

Ecological site R010XA003ID Loamy 12-16 PZ ARTRT/FEID

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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
- Slope 1-25%, occurring on all aspects
- Soils are greater than 20" deep. Moderately deep to deep.
- Site not associated with recent lava flows
- Soils are not sandy; loamy to gravelly loam surface textures.
- Elevation is 4000-6000 ft.

Associated sites

R010XA037ID	Shrubby Stony North 12-16 PZ ARTRV/FEID Adjacent stony soils
R010XA009ID	South Slope Gravelly 12-16 PZ Adjacent south slopes
R010XA031ID	Bouldery Loam 12-16 PZ ARTRV/FEID Adjacent bouldery soils

Similar sites

R010XA026ID	Loamy 11-13 PZ ARTRW8/PSSPS PSSPS rather than FEID dominant, no abiotic criteria identified
R010XA022ID	Sandy Loam 12-16 PZ Sandy soils
R010XA033ID	Loamy 11-13 PZ ARTRX/PSSPS Site supports ARTRX rather than ARTRT, no abiotic criteria identified
R010XA004ID	Loamy 12-16 PZ ARTRV/FEID-PSSPS Site supports ARTRV rather than ARTRT, no abiotic criteria identified
R010XA023ID	Loamy 12-16 PZ ARTR4/FEID Site supports ARTR4 rather than ARTRT, no abiotic criteria identified

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata ssp. tridentata</i>
Herbaceous	(1) <i>Festuca idahoensis</i>

Physiographic features

This site occurs on broad nearly level to gentle slopes or rolling hills. The site occurs on all aspects. Slopes range from 1 to 25 percent. Elevations range from 4500 to 6000 feet (1350 to 1850 meters).

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	1,372–1,829 m
Slope	1–25%
Aspect	Aspect is not a significant factor

Climatic features

The Big and Little Wood River Footslopes 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)	305-406 mm
Frost-free period (actual range)	

Freeze-free period (actual range)	
Precipitation total (actual range)	305-457 mm
Frost-free period (average)	98 days
Freeze-free period (average)	133 days
Precipitation total (average)	381 mm

