USDA Natural Resources
Conservation Service

Ecological site R010XY017ID
South Slope Clayey 12-20 PZ ARAR8/PSSPS

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.

Associated sites

R010XA004ID	**Loamy 12-16 PZ ARTRV/FEID-PSSPS**
R010XA008ID	**North Slope Loamy 16-22 PZ**
R010XA009ID	**South Slope Gravelly 12-16 PZ**
R010XA010ID	**North Slope Fractured 16-22 PZ**
R010XA011ID	**Clayey North 16-22 PZ**
R010XA020ID	**Mixed Shrub 12-16 PZ**
R010XA021ID	**South Slope Fractured 12-16 PZ**
R010XA038ID	**Stony Clayey 8-16 PZ ARAR8/PSSPS**
R010XY018ID	**Shallow South Stony 14-18 PZ PSSPS-POSE**

Similar sites

R010XA038ID	**Stony Clayey 8-16 PZ ARAR8/PSSPS**
R010XA011ID	**Clayey North 16-22 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on nearly level to very steep slopes generally ranging in 30 to 60 percent. The aspect is south and west. Elevations range from 4000 to 7500 feet (1200-2273 meters).

Table 2. Representative physiographic features

Landforms	(1) Lava plain (2) Terrace (3) Mountain slope
Flooding frequency	None
Elevation	4,000–7,500 ft

Slope	0–70%
Water table depth	60 in
Aspect	S, W

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 then 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

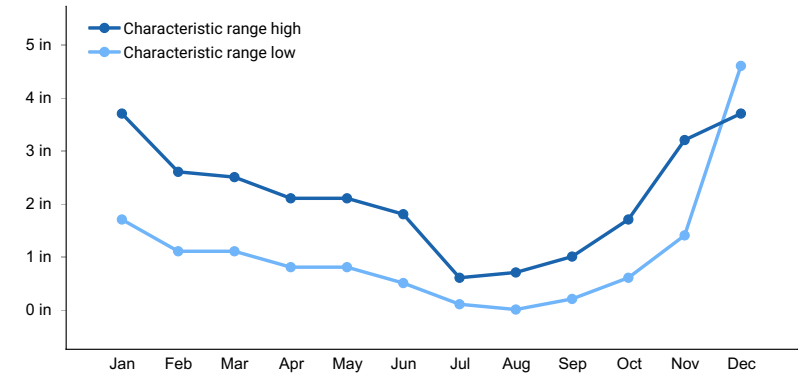

Figure 1. Monthly precipitation range

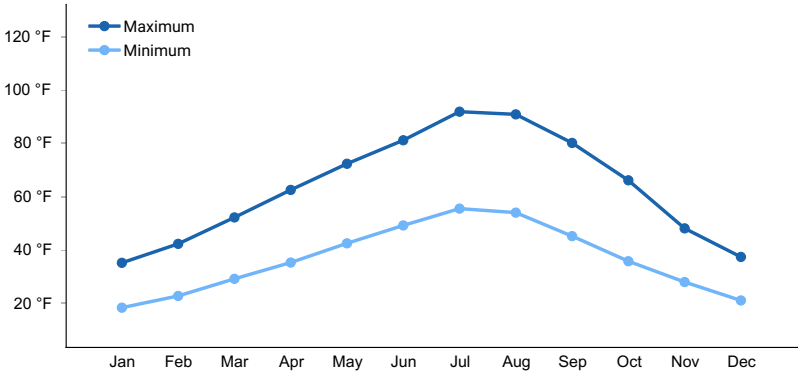

Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Soil features

The soils supporting this site are very shallow to moderately deep, well drained (Blackspar is somewhat excessively drained), with impermeable to moderate permeability. Runoff is medium to very high. A clay subsoil limits water and root penetration. The erosion hazard is moderate to very severe by water. The available water capacity is very low to moderate. The surface texture is very cobbly to extremely stony loams and clay loams. Gravels and stones may be present throughout the profile. These soils are characterized by a xeric soil moisture regime (Chilcott and Kunaton are aridic). Soil temperature regime is mesic, frigid or cryic.

