USDA Natural Resources
Conservation Service

Ecological site R013XY011ID
Windswept Ridge 12-20 PZ ARNO4/PSSPS

Last updated: 2/13/2025
Accessed: 05/14/2025

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.

MLRA notes

Major Land Resource Area (MLRA): 013X–Eastern Idaho Plateaus

013X-Eastern Idaho Plateaus

Precipitation or Climate Zone: 12-20” P.Z.
https://soils.usda.gov/survey/geography/mlra/index.html

Classification relationships

Land Resource Unit: B (Northwestern Wheat and Range)
MLRA: 13 (Eastern Idaho Plateaus)

EPA EcoRegion: Level III (Middle Rockies)

Ecological site concept

Site does not receive any additional water.
Soils are:
not saline or saline-sodic.
moderately deep, deep, with >35% stone (10-25”) and boulder (>25”) cover. skeletal within 20” of soil surface, fragment percentage increasing with depth
not strongly or violently effervescent in surface mineral 10”.
textures usually range from very fine sandy loam to clay loam in surface mineral 4”.
Slope is > 30%.
Clay content is = <32% in surface mineral 4”.
Site does not have an argillic horizon with > 35% clay.

Associated sites

R013XY001ID	**Loamy 12-16 PZ**
R013XY012ID	**Gravelly South Slope 12-16 PZ ARTRV/PSSPS**
R013XY035ID	**South Slope Loamy 12-16 PZ ARTRW8/PSSPS**

Similar sites

R013XY040ID	**Limestone Gravelly 12-16 PZ ARNO4/PSSPS**

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia nova*
Herbaceous	(1) *Pseudoroegneria spicata*

Physiographic features

This site occurs on windswept exposed mountain sides and canyon side slopes. The site consists of long narrow bands on ridgetops. Slopes range from 5 to 60 percent generally with a south or westerly aspect. Elevations range from 6500 to 9000 feet (1950 to 2750 meters).

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Canyon
Flooding frequency	None
Elevation	1,981–2,743 m
Slope	5–60%
Water table depth	152 cm
Aspect	S, W

Climatic features

MLRA 13, the Eastern Idaho Plateaus, is part of the Northwestern Wheat and Range Region. Its elevation ranges from 4209 to 9331 feet above sea level, with an average elevation of 5787 feet. The average annual precipitation is 16.41 inches, with a range of 13.56 to 18.75 inches, based on ten long term climate stations located throughout the MLRA. A spike in precipitation amount often occurs in late spring, usually in May.

Temperatures vary widely in the MLRA throughout the year. A maximum temperature of 103° Fahrenheit occurred at the McCammon climate station (# 105716; elevation 4770 feet), while a minimum of -41° was recorded at the Kilgore station (#104908). At all stations temperatures throughout the year are usually below the national average. Kilgore also recorded the greatest annual snowfall amount of 217 inches. The average temperature is 41.4 degrees F. with an average high of 55.3 degrees and an average low of 27.5 degrees.

The frost-free period ranges from 64 to 90 days, while the freeze-free period can be 98 to 123 days.

Table 3. Representative climatic features

Frost-free period (average)	90 days
Freeze-free period (average)	123 days
Precipitation total (average)	483 mm

