

Ecological site R009XY009ID **North Slope Schist 16-22 PZ FEID-PSSPS**

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 |
| R009XY010ID | South Slope Schist 16-22 PZ PSSPS-POSE |
| R009XY017ID | Very Shallow 12-22 PZ PSSPS-POSE |

Similar sites

| | |
|-------------|-----------------------------------|
| R009XY002ID | North Slope Loamy 16-22 PZ |
|-------------|-----------------------------------|

Table 1. Dominant plant species

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

Physiographic features

This site occurs on moderate to steep north and east facing slopes. Elevations range from 1800 to 4000 feet (550-1200 meters). Slopes range from 30 to 70 percent.

Table 2. Representative physiographic features

| | |
|-------------------|----------------------------|
| Landforms | (1) Canyon (2) Mountain |
| Elevation | 549–1,219 m |
| Slope | 30–70% |
| Water table depth | 152 cm |
| Aspect | N, E |

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 |

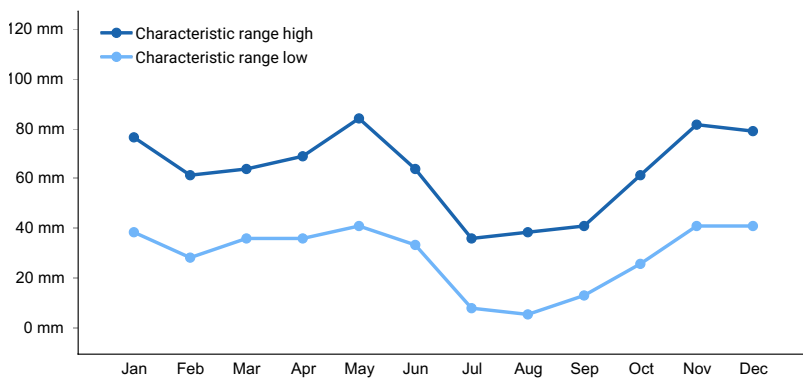


Figure 1. Monthly precipitation range

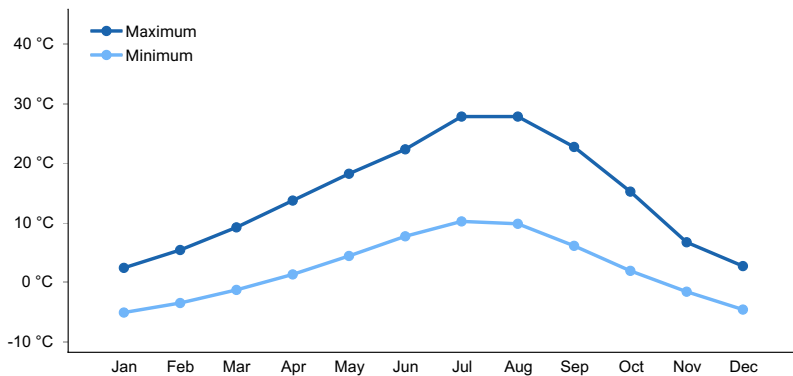


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Soil features

The soils are deep loams developing over decomposed schist bedrock. Some areas are overlain by loess. The available water holding capacity (AWC) is medium. Infiltration rate is rapid and deep percolation occurs, sometimes below the root zone of the plants.

Table 4. Representative soil features

| | |
|-----------------|----------------------------|
| Surface texture | (1) Sandy loam (2) Loam |
|-----------------|----------------------------|

| | |
|--|---------------|
| Family particle size | (1) Loamy |
| Drainage class | Well drained |
| Permeability class | Moderate |
| Soil depth | 152 cm |
| Surface fragment cover <=3" | 0–5% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-101.6cm) | 12.7–14.73 cm |
| Calcium carbonate equivalent (0-101.6cm) | 0% |
| Electrical conductivity (0-101.6cm) | 0 mmhos/cm |
| Sodium adsorption ratio (0-101.6cm) | 0 |
| Soil reaction (1:1 water) (0-101.6cm) | 6.1–7.3 |
| Subsurface fragment volume <=3" (Depth not specified) | 15–60% |
| Subsurface fragment volume >3" (Depth not specified) | 15–60% |

