Ecological site R009XY006ID
Loamy 12-16 PZ

Last updated: 9/23/2020
Accessed: 05/06/2024

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

R009XY006ID	**Loamy 12-16 PZ**
R009XY011ID	**Stony Loam 12-16 PZ PSSPS-POSE**
R009XY012ID	**South Slope Loamy 12-16 PZ PSSPS-POSE**

Similar sites

R009XY003ID	**Loamy 16-22 PZ**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Pseudoroegneria spicata* (2) *Poa secunda*

Physiographic features

This site occurs on nearly level to moderate slopes with elevations ranging from 750 to 2000 feet (225-600 meters). Slopes range from 5 to 30 percent.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Escarpment
Elevation	750–2,000 ft
Slope	5–30%

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)	158 days
Freeze-free period (average)	120 days
Precipitation total (average)	23 in

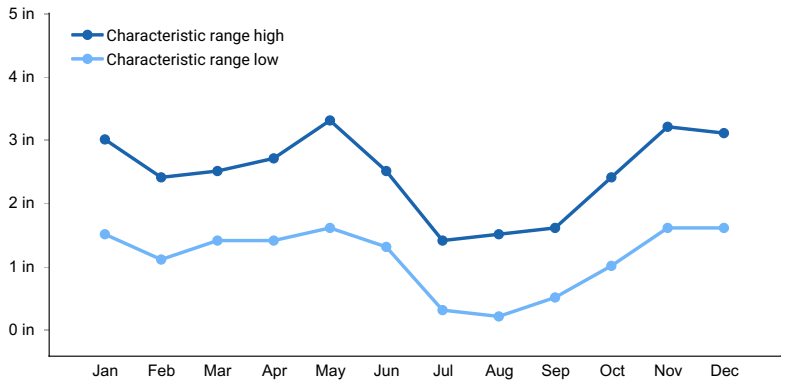


Figure 1. Monthly precipitation range

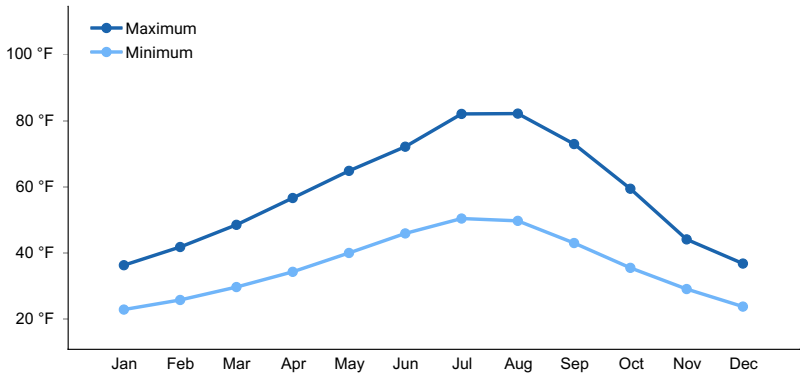


Figure 2. Monthly average minimum and maximum temperature

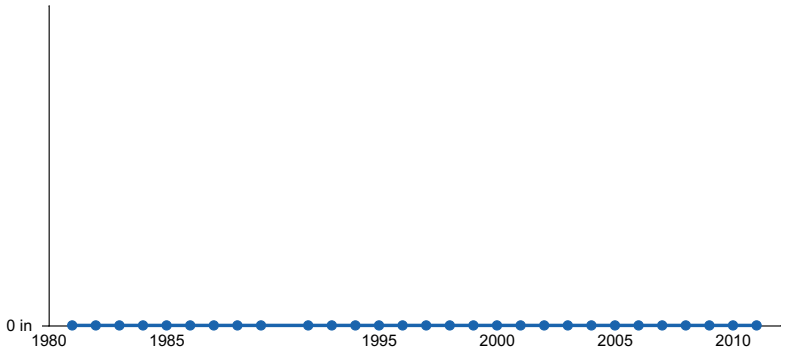


Figure 3. Annual precipitation pattern

Influencing water features

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

Soil features

The soils are generally moderately deep to deep sandy loams and silt loams over basalt. They have formed alluvium, loess and residuum are well drained, with moderately rapid to slow permeability and low to moderate available water capacity.