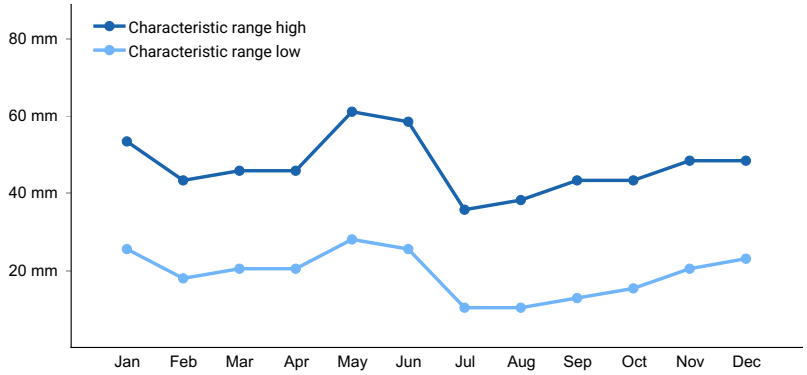


Figure 1. Monthly precipitation range

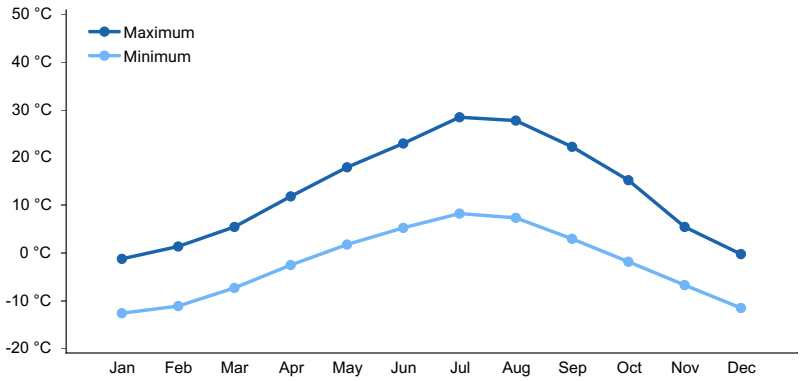


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Soil features

The soils on this site are shallow to deep to fractured bedrock which is generally limestone. They have medium to moderately fine surface textures, mostly sandy loam to loam. Surface textures may range from gravelly to very gravelly and stony to extremely stony. Coarse fragments increase with depth and are approximately 40 percent by volume. Permeability is moderate. The available water holding capacity (AWC) is very low to low, except for cracks in the bedrock which stores water for deep-rooted plants. Erosion is not excessive due to coarse fragments on the surface unless vegetation is depleted and slope increases. The site is characterized by a xeric soil moisture regime and a cryic soil temperature regime.

Soil Series Correlated to this Ecological Site

Middlehill
Povey

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Extremely stony loam
Drainage class	Well drained
Permeability class	Moderate
Soil depth	51–152 cm
Surface fragment cover <=3"	20–30%
Surface fragment cover >3"	5–25%
Available water capacity (0-101.6cm)	2.54–7.87 cm
Calcium carbonate equivalent (0-101.6cm)	0–5%
Soil reaction (1:1 water) (0-101.6cm)	5.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	50–65%
Subsurface fragment volume >3" (Depth not specified)	5–35%

Ecological dynamics

Ecological Dynamics of the Site:

The dominant visual aspect of this site is low growing vegetation, which is sparse and barren at times. Composition by weight is approximately 20-40 percent perennial grasses, 25-35 percent forbs, and 35-45 percent shrubs.

During the last few thousand years, this site has evolved in a semi-arid climate characterized by dry summers and cold, wet winters. Herbivory has historically occurred on the site at low levels of utilization. Herbivores include pronghorn antelope at the lower elevations, mule deer, sage grouse, lagomorphs, and small rodents.

Fire has historically occurred on this site every 80 to 100 years. Fire occurs only in years with above normal precipitation.

The Historic Climax Plant Community (HCPC), 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. The plant community is dominated by black sagebrush in the overstory and bluebunch wheatgrass in the understory. Subdominant species include Sandberg bluegrass, Hoods phlox, and stemless goldenweed. 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 (730 Kg/ha) in a normal year. Production in a favorable year is 1000 pounds per acre (1120 Kg/ha). Production in an unfavorable year is 350 pounds per acre (390 Kg/ha). Structurally low growing shrubs are dominant, followed by bunchgrasses being co-dominant with perennial forbs.

FUNCTION:

The suitability of this site for grazing by cattle is limited due stony soils, low production, and a lack of water. This site can be most effectively grazed by sheep in the summer. This site has limited value for wildlife due to lack of cover and distance to water. It is an important wintering area for sage grouse at lower elevations since the wind keeps the ridgetops blown free of snow, making the vegetation accessible. Due to the surface stones on this site, it is fairly resistant to disturbances that can potentially degrade it. However, the site has high run-off potential especially when the vegetation is removed.

