

Ecological site R010XA023ID Loamy 12-16 PZ ARTR4/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

Classification relationships

Artemisia tripartita/ Festuca idahoensis HT in "Hironaka, M., M.A. Fosberg, A. H. Winward. 1983. Sagebrush- Grass Habitat Types of Southern Idaho. University of Idaho. Moscow, Idaho. Bulletin Number 35".

Ecological site concept

- Site occurs on uplands
- Slope 1-20%, 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; surface textures are silt loam, subsoil textures are silty clay loam to clay loam
- Elevation is 4000-5500 ft.

Associated sites

R010XA032ID	Bouldery 11-13 PZ ARTRX/PSSPS Adjacent low slope loamy soils with large boulders on or near surface
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R010XA033ID	Loamy 11-13 PZ ARTRX/PSSPS Adjacent low slope areas with moderately deep soils
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Similar sites

R010XA033ID	Loamy 11-13 PZ ARTRX/PSSPS Site supports ARTRX rather than ARTR4, no abiotic criteria identified
R010XA026ID	Loamy 11-13 PZ ARTRW8/PSSPS Site supports ARTRW8 rather than ARTR4, no abiotic criteria identified
R010XA004ID	Loamy 12-16 PZ ARTRV/FEID-PSSPS Site supports ARTRV rather than ARTR4, no abiotic criteria identified
R010XA002ID	Clayey 12-16 PZ ARTR4/PSSPS Site supports an herbaceous community dominated by PSSPS rather than FEID, no abiotic criteria identified
R010XA003ID	Loamy 12-16 PZ ARTRT/FEID Site supports ARTRT rather than ARTR4, no abiotic criteria identified

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tripartita</i>
Herbaceous	(1) <i>Festuca idahoensis</i>

Physiographic features

This site occupies broad nearly level to gently sloping intermountain basin floors and on gently sloping piedmont slopes on all aspects. Floors of internally drained basins may contain one or more closed depressions with small temporary lakes (playas). Some sites occur in depressions on isolated or relict areas (kipukas) where recent lava flows from Craters of the Moon activity have surrounded older land surfaces. Slopes range from 1 to 20 percent. Elevation ranges from 4000 to 5500 feet (1219 to 1676 m).

Table 2. Representative physiographic features

Landforms	(1) Basin > Basin floor
Flooding frequency	None
Ponding frequency	None
Elevation	1,219–1,676 m
Slope	1–20%
Water table depth	203 cm
Aspect	Aspect is not a significant factor

Climatic features

The Big and Little Wood River Foot slopes and Plains, proposed as MLRA 10X, 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)	86 days
Freeze-free period (average)	120 days
Precipitation total (average)	381 mm

