

Ecological site R009XY003ID Loamy 16-22 PZ

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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.

Ecological site concept

This ecological site meets the NESH 2014 requirements for PROVISIONAL. A provisional ecological site is established after ecological site concepts are developed and an initial state-and-transition model is drafted. Following quality control and quality assurance reviews of the ecological site concepts, an identification number and name for the provisional ecological site are entered into ESIS. A provisional ecological site may include literature reviews, land use history information, some soils data, legacy data, ocular estimates for canopy and/or species composition by weight, and even some line-point intercept information. A provisional ecological site does not meet the NESH 2014 standards for an Approved ESD, but does provide the conceptual framework of soil-site correlation for the development of the ESD.

Associated sites

R009XY001ID	Shallow Stony Loam 16-22 PZ
R009XY002ID	North Slope Loamy 16-22 PZ
R009XY008ID	Schist 16-22 PZ PSSPS-FEID
R009XY009ID	North Slope Schist 16-22 PZ FEID-PSSPS
R009XY010ID	South Slope Schist 16-22 PZ PSSPS-POSE

Similar sites

R009XY006ID	Loamy 12-16 PZ
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Festuca idahoensis</i> (2) <i>Pseudoroegneria spicata</i>

Physiographic features

This site occurs on broad, nearly level to moderately sloping ridges, hills and plateaus, canyon benches, and canyon sides. Occasionally at higher elevations it occurs as a mound in complex with depressions of shallow soils. Slopes range from 1-30 percent. Elevations range from 2000-4700 ft. (600-1400 meters).

Table 2. Representative physiographic features

Landforms	(1) Ridge (2) Plateau (3) Canyon
Elevation	2,000–4,700 ft
Slope	1–30%
Water table depth	60 in

Climatic features

The elevation of MLRA 9 ranges from 2000 to 4000 feet with an average elevation of 3000 feet. Elevation along major streams averages only 650 feet above sea level. Average annual precipitation ranges from 20 to 25 inches with an average of 23 based on 9 long term climate stations located throughout the MLRA. Summers are relatively dry while precipitation is evenly distributed between fall, winter, and spring.

The maximum average annual temperature is 58 degrees Fahrenheit while the average minimum temperature is 35 degrees F. The average annual temperature is 46.8 degrees F. The frost free period ranges from 107 to 134 days and the freeze free period ranges from 143 to 173 days.

Table 3. Representative climatic features

Frost-free period (average)	134 days
Freeze-free period (average)	173 days
Precipitation total (average)	26 in

