

Ecological site R010XA001ID Clayey 12-16 PZ ARARL/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 longiloba/ *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
- Slopes generally less than 30%, occurring on all aspects
- Soils are 20 - 40" to a duripan
- Site not associated with recent lava flows
- Soils are not sandy
- Site does not have large boulders on or near surface
- Root restricting clayey subsurface at 14-18"

Associated sites

R010XA004ID	Loamy 12-16 PZ ARTRV/FEID-PSSPS Adjacent loamy soils
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R010XA026ID	Loamy 11-13 PZ ARTRW8/PSSPS Adjacent loamy soils
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Similar sites

R010XA004ID	Loamy 12-16 PZ ARTRV/FEID-PSSPS Moderately deep to deep soils, no root restricting clayey subsurface at 14-18"
R010XA026ID	Loamy 11-13 PZ ARTRW8/PSSPS No duripan at 20-40 inches, lack of root restricting clayey subsurface at 14-18"
R010XA034ID	Claypan 10-12 PZ ARTR4/PSSPS-ACTH7 No root restricting clayey subsurface at 14-18"

Table 1. Dominant plant species

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

Physiographic features

This site occurs on mountain footslopes, toeslopes and basalt plains on all aspects. Slopes are less than 30 percent. Elevation ranges from 4500 to 6500 feet (1372-1981m).

Table 2. Representative physiographic features

Landforms	(1) Foothills > Mountain slope (2) Lava plain
Flooding frequency	None
Ponding frequency	None
Elevation	1,372–1,981 m
Slope	0–30%
Ponding depth	0 cm
Water table depth	203 cm
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° Fahrenheit. The frost-free period ranges from 75 to 98 days. The freeze-free period is a bit longer from 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
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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)	406 mm

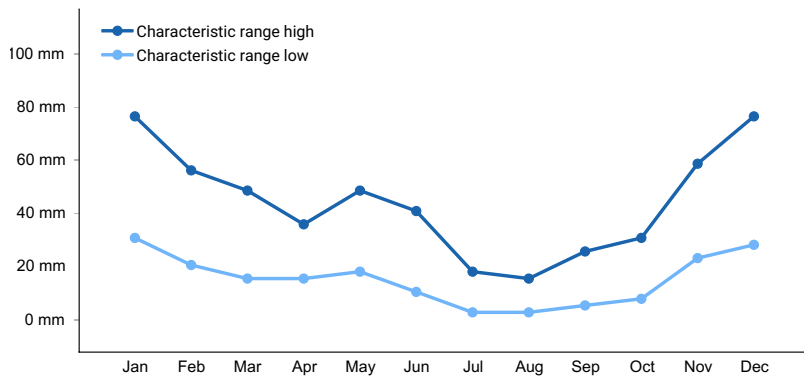


Figure 1. Monthly precipitation range

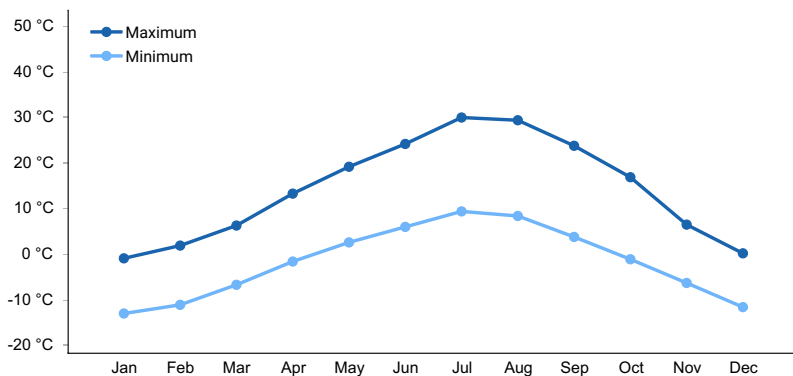


Figure 2. Monthly average minimum and maximum temperature

Climate stations used

- (1) FAIRFIELD RS [USC00103108], Fairfield, ID
- (2) CRATERS OF THE MOON [USC00102260], Arco, ID
- (3) PICABO [USC00107040], Carey, ID
- (4) HILL CITY 1 W [USC00104268], Corral, ID
- (5) GROUSE [USC00103882], Mackay, ID
- (6) ARCO 17 SW [USW00004126], Arco, ID

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 have loam, silt loam or clay loam surfaces and clay or silty clay subsoils. Coarse fragments may be present in the profile. The soils are 20-40 inches deep to bedrock or a duripan. The clayey subsoil prevents water and root penetration below 14-18 inches. Water intake is slow. The soils are well drained and have slow or very slow permeability. Available water capacity is moderate to low. The moisture supplying capacity of the soils is limited by the depth to the claypan and the high clay content. Water erosion can be high when the plant cover is reduced.

