

Ecological site R011XY001ID

Loamy 8-12 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.



Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Classification relationships

Artemisia wyomingensis/ Agropyron spicatum 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

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

| | |
|-------------|------------------------------|
| R011XY004ID | Shallow Loamy 8-12 PZ |
| R011XY007ID | Gravelly 10-12 PZ |

| | |
|-------------|--|
| R011XY008ID | South Slope 10-12 PZ |
| R011XY009ID | Silty 7-10 PZ KRLA2/ACHY |
| R011XY010ID | Calcareous Loam 7-10 PZ ATCO-PIDE4/ACHY-ACTH7 |
| R011XY011ID | Sand 8-12 PZ ARTRT/ACHY |
| R011XY014ID | Sandy Loam 8-12 PZ ARTRW8/ACHY-HECOC8 |
| R011XY015ID | Loamy Bottom 8-14 PZ ARTRT/LECI4 |

Similar sites

| | |
|-------------|------------------------------|
| R011XY004ID | Shallow Loamy 8-12 PZ |
|-------------|------------------------------|

Table 1. Dominant plant species

| | |
|------------|--|
| Tree | Not specified |
| Shrub | (1) <i>Artemisia tridentata ssp. wyomingensis</i> |
| Herbaceous | (1) <i>Pseudoroegneria spicata ssp. spicata</i> (2) <i>Achnatherum thurberianum</i> |

Physiographic features

This site occurs on nearly level to rolling plains, terraces, fans, ridges and valley floors. Slopes range from 1 to 30 percent. Elevations range from 2500 to 5000 feet (762-1515 meters). It occurs on all aspects.

Table 2. Representative physiographic features

| | |
|--------------------|-------------------------------------|
| Landforms | (1) Plain (2) Terrace (3) Fan |
| Flooding frequency | None |
| Ponding frequency | None |
| Elevation | 2,500–5,000 ft |
| Slope | 1–30% |
| Aspect | N, S, W |

Climatic features

MLRA 11 is part of Idaho's Snake River Plain. The elevation ranges from 2,077 to 7,549 feet, with a mean of 3,992 feet. Most of the precipitation falls as rain in the fall, winter and spring. Very little precipitation occurs during the summer months. In general this MLRA receives more sun than the U.S. average during the summer, but less than average during the winter.

The average annual precipitation is 10.01 inches (based on 10 long term climate stations located throughout the MLRA), with minimum and maximum values of 8.38 and 11.62 inches, respectively.

The average annual temperature ranges from 38° to 65° Fahrenheit. With a maximum average temperature of 65 degrees F. and a minimum average of 38 degrees F. The frost free interval ranges from 139 to 165 days and the freeze free interval ranges from 168 to 196 days.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 165 days |
| Freeze-free period (average) | 196 days |
| Precipitation total (average) | 12 in |

Influencing water features

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

Soil features

The soils supporting this site have medium textured surfaces that may be gravelly. They are generally moderately deep, but can be shallow over fractured basalt or fractured duripan. They also can be deep. The subsoil is loam to clay loam over basalt or fractured duripan. The soil is well drained with moderately slow to rapid permeability. Runoff is moderately slow to moderately high and erosion hazard is slight to moderate.

Table 4. Representative soil features

| | |
|--|--|
| Parent material | (1) Alluvium–sandstone (2) Colluvium–limestone and sandstone |
| Surface texture | (1) Very gravelly sandy loam (2) Stony loam (3) Very stony sandy clay loam |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Rapid |
| Soil depth | 8–60 in |
| Surface fragment cover <=3" | 0–20% |
| Surface fragment cover >3" | 0–30% |
| Available water capacity (0–40in) | 0.4–8.3 in |
| Calcium carbonate equivalent (0–40in) | 0–15% |
| Electrical conductivity (0–40in) | 0–8 mmhos/cm |
| Sodium adsorption ratio (0–40in) | 0–15 |
| Soil reaction (1:1 water) (0–40in) | 6.1–9 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–40% |
| Subsurface fragment volume >3" (Depth not specified) | 0–35% |

Ecological dynamics

The dominant visual aspect of this site is Wyoming big sagebrush with an understory of bluebunch wheatgrass and Thurber's needlegrass. Composition by weight is approximately 45 to 55 percent grasses, 10 to 20 percent forbs, and 25 to 35 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, pronghorn antelope, lagomorphs and small rodents and Rocky Mountain elk in severe winters.

Fire has historically occurred on the site at intervals of 50-70 years.