This site has good values for aesthetics and recreational hiking. The site is located on elevated areas with a view of the valleys and canyons below.

Impacts on the Plant Community.

Influence of fire:

This site historically had a very low fire frequency, approximately every 80-100 years. Most of the shrubs evolved in the absence of fire, therefore they can be severely damaged or killed when burned. Utah juniper can invade the site if a seed source is in the vicinity. Cheatgrass can be a troublesome invader at lower elevations on this site after fire, preventing perennial grass and shrub re-establishment and increasing the fire frequency.

Influence of improper grazing management:

Black sagebrush can be impacted by improper grazing management. Relatively low levels of utilization by cattle and sheep are needed to maintain the shrub component.

Proper grazing management can maintain the integrity of the plant community.

Weather influences:

Above normal precipitation in April, May, and June can dramatically increase total annual production. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Sandberg bluegrass has the ability to withstand short-term drought by becoming dormant during an abnormally dry spring. However, extended periods of drought impact this site due to the low available water holding capacity (AWC) and shallow soils. Extended drought reduces vigor of the perennial grasses and palatable shrubs. Extreme drought may cause plant mortality.

Influence of insects and disease:

An outbreak of a particular insect or disease is usually influenced by weather but no specific data is available for this site.

Influence of noxious and invasive plants:

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. Cheatgrass can be invasive on this site, especially after fire at lower elevations. Once it becomes established the fire frequency increases. As a result, the shrub component can be lost.

Influence of wildlife:

Relatively low numbers of wildlife use this site and have little impact on it. Pronghorn antelope at lower elevations and mule deer are the dominant large herbivores using the site. They use the site yearlong but prefer it in the spring, fall, and early winter. It is an important wintering area for sage grouse since the wind keeps the ridgetops blown free of snow, making the vegetation accessible.

Watershed:

Decreased infiltration and increased runoff occurs when black sagebrush is removed with frequent fires, particularly the year following the fire event. The increased runoff also increases sheet and rill erosion. The long-term effect is a transition to a different state. This site has a low erosion hazard but a high run-off potential.

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.
Phase A to B. Usually results from improper grazing management and absence of fire.
Phase A to C. Results from one or more fires.
Phase B to A. Develops from prescribed grazing management and no fire.
Phase C to A. Develops with prescribed grazing management and no fire.
Phase B to C. Results from prescribed burning or fire.

State 1 Phase C to State 2, Phase B. Develops through improper grazing management. This site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

State 1 Phase B to State 2 Phase A. Develops through improper grazing management with no fire. This site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

State 2 Phase A to State 2 Phase B. Results from improper grazing management and fire. The site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

State 2 Phase B to State 2 Phase A. Results from no fire. The site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