Soil Series Correlated to this Ecological Site

Blackspar
Blisshill
Bray
Chilcott
Connet
Day
Dollarhide
Duguesclin
Furshur
Gaib
Gaibson
Gwin
Hobby
Karcal
Kunaton
Ruckles
Schooler
Spaa
Starhope
Stash
Thorncreek
Tschamman
Willho
Winridge
Yutrue

Table 4. Representative soil features

Surface texture	(1) Very gravelly loam (2) Extremely stony sandy loam (3) Stony clay loam
Drainage class	Well drained
Permeability class	Moderate
Soil depth	10–40 in
Surface fragment cover <=3"	3–39%
Surface fragment cover >3"	2–40%
Available water capacity (0-40in)	0.7–6.3 in
Electrical conductivity (0-40in)	0–2 mmhos/cm

Sodium adsorption ratio (0-40in)	0–5
Soil reaction (1:1 water) (0-40in)	5.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	1–60%
Subsurface fragment volume >3" (Depth not specified)	0–60%

Ecological dynamics

The dominant visual aspect of this site is low sagebrush with bluebunch wheatgrass. Composition by weight is approximately 35 to 45 percent grasses, 20 to 25 percent forbs, and 30 to 40 percent shrubs.

In the last few thousand years, this site has evolved in a semi-arid climate characterized by warm, dry summers and cold, wet winters. Herbivory has historically occurred on the site at low levels of utilization. Herbivores include pronghorn antelope, 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 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 bluebunch wheatgrass and low sagebrush. Idaho fescue, bottlebrush squirreltail and Sandberg bluegrass are the subdominant grass species. Other subdominant species include longleaf phlox, lupine and biscuitroot. Some small amounts of antelope bitterbrush may be present. The plant species composition of Phase A is listed later under “Reference Plant Community Phase Plant Species Composition”.

Total annual production is 575 pounds per acre (644 Kg/ha) in a normal year. Production in a favorable year is 800 pounds per acre (896 Kg/ha). Production in an unfavorable year is 450 pounds per acre (504 Kg/ha). Structurally, cool season deep-rooted perennial bunchgrasses are about equal to medium shrubs, followed by perennial forbs while shallow rooted bunchgrasses are subdominant.

This site is suited for grazing by livestock in early summer and fall. It also provides habitat for mule deer, pronghorn antelope, small game, sage grouse, small birds, and rodents. The site provides limited recreational opportunities except early spring flower observation.

This site can be easily degraded by improper grazing management where slopes are moderate to fairly steep and relatively low in production. The areas that have steep slopes and surface stones can limit livestock access. Relatively low production on the site makes it susceptible to accelerated degradation from soil erosion. Infiltration and production can be maintained with a mixed stand of deep-rooted perennial bunchgrasses and shrubs. Runoff potential is medium to rapid and the erosion hazard is generally moderate.

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 when burned. The small amounts of Idaho fescue and needlegrass in the community can be lost with a fire. Rabbitbrush species can increase with fire. Cheatgrass and medusahead rye can be troublesome invaders on this site after fire. They prevent perennial grass and shrub re-establishment and increase the fire frequency. Sandberg bluegrass is usually maintained in the community.

Influence of improper grazing management:

Season-long grazing and/or excessive utilization can be detrimental to this site. This type of management leads to reduced vigor of bluebunch wheatgrass and other deep-rooted perennial bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to an increase in low sagebrush and invasive plants.

Continued improper grazing management influences fire frequency by increasing fine fuels. If cheatgrass and/or medusahead increase due to improper grazing management and become co-domint with Sandberg bluegrass and other annuals, fires become more frequent.

Proper grazing management that addresses frequency, duration, and intensity of grazing over time, can also keep fine fuels from developing, thereby reducing fire frequency. This reduction can lead to a gradual increase in low sagebrush. A planned grazing system can also be developed to intentionally accumulate fine fuels in preparation of a prescribed burn. Any brush management should be carefully planned, as a reduction in shrubs without a suitable understory of perennial bunchgrasses can lead to an increase in cheatgrass and/or medusahead which will lead to more frequent fire intervals.

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

Weather influences:

Above normal precipitation in March, April and May can dramatically increase total annual production. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Extended periods of drought significantly impact this site due to the low available water holding capacity (AWC) and shallow soil. Extended drought reduces vigor of the perennial grasses and shrubs. Extreme drought may cause plant mortality.