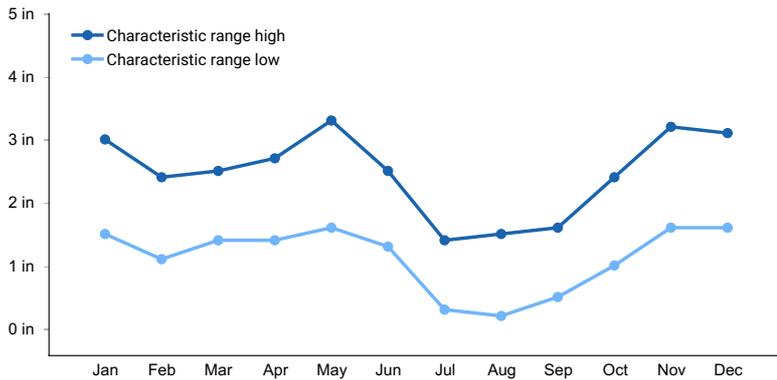


Figure 1. Monthly precipitation range

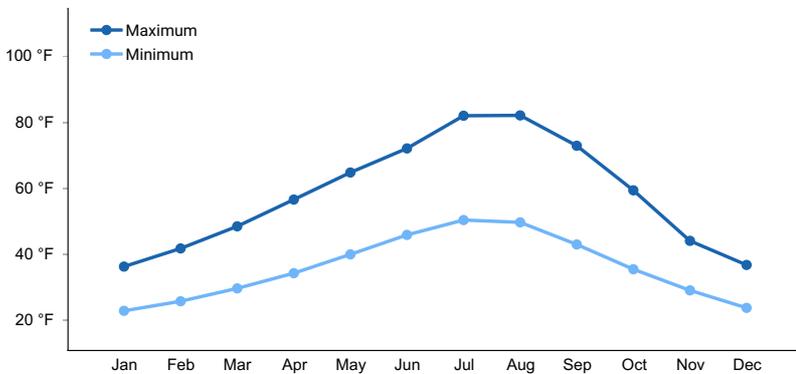


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

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

Soil features

The soils on this site are well drained, dark colored silt loams or loams over 20" (50cm) deep. They have developed from loess and colluvial material. They have low to moderate water holding capacity and the infiltration rate is moderate to moderately slow. Some lime may be present in the profile at lower elevations. Rock outcrops and areas of shallow soils may occur in the area.

Soil Series Correlated to this Ecological Site

Meland
Vollmer

Calouse
Watama

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to moderately slow
Soil depth	20–40 in
Surface fragment cover ≤3"	4–8%
Surface fragment cover >3"	0–2%
Available water capacity (0-40in)	5.9–7.2 in
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume ≤3" (Depth not specified)	5–13%
Subsurface fragment volume >3" (Depth not specified)	0–30%

Ecological dynamics

The dominant visual aspect of this site is of mixed grass and forbs with few shrubs. Idaho fescue and bluebunch wheatgrass are co-dominant. The site has a variety of forbs. The bluebunch wheatgrass on the site is usually rhizomatous. Composition by weight is approximately 70-80 percent grass, 15-25 percent forbs, and 0-2 percent shrubs.

During the last few thousand years, this site has evolved in a semi-arid climate characterized by dry summers and cold, moist winters. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include mule deer, white-tailed deer, Rocky Mountain elk, lagomorphs, and small rodents.

Fire has historically occurred on the site at intervals of 20-40 years.

The Reference State (State1), moves through many phases depending on the natural and man-made forces that impact the community over time. State 1, described later, indicates some of these phases. The reference Plant Community Phase is Phase A. This plant community is dominated by Idaho fescue and bluebunch wheatgrass.

Subdominant species include big bluegrass, arrowleaf balsamroot, tapertip hawksbeard, geranium, white hawkweed, lupine, and oldmans whiskers. The plant species composition of Phase A is listed later under "Reference Plant Community Phase Plant Species Composition".

Total annual production is 1700 pounds per acre (1890 kilograms per hectare) in a normal year. Production in a favorable year is 2200 pounds per acre (2444 kilograms per hectare). Production in an unfavorable year is 1300 pounds per acre (1460 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by perennial forbs being more dominant than tall shrubs.

This site has high value for late spring, summer, and fall grazing for cattle, sheep and horses. The site is important as spring, summer, and fall range for big game, especially Rocky Mountain elk, mule deer, and white-tailed deer. It is important summer and fall habitat for chukars. Blue grouse use the site as winter habitat. Merriam's turkeys use the edges of the site.

The site has high value for chukar and big game hunting. The aesthetic values are good. A large variety of flora is present which have flowers that bloom in the spring. The site position offers an excellent view of the surrounding countryside, which is usually cut by deep canyons. The site is popular as a hiking area because of the variety of views offered. This site often occurs adjacent to rock outcrops which harbor golden eagles and hawks which offer bird watching opportunities.

The site is fairly resistant to disturbances that can potentially degrade it as long as a good herbaceous cover is retained.

The majority of this site in this MLRA has been cropped.

Impacts on the Plant Community.

Influence of fire:

When this site burns within the normal fire frequency of 25-40 years, it has minimal effect on the plant community.

In the absence of normal fire frequency Woods' rose, snowberry, and serviceberry, when present, will increase slightly. When fire frequency is greater than historic levels, vigor of the bunchgrasses will generally be reduced for a year or two. Root sprouting shrubs such as Woods' rose and snowberry will increase. With continued short fire frequency, fine leaved grasses such as Idaho fescue, will have their vigor reduced significantly and death may result. These species may be replaced by cheatgrass, Sandberg bluegrass, ventenata, and bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants.