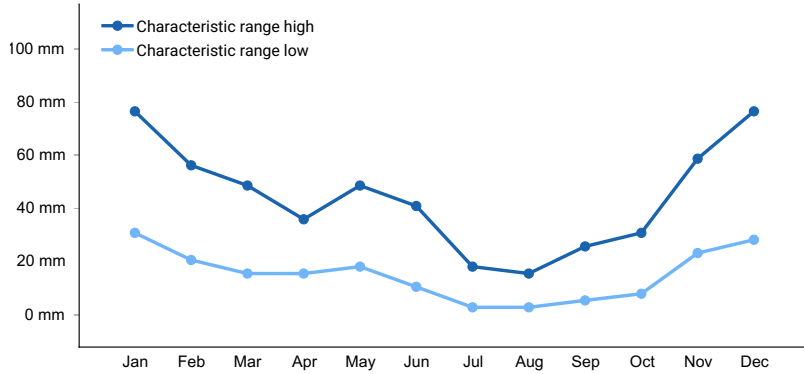


Figure 1. Monthly precipitation range

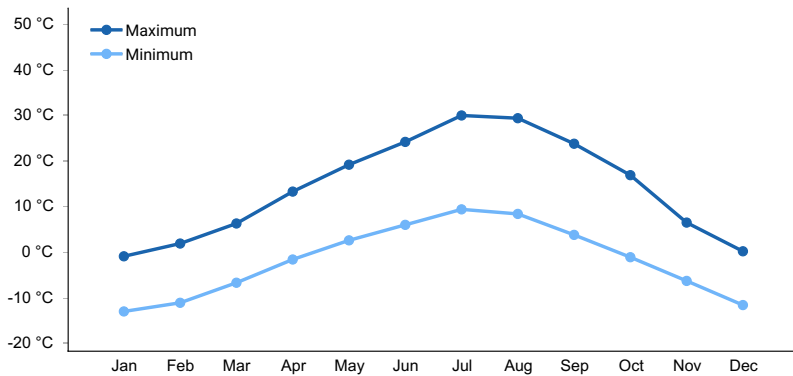


Figure 2. Monthly average minimum and maximum temperature

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 are derived from rhyolitic residuum on ridge tops and rolling hills. They are moderately deep to deep, well drained soils. They have a grayish brown to very dark grayish brown (dry) loamy to gravelly loam surface layers about 8 to 12 inches deep. They are underlain by clay loam subsoils which may contain gravels, cobbles, and sand. In some cases these gravels and cobbles may be present in relatively high percentages. Infiltration and internal water movement is good. The soils have good available water holding capacity (AWC) from 6 to 10 inches. With good vegetative cover, erosion hazard and runoff is slight.

Table 4. Representative soil features

Parent material	(1) Residuum-rhyolite
Surface texture	(1) Gravelly loam
Drainage class	Well drained

Soil depth	51–152 cm
Available water capacity (0-101.6cm)	15.24–25.4 cm

Ecological dynamics

The dominant visual aspect is basin big sagebrush with Idaho fescue in the understory. Composition by weight is approximately 65 to 75 percent grasses, 15 to 25 percent forbs and 5 to 15 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 20 to 50 years.

The Reference State (State 1), historically 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 well suited for big game in the late spring, summer, and fall. It is also well suited for livestock and recreation use in the late spring, summer, and fall.

Due to the gentle slopes and easy access by livestock if water is in the proximity, this site can be easily degraded by improper grazing management.

Due to the gentle topography, infiltration is normally high and runoff low. Runoff, when it does occur is non-erosive except 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, basin big sagebrush, threetip sagebrush, and antelope bitterbrush increases. Grasses and forbs decrease as shrubs increase.

When fires become more frequent than historic levels (20-50 years), basin big sagebrush and bitterbrush are reduced significantly. With continued short fire frequency, big sagebrush and antelope bitterbrush can be completely eliminated along with many of the desirable understory species such as bluebunch wheatgrass and Idaho fescue. These species may be replaced by cheatgrass and bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants. These fine fuels will increase the fire frequency. Root sprouting shrubs such as rabbitbrush, threetip sagebrush, and mountain snowberry may increase.

Threetip sagebrush is a component of the plant community. Threetip sagebrush has been found to be a weak sprouter in some locations and a strong sprouter in others. This suggests the species has ecotypic variation from one geographic location to another. Fire in one location may result in killing most of the plants while in another location, the plant community may become dominated by threetip sagebrush following a fire event. Threetip sagebrush in this site description is considered to be a weak sprouter, but more data is needed to determine sprouting characteristics. The period without fire may need to be 75 or more years for basin big sagebrush to reestablish in this plant community.

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 reducing vigor of the bunchgrasses and possibly bitterbrush. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to an increase in basin big sagebrush and noxious and invasive plants. Threetip sagebrush may increase if present in the community. As cheatgrass increases, along with other annuals, fires become frequent.

Continued improper grazing management influences fire frequency by increasing fine fuels. The site then becomes susceptible to an invasion of noxious and invasive plants and soil erosion.

If cheatgrass and/or medusahead increase due to improper grazing management and they become co-dominant with Sandberg bluegrass and other annuals, fires become more frequent.

Proper grazing management that addresses frequency, duration, and intensity of grazing can also keep fine fuels from developing, thereby reducing fire frequency. This can lead to gradual increases in basin big sagebrush. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn. Prescribed burning should be carefully planned as threetip sagebrush and cheatgrass can increase significantly. Likewise, with the presence of Bitterbrush, any brush management needs to be carefully evaluated because of its' importance for wildlife and livestock.

Weather influences:

Above normal precipitation in April, May, and June can dramatically increase total annual production of the plant community. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Likewise, below normal precipitation during these spring months can significantly reduce total annual production and be detrimental to viable seed production. Overall plant composition is normally not affected when perennials have good vigor.

Below normal temperatures in the spring can have an adverse impact on total production regardless of the precipitation. An early, hard freeze can occasionally kill some plants.

Prolonged drought adversely affects this plant community in several ways. Vigor, recruitment, and production are usually reduced. Mortality can occur. Prolonged drought can lead to a reduction in fire frequency.