Influence of Insects and disease:

Outbreaks can affect vegetation health. 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. If antelope bitterbrush is present, it is susceptible to western tent caterpillar (Malacosoma fragilis) infestations. Two consecutive years of defoliation by the tent caterpillar can cause mortality in bitterbrush. An outbreak of a particular insect 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 and medusahead can be a very invasive species on this site, especially after fire. Once they become 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 very little impact on it. Pronghorn antelope is the dominant large herbivore using the site. They use the site yearlong but prefer it in the spring, fall, and early winter. Sage grouse use the site in the spring for strutting grounds and they may also use the site during the winter. Winter and spring use by mule deer occasionally occurs.

Watershed:

Decreased infiltration and increased runoff occur when low 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. When hydrologic condition of the vegetative cover is good, natural erosion hazard is slight.

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.
Phase A to B. Develops with fire. Fire only occurs every 80 to 100 years and in above normal precipitation.
Phase A to C. Develops under improper grazing management and no fire.
Phase B to A. Develops under prescribed grazing management program and no fire.
Phase C to A. Develops from prescribed grazing management and no fire.

State 1, Phase B to State 2. Results from continued improper grazing management and/or frequent fire. This site has crossed the threshold. It is not economical to return this site to State 1 with accelerating practices.
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State 1, Phase C to State 3. Results from continued improper grazing management and no fire. This site has crossed the threshold. It is not economical to return this site to State 1 with accelerating practices.

State 2 to State 3. Develops from continued improper grazing management and no fire. This site has crossed the threshold. It is not economical to return this site to State 1 with accelerating practices.

State 3 to State 2. Results from fire.

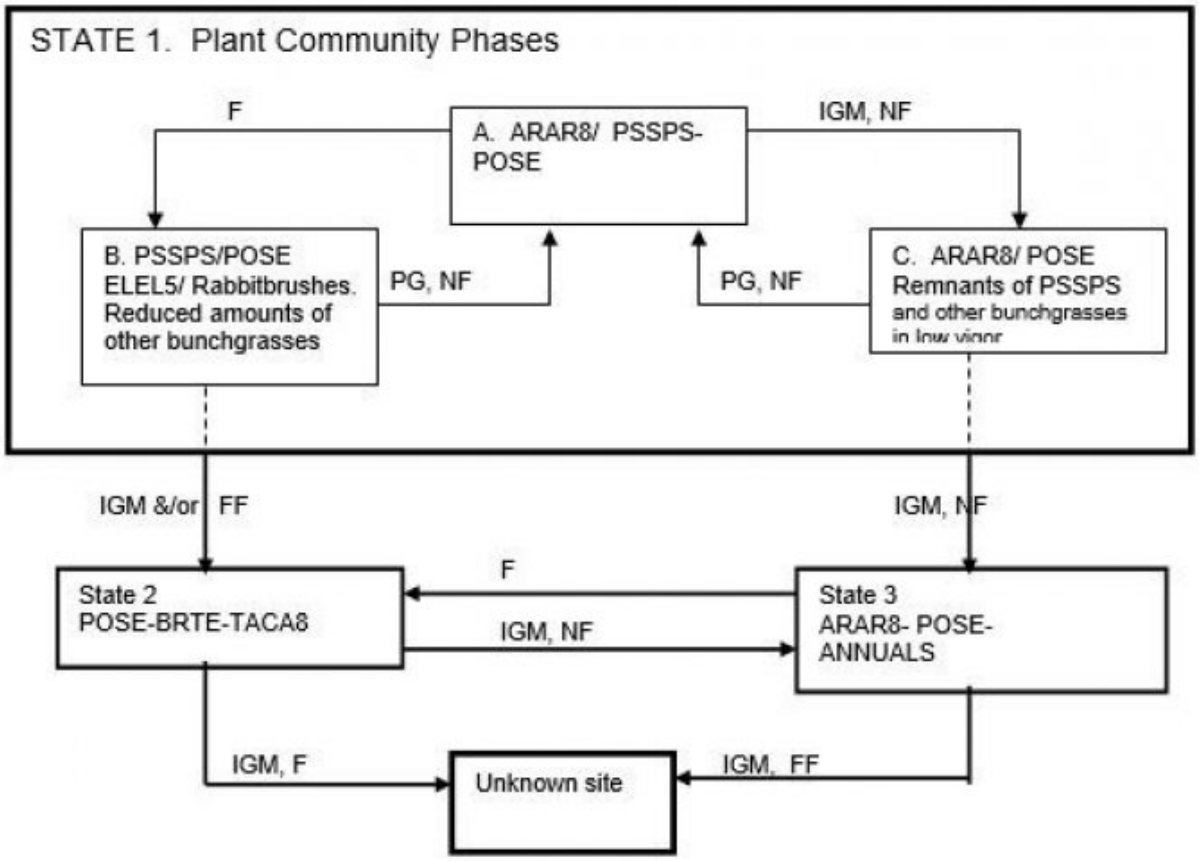
State 2 to Unknown Site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and fire causes this state to cross a threshold and retrogress to a new site with reduced potential. It is not economical to return this site to State 1 with accelerating practices.