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 invasion by noxious and invasive plants.

Continued improper grazing management influences fire frequency by increasing fine fuels.

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. Prescribed burns need careful planning. Areas without a suitable understory of perennial grasses are low priority areas for prescribed burns, especially if reseeding is not a possibility.

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 the 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. Prolonged drought has minimal effect on this site.

Influence of insects and disease:

Insect and disease outbreaks can affect vegetation health. Grasshopper outbreaks occur periodically. Since defoliation usually happens once during the growing season, mortality is normally low.

An outbreak of a particular insect is usually influenced by weather but no specific data for this site is available.

Influence of noxious and invasive plants:

Many of these species add to the fine-fuel component and lead to increased fire frequency.

Many of the annual and perennial invasive species compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory.

Influence of wildlife:

Big game animals use this site in the spring, summer, and fall. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

Decreased infiltration and increased runoff occur with an increase in annual grasses and undesirable forbs. 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.

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.

Phase A to B. Develops with improper grazing management and no fire.

Phase A to C. Develops with fire.

Phase B to A. Develops with prescribed grazing.

Phase C to A. Develops with prescribed grazing and no fire.

State 1, Phase B to State 2. Develops with continued improper grazing management and frequent fire. The site has crossed the threshold. It is not economically feasible to move this state back to State 1 with accelerating practices.

State 1 Phase C to State 2. Develops through frequent fire or continued improper grazing management. The site has crossed the threshold. It is not economically feasible to move this state back to State 1 with accelerating practices.

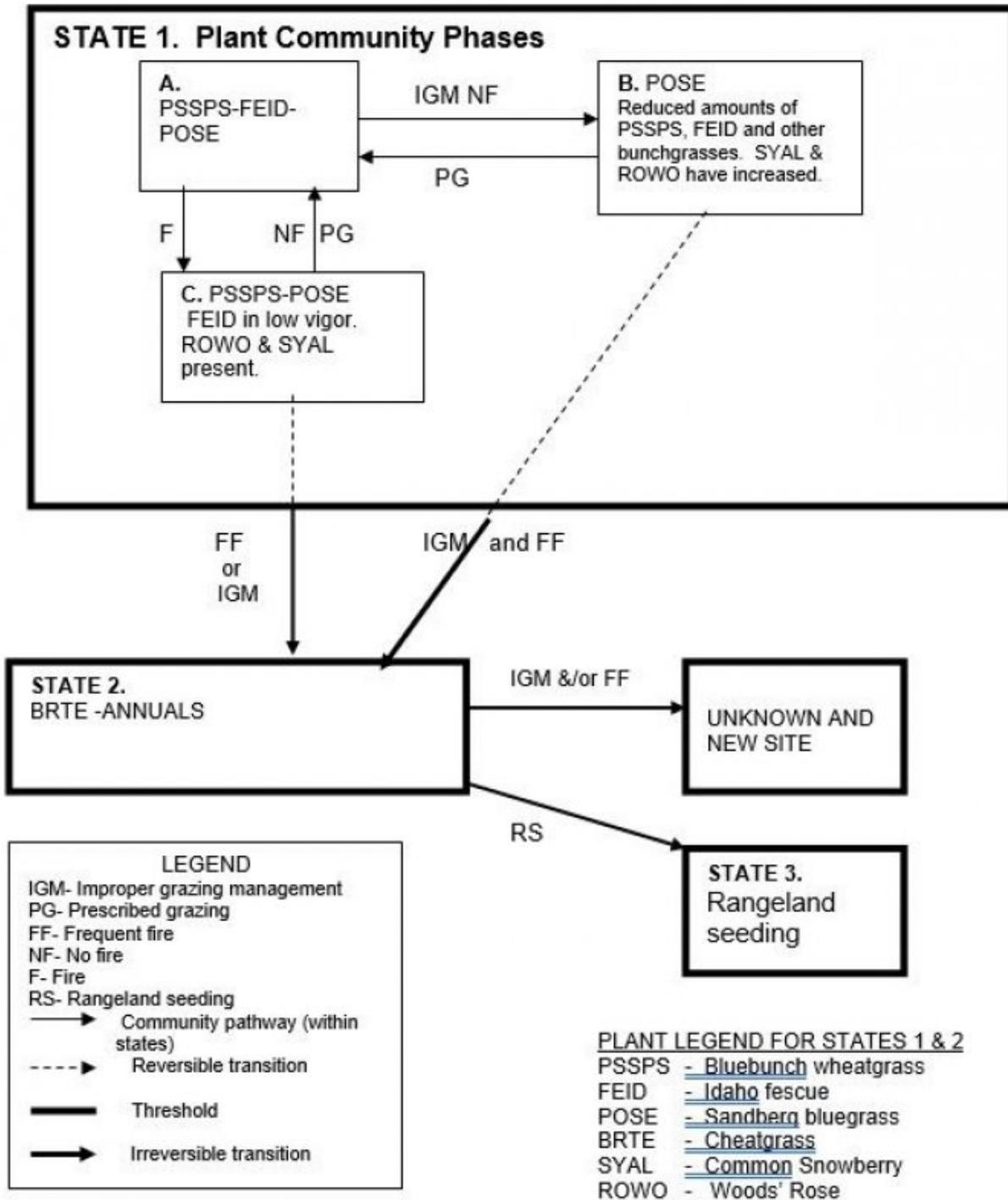
State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and/or frequent fire cause this state to cross a threshold and regress to a new site with reduced potential.

