USDA Natural Resources Conservation Service

Ecological site R010XA021ID
South Slope Fractured 12-16 PZ

Last updated: 12/13/2023
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.

MLRA notes

Major Land Resource Area (MLRA): 010X–Central Rocky and Blue Mountain Foothills

This MLRA is characterized by gently rolling to steep hills, plateaus, and low mountains at the foothills of the Blue Mountains in Oregon and the Central Rocky Mountains in Idaho. The geology of this area is highly varied and ranges from Holocene volcanics to Cretaceous sedimentary rocks. Mollisols are the dominant soil order and the soil climate is typified by mesic or frigid soil temperature regimes, and xeric or aridic soil moisture regimes. Elevation ranges from 1,300 to 6,600 feet (395 to 2,010 meters), increasing from west to east. The climate is characterized by dry summers and snow dominated winters with precipitation averaging 8 to 16 inches (205 to 405 millimeters) and increasing from west to east. These factors support plant communities with shrub-grass associations with considerable acreage of sagebrush grassland. Big sagebrush, bluebunch wheatgrass, and Idaho fescue are the dominant species. Stiff sagebrush, low sagebrush, and Sandberg bluegrass are often dominant on sites with shallow restrictive layers. Western juniper is one of the few common tree species and since European settlement has greatly expanded its extent in Oregon. Nearly half of the MLRA is federally owned and managed by the Bureau of Land Management. Most of the area is used for livestock grazing with areas accessible by irrigation often used for irrigated agriculture.

For further information, see "Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin (U.S. Department of Agriculture Handbook 296, 2006)" available online at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053624

Ecological site concept

• Site occurs on uplands
• Slopes greater than 30% on southerly aspects
• Occurs in 12-16 inch PZ
• Soils are not volcanic cinders
• Soils less than 20” to bedrock
• Site does not occur on exposed ridgetops

Associated sites

R010XA004ID	**Loamy 12-16 PZ ARTRV/FEID-PSSPS** Adjacent low slope areas
R010XA008ID	**North Slope Loamy 16-22 PZ** Adjacent north slopes
R010XA031ID	**Bouldery Loam 12-16 PZ ARTRV/FEID** Adjacent low slope positions with bouldery soils
R010XA037ID	**Shrubby Stony North 12-16 PZ ARTRV/FEID** Adjacent stony north slopes

Similar sites

R010XA014ID	**Steep South Slope 16-22 PZ** Slopes greater than 45% on south aspects
R010XA030ID	**South Slope Channery 11-13 PZ ARTRX/PSSPS** Site occurs in association with rock outcrops and talus slopes
R010XA009ID	**South Slope Gravelly 12-16 PZ** Deeper soils, coarse fragments >35% throughout the soil profile
R010XA015ID	**South Slope Loamy 16-22 PZ** Occurring in a higher precipitation zone, 16-22

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia tridentata var. vaseyana*
Herbaceous	(1) *Pseudoroegneria spicata*

Physiographic features

This site occurs on south and west facing steep and very steep slopes over 30 percent. Elevations range from 4800 to 7500 feet (1460 to 2290 meters).

Table 2. Representative physiographic features

Landforms	(1) Mountain valleys or canyons > Canyon (2) Foothills > Hill (3) Mountains > Mountain slope
Flooding frequency	None
Ponding frequency	None
Elevation	4,800–7,500 ft
Slope	30–70%
Water table depth	80 in
Aspect	W, S

Climatic features

The Big and Little Wood River Foot slopes and Plains, proposed as MLRA 10A, has a mean elevation of 5310 feet above sea level, and varies from 3600 to 9235 feet. In general, average annual precipitation is greatest on the western side, with the southeast area being the driest. The average annual precipitation, based on 7 long term climate stations located throughout the MLRA, is 15.39 inches, with a range of 12.5 to 18 inches. Monthly precipitation is generally greatest at the end of the year, diminishes steadily until a low in July and August, then increases rapidly in the autumn.

Monthly temperatures can vary considerably. Highs of up to 102° and lows down to -52° Fahrenheit have been recorded. The average annual temperature is 42.9°. The frost-free period ranges from 75 to 98 days. The freeze-free period is a bit longer: 106 to 133 days.