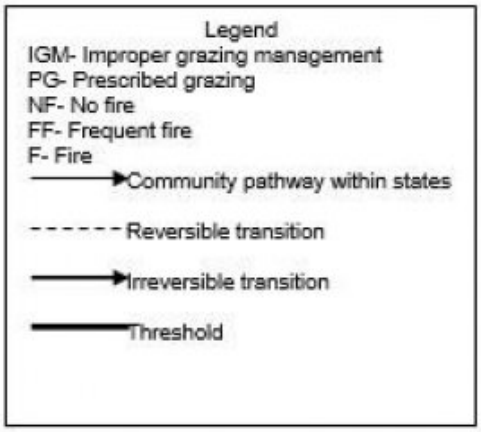
State 3 to Unknown Site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management. Frequent fire may have played a role also. The potential of the site has been lost and it crosses a threshold and retrogresses to a new unknown site. It is not economical to return this site to State 1 with accelerating practices.

Practice Limitations:

Moderate limitations exist for implementing vegetation management practices due to slopes. Early spring grazing should be avoided due to prolonged wetness in the soil. Moderate limitations exist for implementing facilitating practices on this site. Shallow and stony soils and slopes greater than 30% present severe limitations for range seeding by ground moving equipment and is not generally economically feasible due to relatively low production potential.

State and transition model





Plant Legend States 1 & 2
ARAR8 - Low Sagebrush
PSSPS - Bluebunch Wheatgrass
POSE - Sandberg Bluegrass
ELEL5 - Bottlebrush Squirreltail
BRTE - Cheatgrass
TACA8 - Medusahead

State 1
State 1 Phase A

Community 1.1
State 1 Phase A

This plant community is dominated by bluebunch wheatgrass and low sagebrush. Idaho fescue, bottlebrush squirreltail and Sandberg bluegrass are the subdominant grass species. Other subdominant species include longleaf phlox, lupine and Biscuitroot. Some small amounts of antelope bitterbrush may be present. A variety of forbs are present but each represents a small amount in the community. Other shrubs such as antelope bitterbrush, Woods rose, mountain snowberry and rabbitbrush can be present in small amounts. The natural fire frequency is about 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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

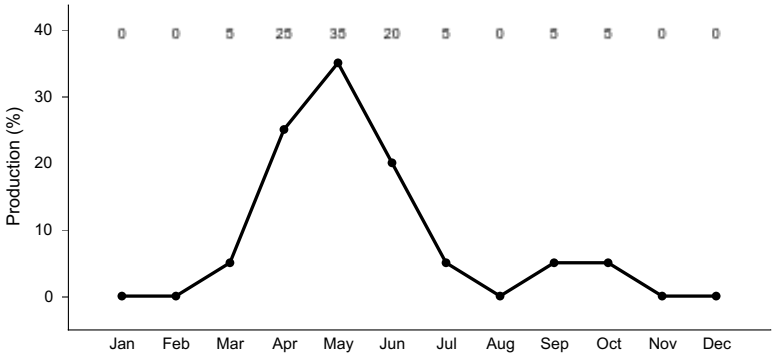


Figure 3. Plant community growth curve (percent production by month). ID0310, ARARL/FEID/ PSSPS. State 1.

State 2
State 1 Phase B

Community 2.1
State 1 Phase B

This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Needlegrass may have died out due to fire. Low sagebrush has been significantly reduced. Bottlebrush squirreltail and rabbitbrush have increased. Forbs are about in the same proportion as in Phase A. This phase has developed due to fire.