State 3. Rangeland seeding. The site may be seeded to introduced species or native species that attempt to mimic the Reference Plant Community.

Practice Limitations.

Only slight limitations exist on this site for accelerating, facilitating, and vegetation management practices.

State and transition model



State 1 State 1 Phase A

Community 1.1 State 1 Phase A

State 1, Phase A. Reference Plant Community Phase. This plant community is dominated by bluebunch

wheatgrass and Idaho fescue. Sandberg bluegrass is present in the community in smaller amounts. Natural fire frequency is 25-40 years.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	975	1300	1650
Forb	260	340	440
Shrub/Vine	45	60	75
Total	1280	1700	2165

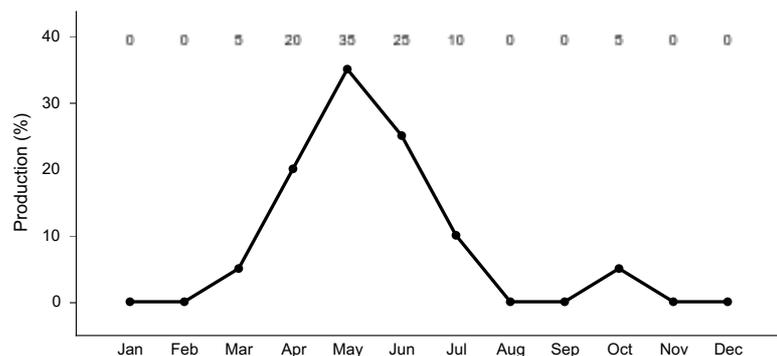


Figure 4. Plant community growth curve (percent production by month). ID0101, B9 PSSPS-FEID REFERENC PLANT COMMUNITY. State 1.

**State 2
State 1 Phase B**

**Community 2.1
State 1 Phase B**

State 1, Phase B. This plant community is dominated by Sandberg bluegrass with reduced amounts of bluebunch wheatgrass and Idaho fescue. All deep-rooted bunchgrasses are typically in low vigor. Snowberry and Woods' rose have increased. This state has developed due to improper grazing management and no fire. Some cheatgrass, Kentucky bluegrass, and invasive annuals may have invaded the site.

