Ecological site R008XY003ID
North Slope Loamy 12-16 PZ

Last updated: 9/23/2020
Accessed: 05/11/2025

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

R008XY004ID	**South Slope Loamy 12-16 PZ**
R008XY005ID	**South Slope Stony 12-16 PZ**
R008XY006ID	**Shallow South Slope 12-16 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Pseudoroegneria spicata* (2) *Festuca idahoensis*

Physiographic features

This site occurs on steep and very steep ridges, terrace fronts, and canyon walls on north and east facing slopes. Slopes range from 30-70 percent. Elevations range from 800-2600 feet (225-800 meters).

Table 2. Representative physiographic features

Landforms	(1) Canyon (2) Terrace
Elevation	240–800 ft
Slope	30–70%
Water table depth	60 in
Aspect	N, E

Climatic features

The elevation of MLRA 8 ranges from 1300 to 3600 feet above sea level. Average annual precipitation ranges from 12 to 17 inches, with a mean of 15 inches based on 4 long term climate stations located throughout the MLRA. In general precipitation peaks in November, December and January, with a sharp decline in July and August.
The average maximum annual temperature is 64 degrees Fahrenheit and the average minimum temperature is 41 degrees F. The frost free period can range from 160 to 186 days while the freeze free period ranges from 200 to 237 days.

Table 3. Representative climatic features

Frost-free period (average)	186 days
Freeze-free period (average)	237 days
Precipitation total (average)	17 in

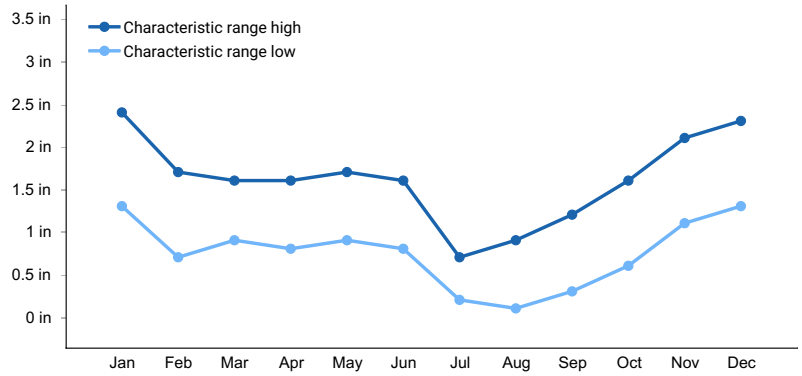


Figure 1. Monthly precipitation range

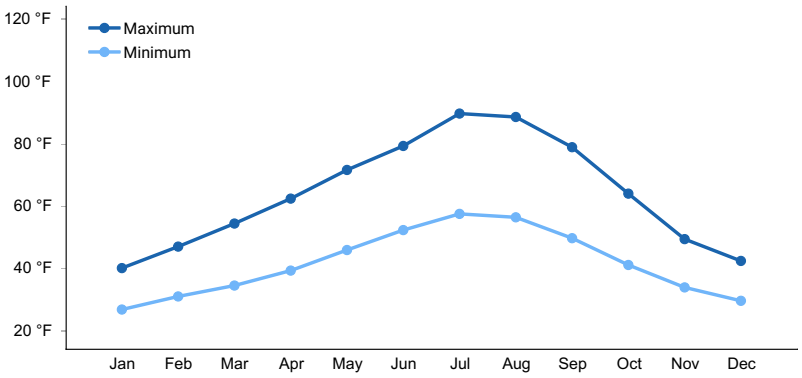


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Soil features

The soils on this site are formed in alluvial material, loess, colluvium and weathered basalt. They are deep to moderately deep, medium textured and well drained. The permeability is moderate and they have moderate available water capacity. Slopes range from 30 to 70 percent.

Table 4. Representative soil features

Parent material	(1) Alluvium–basalt
Surface texture	(1) Sandy loam

Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	40–60 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0–12%
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Subsurface fragment volume <=3" (Depth not specified)	0–25%
Subsurface fragment volume >3" (Depth not specified)	3–30%

Ecological dynamics

Ecological Dynamics of the Site:

The dominant visual aspect of this site has a grass and forb aspect. Idaho fescue and bluebunch wheatgrass are dominant. The site has a variety of forbs. The bluebunch wheatgrass on the site is usually rhizomatous at higher elevations. Composition by weight is approximately 80-85 percent grass, 10-20 percent forbs, and 0-5 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, white tail deer, lagomorphs, and small rodents.