Both morning and afternoon average relative humidity values peak in the winter, and reach their low in July and august. The average number of sunny, cloud-free days is above average for the summer months, but below average for the period from November through February.

Table 3. Representative climatic features

Frost-free period (characteristic range)	75-98 days
Freeze-free period (characteristic range)	106-133 days

Precipitation total (characteristic range)	12-16 in
Frost-free period (average)	86 days
Freeze-free period (average)	120 days
Precipitation total (average)	15 in

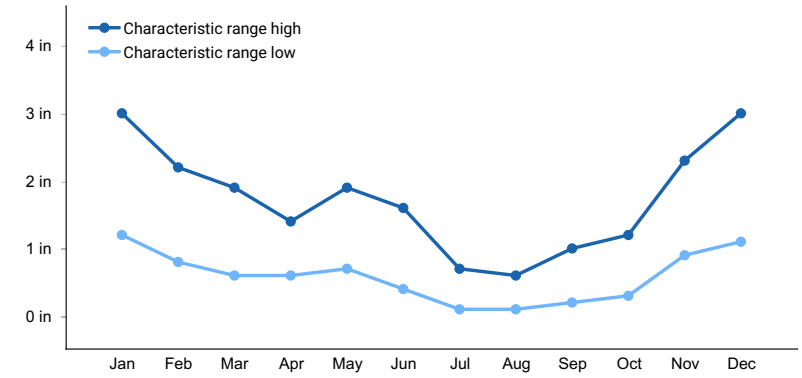


Figure 1. Monthly precipitation range

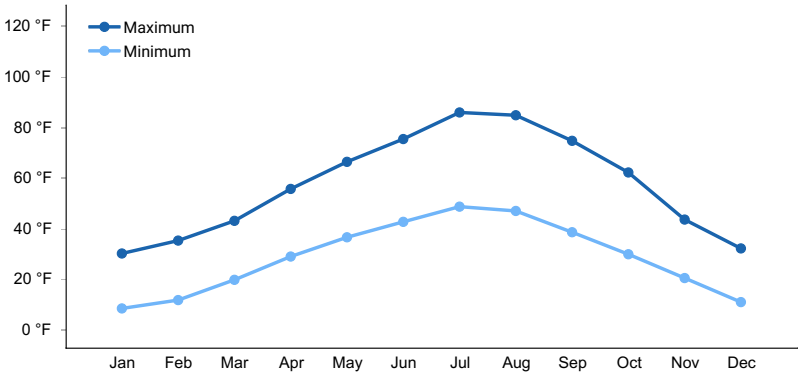


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Wetland description

This site is not influenced by adjacent wetlands.

Soil features

The soils on this site are very gravelly loams or very gravelly fine sandy loams generally less than 20 inches deep to fractured bedrock. Coarse fragments are present throughout the profile. They are well drained, with moderately slow to moderate permeability after the initial water intake of moderate to rapid. The available water holding capacity (AWC) is very low. Runoff is medium to high because of the steep slopes. Wind erosion hazard is moderate when vegetation is scarce or lacking. The erosion hazard is slight to very severe by water. These soils are characterized by a xeric moisture regime. Soil temperature regime is frigid.

Table 4. Representative soil features

Parent material	(1) Residuum–andesite (2) Alluvium–latite (3) Colluvium–basalt
Surface texture	(1) Very gravelly fine sandy loam (2) Very gravelly loam

Family particle size	(1) Loamy-skeletal
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	10–40 in
Surface fragment cover <=3"	8–39%
Surface fragment cover >3"	0–17%
Available water capacity (0-40in)	0.8–2.8 in
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume <=3" (4-60in)	10–45%
Subsurface fragment volume >3" (5-60in)	10–40%

Ecological dynamics

The dominant visual aspect of this site is bluebunch wheatgrass and mountain big sagebrush. Sandberg bluegrass, Nevada bluegrass, basin wildrye, balsamroot and antelope bitterbrush are present in the plant community. Composition by weight, of the Reference Plant Community Phase is about 40-50 percent grasses, 20-25 percent forbs and 30-40 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 this site at low levels of utilization. Herbivores include mule deer, Rocky Mountain elk and lagomorphs.

Fire has historically occurred on the site at intervals of 50-70 years.