Table 4. Representative soil features

Parent material	(1) Alluvium–basalt (2) Colluvium–rhyolite (3) Residuum–welded tuff
Surface texture	(1) Cobbly loam (2) Very cobbly silt loam (3) Stony clay loam
Family particle size	(1) Clayey (2) Fine
Drainage class	Well drained
Permeability class	Very slow to slow
Depth to restrictive layer	51–102 cm
Soil depth	51–102 cm
Surface fragment cover ≤3"	0–30%
Surface fragment cover >3"	0–30%
Available water capacity (0-101.6cm)	4.83–20.83 cm
Soil reaction (1:1 water) (0-101.6cm)	6.1–7.8
Subsurface fragment volume ≤3" (10.2-152.4cm)	0–20%
Subsurface fragment volume >3" (10.2-152.4cm)	0–20%

Ecological dynamics

The dominant visual aspect of this site is alkali sagebrush and Idaho fescue. Bluebunch wheatgrass is prominent in the plant community. Composition by weight is approximately 40-55 percent grasses, 15-25 percent forbs and 30-35 percent shrubs.

In the last few thousand years, this site has evolved in an arid climate characterized by warm, dry summers and cold, wet winters. Herbivory has historically occurred on the site at low levels of utilization. Herbivores include pronghorn antelope, mule deer, sage grouse, lagomorphs and small rodents. Fire has historically occurred on this site every 80-100 years. The Reference State, originally 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 suited for livestock grazing during late spring, summer and fall. It also provides habitat for mule deer, pronghorn antelope, small game, sage grouse, small birds and rodents. The site provides limited recreational opportunities except early spring flower observation.

This site can be degraded easily by improper grazing management since slopes are moderate which allows easy access. Inherent low production on the site makes it susceptible to accelerated degradation.

Infiltration and production can be maintained with a mixed stand of deep-rooted bunchgrasses and shrubs. Runoff potential is medium to rapid and the erosion hazard is high.

Impacts on the Plant Community.

Influence of fire:

This site historically had a very low fire frequency, approximately every 80-100 years. Most of the shrubs evolved in the absence of fire, therefore they can be severely damaged when burned. Idaho fescue and Thurber needlegrass can be lost with a fire. Rabbitbrush species can increase with fire. Cheatgrass and medusahead can be a troublesome invader on this site after fire, preventing perennial grass and shrub re-establishment and increasing the fire frequency. Sandberg bluegrass is usually maintained in the community.

Influence of improper grazing management:

The soils are saturated in early spring and grazing during that time will cause extensive damage to the soil. Season-long grazing and excessive utilization can be detrimental to this site. This type of management leads to reduced vigor of Idaho fescue, bluebunch wheatgrass and other deep-rooted perennial bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to an increase in alkali sagebrush and invasive weeds. Continued improper grazing management influences fire frequency with an increase in cheatgrass and medusahead.

Weather influences:

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

Insects and disease:

Outbreaks can affect health of the vegetation. An outbreak of a particular insect is usually influenced by weather but no specific data is available for this site.

Influence of noxious and invasive weeds:

Annual and perennial weeds compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory. Cheatgrass and medusahead can be a very invasive weed on this site, especially after fire. Once they become established the fire frequency increases. As a result, the shrub component can be lost.

Influence of wildlife:

Relatively low numbers of wildlife use this site and impact it little. Pronghorn antelope is the dominant large herbivore using the site. They use the site yearlong but prefer it in the spring, fall and early winter. Sage grouse use the site yearlong. Winter and spring use by mule deer occasionally occurs.