Fire has historically occurred on the site at intervals of 20-40 years. The Reference State (State 1) of this site is dominated by Idaho fescue and bluebunch wheatgrass. Subdominant species include prairie junegrass, Sandberg bluegrass, arrowleaf balsamroot, yarrow, lomatium, and fleabane. Total annual production is 1200 pounds per acre (1333 kilograms per hectare) in a normal year. Production in a favorable year is 1600 pounds per acre (1777 kilograms per hectare). Production in an unfavorable year is 900 pounds per acre (1000 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by perennial forbs being much more dominant than shallow-rooted perennial grasses followed by tall shrubs.

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 1.1. The plant species composition of Community Phase 1.1 is listed later under “Reference Plant community Phase Plant Species Composition”.

This site is suited for grazing by domestic livestock in late spring, summer, and fall. Steep slopes, however, limit access. This site is important spring, summer, and fall range for big game. During the spring and summer it is important habitat for chukars and gray partridge. Mourning doves, bald eagles, and Merriam’s turkey also frequent the site. This site has high value for chukar, gray partridge, quail, and big game hunting. Aesthetic values are good. The site position offers an excellent view of the surrounding countryside.

The site is fairly resistant to disturbances that can potentially degrade it as long as a good herbaceous cover is

retained.

Impacts on the Plant Community.

Influence of fire:

In the absence of fire and/or grazing, bluebunch wheatgrass and Idaho fescue can become somewhat decadent due to build-up of old residues in the crown.

When fires become more frequent than historic levels (20-40 years), Idaho fescue and bluebunch wheatgrass are reduced significantly. Cheatgrass, bulbous bluegrass, and Japanese brome will invade. With a continued short fire frequency, root-sprouting shrubs such as gray rabbitbrush will increase and will further reduce the grass component.

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, the plant community becomes susceptible to an increase in root-sprouting shrubs and 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 help maintain the integrity of the plant community.

Weather influences:

Above normal precipitation in March, 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.

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:

Grasshopper outbreaks periodically occur. 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 spring, summer, and fall. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

Decreased infiltration and increased runoff occur with the loss of the perennial grasses. This is most likely caused by an abnormally short fire frequency brought on by replacement of perennial grasses with annual grasses. The long-term effect is a transition to a different state.
Plant Community and Sequence:

Transition pathways between common vegetation states and communities:

State 1.
1.1 Idaho fescue-bluebunch wheatgrass
Phase 1.1 to 1.2 (1.1A). Develops with improper grazing management and no fire.
Phase 1.1 to 1.3 (1.1B). Develops with fire.
Phase 1.2 to 1.1 (1.2A). Develops with prescribed grazing.
Phase 1.3 to 1.1 (1.3A). Develops with prescribed grazing and no fire.

Phase 1.2, State 1 to State 2 (T1B). Develops with improper grazing management and fire. The site crosses the threshold. It is not economically feasible to move this state back towards State 1 with accelerating practices.

