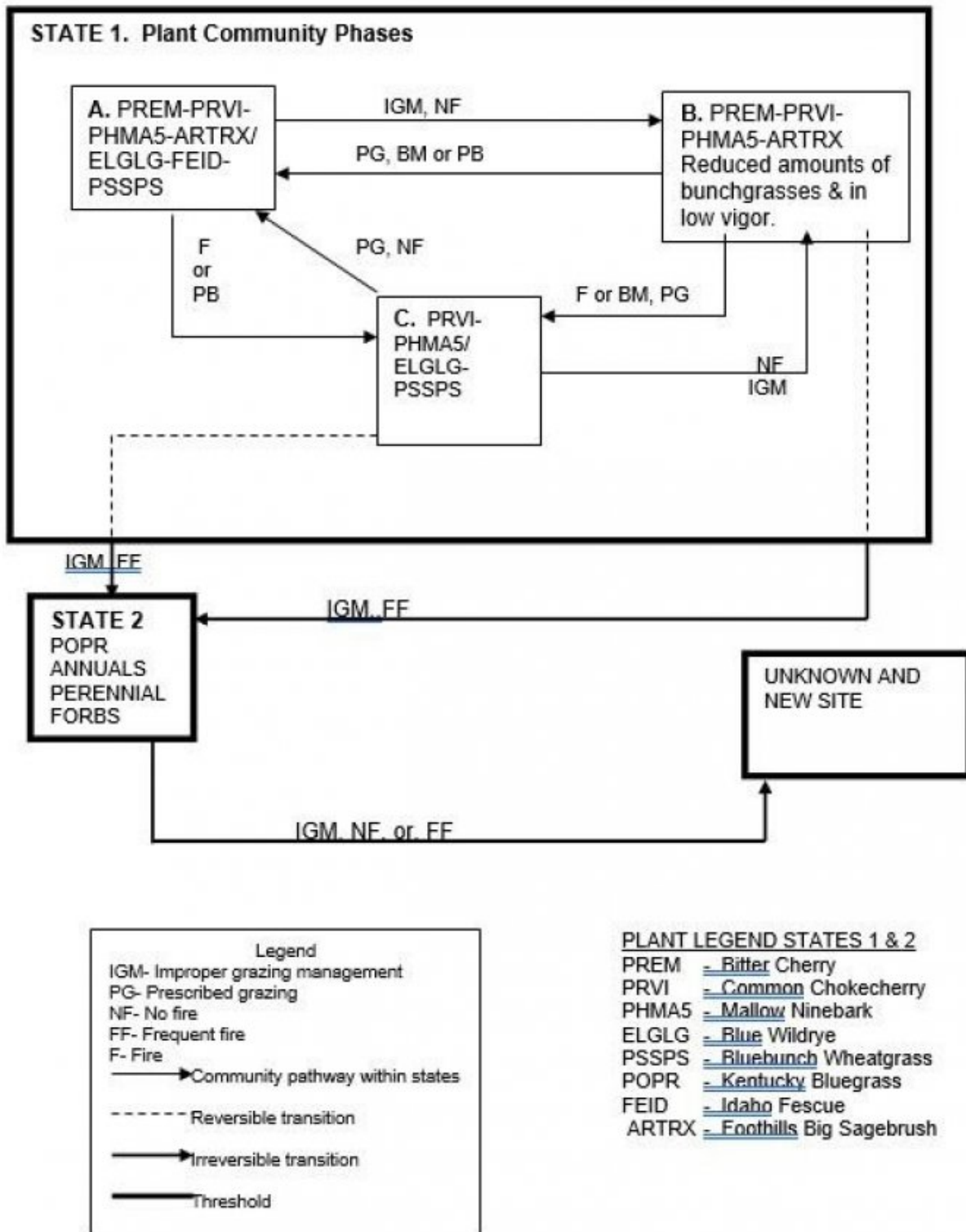
State 1, Phase C to State 2. Develops through continued improper grazing management and frequent fire. This site has crossed the threshold. It is economically impractical to return this state to State 1 with accelerated practices.