The Historic Climax Plant Community (HCPC), 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 1.1. This plant community is

dominated by bluebunch wheatgrass and Thurber's needlegrass in the understory and Wyoming big sagebrush in the overstory. Subdominant species include Sandberg bluegrass, bottlebrush squirreltail, arrowleaf balsamroot, and tapertip hawksbeard. There is a large variety of other grasses, forbs and shrubs that can occur in minor amounts. The plant species composition of Phase 1.1 is listed later under "Reference Plant Community Phase Plant Species Composition".

Total annual production is 700 pounds per acre (784 kilograms per hectare) in a normal year. Production in a favorable year is 900 pounds per acre (1008 kilograms per hectare). Production in an unfavorable year is 400 pounds per acre (448 kilograms per hectare). Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by tall shrubs being more dominant than perennial forbs while shallow rooted bunchgrasses are subdominant.

FUNCTION:

This site is suited for livestock grazing in the spring, early summer, and fall. There are few limitations to grazing. The distance to water may be a problem in some areas. Usually this site is often the key area in a management program.

The site provides winter and spring range for mule deer. It has some value for sage grouse brood rearing.

The site has limited value for recreation but does provide some hunting, hiking, photography opportunities, and off-road vehicle use.

Due to gentle slopes and relatively low production, this site can easily be degraded from improper livestock management. A mixed stand of shrubs and perennial grasses is necessary to reach the potential of the site.

Impacts on the Plant Community.

Influence of fire:

In the absence of normal fire frequency, Wyoming big sagebrush can gradually increase on the site. Grasses and forbs decrease as shrubs increase. With the continued absence of fire, Wyoming big sagebrush can displace most of the primary understory species.

When fires become more frequent than historic levels (50-70 years), Wyoming big sagebrush is reduced significantly. Rabbitbrush can increase slightly. With continued short fire frequency, Wyoming big sagebrush can be completely eliminated along with many of the desirable understory species such as bluebunch wheatgrass, Indian ricegrass and Thurber's needlegrass. These species may be replaced by Sandberg bluegrass and bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive plants. Cheatgrass will invade the site. These fine fuels will increase the fire frequency.

Influence of improper grazing management:

Season-long grazing and/or excessive utilization can be very detrimental to this site. This type of management leads to reduced vigor of the bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to increase in Wyoming big sagebrush and noxious and invasive plants.

Continued improper grazing management influences fire frequency by increasing fine fuels. If cheatgrass and/or medusahead increase due to improper grazing management and they become co-dominant with Sandberg bluegrass and other annuals, fires become more frequent.

Proper grazing management that addresses frequency, duration, and intensity of grazing can also keep fine fuels from developing, thereby reducing fire frequency. This can lead to gradual increases in Wyoming big sagebrush. A planned grazing system can be developed to intentionally accumulate fine fuels in preparation for a prescribed burn. Any brush management should be carefully planned, as a reduction in shrubs without a suitable understory of

perennial grasses, can increase cheatgrass and/or medusahead which can lead to more frequent fire intervals.

Weather influences:

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

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

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

Influence of Insects and disease:

Outbreaks can affect vegetation health. The sagebrush defoliator moth (*Aroga websterii*) causes mortality in relatively small patches. It seldom kills the entire stand. Mormon cricket and grasshopper outbreaks occur periodically. Outbreaks seldom cause plant mortality since defoliation of the plant occurs only once during the year of the outbreak.

Influence of noxious and invasive plants:

Many of these species add to the fine-fuel component and lead to increased fire frequency. 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 and in moderate winters. Their numbers are seldom high enough to adversely affect the plant community.

Watershed:

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

Plant Community and Sequence:

Transition pathways between common vegetation states and phases:

State 1.

Phase 1.1 to 1.2. Develops with improper grazing management.

Phase 1.1 to 1.3. Develops with fire.

Phase 1.2 to 1.1. Develops with prescribed grazing.

Phase 1.3 to 1.1. Develops with prescribed grazing and no fire.

State 1, Phase 1.2 to State 2. Develops through fire and improper grazing management. The site has crossed the threshold. It is generally not economically feasible to move this state back to State 1 with accelerated practices.

State 1, Phase 1.3 to State 2. Develops through frequent fire and/or continued improper grazing management. The site has crossed the threshold. It is generally not economically feasible to move this state back to State 1 with accelerated practices.

State 2 to State 3: Is a result of rangeland seeding.