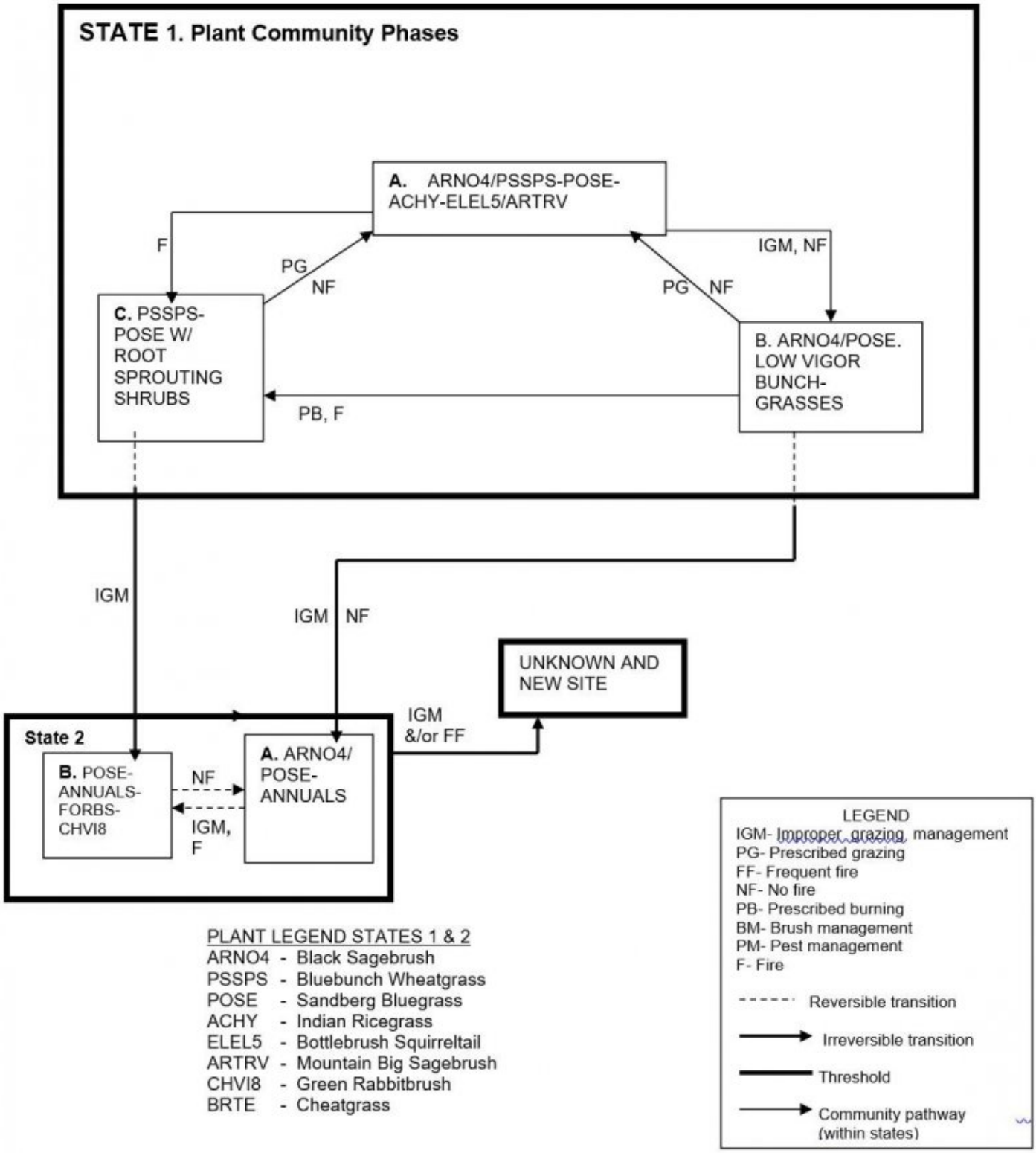
State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by improper grazing management and/or frequent fire cause this state to cross the threshold and retrogress to a new site with reduced

potential. It is usually uneconomical to return this community to State1 through accelerated practices.

Practice Limitations.

Severe limitations exist for brush management and seeding due to steep slopes and shallow stony soils and the limited extent of the site.

State and transition model



State 1
State 1

Community 1.1
State 1 Phase A

Reference Plant Community Phase. This plant community is dominated by bluebunch wheatgrass and black sagebrush. Small amounts of Sandberg bluegrass, Indian ricegrass, and bottlebrush squirreltail may be present. A large variety of forbs are present but each represents a small amount in the community. Other shrubs such as mountain big sagebrush, Wyeth eriogonum, prickly pear, green rabbitbrush, and gray rabbitbrush may be present in small amounts. All are stunted. Natural fire frequency is 80-100 years.

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	65-80%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

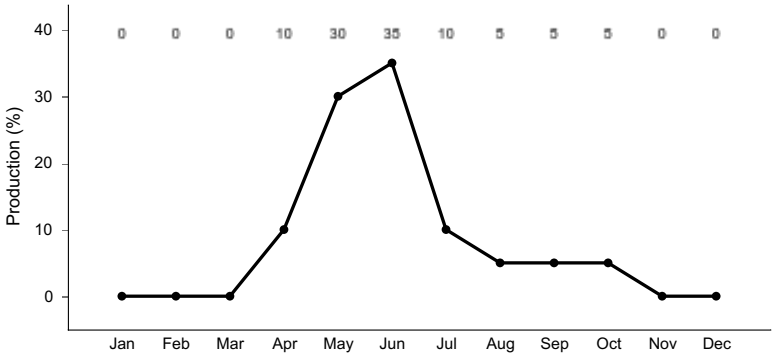


Figure 3. Plant community growth curve (percent production by month). ID0812, ARARL/PSSPS.