Soil Series Correlated to this Ecological Site

Chard Banner Lickskillet

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Slow to moderately rapid
Soil depth	40–60 in
Surface fragment cover <=3"	0–4%
Surface fragment cover >3"	0–3%
Available water capacity (0-40in)	2.7–5.9 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–25%
Subsurface fragment volume >3" (Depth not specified)	0–25%

Ecological dynamics

The dominant visual aspect of this site is grassland with bluebunch wheatgrass dominant. Composition by weight is approximately 70 to 80 percent grasses, 15 to 25 percent forbs, and up to 3 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 and lagomorphs.

Fire has historically occurred on the site at intervals of 20 - 50 years.

The Reference State (State 1), 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 bluebunch wheatgrass with Sandberg bluegrass subdominant. There are a variety of forbs in small amounts. Smooth sumac, rabbitbrush, and herbaceous sage make up the few shrubs that are in the plant community. The plant species composition of Phase A is listed later under “Reference Plant Community Phase Plant Species Composition”.

Total annual production is 1200 pounds per acre (1344 kilograms per hectare) in a normal year. Production in a favorable year is 1500 pounds per acre (1680 kilograms per hectare). Production in an unfavorable year is 900 pounds per acre (1008 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are more dominant than forbs followed by shallow rooted perennial grasses more dominant than shrubs.

Early spring use by mule deer occurs. Some use may be made of the site by upland game birds. It is also well suited for livestock in the late spring, early summer, and fall. This site has slight recreational value or aesthetic value.

This site can be easily degraded by improper grazing management due to its’ gentle slopes and easy access by livestock, especially if water is in the proximity,

Due to the gentle topography, infiltration is normally high and runoff low. Runoff, when it does occur is non-erosive except during high intensity convection storms. Snow accumulates on the site due to high elevation and presence of tall shrubs.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency and ungulate grazing, bluebunch wheatgrass can become decadent. This is apparent by dead centers in the bunchgrasses. Some forbs may increase as well as shrubs if present.

When fires become more frequent than historic levels (20-50 years), bluebunch wheatgrass can be reduced in the plant community. Sandberg bluegrass and Fendler threeawn will increase. With continued short fire frequency, bluebunch wheatgrass can be completely eliminated along with some forbs. These species may be replaced by bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive species. Cheatgrass may invade the site. Some smooth sumac, rabbitbrush, or herbaceous sage if present will resprout. These fine fuels will increase the fire frequency.

Influence of improper grazing management:

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

Continued improper grazing management influences fire frequency by increasing fine fuels that carry fires. As annuals increase, 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. 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 these spring months can significantly reduce total annual production and be detrimental to viable seed production. Over all plant composition is normally not affected when perennials have good vigor.

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. 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.
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 mostly in the early spring. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

Decreased infiltration and increased runoff occur with a decrease in perennial bunchgrasses. 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 through frequent fire and continued improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating

practices.