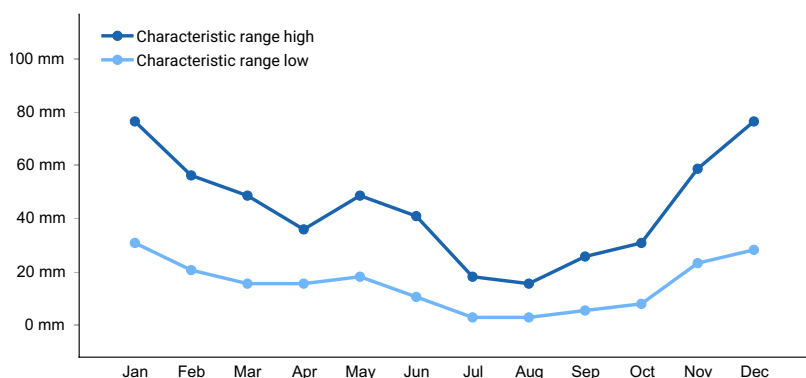


Figure 1. Monthly precipitation range

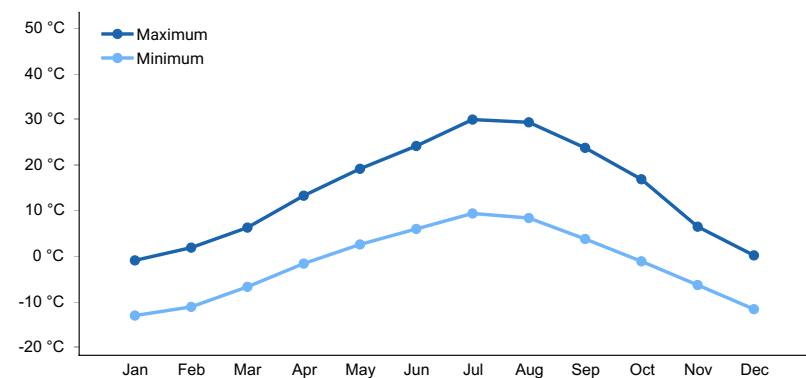


Figure 2. Monthly average minimum and maximum temperature

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 on this site are moderately deep to deep to bedrock, and are well drained. Typically these soils have silt loam surfaces about 10 inches thick, silty clay loam or clay loam subsoils about 10 inches thick, over silty lime-enriched (calcareous) substrata of variable thickness laying over basalt bedrock. The surface textures are mostly silt loams and grade into silty clay to clay. The available water holding capacity (AWC) ranges from low to high

depending on depth to bedrock.

Table 4. Representative soil features

Parent material	(1) Alluvium–siltstone
Surface texture	(1) Silt loam (2) Loam
Family particle size	(1) Fine-loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	51–152 cm
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0–5%
Available water capacity (0-101.6cm)	13.72–21.08 cm
Calcium carbonate equivalent (0-101.6cm)	0–30%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.1–7.3
Subsurface fragment volume <=3" (10.2-152.4cm)	0–13%
Subsurface fragment volume >3" (10.2-152.4cm)	0–13%

Ecological dynamics

The dominant visual aspect of this site is three-tip sagebrush and Idaho fescue. Composition by weight is approximately 50 to 60 percent grasses, 15 to 25 percent forbs and 15 to 25 percent shrubs.

This plant community may be a Loamy site with basin big sagebrush in the overstory that has become dominated by three-tip sagebrush due to man-caused frequent fires since the early 1900's (fire disclimax). The re-establishment of basin big sagebrush requires a long time period with no fire when the plant community is dominated by three-tip sagebrush. Evidence of this becomes apparent by the presence of scattered basin big sagebrush plants on the landscape, even though the soils are the same.

During 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 20-50 years. However, when the site occurs in a kipuka, the fire frequency typically is much greater. The Reference Plant Community 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 suited for grazing with domestic livestock in late spring, summer, and fall. The site is used by mule deer, rocky mountain elk, lagomorphs, small rodents, and predators. Pronghorn antelope use the site infrequently due to the height of shrubs. This site has limited recreation use except hunting.

Due to the low production potential and easy access by animals this site is easily degraded by improper grazing

management or frequent fires.

Impacts on the Plant Community.

Influence of fire:

Three-tip sagebrush exhibits variable sprouting abilities following fire. The specific response may depend on ecotypic differences, fire severity, soil moisture or a combination of these factors.

Generally, it re-sprouts vigorously after fire. Three-tip sagebrush sprouts from shallow lateral roots or the root crown. It can also layer. Nearly pure stands can develop after the site burns.

In the absence of normal fire frequency three-tip sagebrush can gradually increase on the site. Grasses and forbs decrease as shrubs increase. With the continued absence of fire, these shrubs can displace many of the primary understory species.

When fires become more frequent than historic levels (20 to 50 years), three-tip sagebrush is reduced significantly. Rabbitbrush can increase slightly. Three-tip sagebrush may re-sprout vigorously after burning, however, with a continued short fire frequency, three-tip sagebrush can be completely eliminated along with many of the desirable understory species such as bluebunch wheatgrass and Thurber's needlegrass. 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 and medusahead will invade the site. 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, the plant community becomes susceptible to increase in three-tip sagebrush.

Continued improper grazing management influences fire frequency by increasing fine fuels. 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. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn. Any brush management should be carefully planned, as a reduction in shrubs without a suitable understory of perennial grasses can increase cheatgrass and/or medusahead which leads to more frequent fire intervals.

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 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. Antelope 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 antelope bitterbrush. It seldom kills the entire stand. Mormon crickets 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.

Perennial and annual 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. Burrowing rodents can create microsites for establishment of noxious and invasive plant species.