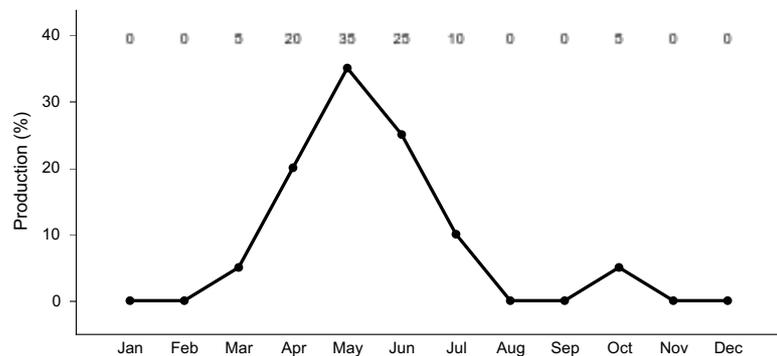


Figure 5. Plant community growth curve (percent production by month). ID0101, B9 PSSPS-FEID REFERENC PLANT COMMUNITY. State 1.

**State 3
State 1 Phase C**

**Community 3.1
State 1 Phase C**

State 1, Phase C. This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Idaho

fescue is present but has reduced vigor. Forbs remain about in the same proportion as Phase A. Rose and snowberry are present due to sprouting. Some cheatgrass may have invaded the site. This plant community is the result of wildfire.

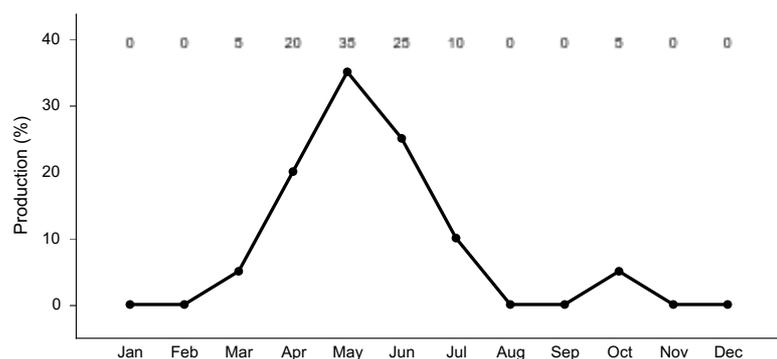


Figure 6. Plant community growth curve (percent production by month). ID0101, B9 PSSPS-FEID REFERENC PLANT COMMUNITY. State 1.

**State 4
State 2 Phase A**

**Community 4.1
State 2 Phase A**

State 2. This plant community is dominated by cheatgrass and other annuals. Root sprouting shrubs such as snowberry and Woods' rose 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 from Phase B, State 1. It also occurs with frequent fire or improper grazing management from Phase C, State 1. The site has crossed the threshold. It is not economically feasible to move this state back to State 1 with accelerating practices.

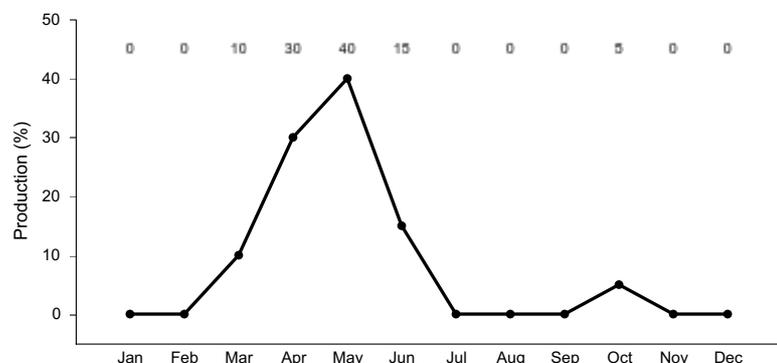


Figure 7. Plant community growth curve (percent production by month). ID0102, B9 BRTE-ANNUALS. State 2.

**State 5
State 3 Phase A**

**Community 5.1
State 3 Phase A**

State 3. Rangeland seeding. The site may be seeded to introduced species or native species that attempt to mimic the Reference Plant Community.