The Reference State (State 1), previously referred to as the Historic Climax Plant Community (HCPC), 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.

FUNCTION:

This site is best suited for livestock as late spring and fall range. Big game animals use the site in the spring, summer, and fall. The site can be winter range for big game in moderate winters. Other wildlife may include upland birds and predators. The site has limited opportunities for hunting and other recreational activities.

Due to the rainfall, elevation, and steep topography, the site is susceptible to degradation from erosion. Accelerated erosion can be caused by improper grazing management. Due to the low available water holding capacity (AWC), production potential is low and recovery from improper grazing management is slow. Infiltration is good where the community is in mid to late seral status. The site has moderately low runoff potential. Runoff, when it does occur can be erosive on steeper slopes particularly during high intensity convection storms. Snow accumulates on the site due to high elevation and presence of tall shrubs.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency, Mountain big sagebrush and antelope bitterbrush can gradually increase on the site. Grasses and forbs decrease as shrubs increase. With the continued absence of fire, mountain big sagebrush can displace most of the primary understory species.

When fires become more frequent than historic levels (50-70 years), mountain big sagebrush and antelope bitterbrush are reduced significantly. Rabbitbrush can increase slightly. With continued short fire frequency, mountain big sagebrush and antelope bitterbrush can be completely eliminated along with many of the desirable understory species such as bluebunch wheatgrass. These species may be replaced by Sandberg bluegrass and bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants. Cheatgrass will invade the site at lower elevations. These fine fuels will increase the fire frequency.

Influence of improper grazing management:

Season-long grazing and/or excessive utilization can be very detrimental to this site. This type of management leads to reduced vigor of the bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, an increase in mountain big sagebrush and noxious and invasive plants will occur.

Continued improper grazing management influences fire frequency by increasing fine fuels. As cheatgrass increases and becomes co-dominant with Sandberg bluegrass and other annuals, fires become more frequent, particularly at lower elevations.

Proper grazing management that addresses frequency, duration, and intensity of grazing can also keep fine fuels from developing, thereby reducing fire frequency. This can lead to gradual increases in mountain big sagebrush. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn.

Due to the shrub species on this site, any brush management efforts should be carefully planned. Antelope bitterbrush is very important as a browse species for wildlife and needs to be protected with any brush control practices applied. A reduction in shrubs without a suitable understory of perennial grasses can lead to an increase in fine fuels which will lead to a more frequent fire regime. Loss of shrub species on this site can have very negative impacts on wildlife.

Weather influences:

Above normal precipitation in March, April, and May 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:

Outbreaks can affect vegetation health. Bitterbrush can be severely affected by the western tent caterpillar (Malacosoma fragilis). Two consecutive years of defoliation by the tent caterpillar can cause mortality in bitterbrush. Mormon cricket and grasshopper outbreaks occur periodically. Outbreaks seldom cause plant mortality since defoliation of the plant occurs only once during the year of the outbreak.

Influence of noxious and invasive plants:

Many of these species add to the fine-fuel component and lead to increased fire frequency.
Many of the 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 and in moderate winters. Their numbers are seldom high enough to adversely affect the plant community. Herbivory can be detrimental to bitterbrush when livestock

grazing and browsing by big game occurs at the same time and season. This will occur when both kinds of animal are using the plant in the late summer or fall. The adverse impact is excessive use of the current year's leader growth. The deer mouse is beneficial to this site as it is the principal vector for planting bitterbrush seed.

Watershed:

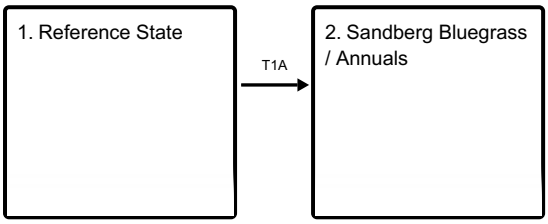
Decreased infiltration and increased runoff occur with an increase in mountain big sagebrush. Desired understory species can be reduced. This composition change can affect nutrient and water cycles. Increased runoff also causes sheet and rill erosion. Abnormally short fire frequency also gives the same results, but to a lesser degree. The long-term effect is a transition to a different state.