Watershed:

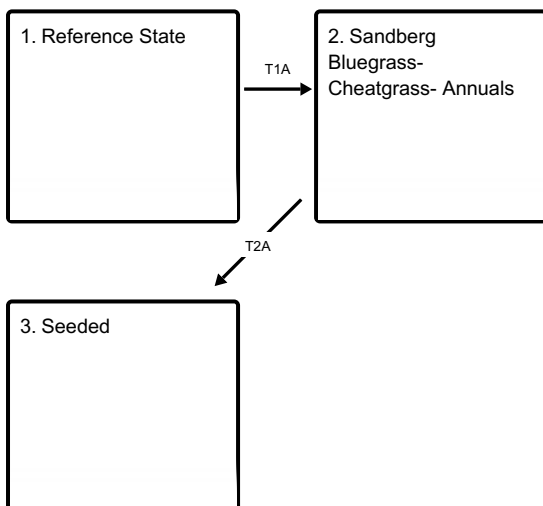
Decreased infiltration and increased runoff occur with an increase in three-tip sagebrush. Desired understory species can be reduced. This composition change can affect nutrient and water cycles. Increased runoff also causes sheet and rill erosion. Abnormally short fire frequency also gives the same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

Practice Limitations.

Only slight limitations exist on this site for implementing vegetative management practices. Mechanical, chemical and fire are suitable methods of brush management on this site, however, three-tip sagebrush may re-sprout if any of these treatments are used. Planning should carefully analyze the stand of perennial grasses and forbs, because removal of three-tip sagebrush can result in a significant increase in cheatgrass which can lead to an increased fire frequency which can irreversibly degrade the plant community. Slight limitations exist on this site for implementing facilitating practices such as water developments, salting, and fencing. Moderate limitations exist for seeding due to clayey soils.

State and transition model

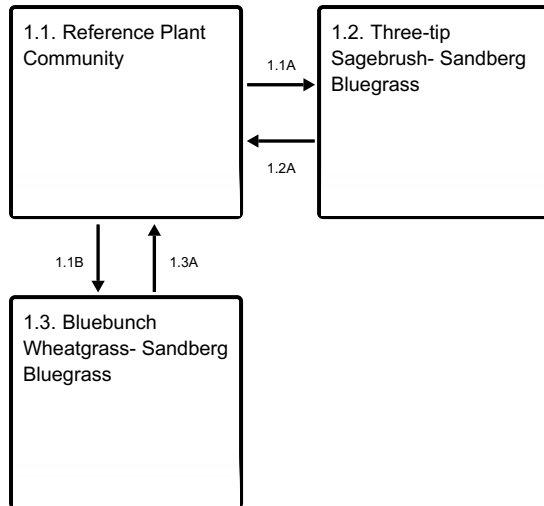
Ecosystem states



T1A - fire, improper grazing management

T2A - range seeding

State 1 submodel, plant communities



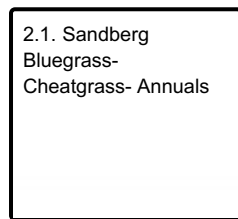
1.1A - improper grazing management, absence of fire

1.1B - fire

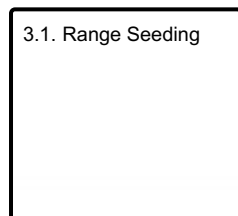
1.2A - prescribed grazing and no fire

1.3A - prescribed grazing and no fire

State 2 submodel, plant communities



State 3 submodel, plant communities



State 1 Reference State

Dominant plant species

- threetip sagebrush (*Artemisia tripartita*), shrub
- Idaho fescue (*Festuca idahoensis*), grass

Community 1.1 Reference Plant Community



Figure 3. Reference State

1.1 Three Tip Sagebrush / Idaho Fescue Bluebunch Wheatgrass - Sandberg Bluegrass - Prairie Junegrass The Reference Plant Community has three-tip sagebrush in the overstory with Idaho fescue dominating the understory. Bluebunch wheatgrass, prairie junegrass, Sandberg bluegrass, bottlebrush squirreltail, longleaf phlox, lupine, tapertip hawksbeard, and green rabbitbrush are common. Natural fire frequency is 20-50 years.