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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%

Bare ground	0%

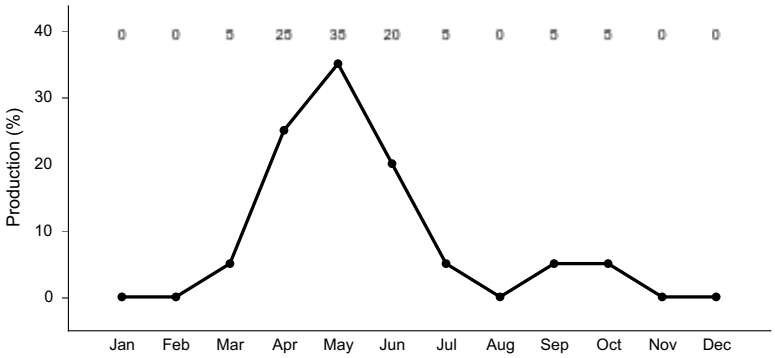


Figure 4. Plant community growth curve (percent production by month). ID0310, ARARL/FEID/ PSSPS. State 1.

State 3
State 1 Phase C

Community 3.1
State 1 Phase C

This plant community is dominated by low sagebrush with Sandberg bluegrass in the understory. Bluebunch wheatgrass and other deep-rooted perennial bunchgrasses are present but in reduced amounts and in low vigor. Bottlebrush squirreltail has increased. There is still a variety of forbs present in small amounts. If antelope bitterbrush is present, it is in low vigor and possibly hedged. This phase has developed due to improper grazing management and no 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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

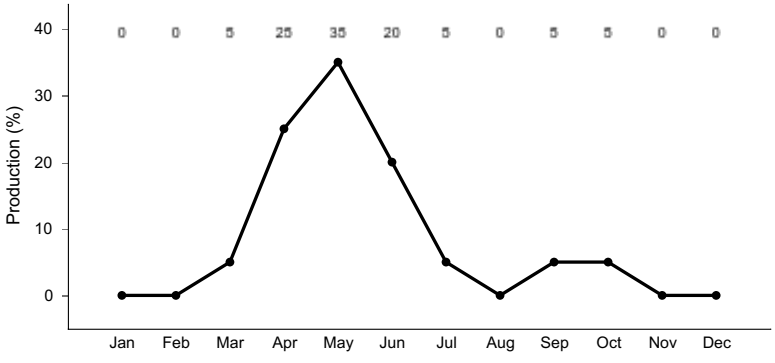


Figure 5. Plant community growth curve (percent production by month). ID0310, ARARL/FEID/ PSSPS. State 1.

State 4
State 2

Community 4.1
State 2

This plant community is dominated by Sandberg bluegrass, cheatgrass, medusahead and a variety of forbs. Some perennial forbs are present. The community has developed due to continued improper grazing management and/or frequent fire. Some soil loss has occurred. This site has crossed the threshold. It is not economical to return this site to State 1 with accelerating 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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

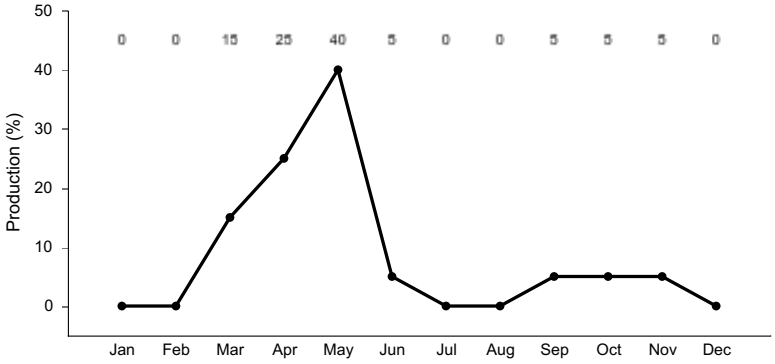


Figure 6. Plant community growth curve (percent production by month). ID0311, POSE/BRTE-ANNUALS . State 2.

State 5
State 3

Community 5.1
State 3

This plant community is dominated by low sagebrush, Sandberg bluegrass, cheatgrass, medusahead and a variety of other annuals. The community has developed due to continued improper grazing management and lack of fire. Some soil loss has occurred. This site has crossed the threshold. It is not economical to return this site to State 1 with accelerating practices.