State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by improper grazing management and no fire or frequent fire cause this state to cross the threshold and retrogress to a new site with reduced potential. It is economically impractical to return this state to State 1 with accelerated practices.

Practice Limitations.

Moderate to severe limitations exist for implementation of vegetation management practices, facilitating practices and accelerating practices due to steep slopes.

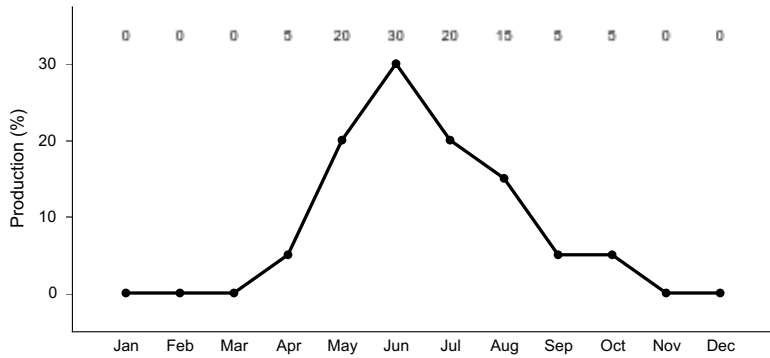
## **State and transition model**



**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 bitter cherry with common chokecherry, mallow ninebark, currant, and foothills big sagebrush prevalent. Blue wildrye, Idaho fescue, and bluebunch wheatgrass are subdominant. There are a variety of forbs that occur in minor amounts. Natural fire frequency is 20-40 years.

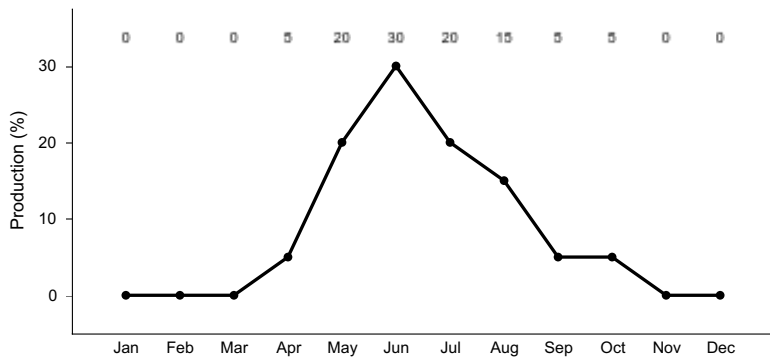


**Figure 3. Plant community growth curve (percent production by month). ID0210, PREM-ELGLG. STATE 1.**

**State 2  
State 1 Phase B**

**Community 2.1  
State 1 Phase B**

State 1, Phase B. This plant community is dominated in the overstory by bitter cherry and common chokecherry and they are increasing. Mallow ninebark and foothills big sagebrush are also increasing. Blue wildrye, bluebunch wheatgrass, and Idaho fescue are declining in the community and those plants present are in low vigor. Forbs may be increasing. Some Kentucky bluegrass may have invaded the site. Douglas fir may invade on the site in the absence of normal fire frequency and with a seed source nearby. It will remain stunted. This state has developed due to improper grazing management and fire frequency being much longer than normal.



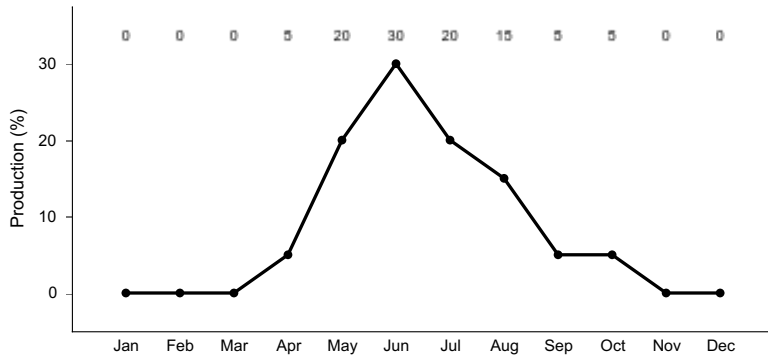
**Figure 4. Plant community growth curve (percent production by month). ID0210, PREM-ELGLG. STATE 1.**

**State 3  
State 1 Phase C**

**Community 3.1  
State 1 Phase C**

State 1, Phase C. This plant community is dominated by common chokecherry and mallow ninebark. These species have re-sprouted from rhizomes and root crowns. Bitter cherry is reduced in the stand and foothills big sagebrush has died out. Some Idaho fescue may also have died out. Blue wildrye, bluebunch wheatgrass, and forbs are in about the same amounts as in Phase A. Kentucky bluegrass may have invaded the site. The plant community is a result of recent wildfire or prescribed burning.