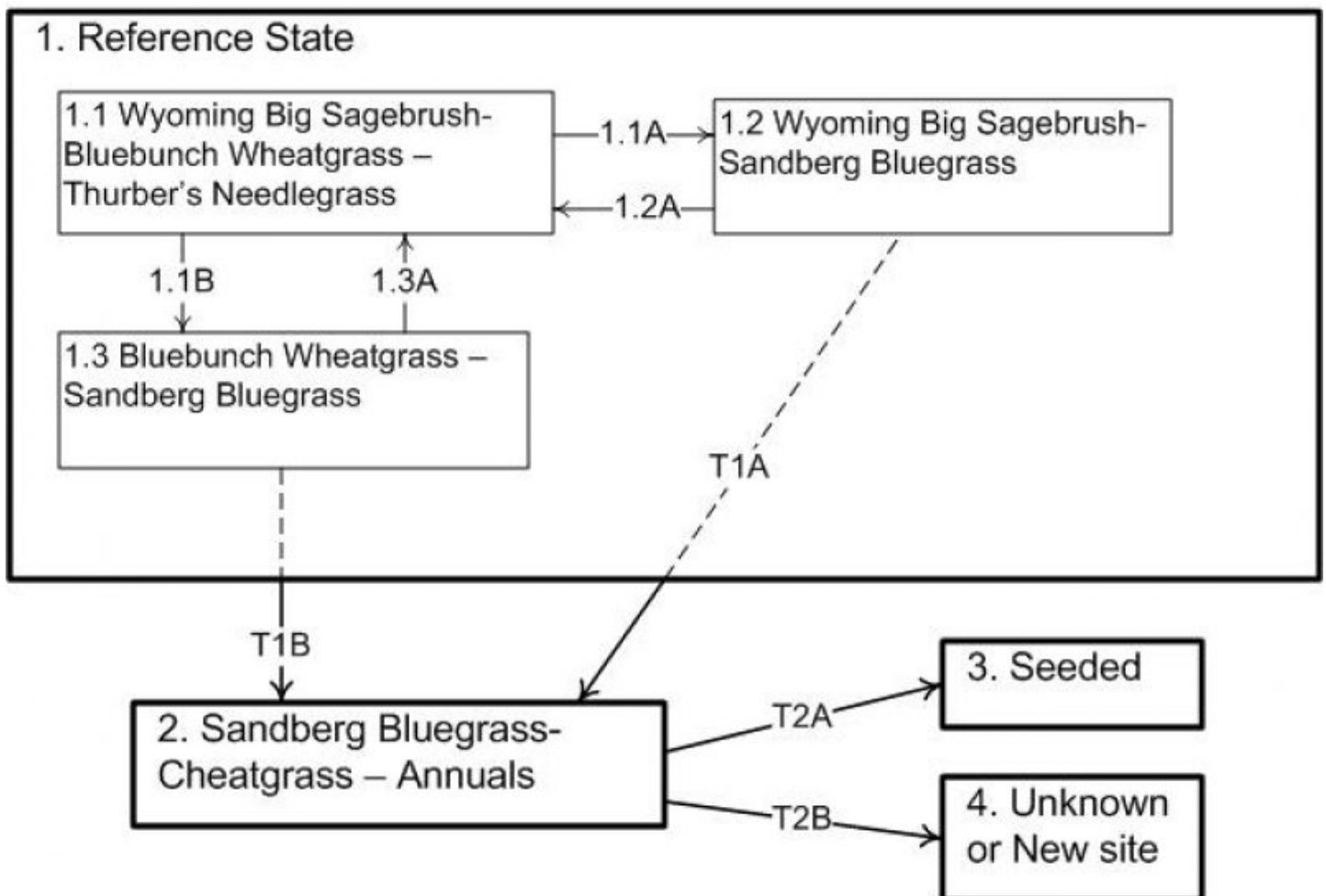
State 2 to unknown site. Excessive soil loss and changes in the hydrologic cycle caused by continued improper grazing management and/or frequent fire cause this state to cross a threshold and regress to a new site with reduced potential. It is generally not economically feasible to move this state back to State 1 with accelerated practices.

Practice Limitations:

There are no physical limitations to prevent seeding of this site. Proper seedbed preparation is critical on this site. There is a high chance of seeding failure during unfavorable moisture years. There are no physical limitations for brush management on this site, but careful planning is necessary. Removal of Wyoming big sagebrush can result in a significant invasion of cheatgrass.