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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

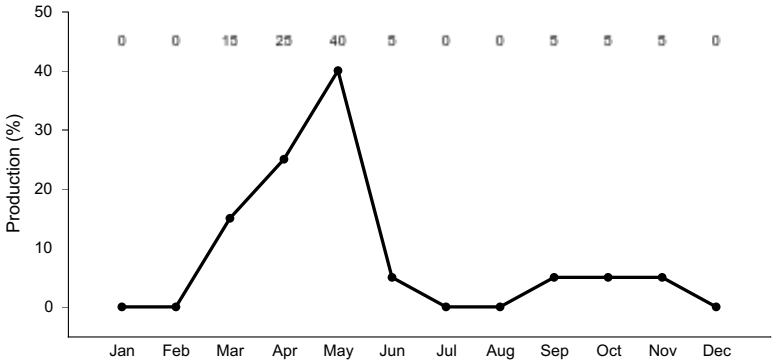


Figure 7. Plant community growth curve (percent production by month). ID0311, POSE/BRTE-ANNUALS . State 2.

State 6
State 4

Community 6.1
State 4

Table 10. 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	60-70%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Additional community tables

Animal community

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

This rangeland ecological site provides diverse habitat for many native wildlife species. The plant community exhibits a diverse mixture of forbs throughout the growing season offering excellent habitat for invertebrates. Mule deer and antelope are the large herbivores using the site. The site provides seasonal habitat for resident and migratory animals including western toad, sagebrush lizard, shrews, bats, ground squirrels, mice, coyote, red fox, badger, sage-grouse, Ferruginous hawk, prairie falcon, horned lark and western meadowlark. Sagebrush obligate avian species including sage-grouse, Brewer's sparrow, sage sparrow, and sage thrasher utilize these sites on a limited basis due to the low vertical structure of sagebrush, high elevation and associated cold temperatures throughout much of the year. Sage-grouse an area sensitive species, may utilize the low sagebrush plant community as winter, breeding, nesting and brood-rearing habitat. Encroachment of noxious and invasive plant species (cheatgrass and medusahead) 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 streams, artificial water catchments and springs.

State 1 Phase 1.1 – Low Sagebrush/ Bluebunch Wheatgrass/ Sandberg Bluegrass Reference Plant Community (RPC): This plant community provides a diversity of grasses, forbs and shrubs, used by native insect communities that assist in pollination. An extensive array of forbs is represented throughout the growing season leading to a diverse insect community. Many avian and mammal species utilize this habitat based on the availability of invertebrate prey species. The reptile and amphibian community is represented by leopard lizard, short horned lizard, sagebrush lizard, western skink, western rattlesnake, western toad, boreal chorus frog 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. Native shrub-steppe obligate avian species utilizing the habitat include the Brewer's sparrow, sage sparrow, sage thrasher and sage-grouse. Area sensitive species include sage-grouse which utilize the low sagebrush for winter habitat. Sage-grouse may utilize this plant community for brood-rearing and nesting habitat as well. The plant community provides seasonal forage needs for large mammals including mule deer, antelope, and elk. A diverse small mammal population including golden-mantled ground squirrels, chipmunks and yellow-bellied marmots would utilize this community. Habitat for the pygmy rabbit would be marginal due to the low height and density of sagebrush and stony soils.

State 1 Phase 1.2- Bluebunch Wheatgrass/ Sandberg Bluegrass/ Bottlebrush Squirreltail Plant Community: This plant community is the result of fire. The plant community, dominated by herbaceous vegetation with little or no sagebrush provides less vertical structure for animals. Insect diversity would be reduced but a diverse native forb plant community would still support select pollinators. An increase in rabbitbrushes would provide fall pollinator habitat. The reptiles, short horned lizard and sagebrush lizard would be limited or excluded due to the loss of sagebrush. Amphibian habitat would be tied to permanent spring sites in the area. Development of spring sites that collected all available water would exclude amphibian use on these sites. The dominance of herbaceous vegetation with little sagebrush canopy cover would prevent use of these areas as nesting habitat by Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. This plant community provides limited brood-rearing habitat for sage-grouse when adjacent sagebrush cover is provided. Use as winter cover and winter food by sage-grouse is eliminated. The dominant herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (mule deer, antelope, and elk) use would be seasonal and the site would offer little thermal cover and young of year cover. Small mammal diversity would be reduced.