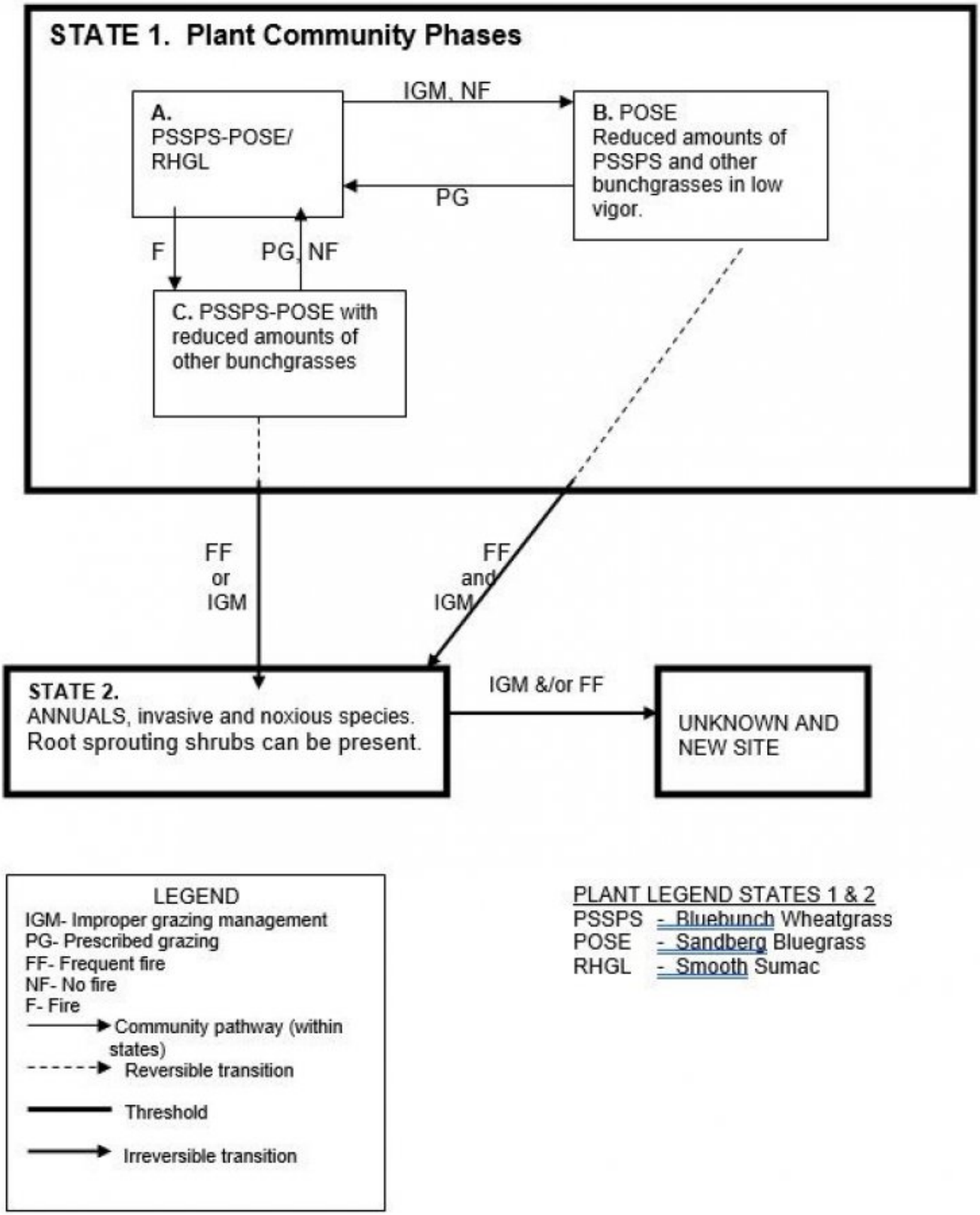
State 1, Phase C to State 2. Develops through frequent fire or continued improper grazing management. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

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 retrogress to a new site with reduced potential. It is economically impractical to return this plant community to State 1 with accelerating practices.

Practice Limitations:

Only slight limitations exist for seeding by mechanical methods. Few limitations exist for vegetation management, facilitating practices, and other accelerating 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 with Sandberg bluegrass subdominant. There are a variety of forbs in small amounts. Smooth sumac,

rabbitbrush, and herbaceous sage make up the few shrubs that are in the plant community. Natural fire frequency is 20-50 years.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	695	925	1155
Forb	180	240	300
Shrub/Vine	25	35	45
Total	**900**	**1200**	**1500**