Resilience management. The Reference Plant Community is community 1.1. The Reference Plant Community of this site is dominated by three-tip sagebrush and Idaho fescue. Subdominant species include bluebunch wheatgrass, Sandberg bluegrass, prairie junegrass, thickspike wheatgrass, and bottlebrush squirreltail. Total annual production is 800 pounds per acre (888 Kg/ha) in a normal year. Production in a favorable year is 1000 pounds per acre (1111 Kg/ha). Production in an unfavorable year is 550 pounds per acre (611 Kg/ha). Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by tall shrubs being equal to perennial forbs 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	370	538	673
Shrub/Vine	123	179	224
Forb	123	179	224
Total	616	896	1121

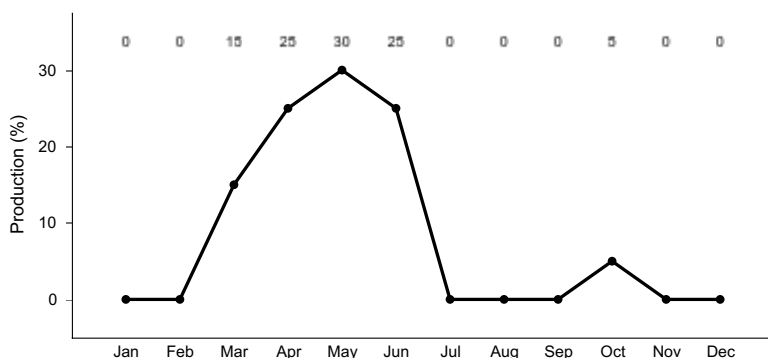


Figure 5. Plant community growth curve (percent production by month). ID0305, ARTRV SOUTH .

Community 1.2 Three-tip Sagebrush- Sandberg Bluegrass

1.2 Three-tip Sagebrush/ Sandberg Bluegrass - Bottlebrush Squirreltail This plant community is dominated by three-tip sagebrush with reduced amounts of Idaho fescue and other deep-rooted perennial bunchgrasses. Sandberg bluegrass and bottlebrush squirreltail have increased in the understory. All deep-rooted perennial bunchgrasses are

typically in low vigor. Three-tip sagebrush has increased as well as some other tall shrubs. This community has developed due to improper grazing management and lack of fire. Some cheatgrass and medusahead may have invaded the site.

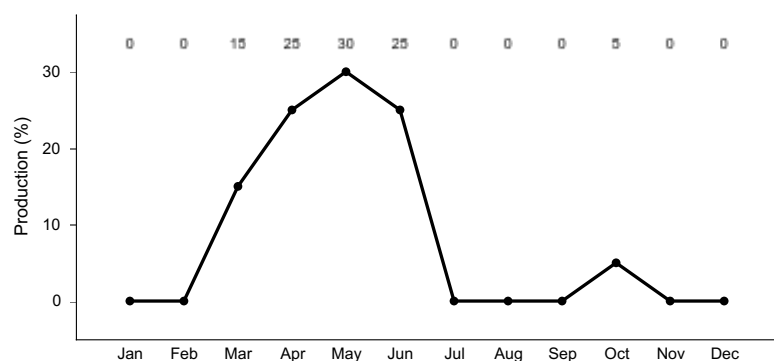


Figure 6. Plant community growth curve (percent production by month). ID0305, ARTRV SOUTH .

Community 1.3 Bluebunch Wheatgrass- Sandberg Bluegrass

1.3 Bluebunch Wheatgrass - Sandberg Bluegrass - Tall root sprouting shrubs This plant community is dominated by bluebunch wheatgrass, sandberg bluegrass and tall root-sprouting shrubs. Idaho fescue can be lost or its vigor severely reduced due to fire. Bottlebrush squirreltail has increased. Forbs remain about in the same proportion as Plant Community 1.1. Three-tip sagebrush has been reduced significantly due to wildfire but will likely re-sprout. Some cheatgrass and medusahead may have invaded the site. This plant community is the result of wildfire.