Community 1.2
State 1, Phase B

This plant community is dominated by black sagebrush in the overstory. Sandberg bluegrass is the dominant grass in the understory. Bluebunch wheatgrass is present but in reduced amounts and typically in low vigor. This state has developed due to improper grazing management and a lack of fire.

Community 1.3
State 1, Phase C

This plant community is dominated by bluebunch wheatgrass. Sandberg bluegrass and other perennial grasses and forbs are subdominant. Remnants of Nevada bluegrass and other fine-leaved grasses may be present. Root-sprouting shrubs such as rabbitbrush, and gray horsebrush may be present. This plant community is a result of fire.

Pathway 1.1A

Community 1.1 to 1.2

Usually results from improper grazing management and absence of fire.

Pathway 1.1B
Community 1.1 to 1.3

Results from one or more fires.

Pathway 1.2A
Community 1.2 to 1.1

Develops from prescribed grazing management and no fire

Pathway 1.2B
Community 1.2 to 1.3

Results from prescribed burning or fire

Pathway 1.3A
Community 1.3 to 1.1

Develops with prescribed grazing management and no fire

State 2
State 2

Community 2.1
State 2, Phase A

This plant community is dominated by black sagebrush with Sandberg bluegrass and annuals in the interspaces. Cheatgrass has invaded the plant community. This state has developed due to improper grazing management and the absence of fire from Phase B, State 1 or with no fire from Phase B, State 2. This site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

Community 2.2
State 1 Phase B

This plant community is dominated by Sandberg bluegrass and other annuals and forbs. Root sprouting shrubs such as rabbitbrush and gray horsebrush are present. This state has developed due to improper grazing management from Phase C, State 1 or with improper grazing management and fire from Phase A, State 2. Soil loss has occurred. This site has crossed the threshold. It is usually uneconomical to return this community to State 1 through accelerated practices.

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	65-80%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%

Bedrock	0%
Water	0%
Bare ground	0%

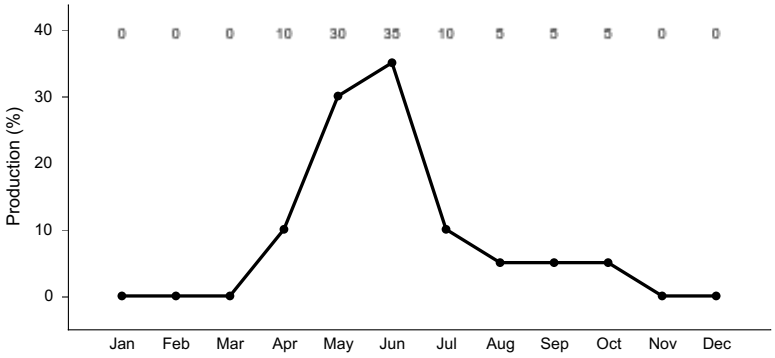


Figure 4. Plant community growth curve (percent production by month). ID0812, ARARL/PSSPS.

Pathway 2.1A
Community 2.1 to 2.2

. Results from improper grazing management and fire. The site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

Pathway 2.2A
Community 2.2 to 2.1

Results from no fire. The site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices

State 3
State 3

Unknown new site. This plant community has gone over the threshold to a new site. Site potential has been reduced. Significant soil loss has occurred. Infiltration has been reduced and run-off has become more rapid. This state has developed due to continued improper grazing management and/or frequent fires. This site will not return to State 1 or 2 through accelerated practices because of significant soil loss.

Community 3.1
State 1 Phase C

This plant community is dominated by bluebunch wheatgrass. Sandberg bluegrass and other perennial grasses and forbs are subdominant. Remnants of Nevada bluegrass and other fine-leaved grasses may be present. Root-sprouting shrubs such as rabbitbrush, and gray horsebrush may be present. This plant community is a result of fire.