Practice Limitations:

Mechanical seeding is generally not feasible on the steeper slopes of this site. Mechanical brush control is difficult or not feasible on steep slopes. Brush management can occur with aerial chemical application or prescribed burning.

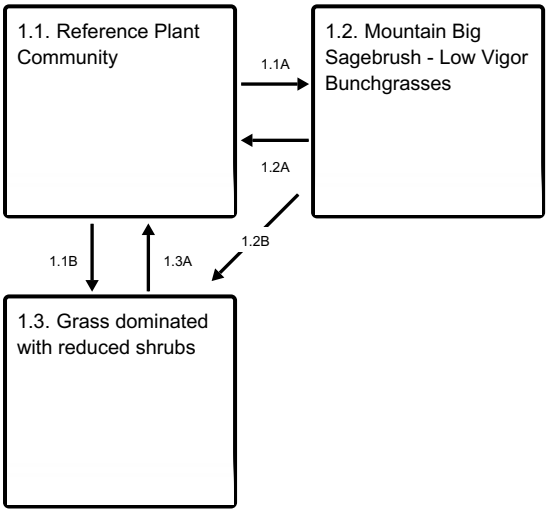
State and transition model

Ecosystem states



T1A - frequent fire, improper grazing management

State 1 submodel, plant communities



1.1A - improper grazing management and no fire

1.1B - fire

1.2A - prescribed grazing

1.2B - fire

1.3A - prescribed grazing and no fire

State 2 submodel, plant communities

2.1. Sandberg Bluegrass / Annuals

State 1
Reference State

Dominant plant species

- mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*), shrub
- bluebunch wheatgrass (*Pseudoroegneria spicata*), grass

Community 1.1
Reference Plant Community

1.1 Mountain Big Sagebrush - Bluebunch Wheatgrass Antelope Bitterbrush This plant community has mountain big sagebrush in the overstory with bluebunch wheatgrass dominating the understory. Sandberg bluegrass, Nevada bluegrass, bottlebrush squirreltail, phlox, lupine, and balsamroot are sub-dominant species. Antelope bitterbrush is also present and basin wildrye can occur. Natural fire frequency is 50-70 years.

Resilience management. The Reference Plant Community Phase is Phase 1.1. This plant community is dominated by bluebunch wheatgrass and mountain big sagebrush. Subdominant species include Sandberg bluegrass, bottlebrush squirreltail, basin wildrye, phlox, lupine, balsamroot, and antelope bitterbrush. The plant species composition of Phase 1.1 is listed later under “Reference Plant Community Phase Plant Species Composition”. Total annual production is 500 pounds per acre (560 kilograms per hectare) in a normal year. Production in a favorable year is 650 pounds per acre (728 kilograms per hectare). Production in an unfavorable year is 300 pounds per acre (336 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are dominant, followed by medium shrubs being more dominant than perennial forbs while shallow rooted perennial bunchgrasses are subdominant.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	135	235	290
Shrub/Vine	105	165	230
Forb	60	100	130
Total	**300**	**500**	**650**

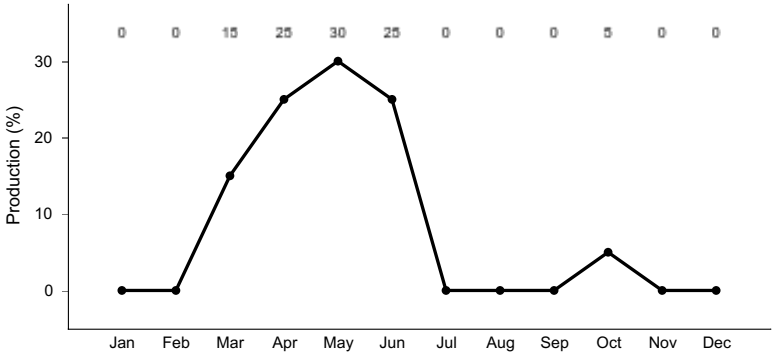


Figure 4. Plant community growth curve (percent production by month). ID0905, D25ARTRV South. State 1.