State 1 Phase 1.3 – Low Sagebrush/ Sandberg Bluegrass Plant Community:
This plant community is the result of improper grazing management and no fire. An increase in canopy cover of sagebrush results in a sparse herbaceous understory. Native insects assist in pollination but the reduced herbaceous understory results in lower diversity and numbers of insects. The reduction of grasses and forbs in the plant community would reduce the available prey species and cover for the resident reptile species. Amphibian habitat would be tied to permanent spring sites in the area. Development of spring sites that collected all available water would exclude amphibian use on these sites. Key shrub-steppe obligate avian species include Brewer's

sparrow, sage sparrow, sage thrasher and sage- grouse. Critical habitat (winter cover and winter food) for sage-grouse is available. The plant community supports a shorter duration of seasonal forage habitat for mule deer, antelope, and elk. A small mammal population including golden-mantled ground squirrels, chipmunks and yellow-bellied marmots would utilize these areas.

State 2 - Sandberg Bluegrass / Cheatgrass / Medusahead Plant Community:
This plant community is the result of continued improper grazing management and/or frequent fire. The plant community does not support a diverse insect community. 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. This plant community does not support the life requisites for sage-grouse, sage thrasher, Brewer's sparrow or sage sparrow. 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. Large mammals 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 mammals would not regularly utilize these areas due to poor food and cover conditions. The populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 3 - Low Sagebrush/ Sandberg Bluegrass / Cheatgrass / Medusahead Plant Community: This plant community is the result of improper grazing management and no fire. An increase in canopy cover of sagebrush results in a sparse herbaceous understory dominated by invasive plant species. Native insect populations and diversity are severely reduced. The reptile population is reduced and represented by leopard lizard, short horned lizard and sagebrush lizard. The reduction of native grasses and forbs in the plant community would reduce the available prey species and cover for these resident reptile species. Key shrub-steppe obligate avian species include Brewer's sparrow, sage sparrow, sage thrasher and sage- grouse. Their use of these areas will be reduced due to poor understory vegetation and available prey. Critical habitat (winter cover and winter food) for sage grouse is available. The plant community supports a short duration seasonal forage habitat for mule deer, antelope, and elk. A small mammal population including golden-mantled ground squirrels, chipmunks and yellow-bellied marmots utilize these areas.

Grazing Interpretations.

This site is suited for grazing by livestock in spring, early summer, and fall. Early spring grazing should be avoided due to prolonged wetness in the soil.
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 and D.

Recreational uses

Colorful spring and early summer blooming forbs provide excellent opportunities for photography and nature study. Hunting opportunities for pronghorn antelope and sage grouse exist.

Wood products

None

Other products

None

Other information

Field Offices.

Mountain Home, ID
Gooding, ID
Fairfield, ID
Shoshone, ID
Rupert, ID
Arco, 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, Rangeland Management Specialist, IASCD
Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho
Lee Brooks, Rangeland Management Specialist, IASCD
Leah Juarros, Resource Soil Scientist, NRCS, Idaho

Type locality

Location 1: Ada County, ID	
Township/Range/Section	T1N R22E S7
Location 2: Ada County, ID	
Township/Range/Section	T1N R22E S13
Location 3: Ada County, ID	
Township/Range/Section	T1N R22E S13

Other references

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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	03/25/2008
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** can occur on this site. If rills are present they are likely to occur immediately following a wildfire or high intensity storm. Rills are most likely to occur on soils with silt loam or clay loam surface texture. Surface stones reduce rill development.

2. **Presence of water flow patterns:** can 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 common on the site where flow patterns are present and the surface soils have a high clay content. Do not mistake frost heaving for pedestalling. Terracettes can occur on the up-hill side of bunchgrasses and shrubs.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** data is not available, but it is expected to range from 30-40 percent.

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

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

7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move up to 3 feet following a significant run-off event. Coarse litter generally does not move.

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

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** the A or A1 horizon is typically 0 to 8 inches thick. Structure ranges from weak very fine granular to strong, fine subangular blocky. Soil organic matter (SOM) ranges from 0.5 to 3 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 runoff and increase infiltration. Medium height shrubs accumulate some 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. The site can develop a compaction layer due to the clay in the subsoil from severe livestock use when the soils are wet.

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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 = medium shrubs.

    Sub-dominant: perennial forbs>shallow rooted bunchgrasses.

    Other:

    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 575 pounds per acre (644 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses produce 35-45 percent of the total production, forbs 20-25 percent and shrubs 30-40 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:** include cheatgrass, medusahead wildrye, Vulpia species, bulbous bluegrass, annual mustards, and rush skeletonweed.

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