Table 7. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	65-80%

Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

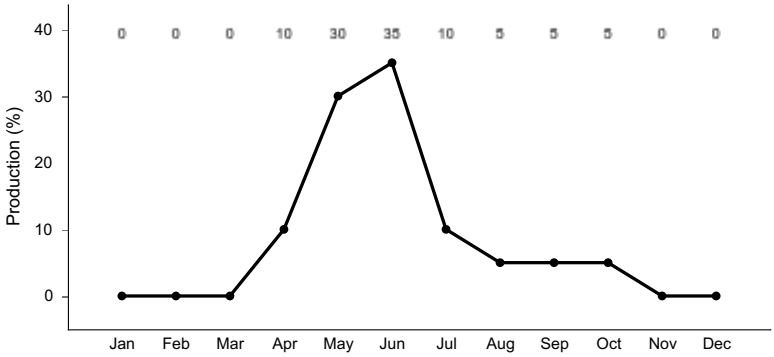


Figure 5. Plant community growth curve (percent production by month). ID0812, ARARL/PSSPS.

State 4
State 2 Phase B

Community 4.1
State 2 Phase B

This plant community is dominated by Sandberg bluegrass and other annuals and forbs. Root sprouting shrubs such as rabbitbrush and gray horsebrush are present. This state has developed due to improper grazing management from Phase C, State 1 or with improper grazing management and fire from Phase A, State 2. Soil loss has occurred. This site has crossed the threshold. It is usually uneconomical to return this community to State 1 through accelerated practices.

Table 8. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	65-80%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

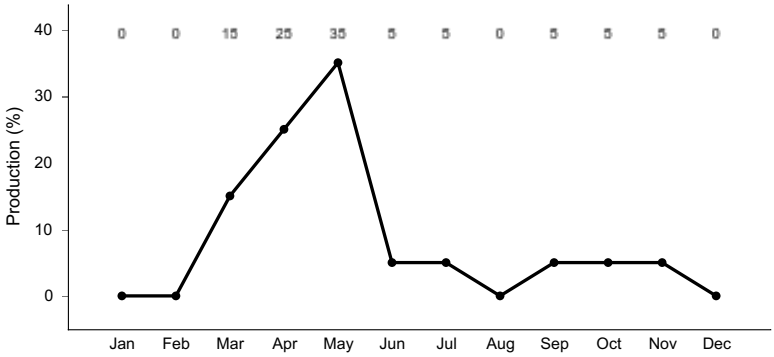


Figure 6. Plant community growth curve (percent production by month). ID0811, POSE-BRTE/ANNUALS.

State 5
State 3

Community 5.1
State 3

Unknown new site. This plant community has gone over the threshold to a new site. Site potential has been reduced. Significant soil loss has occurred. Infiltration has been reduced and run-off has become more rapid. This state has developed due to continued improper grazing management and/or frequent fires. This site will not return to State 1 or 2 through accelerated practices because of significant soil loss.

Table 9. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	65-80%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Transition T1A
State 1 to 2

State 1 Phase C to State 2, Phase B. Develops through improper grazing management. This site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices. State 1 Phase B to State 2 Phase A. Develops through improper grazing management with no fire. This site has crossed the threshold. It is usually uneconomical to return this community to State1 through accelerated practices.

Transition T2A
State 2 to 3

State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by improper grazing management and/or frequent fire cause this state to cross the threshold and retrogress to a new site with reduced

potential. It is usually uneconomical to return this community to State1 through accelerated practices.