Watershed:

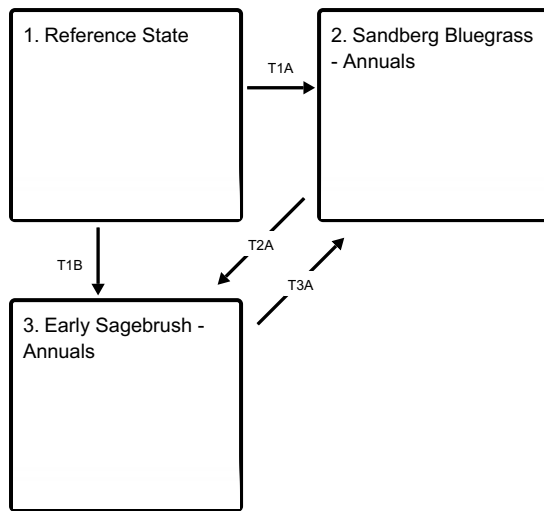
Decreased infiltration and increased runoff occur when alkali sagebrush is removed with frequent fires, particularly following the fire event. The increased runoff also increases sheet and rill erosion. Early spring grazing also causes trampling damage and soil compaction resulting in increased erosion. The long-term effect is a transition to a different state.

Practice Limitations.

Cobbles and stones on the surface of this site limit mechanical seeding and brush control methods. The sparse vegetation restricts the use of prescribed fire.

State and transition model

Ecosystem states



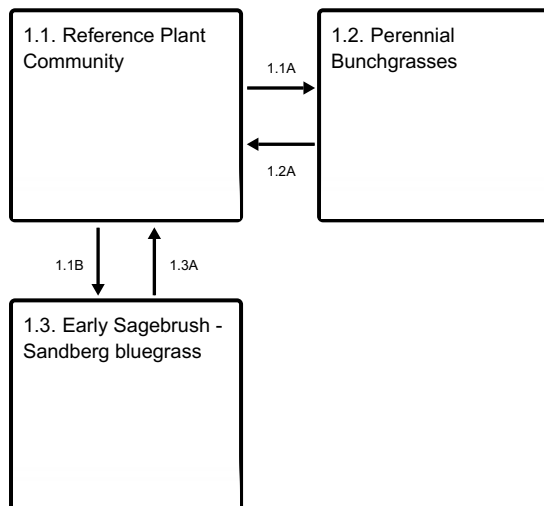
T1A - Continued improper grazing management, frequent fire.

T1B - Continued improper grazing management and no fire

T2A - Continued improper grazing management and no fire

T3A - Fire

State 1 submodel, plant communities



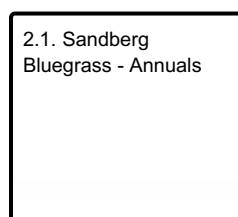
1.1A - Develops with fire.

1.1B - Develops under improper grazing management and no fire.

1.2A - Develops under prescribed grazing management program and no fire.

1.3A - Develops from prescribed grazing management and no fire.

State 2 submodel, plant communities



State 3 submodel, plant communities

3.1. Early Sagebrush - Annual grasses

State 1 Reference State

Dominant plant species

- little sagebrush (*Artemisia arbuscula ssp. longiloba*), shrub
- Idaho fescue (*Festuca idahoensis*), grass

Community 1.1 Reference Plant Community

State 1. Plant Community 1.1. Reference Plant Community, historically referred to as the Historic climax plant community (HCPC) is dominated by Idaho fescue and alkali sagebrush. Bluebunch wheatgrass and Sandberg bluegrass is sub-dominant. Small amounts of bottlebrush squirreltail, Thurber needlegrass and Nevada bluegrass may be present. A large variety of forbs are present but each represents a small amount in the community. The natural fire frequency is about 80- 100 years.

Resilience management. The Reference Plant Community is Phase 1.1. The Phase 1.1 of this site is dominated by alkali sagebrush and Idaho fescue. Subdominant species include bluebunch wheatgrass, Nevada bluegrass, Thurber needlegrass, bottlebrush squirreltail and bigleaf lupine. The plant species composition of Phase 1.1 is listed later under “Reference Plant Species Composition”. Total annual production is 650 pounds per acre (722 Kg/ha) in a normal year. Production in a favorable year is 825 pounds per acre (917 Kg/ha). Production in an unfavorable year is 425 pounds per acre (472 Kg/ha). Structurally, cool season deep rooted bunchgrasses are very dominant, followed by medium height shrubs being more dominant than perennial forbs while shallow rooted bunchgrasses are subdominant.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	224	364	448
Shrub/Vine	157	224	291
Forb	95	140	185
Total	476	728	924