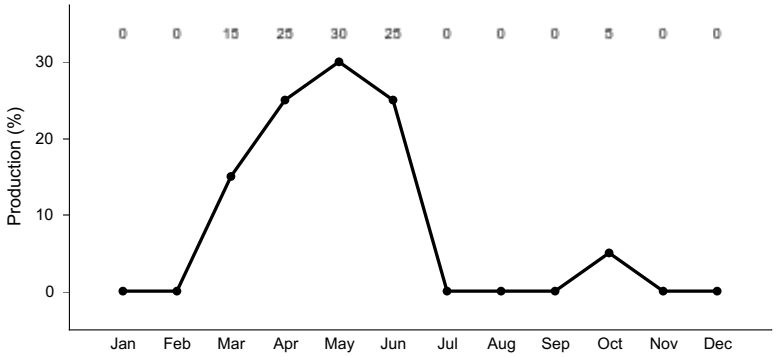


Figure 6. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

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. All deep-rooted bunchgrasses are typically in low vigor. Forbs have increased. Some shrubs may have increased slightly. Some cheatgrass may have invaded the site. This state has developed due to improper grazing management and no fire.

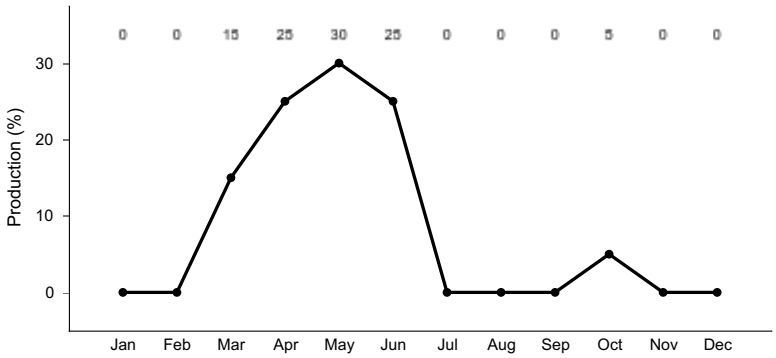


Figure 7. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

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 with increased amounts of

Sandberg bluegrass. Fendler threeawn has increased. Forbs remain about in the same proportion as Phase A. Smooth sumac, rabbitbrush, and herbaceous sage, if present, have re-sprouted from the roots or crowns. Some cheatgrass may have invaded the site. This plant community is the result of wildfire.

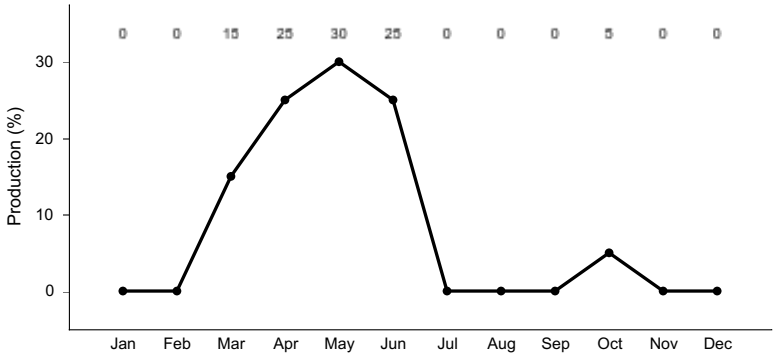


Figure 8. Plant community growth curve (percent production by month). ID0105, B9 SOUTH SLOPES PSSPS-FEID.

State 4
State 2

Community 4.1
State 2

State 2. This plant community is dominated by annual grasses and forbs including invasive and noxious plant species. Root sprouting shrubs such as rabbitbrush 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. This site has crossed the threshold. It is economically impractical to return this plant community to State 1 with accelerating practices.

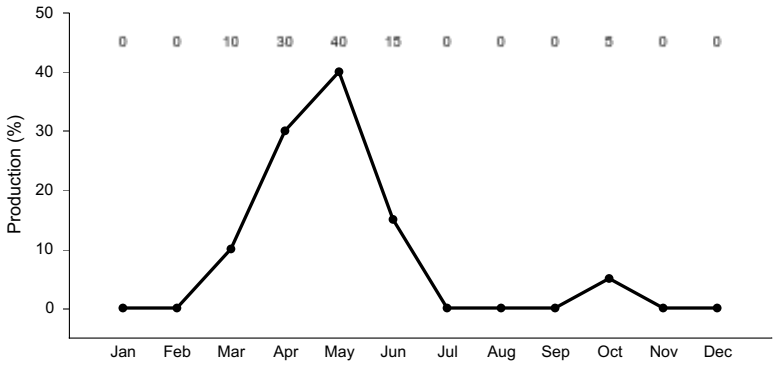


Figure 9. Plant community growth curve (percent production by month). ID0102, B9 BRTE-ANNUALS. State 2.