Community 1.2
Mountain Big Sagebrush - Low Vigor Bunchgrasses

1.2 - Mountain Big Sagebrush Sandberg Bluegrass Bottlebrush Squirreltail This plant community is dominated by mountain big sagebrush with reduced amounts of bluebunch wheatgrass. Sandberg bluegrass and bottlebrush squirreltail has increased in the understory. There is a reduced amount of Nevada bluegrass. All deep-rooted bunchgrasses are typically in low vigor. Mountain big sagebrush has increased and antelope bitterbrush has decreased. This state has developed due to improper grazing management and no fire. Some cheatgrass may have invaded the site at lower elevations.

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	75-90%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

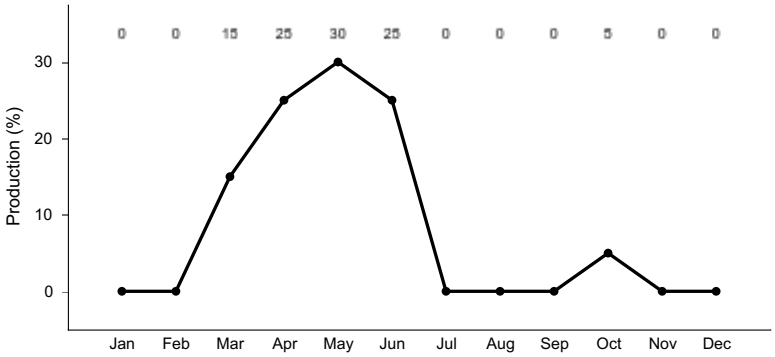


Figure 5. Plant community growth curve (percent production by month). ID0905, D25ARTRV South. State 1.

Community 1.3
Grass dominated with reduced shrubs

1.3 - Bluebunch Wheatgrass - Sandberg Bluegrass Bottlebrush Squirreltail This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Bottlebrush squirreltail has increased. Forbs remain about in the same proportion as Phase 1.1. Only small amounts mountain big sagebrush and antelope bitterbrush occur in the plant community due to wildfire, but some root-sprouting rabbitbrush are present. Some cheatgrass may have invaded the site at lower elevations. This plant community is the result of wildfire.

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	75-90%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

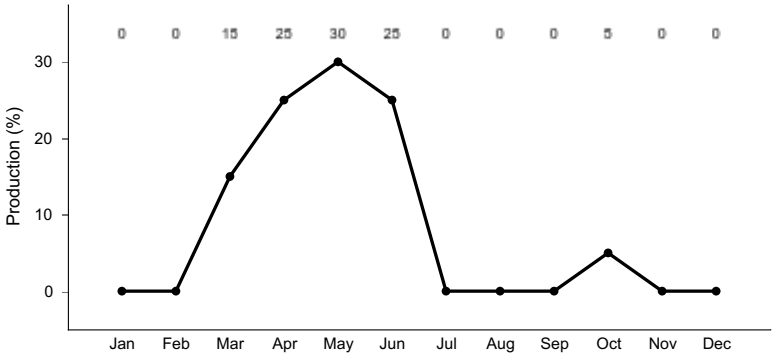


Figure 6. Plant community growth curve (percent production by month). ID0905, D25ARTRV South. State 1.

Pathway 1.1A
Community 1.1 to 1.2

Phase 1.1 to 1.2. Develops with improper grazing management and no fire.

Pathway 1.1B
Community 1.1 to 1.3

Phase 1.1 to 1.3. Develops with fire.

Pathway 1.2A
Community 1.2 to 1.1

Phase 1.2 to 1.1. Develops with prescribed grazing.

Pathway 1.2B
Community 1.2 to 1.3

Phase 1.2 to 1.3. Develops with fire.

Pathway 1.3A
Community 1.3 to 1.1

Phase 1.3 to 1.1. Develops with prescribed grazing and no fire.

State 2
Sandberg Bluegrass / Annuals

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

retrogress to a new site with reduced potential. It is economically impractical to return this state to State 1 with accelerated practices.