Ecological dynamics

The dominant visual aspect of this site is grassland with Idaho fescue and bluebunch wheatgrass most dominant. Composition by weight is approximately 60 to 70 percent grasses, 25 to 35 percent forbs, and a 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, 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 and bluebunch wheatgrass with prairie junegrass subdominant. Other major species include big bluegrass, arrowleaf balsamroot, western yarrow, silky lupine, and tapertip hawksbeard. A variety of other forbs occur in minor amounts. Oceanspray, mallow ninebark, and green rabbitbrush 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 1350 pounds per acre (1512 kilograms per hectare) in a normal year. Production in a favorable year is 1600 pounds per acre (1792 kilograms per hectare). Production in an unfavorable year is 1000 pounds per acre (1120 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.

Spring use by mule deer occurs. Some use may be made of the site by upland birds. Livestock use the site in the late spring, summer, and fall. The site has only slight recreational value but can be used 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. 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. Oceanspray will usually be maintained in the stand and mallow ninebark may increase.

When fires become more frequent than historic levels (20-50 years), Idaho fescue and bluebunch wheatgrass can be reduced 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. These fine fuels will cause fires to become more frequent. Oceanspray may be maintained in the community due to sprouting from the crown. Mallow ninebark will usually increase due to sprouting from rhizomes.

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 mallow ninebark will occur and noxious and invasive plants 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 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 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 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.

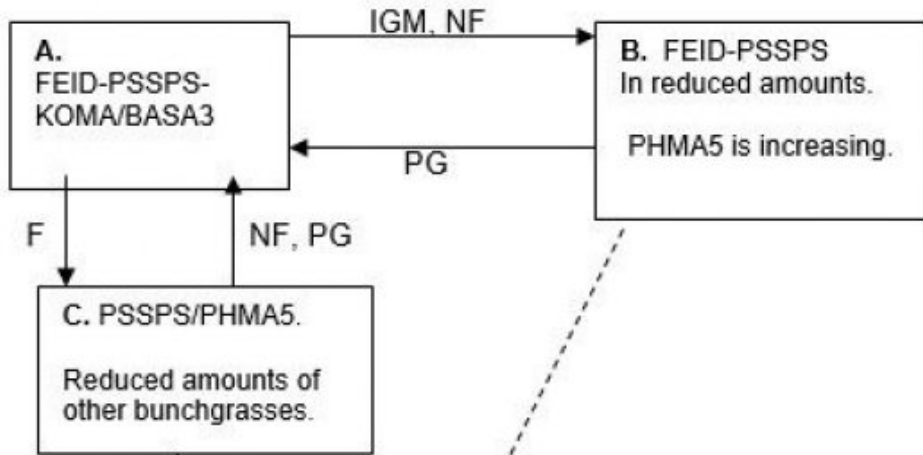
State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and/or frequent fire cause this state to cross a threshold and retrogress to a new site with reduced potential. It is economically impractical to return this plant community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

Practice Limitations:

Severe limitations exist on this site for accelerate 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. Plant Community Phases



FF
or
IGM

FF
and
IGM

IGM &/or FF

STATE 2.

ANNUALS, invasive and noxious plants.
Root sprouting shrubs can be present.

UNKNOWN AND
NEW SITE

LEGEND

IGM- Improper grazing management
PG- Prescribed grazing
FF- Frequent fire
NF- No fire
F- Fire
→ Community pathway (within states)
- - - - -> Reversible transition
— Threshold
→ Irreversible transition

PLANT LEGEND STATES 1 & 2

FEID - Idaho Fescue
PSSPS - Bluebunch Wheatgrass
KOMA - Prairie Junegrass
BASA3 - Arrowleaf Balsamroot
PHMA5 - Mallow Ninebark

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 big bluegrass, arrowleaf balsamroot, western yarrow, silky lupine, and tapertip hawksbeard. A variety of other forbs occur in minor amounts. Oceanspray,

mallow ninebark, and green rabbitbrush can be present in small amounts on the site. Natural fire frequency is 20-50 years.