Influence of Insects and disease:

Outbreaks can affect vegetation health, particularly bitterbrush from western tent caterpillars (*Malacosoma fragilis*). 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 for this site is available. 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 with deep root systems 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 late spring, summer, and fall. 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 years' 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 the increase in basin big sagebrush. Desired understory

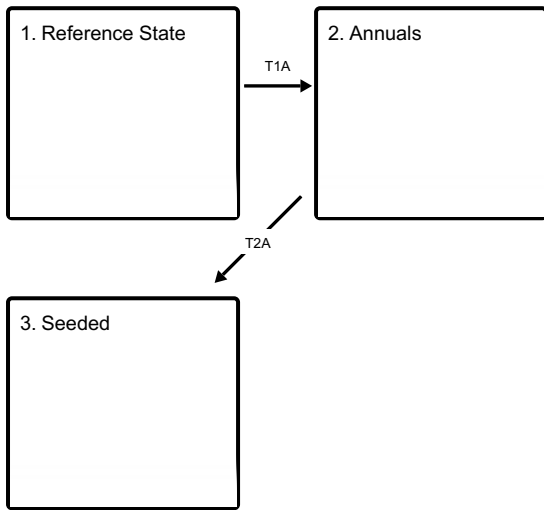
species can be reduced. The increased runoff also causes sheet and rill erosion. This composition change can affect nutrient and water cycles. Abnormally short fire frequency also gives the same results, but to a lesser degree. The long-term effect is a transition to a different state.

Practice Limitations:

Only slight limitations exist on this site for implementing vegetation management practices. Usually this site is a key area for livestock management due to flatter slopes and non-stony soils. This site is suited to seeding if needed. Mechanical, chemical, and fire are satisfactory methods of brush management on this site. If the plant community has threetip sagebrush as a major component, it may sprout after seeding or brush control, particularly if it is a strong sprouting ecotype. Slight to moderate limitations exist on this site for implementing facilitating practices such as water developments, salting and fencing.

State and transition model

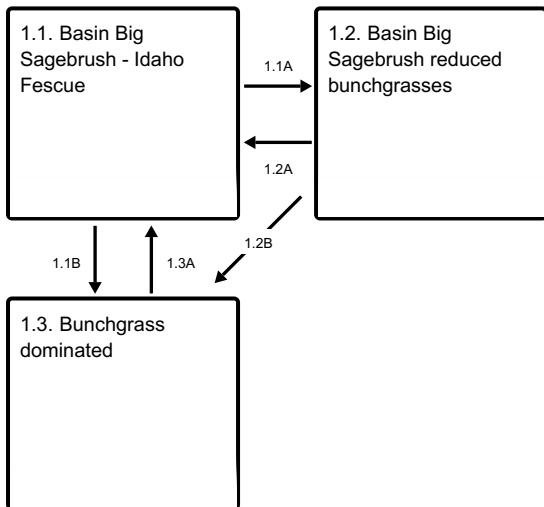
Ecosystem states



T1A - frequent fire, improper grazing management

T2A - range seeding

State 1 submodel, plant communities



1.1A - improper grazing management, absence of fire

1.1B - fire

1.2A - prescribed grazing and brush management

1.2B - fire

1.3A - prescribed grazing and no fire

State 2 submodel, plant communities

2.1. Annuals

State 3 submodel, plant communities

3.1. Seeded

**State 1
Reference State**

**Community 1.1
Basin Big Sagebrush - Idaho Fescue**

This plant community is dominated by Idaho fescue and basin big sagebrush. Antelope bitterbrush is usually present. Subdominant species include bluebunch wheatgrass, Sandberg bluegrass, tapertip hawksbeard, and arrowleaf balsamroot. Threetip sagebrush can be a major subdominant in some plant communities. There can be a wide variety of other forbs and grasses present in small amounts in the community. Natural fire frequency is 20-50 years.