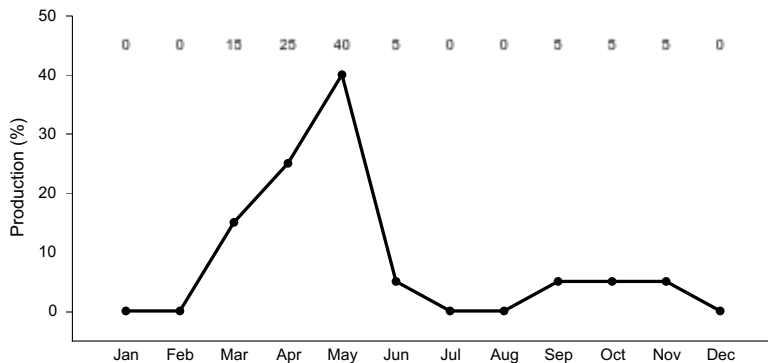


**Figure 5. Plant community growth curve (percent production by month). ID0210, PREM-ELGLG. STATE 1.**

**State 4  
State 2**

**Community 4.1  
State 2**

State 2. This plant community is dominated by Kentucky bluegrass, annuals, and some perennial forbs. There may be a variety of invasive forbs and some noxious plant species may have invaded the site. Some soil loss has occurred. The plant community has developed due to continued improper grazing management and frequent fire. This site has crossed the threshold. It is economically impractical to return this state to State 1 with accelerated practices.



**Figure 6. Plant community growth curve (percent production by month). ID0211, POSE/BRTE-ANNUALS. State 2.**

**State 5  
State 3**

**Community 5.1  
State 3**

**Additional community tables**

**Animal community**

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

This rangeland ecological site is on steep slopes and canyon walls. The site is used by numerous wildlife species due to the diverse plant community of grasses, forbs, fruiting shrubs and small trees. The plant community provides dense woody cover for large and small mammals, reptiles and birds. The dominant plants provide habitat for hummingbirds and butterflies. Wildlife utilizing the site includes deer, elk, hummingbirds, songbirds, western rattlesnake, western skink, bushytail woodrat, mountain cottontail and voles. Changes in the plant community can

reduce the number and diversity of wildlife species in the area. Encroachment of noxious and invasive plant species (cheatgrass, medusahead and knapweed) on some sites can 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 streams, artificial water catchments and springs.

State 1 Phase 1.1 – Bitter Cherry/ Chokecherry/ Mallow Ninebark/ Blue Wildrye/ Idaho Fescue/ Bluebunch Wheatgrass Reference Plant Community (RPC): This plant community provides a diversity of grasses, forbs, shrubs, and small trees used by native insects that assist in pollination. The reptile and amphibian community is represented by short horned lizard, sagebrush lizard, western skink, western rattlesnake, boreal chorus frog, northern leopard frog and western toad. 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 these sites by amphibians. The shrubs and small trees offer fruit and nesting habitat for a variety of migratory and resident avian species (calliope and black-chinned hummingbird, warblers and bluebirds). The plant community supports seasonal needs of large mammals (mule deer and elk) providing food and cover. Chokecherry and bitter cherry are preferred forage for mule deer. The plant community offers excellent thermal cover and young of year cover.

State 1 Phase 1.2 - Bitter Cherry/ Chokecherry/ Mallow Ninebark/ Foothills Big Sagebrush Plant Community: This state has developed due to improper grazing management and fire frequency being much longer than normal. Pollinator use will be similar to Phase 1.1 plant community. The loss of herbaceous understory reduces the habitat value of the site for ground nesting birds, reptiles and foraging herbivores. The shrubs and trees would offer nesting cover and roosting habitat for songbirds. Mule deer and elk would utilize the site for thermal cover and young of year cover.