Dominant plant species

- Sandberg bluegrass (*Poa secunda*), grass
- cheatgrass (*Bromus tectorum*), grass

Community 2.1
Sandberg Bluegrass / Annuals

This plant community is dominated by Sandberg bluegrass, cheatgrass, and other annuals. Root sprouting shrubs such as rabbitbrushes can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires and/or improper grazing management from Phase C, State 1, or with frequent fires and improper grazing management from Phase B, State 1. This site has crossed the threshold. It is economically impractical to return this state to State 1 with 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	75-90%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

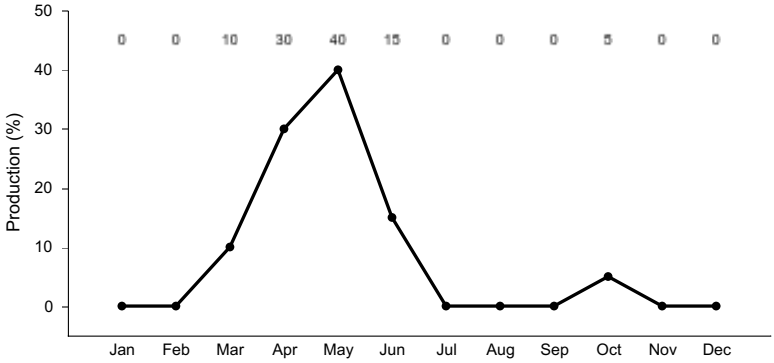


Figure 7. Plant community growth curve (percent production by month). ID0902, D25 ARTRV Early Seral.

Transition T1A
State 1 to 2

State 1 Phase 1.3 to State 2. Develops through frequent fire and/or continued improper grazing management. State 1 Phase 1.2 to State 2. Develops with frequent fire and improper grazing management. This site has crossed the threshold. It is economically impractical to return this state to State 1 with accelerated practices.

Additional community tables

Table 9. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				135–290	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	90–200	–
	Sandberg bluegrass	POSE	*Poa secunda*	10–25	–
	squirreltail	ELEL5	*Elymus elymoides*	10–25	–
	basin wildrye	LECI4	*Leymus cinereus*	1–10	–
Forb					
2				60–130	
	balsamroot	BALSA	*Balsamorhiza*	20–50	–
	phlox	PHLOX	*Phlox*	20–40	–
	lupine	LUPIN	*Lupinus*	10–25	–
	beardtongue	PENST	*Penstemon*	5–10	–
	fleabane	ERIGE2	*Erigeron*	1–10	–
	milkvetch	ASTRA	*Astragalus*	1–10	–
Shrub/Vine					
3				105–230	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	80–180	–
	antelope bitterbrush	PUTR2	*Purshia tridentata*	15–30	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	15–30	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	5–15	–
	parsnipflower buckwheat	ERHE2	*Eriogonum heracleoides*	1–10	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	5–10	–

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. Wildlife uses these areas on a seasonal basis due to the high elevation, short growing season and temperature regimes. Mule deer and elk are the large herbivores using the site. The rangeland habitat 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, and sage thrasher utilize these sites on a limited basis due to the high elevation and associated cold temperatures throughout much of the year. Sage-grouse, an area sensitive species, may utilize the sagebrush plant community as winter and brood-rearing habitat. A change in the quality of the historic plant community over time can reduce the numbers and diversity of native wildlife species in the area. 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. The loss of herbaceous understory vegetation has a negative impact on ground nesting birds, while the loss of shrub cover negatively affects both ground and shrub nesting avians. Water features are sparse provided by seasonal streams, artificial water catchments and springs.

State 1 Phase 1.1 – Mountain Big Sagebrush/ Bluebunch Wheatgrass/ Sandberg Bluegrass/ Nevada Bluegrass/ Antelope Bitterbrush 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. 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 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. Sage-grouse may utilize this plant community for brood-rearing habitat. The plant community provides forage and cover for large mammals including mule deer and elk. Moderate winters offer winter habitat for deer and elk. A diverse small mammal population including golden-mantled ground squirrels, kangaroo rats, chipmunks and yellow-bellied marmots utilize this community. Habitat for the pygmy rabbit would be marginal due to shallow gravelly soils, steepness and high elevation. The deer mouse is beneficial to this site as it is the principal vector for planting bitterbrush seed.