Additional community tables

Animal community

Wildlife Interpretations.
Animal Community – Wildlife Interpretations

This rangeland ecological site provides habitat for select native wildlife species who can tolerate cold sites, high in elevation, with a sparse plant community. The plant community exhibits a diverse mixture of forbs throughout the short growing season offering habitat for invertebrates. At lower elevations mule deer, pronghorn antelope, and elk are the large herbivores using the site. The site provides seasonal habitat for resident and migratory animals including western toad, sagebrush lizard, shrews, ground squirrels, mice, coyote, red fox, badger, sage-grouse, Ferruginous hawk, prairie falcon, horned lark, and western meadowlark. Sage-grouse is an area sensitive species in this plant community. Encroachment of noxious and invasive plant species (cheatgrass) in isolated areas 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 –Black Sagebrush/ Bluebunch Wheatgrass/ Sandberg Bluegrass/ Indian Ricegrass/ Bottlebrush Squirreltail/ Mountain Big Sagebrush Reference Plant Community (RPC) This plant community provides a diversity of grasses, forbs, and shrubs used throughout the growing season by native insect communities that assist in pollination. The reptile and amphibian community is represented by common sagebrush lizard, western rattlesnake, Great Basin spadefoot toad, western toad, and northern leopard frog. Amphibians are associated with springs and isolated water bodies adjacent to this plant community. Development of spring sites that collect all available water would exclude amphibian use on these sites. Sage-grouse utilize this plant community for nesting, winter food, and cover. The plant community provides forage for mule deer, antelope, and elk in the spring, fall, and winter. A diverse small mammal population including golden-mantled ground squirrels, jackrabbits, deer mice, and Great Basin pocket mice may utilize this plant community. Pika may be present at higher elevations when adjacent to talus slopes.

State 1 Phase 1.2- Black Sagebrush/ Sandberg Bluegrass Plant Community: This plant community is the result of improper grazing management and lack of fire. An increase in canopy cover of sagebrush contributes to a sparse herbaceous understory. The reduced herbaceous understory results in reduced diversity and numbers of insects. The reptile and amphibian community is similar to that identified in State 1 Phase 1.1. The reduction of grasses and forbs in the plant community would reduce the available prey species and cover for these resident reptiles. The quality of nesting and brood rearing habitat for birds would be lowered due to the sparse understory cover. Winter cover and winter food for sage-grouse is available. Reduced understory vegetation would lower spring and fall forage value for deer, antelope, and elk. Winter browse for deer and antelope would still be available at lower elevations. The small mammal population would be similar to the State 1 Phase 1.1 animal community.

State 1 Phase 1.3 – Bluebunch Wheatgrass/ Sandberg Bluegrass Plant Community: This plant community is the result of fire. The plant community, dominated by herbaceous vegetation would provide less vertical structure for animals. Patches of root sprouting shrubs (rabbitbrushes and gray horsebrush) may be present and provide limited vertical structure for wildlife. Insect diversity would be reduced due to less diverse shrub cover, but a native forb plant community would still support select pollinators. Rabbitbrush would add fall pollinator habitat in the future. Habitat quality for reptiles including common sagebrush lizard and western rattlesnake would decline due to the loss of brush cover. Winter cover and winter forage use by sage-grouse is eliminated. The dominant herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (mule deer, elk, and antelope) use for forage would be limited to herbaceous vegetation in the spring, summer, and fall.

State 2 Phase 2.1 - Black Sagebrush/ Sandberg Bluegrass/ Annuals Plant Community: This plant community is the result of improper grazing management and lack of fire. The reduced herbaceous understory results in reduced diversity and numbers of insects. The reptile and amphibian community is similar to species identified in State 1 Phase A1.1 animal community. The reduction of grasses and forbs in the plant community would reduce the available prey species and cover for these resident reptiles. The quality of nesting and brood rearing habitat for

birds would be lowered due to the sparse understory cover. Winter cover and winter food for sage-grouse is available. At lower elevations the reduced understory vegetation would lower spring and fall forage value for deer, antelope, and elk. Winter browse for deer and antelope would be available. The small mammal population would be similar to the State 1 Phase 1.1 animal community.

State 2 Phase 2.2 – Sandberg Bluegrass/ Cheatgrass / Annuals Plant Community: This phase has developed due to improper grazing management from State 1, Phase 1.3 or with improper grazing management and fire from State 2, Phase 2.1. The reduced forb and shrub component in 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 available food. Birds of prey including hawks and falcons may range throughout these areas looking for prey species. Deer and pronghorn 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 ungulates would not utilize these areas.