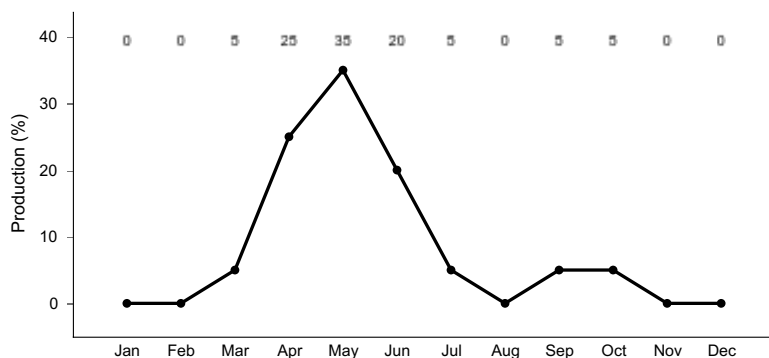


Figure 4. Plant community growth curve (percent production by month). ID0310, ARARL/FEID/ PSSPS. State 1.

Community 1.2

Perennial Bunchgrasses

State 1. Plant Community 1.2. This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Small amounts of Idaho fescue and Thurber needlegrass may be present but in low vigor for a few years after fire. Bottlebrush squirreltail, a variety of forbs and rabbitbrush can be present. This phase has developed due to fire.

Community 1.3

Early Sagebrush - Sandberg bluegrass

State 1, Plant Community 1.3. This plant community is dominated by early sagebrush with Sandberg bluegrass in the understory. Idaho fescue, bluebunch wheatgrass and other deep- rooted perennial bunchgrasses are present but in reduced amounts and in low vigor. This phase has developed due to improper grazing management and no fire.

Pathway 1.1A

Community 1.1 to 1.2

Develops with fire. Fire occurs every 80-100 years and only in years with above normal precipitation.

Pathway 1.1B

Community 1.1 to 1.3

Develops under improper grazing management and no fire.

Pathway 1.2A

Community 1.2 to 1.1

Develops under prescribed grazing management program and no fire.

Pathway 1.3A

Community 1.3 to 1.1

Develops from prescribed grazing management 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 fire causes this state to cross a threshold and retrogress to a new site with reduced potential.

Dominant plant species

- Sandberg bluegrass (*Poa secunda*), grass
- cheatgrass (*Bromus tectorum*), grass
- medusahead (*Taeniatherum caput-medusae*), grass

Community 2.1

Sandberg Bluegrass - Annuals

This plant community is dominated by Sandberg bluegrass, cheatgrass, medusahead and a variety of forbs. Some perennial forbs are present. The community has developed due to continued improper grazing management and fire. Some soil loss has occurred. It is not economical to return this site to State 1 with accelerating practices.

State 3

Early Sagebrush - Annuals

Resilience management. State 3 to Unknown Site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management. Frequent fire may have played a role also. The potential of the site has been lost and it crosses a threshold and retrogresses to a new unknown site.

Dominant plant species

- little sagebrush (*Artemisia arbuscula ssp. longiloba*), shrub
- cheatgrass (*Bromus tectorum*), grass
- medusahead (*Taeniatherum caput-medusae*), grass

Community 3.1

Early Sagebrush - Annual grasses

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

Transition T1A

State 1 to 2

State 1, Phase 1.2 to State 2. Results from continued improper grazing management and/or frequent fire.

Transition T1B

State 1 to 3

State 1, Phase 1.3 to State 3. Results from continued improper grazing management and no fire.

Transition T2A

State 2 to 3

State 2 to State 3. Develops from continued improper grazing management and no fire.

Transition T3A

State 3 to 2

State 3 to State 2. Results from fire.