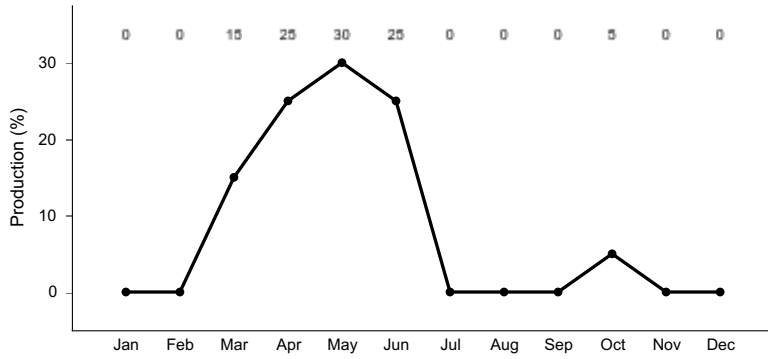


Figure 4. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

State 2
State 1 Phase B

Community 2.1
State 1 Phase B

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

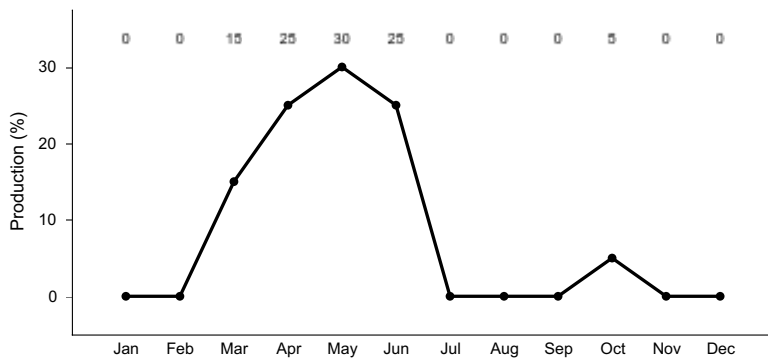


Figure 5. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

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 increased amounts of mallow ninebark. Idaho fescue is still in the plant community but in reduced amounts and vigor. Forbs have been reduced due to shading by mallow ninebark which has increased due to sprouting from rhizomes. Oceanspray and green rabbitbrush, if present, have re-sprouted from crowns. Some cheatgrass may have invaded the site. This plant community is the result of wildfire.

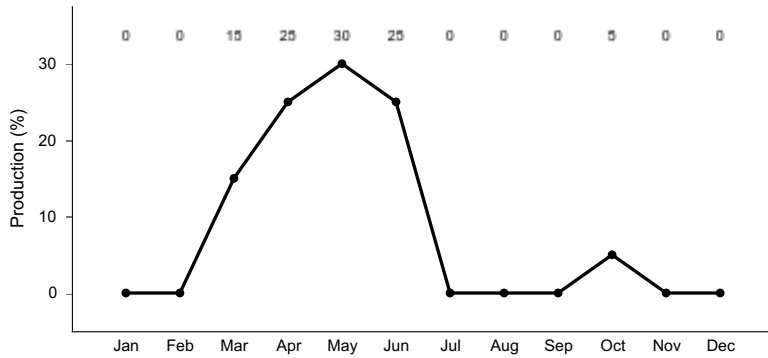


Figure 6. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

**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 species. Root and crown sprouting shrubs such as mallow ninebark, green rabbitbrush, and oceanspray can still be present in small amounts, 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.

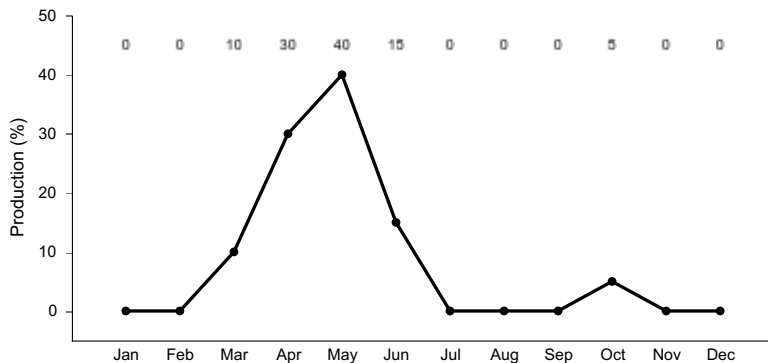


Figure 7. Plant community growth curve (percent production by month). ID0102, B9 BRTE-ANNUALS. State 2.