Resilience management. The Reference Plant Community Phase is Phase 1.1. This plant community is dominated by Idaho fescue and basin big sagebrush. Antelope bitterbrush is usually present. Subdominant species include bluebunch wheatgrass, Sandberg bluegrass, tapertip hawksbeard, and arrowleaf balsamroot. Threetip sagebrush can be a major subdominant in some plant communities. The plant species composition of Phase 1.1 is listed later under “Reference Plant Community Phase Plant Species Composition”. Total annual production is 1100 pounds per acre (1232 kilograms per hectare) in a normal year. Production in a favorable year is 1600 pounds per acre (1792 kilograms per hectare). Production in an unfavorable year is 700 pounds per acre (784 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by perennial forbs being more dominant than tall shrubs while shallow rooted perennial bunchgrasses are subdominant.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	549	863	1255
Forb	157	247	359
Shrub/Vine	78	123	179
Total	784	1233	1793

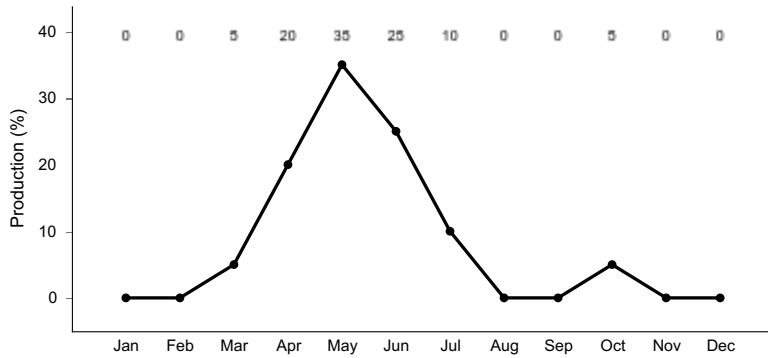


Figure 4. Plant community growth curve (percent production by month). ID0301, ARTRV HCPC. State 1.

Community 1.2 Basin Big Sagebrush reduced bunchgrasses

This plant community is dominated by basin big sagebrush with reduced amounts of Idaho fescue and bluebunch wheatgrass. Sandberg bluegrass has increased in the understory. All deep-rooted perennial bunchgrasses are typically in low vigor. Basin big sagebrush has increased as well as some other tall shrubs. Antelope bitterbrush may be present but in reduced vigor and hedged. If threetip sagebrush is present, it may have increased in the community. This state has developed due to improper grazing management and lack of fire. Some cheatgrass, bulbous bluegrass and/or medusahead may have invaded the site.

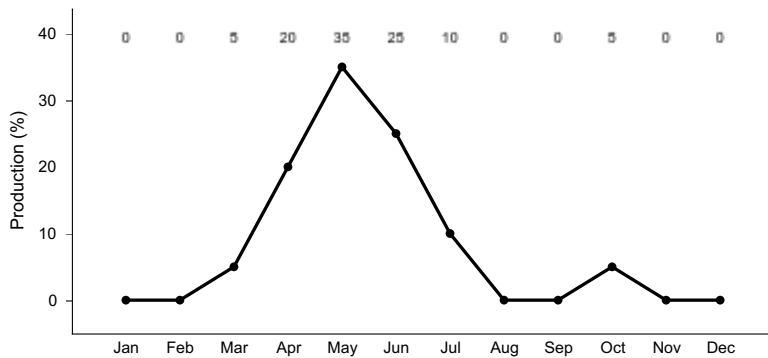


Figure 5. Plant community growth curve (percent production by month). ID0301, ARTRV HCPC. State 1.

Community 1.3 Bunchgrass dominated

This plant community is dominated by bluebunch wheatgrass with some rabbitbrush. Some threetip sagebrush may have resprouted if present in the community prior to the fire. Thurber's needlegrass and Idaho fescue can be lost due to fire. Sandberg bluegrass has increased. Basin wildrye may have increased slightly. Forbs remain in about the same proportion as Phase 1.1. Basin big sagebrush and antelope bitterbrush have been reduced significantly due to wildfire. Some cheatgrass, bulbous bluegrass, and/or medusahead may have invaded the site. This plant community is the result of wildfire.