State 1 Phase 1.2- Mountain Big Sagebrush/ Sandberg Bluegrass / Bottlebrush Squirreltail Plant Community: This plant community is the result of improper grazing management and no fire. An increase in canopy cover of sagebrush contributes to a sparse herbaceous understory. Antelope bitterbrush has decreased. The reduced herbaceous understory results in reduced diversity and numbers of insects. The reptile and amphibian community is represented by leopard lizard, short horned lizard, sagebrush lizard, western skink and western toad. The reduction of grasses and forbs in the plant community would reduce the available prey species and cover for these resident reptile species. Amphibian habitat would be tied to permanent spring sites in the area. Development of spring sites that collect all available water would exclude amphibian use on these sites. Fewer prey species and sparse understory cover results in less food, brood-rearing and nesting habitat. Key shrub-steppe avian obligates include Brewer's sparrow, sage sparrow, sage thrasher and sage-grouse. Winter cover and winter food for sage-grouse is available. Loss of understory vegetation and increased sagebrush density reduces forage value for mule deer and elk. A small mammal population including golden-mantled ground squirrels, kangaroo rats, chipmunks and yellow-bellied marmots utilize these areas. The deer mouse is beneficial to this site as it is the principal vector for planting bitterbrush seed.

State 1 Phase 1.3 – 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 or antelope bitterbrush would provide less vertical structure for animals. Patches of root sprouting shrubs including rabbitbrush may be present to provide limited vertical structure for wildlife. Insect diversity would be reduced but a diverse native forb plant community would still support select pollinators. Reptiles including leopard lizard, 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 collect all available water would exclude amphibian use on these sites. The dominance of herbaceous vegetation with little sagebrush canopy 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 present. Winter habitat for sage-grouse is eliminated. The dominant herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (mule deer, and elk) use would be seasonal and offer little thermal cover and young of year cover. The diversity and populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 2 – Sandberg Bluegrass/ Cheatgrass / Annuals Plant Community:
This plant community is the result of continued improper grazing management and/or frequent fire. Invasive herbaceous plants and patches of root sprouting shrubs like rabbitbrush and mountain snowberry can be present. 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 habitat requirements 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 diversity and populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

Grazing Interpretations.

This site is best suited for livestock as late spring and fall range.
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

The soils in this site are in hydrologic group D.

Recreational uses

The site has limited opportunities for hunting, hiking, horseback riding, photography, and nature study.

Wood products

None

Other products

None

Other information

Field Offices

Mountain Home, ID
Gooding, 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:
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Jim Cornwell, Range Management Specialist, IASCD
Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho
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Contributors

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Approval

Kirt Walstad, 12/13/2023

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	03/27/2008
Approved by	Kirt Walstad
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. Gravelly surface soils reduce the potential for rills. Rills are most likely to occur on soils with surface textures of silt loam and clay loam.

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2. **Presence of water flow patterns:** water-flow patterns occur on this site. When they occur, they may be long, continuous and extensive. Gravelly surface texture interrupts flows.

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3. **Number and height of erosional pedestals or terracettes:** both can occur on this site. In areas where flow patterns and/or rills are present, a few pedestals may be expected. Terracettes occur uphill from tall shrub bases and large bunchgrasses. They are not extensive.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** On sites in mid-seral status bare ground may range from 15-25 percent.

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

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6. **Extent of wind scoured, blowouts and/or depositional areas:** usually not present. Immediately following wildfire some soil movement may occur on lighter textured soils.

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7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move up to 5 feet following a significant run-off event. Coarse litter generally does not move. Gravels on the surface help reduce fine litter movement. Terracettes can trap fine litter.

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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 .

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil organic matter (SOM) needs to be determined. The A or A1 horizon is typically 4 inches thick. Surface soil color is very dark grayish brown or dark brown moist.

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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. Tall shrubs catch blowing snow in the interspaces.

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** not present.

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant: cool season deep-rooted perennial bunchgrasses

    Sub-dominant: tall shrubs

    Other: perennial forbs

    Additional: shallow rooted bunchgrasses

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** mountain big sagebrush will become decadent in the absence of normal fire frequency and ungulate grazing. Grass and forb mortality will occur as tall shrubs increase.

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14. **Average percent litter cover (%) and depth (in):** additional litter cover data is needed but is expected to be 15-20 percent to a depth of 0.1 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 500 pounds per acre (560 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 40-50 percent of the total production, forbs 20-25 percent, and shrubs 30-40 percent.

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 bulbous bluegrass, rush skeletonweed, musk and scotch thistle, and diffuse and spotted knapweed. Cheatgrass can invade the site at the lower elevations.

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