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	Grasses			224–448	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	112–224	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	84–168	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	34–67	–
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	17–34	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	17–34	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	1–11	–
	oniongrass	MEBU	<i>Melica bulbosa</i>	1–11	–
Forb					
2	Forbs			95–185	
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	17–34	–
	bigleaf lupine	LUPO2	<i>Lupinus polyphyllus</i>	17–34	–
	oblongleaf bluebells	MEOB	<i>Mertensia oblongifolia</i>	0–11	–
	spiny phlox	PHHO	<i>Phlox hoodii</i>	6–11	–
	tapertip onion	ALAC4	<i>Allium acuminatum</i>	0–11	–
	fleabane	ERIGE2	<i>Erigeron</i>	1–11	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–11	–
	lesser rushy milkvetch	ASCO12	<i>Astragalus convallarius</i>	0–11	–
	lambstongue ragwort	SEIN2	<i>Senecio integerrimus</i>	0–11	–
	Beckwith's violet	VIBE2	<i>Viola beckwithii</i>	0–11	–
	thickleaf ragwort	SECR	<i>Senecio crassulus</i>	0–6	–
	Hooker's balsamroot	BAHO	<i>Balsamorhiza hookeri</i>	0–6	–
	serrate balsamroot	BASE2	<i>Balsamorhiza serrata</i>	0–6	–
	castilla	CAST1	<i>Castilla</i>	0–6	–
	bushy bird's beak	CORA5	<i>Cordylanthus ramosus</i>	0–6	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0–6	–
	matted buckwheat	ERCA8	<i>Eriogonum caespitosum</i>	0–6	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–6	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	0–6	–
	owl's-clover	ORTHO	<i>Orthocarpus</i>	0–6	–
Shrub/Vine					
3	Shrubs			157–291	
	little sagebrush	ARARL	<i>Artemisia arbuscula ssp. longiloba</i>	112–224	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–22	–
	threetip sagebrush	ARTR4	<i>Artemisia tripartita</i>	0–11	–
	yellow rabbitbrush	CHV18	<i>Chrysothamnus viscidiflorus</i>	0–11	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–11	–

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 and pronghorn antelope. 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, brewer's sparrow, sage sparrow, sage thrasher, and pygmy rabbits. Encroachment of noxious and invasive plants (cheatgrass and medusahead rye) 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 – Alkali Sagebrush/ Idaho Fescue/ Bluebunch Wheatgrass 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. Alkali sagebrush has an early bloom period which can be beneficial for native insect communities early in the season. 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. The plant community supports a variety of migratory and resident avian species that utilize the grasses, forbs and shrubs for food, brood rearing, and nesting cover. Shrub-steppe obligate avian species include the Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. Alkali sagebrush provides winter cover and food for sage-grouse. The plant community supports seasonal (winter and spring) needs of large mammals (antelope and mule deer), providing food and cover. Alkali sagebrush provides suitable browse for wild ungulates. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, yellow-bellied marmots, and pygmy rabbits would utilize the habitat.

State 1 Phase 1.2- Bluebunch Wheatgrass/ Sandberg Bluegrass/ Idaho Fescue Plant Community: This plant community is the result of frequent fire. The plant community, dominated by herbaceous vegetation with little or no sagebrush provides less vertical structure, limiting use by shrub obligate animals. Insect diversity would be less with the loss of the shrub component 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 desert horned lizard, 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 native shrub habitat is nearby. The lack of sagebrush prevents the use of this plant community as wintering habitat or nesting cover for sage-grouse. The dominant herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (antelope and mule deer) use would be seasonal with this site providing a variety of native herbaceous plants for food but little thermal and young of year cover. Small mammal diversity would be reduced and the plant community would not provide suitable habitat for pygmy rabbits.

State 1 Phase 1.3 – Alkali Sagebrush/ Sandberg Bluegrass Plant Community: This plant community is the result of improper grazing management and no fire. An increase in canopy cover of sagebrush contributes to a sparse herbaceous understory and can lead to an increase in noxious weeds. 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. The reptile community is represented by leopard lizard, desert horned lizard, short horned lizard, sagebrush lizard, western skink, western rattlesnake, and western toad. The herbaceous and woody plants provide habitat for prey species and cover for these resident reptile species. You can expect a decrease in populations and diversity of reptiles due to the reduced diversity and canopy cover of herbaceous vegetation. This plant community supports a variety of migratory and resident avian species that utilize the grasses, forbs, and shrubs for food, brood rearing, and nesting cover. Reduced herbaceous understory is a key factor in limiting the use of this plant community by native avian species. Key shrub-steppe avian obligates include Brewer's sparrow, sage sparrow, sage thrasher, and sage- grouse. Habitat (nesting and brood rearing) 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 and antelope) providing food and cover on a limited basis. Alkali sagebrush is preferred browse for antelope. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, and yellow-bellied marmots would utilize this plant community.