**State 6
State 4 Phase A**

**Community 6.1
State 4 Phase A**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Grasses and Grass-like			–	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	390–660	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	360–605	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	40–65	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–55	–
	sedge	CAREX	<i>Carex</i>	0–20	–
	Columbia needlegrass	ACNEN2	<i>Achnatherum nelsonii</i> ssp. <i>nelsonii</i>	0–20	–
	oniongrass	MEBU	<i>Melica bulbosa</i>	0–20	–
	Fendler threeawn	ARPUL	<i>Aristida purpurea</i> var. <i>longiseta</i>	0–10	–
	blue wildrye	ELGLG	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	0–10	–
2	Big Bluegrass			–	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	0–55	–
Forb					
3	Forbs			–	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	45–75	–
	silvery lupine	LUAR3	<i>Lupinus argenteus</i>	45–75	–
	sticky purple geranium	GEVI2	<i>Geranium viscosissimum</i>	40–65	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	1–45	–
	nineleaf biscuitroot	LOTR2	<i>Lomatium triternatum</i>	25–45	–
	white hawkweed	HIAL2	<i>Hieracium albiflorum</i>	1–35	–
	old man's whiskers	GETR	<i>Geum triflorum</i>	1–35	–
	common yarrow	ACMI2	<i>Achillea millefolium</i>	1–20	–
	western stoneseed	LIRU4	<i>Lithospermum ruderales</i>	1–20	–
	cinquefoil	POTEN	<i>Potentilla</i>	1–20	–
	beardtongue	PENST	<i>Penstemon</i>	0–20	–
	pale agoseris	AGGL	<i>Agoseris glauca</i>	0–20	–
	Indian paintbrush	CASTI2	<i>Castilleja</i>	0–20	–
	woolly groundsel	PACA15	<i>Packera cana</i>	0–20	–
	Rollins' biscuitroot	LORO2	<i>Lomatium rollinsii</i>	0–20	–
	Hooker's balsamroot	BAHO	<i>Balsamorhiza hookeri</i>	0–20	–
	threadleaf phacelia	PHLI	<i>Phacelia linearis</i>	0–20	–
	parsnipflower buckwheat	ERHE2	<i>Eriogonum heracleoides</i>	0–20	–
	longleaf phlox	PHLO2	<i>Phlox longifolia</i>	0–20	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	0–20	–
	slender cinquefoil	POGR9	<i>Potentilla gracilis</i>	0–20	–
		DEOC	<i>Delphinium ×occidentale</i>	0–10	–
	lambstongue ragwort	SEIN2	<i>Senecio integerrimus</i>	0–10	–

	field pennycress	THAR5	<i>Thlaspi arvense</i>	0–10	–
	elephanthead lousewort	PEGR2	<i>Pedicularis groenlandica</i>	0–10	–
	largeflower triteleia	TRGR7	<i>Triteleia grandiflora</i>	0–10	–
	nodding microseris	MINU	<i>Microseris nutans</i>	0–10	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–10	–
	mule-ears	WYAM	<i>Wyethia amplexicaulis</i>	0–10	–
	deathcamas	ZIGAD	<i>Zigadenus</i>	0–10	–
	starwort	STELL	<i>Stellaria</i>	0–10	–
	Scouler's woollyweed	HISC2	<i>Hieracium scouleri</i>	0–10	–
	fiddleneck	AMSIN	<i>Amsinckia</i>	0–10	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–10	–
	trumpet	COLLO	<i>Collomia</i>	0–10	–
	common dandelion	TAOF	<i>Taraxacum officinale</i>	0–10	–
	prickly lettuce	LASE	<i>Lactuca serriola</i>	0–10	–
	red besseya	BERU	<i>Besseya rubra</i>	0–10	–
	ballmustard	NEPA3	<i>Neslia paniculata</i>	0–10	–
	blue eyed Mary	COLLI	<i>Collinsia</i>	0–10	–
	shaggy fleabane	ERPU2	<i>Erigeron pumilus</i>	0–10	–
	pepperweed	LEPID	<i>Lepidium</i>	0–10	–
Shrub/Vine					
4	Shrubs			–	
	parsnipflower buckwheat	ERHE2	<i>Eriogonum heracleoides</i>	0–20	–
	Woods' rose	ROWO	<i>Rosa woodsii</i>	0–20	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	0–20	–
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	0–10	–

Animal community

Wildlife Interpretations.