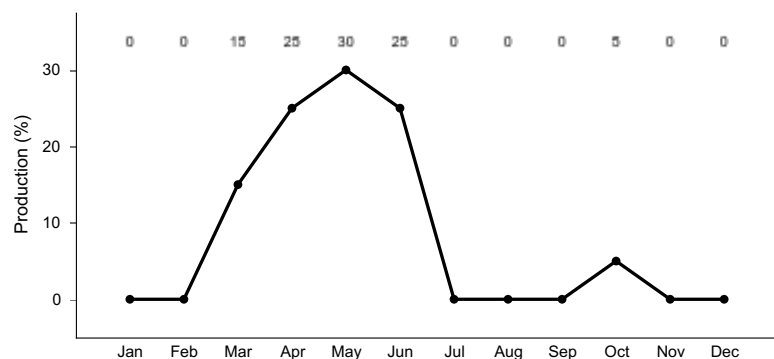


Figure 7. Plant community growth curve (percent production by month). ID0305, ARTRV SOUTH .

Pathway 1.1A Community 1.1 to 1.2

1.1A - Develops with improper grazing management and in the absence of fire.

Pathway 1.1B Community 1.1 to 1.3

1.1B - Develops with fire.

Pathway 1.2A Community 1.2 to 1.1

1.2A - Develops with prescribed grazing and no fire.

Pathway 1.3A Community 1.3 to 1.1

1.3A - Develops with prescribed grazing and no fire.

State 2

Sandberg Bluegrass- Cheatgrass- Annuals

Resilience management. T2B - Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and/or frequent fire cause this state to cross a threshold and retrogress to a new site with reduced potential. It is not economically practical to return this plant community to State 1 with accelerating practices.

Dominant plant species

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

Community 2.1

Sandberg Bluegrass- Cheatgrass- Annuals

2. Sandberg Bluegrass - Cheatgrass - Annuals This plant community is dominated by Sandberg bluegrass, cheatgrass and other annuals. Root sprouting shrubs such as three-tip sagebrush, green rabbitbrush, and grey horsebrush can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires or improper grazing management from Community 1.3(T1A) and from fire and improper grazing management from Community 1.2(T1B). This site has crossed the threshold. It is not economically practical to return this plant community to State 1 with accelerating practices.

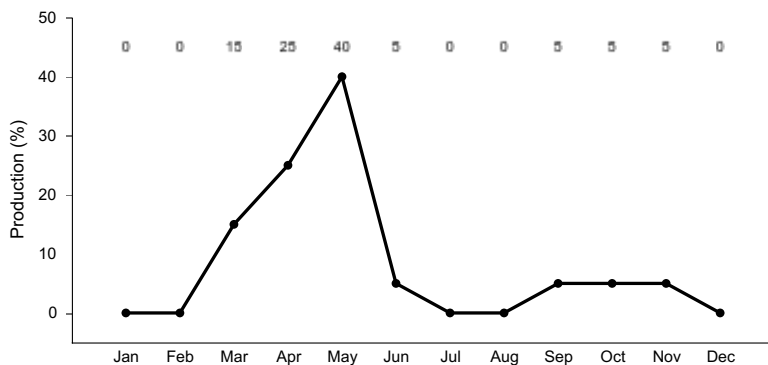


Figure 8. Plant community growth curve (percent production by month). ID0311, POSE/BRTE-ANNUALS . State 2.

State 3

Seeded

Dominant plant species

- crested wheatgrass (*Agropyron cristatum*), grass

Community 3.1

Range Seeding

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 historic plant community.

Transition T1A

State 1 to 2

T1A - Develops through frequent fire or improper grazing management. T1B - Develops with fire and improper grazing management. This 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