State 1 Phase 1.3- Chokecherry/ Mallow Ninebark/ Blue Wildrye/ Bluebunch Wheatgrass Plant Community: The plant community is a result of recent wildfire or prescribed burning. This plant community would have similar vertical and horizontal structure as Phase 1.1. Flowering forbs and shrubs would provide for a diverse insect community. The reptile and amphibian habitat would be similar to Phase 1.1. The plant community supports seasonal needs of large mammals (mule deer and elk) providing food and cover. Chokecherry and bitter cherry are preferred forage for mule deer. The plant community offers excellent thermal cover and young of year.

State 2 – Kentucky Bluegrass/ Annuals/ Perennial Forbs Plant Community: The plant community has developed due to continued improper grazing management and frequent fire. The plant community, dominated by herbaceous vegetation provides less vertical structure for animals. Insect diversity would be reduced but the remaining forb plant community would still support select pollinators. The reptiles including desert horned lizard, short horned lizard, sagebrush lizard and western rattlesnake, would be limited or excluded. Habitat for grassland avian species (horned lark and western meadowlark) would be improved. Large mammal (mule deer and antelope) use would be seasonal, with the site offering forage value but little thermal cover and young of year cover.

#### Grazing Interpretations.

It is used by livestock in the summer and fall. A high percentage of the shrubs are low to fair forage value to livestock.

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**

No data.

#### **Recreational uses**

The site has high value for hunting and limited opportunities for other recreational uses

## Wood products

None.

## Other products

None.

## Other information

Field Offices

Weiser, ID  
Emmett, ID  
Mountain Home, ID  
Meridian, ID  
Payette, ID  
Cascade, 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  
Leah Juarros, Resource Soil Scientist, NRCS, Idaho  
Lee Brooks, Range Management Specialist, IASCD

## Other references

Hironaka, M., M.A. Fosberg, A. H. Winward. 1983. Sagebrush-Grass Habitat Types of Southern Idaho. University of Idaho, Moscow, Idaho. Bulletin Number "35".  
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USDA, Forest Service, Fire Effects Information Database. 2004. [www.fs.fed.us/database](http://www.fs.fed.us/database).  
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.

Author(s)/participant(s)	Dave Franzen and Jacy Gibbs Intermountain Range Consultants 17700 Fargo Rd. Wilder, ID 83676
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Date	04/22/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

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

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2. **Presence of water flow patterns:** water-flow patterns rarely occur on this site and are most likely immediately following a wildfire. When they occur they are short, disrupted by cool season perennial grasses and tall shrubs and are not extensive.  

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3. **Number and height of erosional pedestals or terracettes:** pedestals are rare on this site. In areas where flow patterns and /or rills are present, a few pedestals may be expected. Terracettes can form from hoof action but are not 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 not available. On sites in mid-seral status, bare ground may range from 10-20 percent.  

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5. **Number of gullies and erosion associated with gullies:** does not occur on this site.  

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6. **Extent of wind scoured, blowouts and/or depositional areas:** usually does not occur.  

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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 2 feet following a significant run-off event. Terracettes and bunchgrass can trap fine litter. 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 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 7 to 11 inches thick. Structure ranges from weak fine granular to moderate 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. Shrubs accumulate snow in the interspaces.
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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):** 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: tall shrubs
- Sub-dominant: grasses
- Other: perennial forbs
- Additional:
- 
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** little decadence occurs in shrubs, but grass and forb mortality will occur as tall shrubs increase.
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14. **Average percent litter cover (%) and depth ( in):** annual litter cover in the interspaces will be 20-30 percent to a depth of <0.2. Under the mature shrubs litter is greater than 0.5 inches. Fine litter can accumulate on the terracettes.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 1000 lbs. per acre in a year with normal precipitation and temperatures. Perennial grasses produce 15-25 percent of the total, forbs 5-15 percent, and shrubs 65-75 percent.
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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 Kentucky bluegrass, spotted and diffuse knapweed, leafy spurge, and Canada 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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