State 2 – Sandberg Bluegrass/ Cheatgrass/ Medusahead Rye/ Forbs Plant Community: This plant community is the result of improper grazing management and fire. 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 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. Bats may be impacted by the loss of the native plant species due to the reduced population and diversity of insects. The populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 3 - Alkali Sagebrush/ Cheatgrass/ Sandberg Bluegrass/ Medusahead Rye/ Annuals Plant Community: This plant community is the result of improper grazing management and lack of fire. The dominance of noxious weeds reduces the quality of habitat for all native animals. This plant community would not support a diverse insect community. A limited representation of native reptilian species would inhabit the site. The plant community would not support a large population of sage-grouse, sage thrasher, Brewer's sparrow, or sage sparrow. Nesting and brood rearing would be limited with the dominance of invasive and noxious weeds. 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. Bats may be impacted by the loss of the native plant species and reduced populations and diversity of insects.

Grazing Interpretations:

This site is suited for livestock grazing during 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. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings

Hydrological functions

Soils on this site are in hydrologic group D.

Recreational uses

Spring blooming forbs provide an excellent opportunity for photography and nature study. Some pronghorn antelope hunting is provided on the site.

Wood products

None

Other products

None

Inventory data references

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of

range-trained personnel was used. Those involved in developing this site description include:

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC
Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC
Jim Cornwell, Rangeland Management Specialist, IASCD
Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho
Lee Brooks, Range Management Specialist, IASCD
Kristen May, Resource Soil Scientist, NRCS, Idaho

Type locality

Location 1: Blaine County, ID	
Township/Range/Section	T2 R18 S31
General legal description	Township: Range: Section: 2S 18E NE ¼, NE ¼, SEC. 31, Township: Range: Section: 1S 11E SEC. 7 2N 20E SEC. 28 1N 21E SEC. 4 1N 21E SEC. 8
Location 2: Blaine County, ID	
Location 3: Blaine County, ID	
Township/Range/Section	T2 R18 S31

References

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Contributors

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DLF

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	03/27/2007
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 on slopes greater than 15 percent.

2. **Presence of water flow patterns:** Water-Flow Patterns: may be present on slopes greater than 15 percent on this site. When they do occur they are short and disrupted by cool season grasses, shrubs and surface stones. They are not extensive.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and/or Terracettes: can occur on the site. They are most likely to occur where water flow patterns are present and surface stones are absent.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground: ranges from 45-55 percent.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind-Scoured, Blowouts, and/or Deposition Areas: does not occur.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter Movement: fine litter moves by wind or water. Fine litter can move up to 2 feet after a strong summertime convection storm. Due to the relatively flat slopes, large litter 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 Surface Resistance to Erosion: values should range from 4 to 6 .

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil Surface Loss or Degradation: Structure ranges from weak to strong thin platy, weak to strong fine or very fine granular, weak medium subangular blocky to moderate medium angular blocky. The A or A1 horizon is typically 2 to 17 inches

thick. Soil organic matter (SOM) ranges from 0.5 to 4 percent.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant Community Composition and Distribution Relative to Infiltration: bunchgrasses, especially deep rooted perennials, slow runoff and increase infiltration.
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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):** Compaction Layer: may be present especially if the site has a history of grazing in the spring-time when soils are wet. Do not mistake an argillic horizon or a duripan for a compaction layer.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

Dominant: Functional/Structural Groups: cool season deep-rooted perennial bunchgrasses>> medium shrubs>perennial forbs>shallow rooted bunchgrasses.

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Plant mortality/ decadence: very little mortality or decadence is expected on this site. Mortality of shallow rooted grasses may occur due to extended periods of drought.
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14. **Average percent litter cover (%) and depth (in):** Litter Amount: is expected to be low and at a shallow depth.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual Production: is 650 pounds per acre (722 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses produce 40-55 percent of the total production, forbs 15-25 percent and shrubs 30-35 percent.
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Invasive Plants: include cheatgrass, medusahead, Vulpia species, bulbous bluegrass and annual mustards.
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17. **Perennial plant reproductive capability:** Reproductive Capability of Perennial Plants: all functional groups have the

potential to reproduce in favorable years.