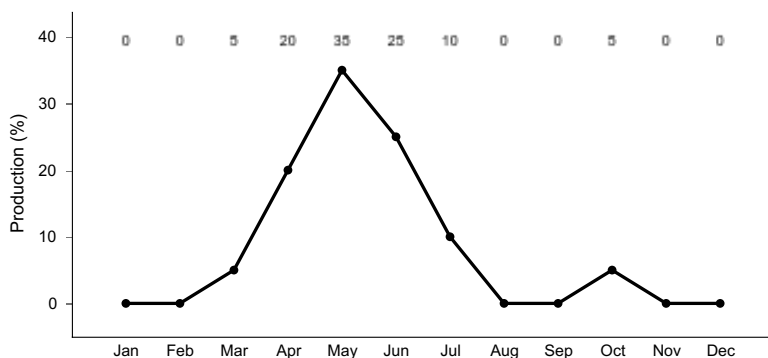


Figure 6. Plant community growth curve (percent production by month).
ID0301, ARTRV HCPC. State 1.

Pathway 1.1A
Community 1.1 to 1.2

Phase 1.1 to 1.2. Develops with improper grazing management and in the absence of 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 and brush management.

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
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. Site potential has been reduced. Significant soil loss has occurred. Infiltration has been reduced and run-off has become more rapid. It is not economically practical to return this plant community to State 1 with accelerating practices.

Community 2.1
Annuals

This plant community is dominated by cheatgrass, bulbous bluegrass and /or other annuals. Root sprouting shrubs such as rabbitbrush, horsebrush and some threetip sagebrush can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires and improper grazing management. The site has crossed the threshold. It is not economically practical to return this plant community to State 1 with accelerating practices.

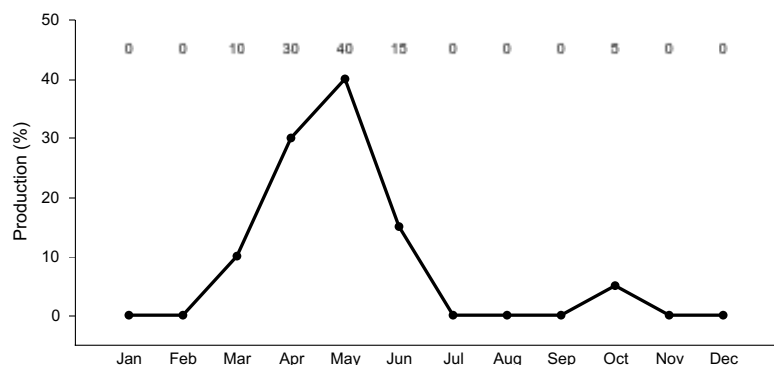


Figure 7. Plant community growth curve (percent production by month).

**State 3
Seeded**

**Community 3.1
Seeded**

This plant community results from range seeding. The seeding may be introduced species or it may be made up of native species that attempt to mimic the Reference plant community.

**Transition T1A
State 1 to 2**

State 1, Phase 1.2 to State 2. Develops through frequent fire and improper grazing management. State 1, Phase 1.3 to State 2. Develops through frequent fire and/or improper grazing management. The site has crossed the threshold. It is not economically practical to return this plant community to State 1 with accelerating practices.

**Transition T2A
State 2 to 3**

State 2 to State 3. Results from range seeding.

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1				549–1255	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	336–729	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	168–336	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	112–280	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	28–56	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0–56	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	11–28	–
	threadleaf sedge	CAFI	<i>Carex filifolia</i>	0–11	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–11	–
	thickspike wheatgrass	ELLA3	<i>Elymus lanceolatus</i>	0–11	–
Forb					
2				157–359	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	56–140	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	56–140	–
	nineleaf biscuitroot	LOTR2	<i>Lomatium triternatum</i>	11–28	–
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	11–28	–
	oblongleaf bluebells	MEOB	<i>Mertensia oblongifolia</i>	11–28	–
	spiny phlox	PHHO	<i>Phlox hoodii</i>	0–11	–
	velvet lupine	LULE3	<i>Lupinus leucophyllus</i>	0–11	–
	little larkspur	DEBI	<i>Delphinium bicolor</i>	0–11	–
	western stoneseed	LIRU4	<i>Lithospermum ruderale</i>	0–11	–
	bushy bird's beak	CORA5	<i>Cordylanthus ramosus</i>	0–11	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	0–11	–
	tapertip onion	ALAC4	<i>Allium acuminatum</i>	0–11	–
	basalt milkvetch	ASFI	<i>Astragalus filipes</i>	0–11	–
Shrub/Vine					
3	Shrubs			78–179	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	56–140	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	34–67	–
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	1–28	–
	threetip sagebrush	ARTR4	<i>Artemisia tripartita</i>	0–17	–
	spineless horsebrush	TECA2	<i>Tetradymia canescens</i>	0–17	–

Animal community

Wildlife Interpretations.