The site is important as spring, summer, and fall range for big game, especially Rocky Mountain elk, mule deer, and white-tailed deer. It is important summer and fall habitat for chukar and Hungarian partridge. Blue grouse use the site as winter habitat. Merriam's turkeys use the edges of the site.

Grazing Interpretations.

This site has high value for late spring, summer, and fall grazing for cattle, sheep, and horses. 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 B. They have slow to rapid runoff.

Recreational uses

The site has high value for chukar and big game hunting. The aesthetic values are good. A large variety of floras are present which have flowers that bloom in the spring. The site position offers an excellent view of the surrounding countryside, which is usually cut by deep canyons. The site is popular as a hiking area because of the variety of views offered. This site often occurs adjacent to rock outcrops which harbor golden eagles and hawks which offer bird watching opportunities.

Wood products

None.

Other products

None.

Other information

Field Offices

Grangeville, ID
Lewiston, ID
Nezperce, ID
Orofino, ID
Plummer, ID
Cascade, 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
Bruce Knapp, Resource Soil Scientist, NRCS, Idaho
Lee Brooks, Range Management Specialist, IASCD

Type locality

Location 1: Nez Perce County, ID	
General legal description	Slopes and benchlands on upper west fork Captain John Creek, southwest of Waha.
Location 2: Idaho County, ID	
General legal description	Skookumchuck Benches.
Location 3: Idaho County, ID	
Location 4: Lewis County, ID	
Location 5: Lewis County, ID	
Location 6: Nez Perce County, ID	
Location 7: Adams County, ID	

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 And Jacy Gibbs

Approval

Kendra Moseley, 9/23/2020

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Date	03/23/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills can occur on this site. If rills are present they are likely to occur immediately following wildfire. Rills are most likely to occur on soils with surface textures of silt loam or clay loam and on slopes greater than 15%.

2. **Presence of water flow patterns:** Water-flow patterns occur on this site. When they occur, usually on slopes >15%, they are short and disrupted by cool season grasses, tall shrubs, and an occasional surface stone. They are not extensive.

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** May range from 10-20 percent but additional data is needed..
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5. **Number of gullies and erosion associated with gullies:** Gullies do not occur on this site.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** Blowouts and depositional areas are usually not present. Immediately following wildfire some soil movement may occur on lighter textured soils.
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 3 feet following a significant run-off event. Coarse litter generally does not move.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Values should range from 4 to 6 but needs to be tested.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure ranges from weak fine granular and sub angular blocky to weak thin platy. Soil organic matter (SOM) ranges from 2 to 6 percent. The A or A1 horizon is typically 3 to 5 inches thick and very dark brown when moist.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Bunchgrasses, especially deep-rooted perennials, slow run-off and increase infiltration.
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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):** Is not present.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant: cool season deep-rooted perennial bunchgrasses
- Sub-dominant: perennial forbs
- Other: tall shrubs
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bluebunch wheatgrass and Idaho fescue will become decadent in the absence of normal fire frequency and ungulate grazing. Decadence is usually in the form of litter build-up in the crown of the plant. Over an extended period of time the center of the plant may die.

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14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 15-30 percent to a depth of 0.1 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Is 1700 pounds per acre (1890 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 70-80 percent of the total production, forbs 15-25 percent, and shrubs 0-2 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:** Includes cheatgrass, bulbous bluegrass, ventenata, Kentucky bluegrass, curlycup gumweed, St. Johnswort, rush skeletonweed, musk, yellow star, and scotch thistle, and diffuse and spotted knapweed.
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17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in most years.
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