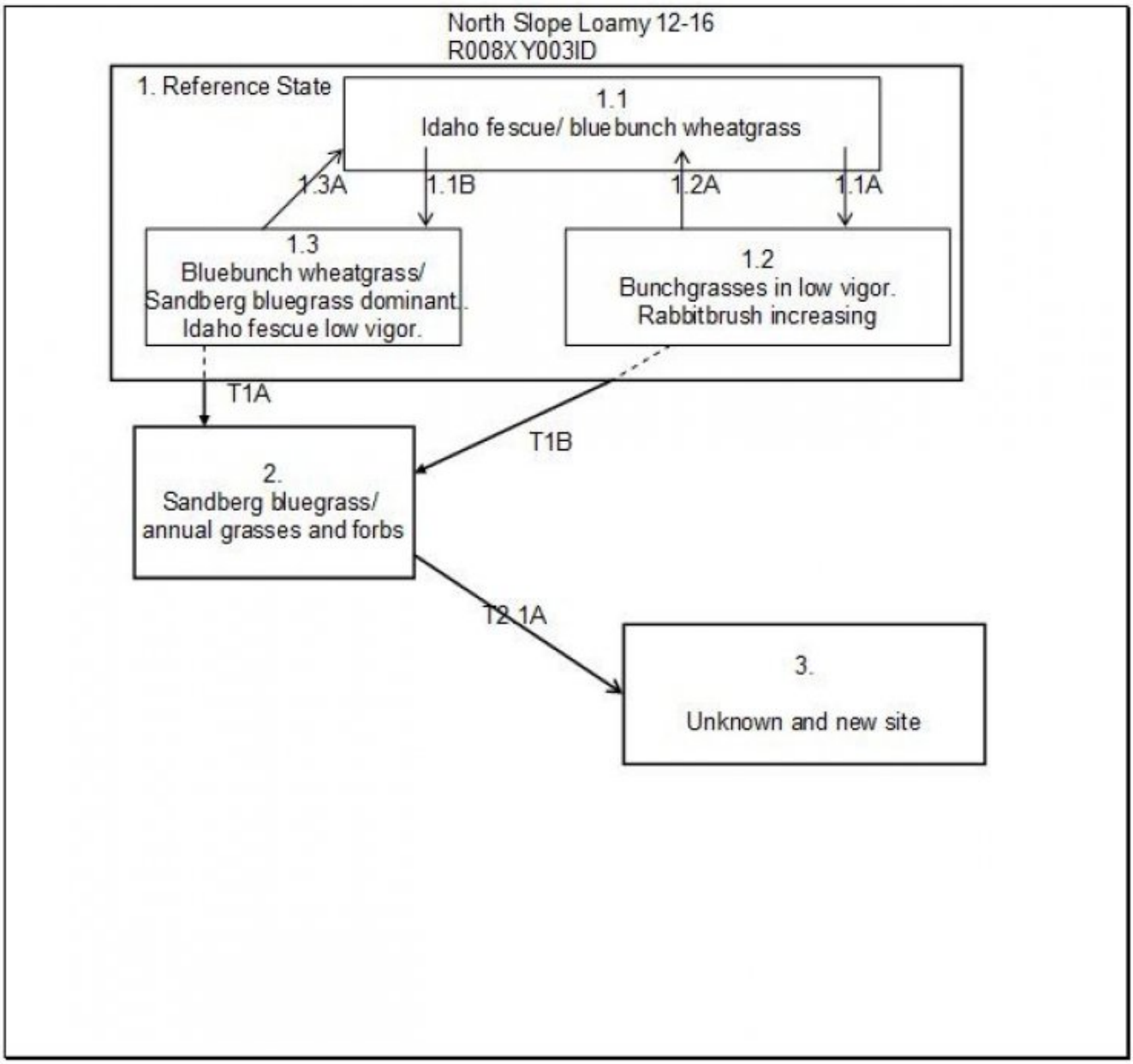
Phase 1.3, State 1 to State 2 (T1A). Develops through frequent fire or continued improper grazing management. The site crosses the threshold. It is not economically feasible to move this state back towards State 1 with accelerating practices.

State 2 to unknown site (T2.1A). 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 not economically feasible to move this state back towards State 1 with accelerating practices.

Practice Limitations.

Severe limitations exist on this site for seeding and brush control using conventional ground moving equipment due to steep slopes >30 percent.

State and transition model



State 1
Reference State

Community 1.1
Idaho Fescue Bluebunch Wheatgrass

Figure 3. Reference Plant Community

State 1, Reference State. Reference Plant Community Phase. This plant community is dominated by Idaho fescue and bluebunch wheatgrass. Subdominant species include prairie junegrass, Sandberg bluegrass, arrowleaf balsamroot, yarrow, lomatium, and fleabane. Natural fire frequency is 20-40 years.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	750	990	1330
Forb	130	185	240
Shrub/Vine	20	25	30
Total	**900**	**1200**	**1600**

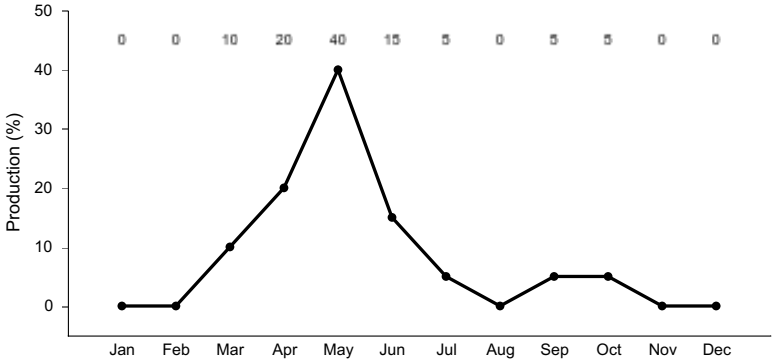


Figure 5. Plant community growth curve (percent production by month). ID0601, ATCO/ACHY. State 1.

Community 1.2
Increased Rabbitbrush low vigor bunchgrass

Plant Community Phase 1.2. This plant community has reduced amounts of bluebunch wheatgrass and Idaho fescue. All deep-rooted bunchgrasses are typically in low vigor. Kentucky bluegrass has invaded at the higher elevations. Some cheatgrass, medusahead, bulbous bluegrass, yellow starthistle, and ventenata may also have invaded the site. This phase has developed due to improper grazing management and no fire (1.1A).