Animal Community – Wildlife Interpretations

This rangeland ecological site provides diverse habitat for many native wildlife species. Large herbivore use of this ecological site is dominated by mule deer, pronghorn antelope, and elk. Important seasonal habitat is provided for resident and migratory animals including western toad, sagebrush lizard, western rattlesnake, shrews, bats, jackrabbits, ground squirrels, mice, coyote, red fox, badger, sage-grouse, Ferruginous hawk, prairie falcon, horned lark, and western meadowlark. Changes in the plant community composition can reduce the number and diversity of wildlife species in the area. With reduced shrub cover, shrub obligate avian and mammal species become rare

including sage-grouse, sage sparrow, brewer's sparrow, sage thrasher, and pygmy rabbits. Encroachment of noxious and invasive plant species (cheatgrass, bulbous bluegrass, and/or medusahead) 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 is limited, being provided only by seasonal runoff, artificial water catchments, and spring sites. This rangeland ecological site is commonly associated with pre-historic lava flows which provide unique cave habitats for several sensitive animal species, including the Blind Cave Leiodid Beetle, Cave Obligate Mite, Bats, and the Cave Obligate Harvestman.

State 1 Phase 1.1 - Basin Big Sagebrush/ Idaho Fescue Reference Plant Community (RPC): The RPC provides a diversity of grasses, forbs, and shrubs, used by native insect communities who assist in the pollination process for the plant community. Cave dwelling insects and mammals would be supported by this plant community. 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. Spring developments that capture all available water would preclude the use of these sites by amphibians. The plant community supports a variety of migratory and resident avian species that utilize both the grasses and shrubs for food, brood-rearing, and nesting cover. Shrub-steppe obligate avian species of concern include the Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. Critical habitat (i.e. lek sites, nesting areas, winter cover, and food) for the sage-grouse is provided by this diverse plant community. The plant community supports seasonal (late spring, summer, and winter) needs of large mammals (mule deer, antelope, and elk) providing food and cover. Antelope bitterbrush and Idaho fescue are preferred browse for wild ungulates. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, yellow-bellied marmots, and pygmy rabbits would utilize the site. The deer mouse is beneficial to this site as it is the principal vector for planting bitterbrush seed.

State 1 Phase 1.2 - Basin Big Sagebrush/ Sandberg Bluegrass/ Idaho Fescue Plant Community: This plant community is the result of improper grazing management and the absence of fire. An increase in canopy cover of sagebrush and antelope bitterbrush contributes to a sparse herbaceous understory and can lead to an increase in threetip sagebrush. Grasses, forbs, and shrubs, are used by native insects that assist in pollination but the reduced herbaceous understory results in lower diversity and numbers of insects. You can expect a decrease in populations and diversity of reptiles due to the reduced diversity and canopy cover of herbaceous vegetation. Reduced herbaceous understory is a key factor in limiting the use of this plant community by avian species. Key shrub-steppe obligate avian species include Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. Critical habitat (lek sites, nesting areas, winter cover, and food) for sage-grouse is limited due to the reduced diversity and canopy cover of herbaceous vegetation. The plant community supports seasonal needs of large mammals (mule deer, antelope, and elk) providing food and cover on a seasonal basis. Basin big sagebrush and antelope bitterbrush are preferred browse for wild ungulates. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, yellow-bellied marmots, and pygmy rabbits would utilize this plant 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 with little or no basin big sagebrush and antelope bitterbrush provides less vertical structure, limiting use by shrub obligate animals. Insect diversity would be reduced but a diverse native forb plant community would still support select pollinators. Cave dwelling insects and mammals from adjacent habitats would be supported by this plant community. Reptile use, including short horned lizard, sagebrush lizard, and western rattlesnakes, would be limited or excluded due to the absence of sagebrush. The dominance of herbaceous vegetation with little sagebrush canopy cover would prevent use of these areas for nesting by Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. This plant community provides brood-rearing habitat for sage grouse when adequate cover of sagebrush is nearby. Use as wintering habitat or nesting cover by sage-grouse would be lost. The dominant herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (mule deer, antelope, and elk) use for food would be seasonal but the site would offer little thermal cover and young of year cover. Small mammal diversity would be reduced and the plant community would not provide suitable habitat for pygmy rabbits.