Grazing Interpretations:

The suitability of this site for grazing by cattle is limited due stony soils, low production, and a lack of water. This site can be most effectively grazed by sheep in the summer.
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

Soils on this site are in hydrologic group D. The site has high run-off potential especially when the vegetation is removed.

Recreational uses

This site has good values for aesthetics and recreational hiking. The site is located on elevated areas with a view of the valleys and canyons below.

Wood products

none

Other products

none

Other information

Field Offices

American Falls, ID
Blackfoot, ID
Burley, ID
Driggs, ID
Fort Hall, ID
Idaho Falls, ID
Malad, ID
Pocatello, ID
Rexburg, ID
Soda Springs, ID
St. Anthony, ID

Revision Notes: “Previously Approved” Provisional
This Provisional ecological site concept has passed Quality Control (QC) and Quality Assurance (QA) to ensure that the site meets the 2014 NESH standards for a Provisional ecological site description. This is an updated “Previously Approved” ESD that represents a first-generation tier of documentation that, prior to the release of the 2014 National Ecological Site Handbook (NESH), met all requirements as an “Approved” ESD as laid out in the 1997 (rev.1, 2003) National Range and Pasture Handbook (NRPH). The document fully described the Reference State and Community Phase in the State-and-Transition model. All other alternative states are at least described in narrative form. The “Previously Approved” ESD has been field-tested for a minimum of five years and is a proven functional document for conservation planning. The “Previously Approved” ESD does not contain all tabular and narrative entries as required in the current “Approved” level of documentation, but it is expected that the “Previously Approved” ESD will continue refinement toward an “Approved” status.

Site Development and Testing Plan:
Future work, as described in a Project Plan, is necessary to validate the information in this Provisional Ecological Site Description. This will include field activities to collect low-, medium-, and high-intensity sampling, soil correlations, and analysis of that data. Annual field reviews should be done by soil scientists and vegetation specialists. The final field review, peer review, quality control, and quality assurance reviews of the ESD will be required to produce the final document.

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
Lee Brooks, Range Management Specialist, IASCD
Kristen May, Resource Soil Scientist, NRCS, Idaho

Type locality

Location 1: Power County, ID	
Location 2: Power County, ID	
Township/Range/Section	T10S R32E S30

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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Approval

Kirt Walstad, 2/13/2025

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Date	05/13/2008
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** rills rarely occur on this site due to the gravelly and stony surface soils.

2. **Presence of water flow patterns:** water-flow patterns rarely occur on this site. When they do occur they are short and disrupted by cool season grasses, shrubs, and surface stones. They are not extensive.

3. **Number and height of erosional pedestals or terracettes:** pedestals are rare but can occur on the site especially where flow patterns are present and on slopes greater than 20%. Terracettes are minor and develop from raveling and mass movement above perennial grasses and surface stones.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** it ranges from 20-35 percent but additional data is needed.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** this site is naturally scoured by wind. Surface stones

and vegetation protect the soil from additional wind erosion.

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7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces typically moves up to three feet or further. Fine litter can be moved by both wind and water. Coarse litter generally does not move.

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** values should range from 4 to 6 but needs to be tested.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** structure ranges from weak, moderate and strong fine granular. Soil organic matter (SOM) ranges from 1 to 4 percent. Surface color is usually very dark grayish brown to dark brown. The A or A1 horizon is typically 3 to 8 inches thick.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** bunchgrasses and shrubs slow runoff and increase infiltration. Little to no snow accumulation occurs on the site due to winter winds.

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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. Do not mistake an increase in clay content of the subsoil for a compaction layer.

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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: low gathering shrubs

    Sub-dominant: perennial bunchgrasses

    Other: perennial forbs

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** very little mortality or decadence is expected on this site. Mortality of shallow rooted grasses may occur due to extended periods of drought.

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14. **Average percent litter cover (%) and depth (in):** additional data is needed but is expected to be low and at a shallow depth.

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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 (730 Kg/ha) in a year with normal precipitation and temperatures. Perennial

grasses produce 20-40 percent of the total production, forbs 25-35 percent, and shrubs 35-45 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, annual mustards, and leafy spurge.

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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in normal and favorable years.