T2A - 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				347–695	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	168–308	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	78–140	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	39–135	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	62–112	–
2				0–84	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–34	–
	thickspike wheatgrass	ELLA3	<i>Elymus lanceolatus</i>	0–17	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0–17	–
	threadleaf sedge	CAFI	<i>Carex filifolia</i>	0–6	–
	Columbia needlegrass	ACNE9	<i>Achnatherum nelsonii</i>	0–6	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0–6	–
Forb					
3				34–280	
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	34–62	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–34	–
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	0–22	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–17	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–17	–
	nineleaf biscuitroot	LOTR2	<i>Lomatium triternatum</i>	0–17	–
	velvet lupine	LULE3	<i>Lupinus leucophyllus</i>	0–17	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–17	–
	tapertip onion	ALAC4	<i>Allium acuminatum</i>	0–17	–
	little larkspur	DEBI	<i>Delphinium bicolor</i>	0–11	–
	mariposa lily	CALOC	<i>Calochortus</i>	0–11	–
	smallgrass	MICRO	<i>Microchloa</i>	0–11	–
	spiny phlox	PHHO	<i>Phlox hoodii</i>	0–6	–
	ragwort	SENEC	<i>Senecio</i>	0–6	–
	oblongleaf bluebells	MEOB	<i>Mertensia oblongifolia</i>	0–6	–
	bushy bird's beak	CORA5	<i>Cordylanthus ramosus</i>	0–6	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	0–6	–
Shrub/Vine					
4				95–224	
	threetip sagebrush	ARTR4	<i>Artemisia tripartita</i>	95–168	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	0–17	–
	yellow rabbitbrush	CHV18	<i>Chrysothamnus viscidiflorus</i>	0–17	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–11	–
	spineless horsebrush	TECA2	<i>Tetradymia canescens</i>	0–11	–

Animal community

Wildlife Interpretations

The 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, chipping sparrow, and western meadowlark. Changes in the plant community composition can reduce the numbers and diversity of wildlife species in the area. With reduced shrub cover shrub obligate avian and mammal species become rare including sage-grouse, brewer's sparrow, sage thrasher and pygmy rabbits. Encroachment of noxious and invasive plant species (cheatgrass, Rush skeleton weed, and knapweed) replaced 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 only being provided by seasonal runoff and artificial water catchments. 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 Cave Obligate Harvestman.

Plant Community 1.1 - Three-tip Sagebrush/Idaho Fescue/ Bluebunch Wheatgrass/ Sandberg Bluegrass/ Prairie Junegrass: This plant community provides a diversity of grasses, forbs and shrubs, used by native insect communities that assist in pollination. Insect orders represented include Orthoptera, Dermaptera, Coleoptera, Hemiptera, Lepidoptera, Diptera, and Hymenoptera. The reptile and amphibian community is represented by leopard lizard, desert horned lizard, short horned lizard, sagebrush lizard, western skink, western rattlesnake, western toad, Boreal chorus frog, and northern leopard frog. The reference plant community phase provides food, and cover for these resident reptile species. 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. Most important is the native shrub-steppe obligate avian species including the Brewer's sparrow, sage sparrow, sage thrasher and sage grouse. Critical habitat (lek sites, nesting areas, winter cover and food) for sage grouse are provided by this diverse plant community. The plant community supports seasonal needs of large mammals (mule deer, antelope, and elk) providing food and cover on a seasonal basis. The dominant shrub (three-tip sagebrush) provides limited forage value for large mammals. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, yellow-bellied marmots, and pikas utilize this community.

Plant Community 1.2 - Three-tip Sagebrush/ Sandberg Bluegrass/ Bottlebrush Squirreltail: This plant community is the result of improper grazing management. Grasses, forbs and shrubs, are used by native insects that assist in pollination. Insect orders represented include Orthoptera, Dermaptera, Coleoptera, Hemiptera, Lepidoptera, Diptera, and Hymenoptera. The reptile and amphibian community is represented by leopard lizard, desert horned lizard, short horned lizard, sagebrush lizard, western skink, western rattlesnake, western toad, boreal chorus frog, and northern leopard frog. The herbaceous and woody plants provide food and cover for these resident species. This 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, primarily the shrub-steppe obligates Brewer's sparrow, sage sparrow, sage thrasher and sage grouse. Critical habitat (lek sites, nesting areas, winter cover and food) for sage grouse is provided by this diverse plant community. The plant community supports seasonal needs of large mammals (mule deer, antelope, and elk) providing food and cover on a seasonal basis. The dominant shrub (three-tip sagebrush) provides limited forage value for large mammals. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, yellow-bellied marmots, and pikas utilize this community.