State 2 – Cheatgrass/Bulbous Bluegrass and Annual Plant Community: This plant community would not support a diverse insect community. The reduced forb component in the plant community would support a very limited population of pollinators. Most reptilian species would not be supported with food, water, or cover. The plant community would not support sage-grouse, sage thrasher, Brewer's sparrow, or sage sparrow. Grassland avian

species would also avoid these areas. 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) would be more palatable. At other times of the year large mammals would not regularly utilize these areas due to poor food and cover conditions. The reduction of insect populations and diversity would reduce suitability of the site for bats. The populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 3 - Range Seeding Plant Community: The proposed seeding mixture (native or non-native) would determine the animal species that would utilize the area. A diverse seed mixture of grasses and forbs would provide similar habitat conditions as in the herbaceous plant community described in State 1 phase 1.3. A diverse seed mixture of grasses, forbs and shrubs would provide similar habitat conditions as described in State 1 phase 1.1 or 1.2. A monoculture of non-native grass species would not support diverse populations of insects, reptiles, avians, or mammals. Sagebrush obligate animal species would not be supported with a monoculture of grass species. Grassland animal species that prefer uniform vertical strata and large expanses of uniform cover would persist. Birds of prey including hawks and falcons may range throughout these areas looking for prey species.

Grazing Interpretations.

This site is best suited for grazing in the late spring, summer, and fall. The site is easily grazed due to gentle slopes if water is available. This site is often used as a key grazing area.

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 B. They have low to moderate runoff potential.

Recreational uses

This site provides opportunities for big game hunting, hiking, and horseback riding. Numerous flowering forbs in the spring offer photography opportunities. ATV's use the site due to gentle slopes.

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:

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
Leah Juarros, Resource Soil Scientist, NRCS, Idaho
Lee Brooks, Range Management Specialist, IASCD

Type locality

Location 1: Blaine County, ID
Location 2: Blaine County, ID

References

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USDA, Forest Service, Fire Effects Information Database. 2004. www.fs.fed.us/database/feis

USDI Bureau of Land Management, US Geological Survey; USDA Natural Resources Conservation Service, Agricultural Research Service; Interpreting Indicators of Rangeland Health. Technical Reference 1734-6; Version 4-2005.

Contributors

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DF

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 rarely occur on this site. If rills are present they are likely to occur on slopes greater than 15 percent and immediately following wildfire. Rills are most likely to occur on soils with surface textures of silt loam and clay loam.

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

3. **Number and height of erosional pedestals or terracettes:** both are rare on this site. In areas where slopes approach 15 percent and where flow patterns and/or rills are present, a few pedestals may be expected.

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 45-55 percent.

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

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.

7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move up to 2 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 .

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** structure ranges from _____ to _____. Soil organic matter (SOM) needs to be determined. The A or A1 horizon is typically _____ thick. (no data)

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 accumulate snow in the interspaces.

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

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

Dominant: cool season deep-rooted perennial bunchgrasses

Sub-dominant: perennial forbs

Other: shrubs

Additional: shallow rooted bunchgrasses

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

14. **Average percent litter cover (%) and depth (in):** additional litter cover data is needed but is expected to be 20-25 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 1100 pounds per acre (1232 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 65-75 percent of the total production, forbs 15-25 percent, and shrubs 5-15 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, whitetop, rush skeletonweed, musk and scotch thistle, and diffuse and spotted knapweed. Cheatgrass and medusahead may invade at lower elevations of the site.

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