**State 5
State 3**

**Community 5.1
State 3**

Additional community tables

Table 5. Community 1.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production (Kg/Hectare) | Foliar Cover (%) |
|------------------------|----------------------------|--------|--|--------------------------------|------------------|
| Grass/Grasslike | | | | | |
| 1 | Grass and Grasslike | | | – | |
| | Idaho fescue | FEID | <i>Festuca idahoensis</i> | 504–807 | – |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata</i> ssp. <i>spicata</i> | 224–359 | – |
| | prairie Junegrass | KOMA | <i>Koeleria macrantha</i> | 84–135 | – |
| | needle and thread | HECOC8 | <i>Hesperostipa comata</i> ssp. <i>comata</i> | 0–17 | – |
| 2 | Big Bluegrass | | | – | |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 67–106 | – |
| Forb | | | | | |
| 3 | Forbs | | | – | |
| | arrowleaf balsamroot | BASA3 | <i>Balsamorhiza sagittata</i> | 84–135 | – |
| | tapertip hawksbeard | CRAC2 | <i>Crepis acuminata</i> | 50–78 | – |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 34–56 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 22–34 | – |
| | alumroot | HEUCH | <i>Heuchera</i> | 22–34 | – |
| | Ross' avens | GEROT | <i>Geum rossii</i> var. <i>turbinatum</i> | 22–34 | – |
| | aster | ASTER | <i>Aster</i> | 22–34 | – |
| | phacelia | PHACE | <i>Phacelia</i> | 22–34 | – |
| | tarragon | ARDR4 | <i>Artemisia dracunculus</i> | 22–34 | – |
| | Indian paintbrush | CASTI2 | <i>Castilleja</i> | 22–34 | – |
| | oneflower helianthella | HEUN | <i>Helianthella uniflora</i> | 22–34 | – |
| | longleaf phlox | PHLO2 | <i>Phlox longifolia</i> | 17–28 | – |
| | milkvetch | ASTRA | <i>Astragalus</i> | 17–28 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 17–28 | – |
| Shrub/Vine | | | | | |
| 4 | Shrubs | | | – | |
| | oceanspray | HODI | <i>Holodiscus discolor</i> | 1–17 | – |
| | mallow ninebark | PHMA5 | <i>Physocarpus malvaceus</i> | 1–17 | – |
| | yellow rabbitbrush | CHVI8 | <i>Chrysothamnus viscidiflorus</i> | 1–17 | – |

Animal community

Wildlife Interpretations.

Spring and summer use by mule deer and Rocky mountain elk occurs. Some use may be made of the site by upland game birds.

Grazing Interpretations.

This site is suitable for late spring, summer, and fall grazing by 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

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

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
Craigmont, ID
Orofino, ID
Lewiston, ID
Moscow, ID
St. Maries, 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: Idaho County, ID | |
| General legal description | North and east facing slopes along Rapid River in the vicinity of the Idaho Power Fish Hatchery. |

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.

| | |
|---|--|
| Author(s)/participant(s) | Dave Franzen and Jacy Gibbs Intermountain Range Consultants 17700 Fargo Rd. Wilder, ID 83676 |
| Contact for lead author | Brendan Brazee, State Rangeland Management Specialist USDA-NRCS 9173 W. Barnes Drive, Suite C, Boise, ID 83709 |
| Date | 04/15/2009 |
| Approved by | Kendra Moseley |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

- 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.

- 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.

- Number and height of erosional pedestals or terracettes:** Both can occur. 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 and large bunchgrasses. Contour terracettes can form from livestock grazing on steeper slopes.

- 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 15 to 25 percent.

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

- 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.

- 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 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 7 inches thick and is very dark brown, moist . Structure ranges from moderate to strong fine granular. Soil organic matter (SOM) ranges from 2 to 6 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.
-

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.
-

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):** Idaho fescue and bluebunch wheatgrass can become decadent in the absence of normal fire frequency and ungulate grazing. This is most noticeable in the dead centers of plants.
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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 1350 pounds per acre (1512 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, dalmation toadflax, and yellow star thistle.

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