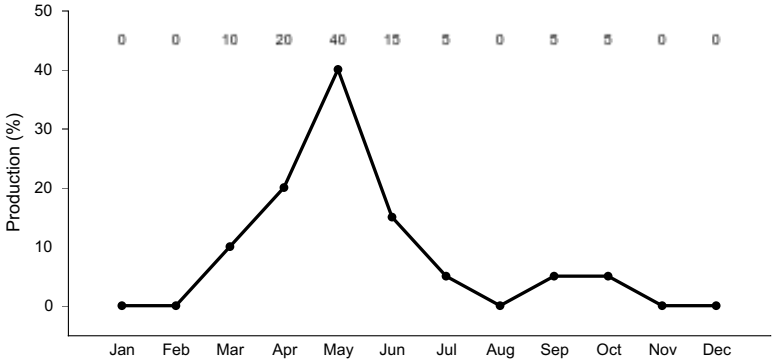


Figure 6. Plant community growth curve (percent production by month). ID0601, ATCO/ACHY. State 1.

Community 1.3
Bluebunch Wheatgrass- Sandberg Bluegrass

Plant Community Phase 1.3. This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Idaho fescue is present but in low vigor. Some cheatgrass and Kentucky bluegrass may have invaded the site. This plant community is the result of recent wildfire (1.1B).

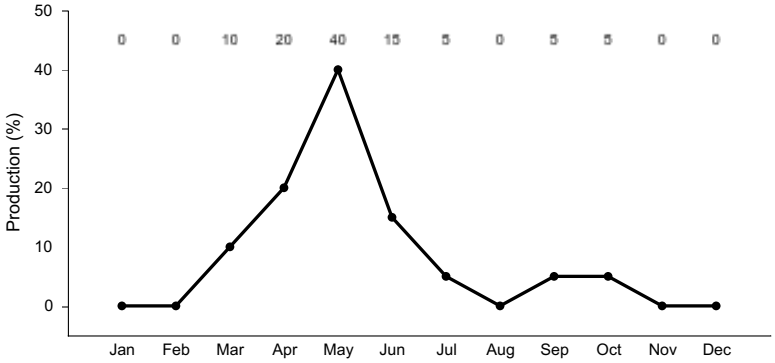


Figure 7. Plant community growth curve (percent production by month). ID0601, ATCO/ACHY. State 1.

State 2
Sandberg Bluegrass/Annuals

Community 2.1
Sandberg Bluegrass - Annuals

State 2. This plant community is dominated by cheatgrass and other annuals. Root sprouting shrubs such as gray rabbitbrush can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires and improper grazing management from plant community phase 1.2 (T1B) or with frequent fire or improper grazing management from plant community phase 1.3 (T1A). The site has crossed the threshold. It is not economically feasible to move this state back towards State 1 with accelerating practices.

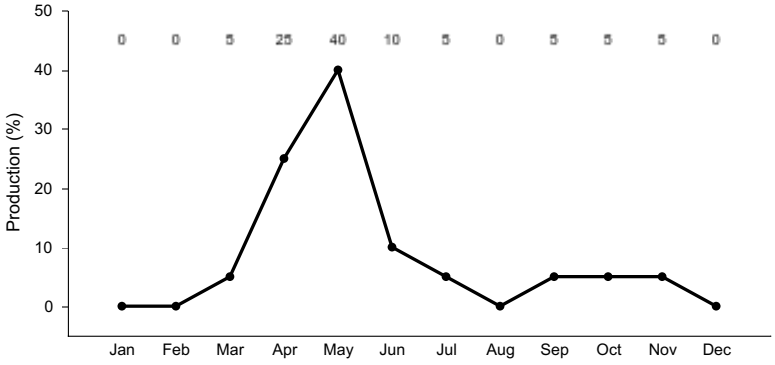


Figure 8. Plant community growth curve (percent production by month).

State 3
Unknown

Community 3.1
Unknown Community

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				750–1330	
	Idaho fescue	FEID	*Festuca idahoensis*	250–1000	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	250–1000	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	1–40	–
	Sandberg bluegrass	POSE	*Poa secunda*	1–40	–
Forb					
2				130–240	
	common yarrow	ACMI2	*Achillea millefolium*	1–70	–
	phlox	PHLOX	*Phlox*	1–50	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	1–40	–
	fleabane	ERIGE2	*Erigeron*	1–25	–
	desertparsley	LOMAT	*Lomatium*	1–25	–
Shrub/Vine					
3	**Shrubs**			20–30	
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	1–25	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	1–25	–

Animal community

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

This rangeland ecological site provides diverse habitat for many native wildlife species. The plant community is dominated by herbaceous vegetation that provides spring, summer, and fall 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, northern harrier, red-tailed hawk, 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, bulbous bluegrass, rush skeletonweed and yellow starthistle) 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 runoff, artificial water catchments, and springs.