Plant Community 1.3 - Bluebunch Wheatgrass/ Sandberg Bluegrass/ Bottlebrush Squirreltail: 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 less 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. The reptiles, desert horned lizard, short horned lizard, sagebrush lizard and western rattlesnakes, would be limited or excluded. The dominance of herbaceous vegetation with little sagebrush canopy 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 cover habitat is nearby, but use as wintering sites and nesting cover by sage grouse is severely reduced. 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 offer little thermal or young of year cover. Small mammal diversity would be reduced and the plant community would not provide suitable habitat for pygmy rabbit, a state species of concern.

State 2 - Sandberg Bluegrass/ Cheatgrass and Annual 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 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 (except for brief periods for brood rearing), sage thrasher, Brewer's sparrow or sage sparrow. Diversity of grassland avian species is reduced due to poor cover and 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. Bats may be impacted by the loss of the native plant species and reduction of population and diversity of insects. The diversity and populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 3 - Range Seeding Plant Community: The seeding mixture (native or non-native) determines the animal species that utilize this site. A diverse seed mixture of grasses and forbs would provide similar habitat conditions as in the herbaceous plant community 1.3. A diverse seed mixture of grasses, forbs and shrubs would provide similar habitat conditions as described in community 1.1 or 1.2. A monoculture of non-native grass species would not support diverse populations of insects, reptiles, avian, mammals or sagebrush obligate 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 this community looking for prey species.

Grazing Interpretations.

This site is suited for grazing with domestic livestock in late spring, summer, and fall. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference.

Hydrological functions

Soils on this site are in hydrologic group B. They have low to moderate run-off potential.

Recreational uses

This site has opportunities for big game hunting and upland bird hunting. Hiking, horseback riding and photography are additional uses. ATV's use the site due to gentle slopes.

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
Lee Brooks, Range Management Specialist, IASCD
Frank Fink, State Biologist, NRCS, Idaho

Dee Carlson, Water Quality Specialist, NRCS, Idaho
Jerry Korol, GIS Specialist, NRCS, Idaho

Type locality

Location 1: Butte County, ID	
Township/Range/Section	T1 R24 S19
General legal description	1S 24E CENTER OF SEC. 19, CAREY KIPUKA, N 43° 19.429 W 113° 37.905
Location 2: Butte County, ID	
Township/Range/Section	T1 R24 S20
General legal description	1S 24E SEC. 20, CAREY KIPUKA
Location 3: Butte County, ID	
Township/Range/Section	T1 R24 S28
General legal description	1S 24E SEC. 28, LAIDLAW PARK

References

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Other references

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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

Dave Franzen

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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Contact for lead author	Brendan Brazee, State Rangeland Management Specialist USDA-NRCS 9173 W. Barnes Drive, Suite C Boise, ID 83709
Date	03/10/2008
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rarely occur on this site. If rills are present they are most likely to occur on steeper slopes greater than 10 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 except on slopes greater than 10 percent. When they do occur they are short, disrupted by cool season perennial grasses and tall shrubs and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are rare on this site. In areas where slopes are greater than 10% and where flow patterns and /or rills are present, a few pedestals may be expected. Do not misinterpret frost heaving for pedestals. Terracettes are rare however, they provide a favorable micro-site for vegetation establishment which further increases infiltration.

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 30-40 percent.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Usually does not occur. Some wind erosion may occur immediately following a wildfire on soils that have fine textured surface soils.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 2 feet or further on slopes greater than 10 percent 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): Soil Stability Test ratings 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 weak or moderate thin platy to weak fine granular. The A or A1 horizon is typically 6 to 11 inches thick. Soil organic matter (SOM) ranges from 1 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 run-off and increase infiltration. 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):** Does not occur.

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 = perennial forbs

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Grass and forb mortality will occur as tall shrubs increase.

14. **Average percent litter cover (%) and depth (in):** Annual litter cover in the interspaces will be 20-30 percent to a depth of <0.1. Under the mature shrubs litter is greater than 0.5 inches. Fine litter can accumulate behind bunchgrasses and shrubs on slopes greater than 10 percent.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production is 800 lbs. per acre in a year with normal precipitation and temperatures. Perennial grasses produce 50-60 percent of the total, forbs 15-25 percent, and shrubs 15-25 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:** Cheatgrass, Medusahead, Bulbous Bluegrass, and other species listed on state noxious weed

list.

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