State 5
State 3

Community 5.1
State 3

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	**Grass and Grasslike**			–	
	bluebunch wheatgrass	PSSPS	*Pseudoroegneria spicata ssp. spicata*	585–975	–
	Sandberg bluegrass	POSE	*Poa secunda*	70–115	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	25–40	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	1–30	–
	Fendler threeawn	ARPUL	*Aristida purpurea var. longiseta*	1–25	–
Forb					
2	**Forbs**			–	
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	70–115	–
	common yarrow	ACMI2	*Achillea millefolium*	30–45	–
	smallflower woodland-star	LIPA5	*Lithophragma parviflorum*	30–45	–
	silky lupine	LUSE4	*Lupinus sericeus*	30–45	–
	largeflower triteleia	TRGR7	*Triteleia grandiflora*	20–30	–
	harsh Indian paintbrush	CAHI9	*Castilleja hispida*	15–25	–
	shaggy fleabane	ERPU2	*Erigeron pumilus*	15–25	–
	longleaf phlox	PHLO2	*Phlox longifolia*	15–25	–
	Snake River phlox	PHCO10	*Phlox colubrina*	15–25	–
	nineleaf biscuitroot	LOTR2	*Lomatium triternatum*	15–25	–
Shrub/Vine					
3	**Shrub**			–	
	smooth sumac	RHGL	*Rhus glabra*	1–15	–
	chrysactinia	CHRYS	*Chrysactinia*	1–15	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	1–15	–

Animal community

Wildlife Interpretations.

Early spring use by deer occurs. Some use may be made of the site by upland game birds.

Grazing Interpretations.
This site is suitable for late spring, early summer, and fall grazing by livestock.
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

The soils in this site are in hydrologic group B. When the hydrologic condition of the vegetative cover is good natural erosion hazard is slight.

Recreational uses

This site has slight recreational value or aesthetic value.

Wood products

None.

Other products

None.

Other information

Field Offices

Grangeville, ID
Craigmont, ID
Orofino, ID
Lewiston, ID
Moscow, ID
St. Maries, ID
Coeur d'Alene, 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	Nez Perce SWCD upstream from the mouth of Tammany Creek, SE of Lewiston.

Other references

USDA Forest Service, Rocky Mountain Research Station. 2004. Restoring Western Ranges and Wildlands. General Technical Report RMRS-GTR-136-vols. 1-3.
USDA, NRCS.2001. The PLANTS Database, Version 3.1 (http://plants.usda.gov.). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
USDA, Forest Service, Fire Effects Information Database. 2004. www.fs.fed.us/database/feis.
USDI Bureau of Land Management, US Geological Service; 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.

Author(s)/participant(s)	Dave Franzen and Jacy Gibbs Intermountain Range Consultants 17700 Fargo Rd. Wilder, ID 83676
Contact for lead author	Brendan Brazee, State Rangeland Management Specialist USDA-NRCS 9173 W. Barnes Drive, Suite C, Boise, ID 83709
Date	03/24/2009
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Data is not available. On sites in mid-seral status bare ground may range from 20-30 percent.

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

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6. **Extent of wind scoured, blowouts and/or depositional areas:** 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 2 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 3 to 5 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):** The A or A1 horizon is typically 5 to 7 inches thick. Structure ranges from weak fine granular to medium platy. Soil organic matter ranges from 1 to 4 percent. Moist surface color is very dark brown.

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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: shallow rooted bunchgrasses

    Additional: shrubs

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bluebunch wheatgrass can become decadent in the absence of normal fire frequency and ungulate grazing. This is most noticeable in dead centers of the bunches.

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14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 20-25 percent to a depth of 0.1 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Is 1200 pounds per acre (1344 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 T-3 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, rush skeletonweed, musk and scotch thistle, diffuse and spotted knapweed, and leafy spurge.

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