State 1 Phase 1.1 - Idaho Fescue/ Bluebunch Wheatgrass Reference Plant Community (RPC): This plant community provides a diversity of grasses and forbs used by native insect communities that assist in pollination. Flowering forbs and shrubs including yarrow, arrowleaf balsamroot, phlox, biscuitroot, buckwheat, and rabbitbrush provide spring through fall habitat for pollinators. 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. Wild turkeys may frequent the site for brood-rearing in the spring and summer. The plant community provides spring, summer, and fall forage for mule deer and elk. Bluebunch wheatgrass, prairie junegrass, and Idaho fescue are all desirable forage species for elk and mule deer. The grazing management will determine the quality and duration of grazing available for mule deer and elk. 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 - Idaho Fescue/ Bluebunch Wheatgrass/ Kentucky Bluegrass/ Rabbitbrush Plant Community: This phase has developed due to improper grazing management and little to no fire. The reduced vigor and production of the herbaceous vegetation will reduce the quality of the habitat for 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. The quality of cover habitat for ground-nesting birds is reduced due to reduced canopy cover. Wild turkeys may frequent the site for brood-rearing in the spring and summer when vegetation is in good condition. The reduced vigor of plants and improper grazing management of the native herbaceous plant community provides a shorter grazing season for mule deer and elk. If managed properly, Kentucky bluegrass is a desirable forage species for large herbivores. Areas where shrubs have increased will provide additional cover for small mammals. 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 would be similar to that in State 1 Phase 1.1. The reptile community would also be similar to the State 1 Phase 1.1 reptile community. The quality of cover and forage habitat for birds is reduced due to poor vigor and production of herbaceous vegetation. Wild turkey may frequent the site for brood-rearing in the spring and summer when vegetation is in good condition. The reduced vigor of the plants provides a shorter grazing season for mule deer and elk. Small mammal populations would be similar to those in State 1 Phase 1.1.

State 2 – Sandberg Bluegrass/ Cheatgrass/ Annuals/ Noxious Weeds Plant Community: This state has developed due to frequent fires and improper grazing management in plant community phase 1.2 or with frequent fire or improper grazing management in plant community phase 1.3. The plant community supports harmful insects, such as grasshoppers due to improved breeding conditions. The plant community would support a very limited population of pollinators supported by noxious weeds. Most reptilian species are not supported with food, water, or cover. Diversity of grassland avian species is reduced due to poor cover and forage. 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 is suited for grazing by domestic livestock in late spring, summer, and fall. Steep slopes, however, limit access.
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.

Hydrological functions

Soils on this site are in hydrologic group B.

Recreational uses

Aesthetic values are good. A large variety of flora is present which have flowers that bloom in spring and early summer. The site position offers an excellent view of the surrounding countryside. The site is popular as a hiking area because of the variety of views and activities offered. This site has high value for upland game bird and big game hunting. Species involved include chukar, gray partridge, quail, and mule deer.

Wood products

None.

Other products

None.

Other information

Field Offices
Lewiston, ID
Moscow, 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: Garfield County, WA	
Township/Range/Section	T11N R45E S22

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.
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

BB
Dave Franzen And Jacy Gibbs

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	03/19/2009
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.

2. **Presence of water flow patterns:** Water-flow patterns do not occur on this site.

3. **Number and height of erosional pedestals or terracettes:** None.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** May range from 0-10 percent.

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

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 one foot 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 .

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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 dark grayish brown and 0 -10 inches thick. Structure ranges from weak coarse subangular blocky to strong fine granular. Soil organic matter ranges fro 4 to 6 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.

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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: perennial forbs

    Other: shallow-rooted perennial grasses

    Additional: 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 on this site, however litter can build up in the crowns of Idaho fescue and bluebunch wheatgrass.

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14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 15-30 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 1200 pounds per acre (1333 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 80-85 percent of the total production, forbs 10-20 percent, and shrubs 0-5 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 cheatgrass, bulbous bluegrass, Japanese brome, ventenata, Kentucky bluegrass, curlycup gumweed, St. Johnswort, broom snakeweed, rush skeletonweed, musk thistle, yellow star-thistle, scotch thistle, and diffuse and spotted knapweed.

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