State and transition model

R011XY001ID – Loamy 8-12 ARTRW8/PSSPS-ACTH7



State 1
Reference State

Community 1.1
Reference Plant Community (HCPC)

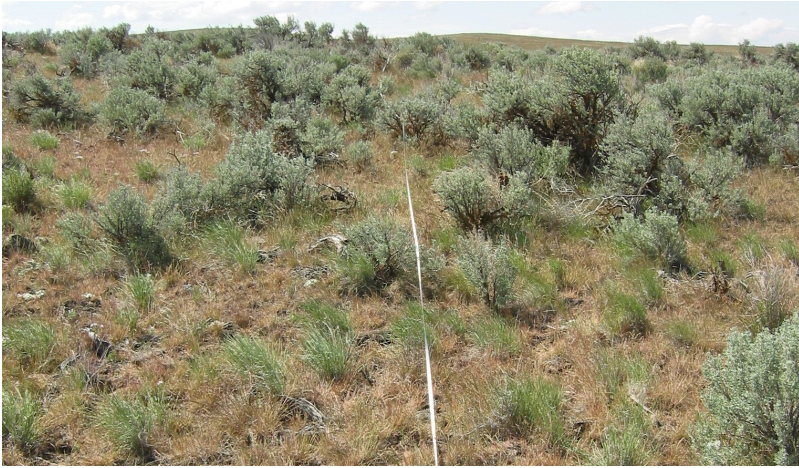


Figure 4. State 1

The HCPC has Wyoming big sagebrush in the overstory with bluebunch wheatgrass dominating the understory. Thurber's needlegrass is the subdominant grass. Other significant species include Sandberg bluegrass, bottlebrush squirreltail, and arrowleaf balsamroot. There can be a variety of other grasses, forbs and shrubs in minor amounts. Natural fire frequency is 50-70 years.

Table 5. Annual production by plant type

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|-----------------|---------------|--------------------------------|----------------|
| Grass/Grasslike | 220 | 350 | 450 |
| Shrub/Vine | 120 | 225 | 275 |
| Forb | 60 | 125 | 175 |
| Total | 400 | 700 | 900 |

Figure 6. Plant community growth curve (percent production by month). ID0505, ARTRW8 -PSSPS . State 1.

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 15 | 25 | 30 | 25 | 0 | 0 | 0 | 5 | 0 | 0 |

Community 1.2 Wyoming Big Sagebrush - Sandberg Bluegrass

This plant community is dominated by Wyoming big sagebrush with reduced amounts of bluebunch wheatgrass. Sandberg bluegrass and bottlebrush squirreltail has increased in the understory. Thurber's needlegrass gradually decreases. There is a reduced amount of Indian ricegrass and perennial grasses. All deep-rooted perennial bunchgrasses are typically in low vigor. Wyoming big sagebrush has increased. This state has developed due to improper grazing management. Some cheatgrass may have invaded the site.

Figure 7. Plant community growth curve (percent production by month). ID0505, ARTRW8 -PSSPS . State 1.

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 15 | 25 | 30 | 25 | 0 | 0 | 0 | 5 | 0 | 0 |

Community 1.3 Bluebunch Wheatgrass- Sandberg Bluegrass

This plant community is dominated by bluebunch wheatgrass and Sandberg bluegrass. Some Thurber's needlegrass may be lost due to fire. Some Indian ricegrass or foxtail wheatgrass may be present. Bottlebrush squirreltail has increased. Forbs remain about in the same proportion as Plant Community A. Very little Wyoming big sagebrush is present due to wildfire, but some rabbitbrush and horsebrush are present due to sprouting. Some

cheatgrass has invaded the site. This plant community is the result of wildfire.

Figure 8. Plant community growth curve (percent production by month). ID0505, ARTRW8 -PSSPS . State 1.

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 15 | 25 | 30 | 25 | 0 | 0 | 0 | 5 | 0 | 0 |

State 2

Sandberg Bluegrass - Annuals

Community 2.1

Sandberg Bluegrass- Annuals

This plant community is dominated by Sandberg bluegrass, cheatgrass, and other annuals. Root sprouting shrubs such as rabbitbrush and horsebrush can be present, dependent upon, how frequent, fire has occurred. Some soil loss has occurred. This state has developed due to frequent fires or improper grazing management from Phase C State 1 and fire and improper grazing management from Phase B State 1. The site has crossed the threshold. It is generally not economically feasible to move this state back to State 1 with accelerated practices.

Figure 9. Plant community growth curve (percent production by month). ID0511, BRTE-ANNUALS. State 2.

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 15 | 25 | 40 | 5 | 0 | 0 | 5 | 5 | 5 | 0 |

State 3

Seeded

Community 3.1

Seeded

This plant community is dominated by seeded species. The seeding may be introduced species or natives to mimic the HCPC.

State 4

Unknown or New Site

Community 4.1

Unknown or New Site

This plant community has gone over the threshold to a new site. Site potential has been reduced. Significant soil loss has occurred. Infiltration has been reduced and run-off has become more rapid. This state has developed due to continued improper grazing management and/or frequent fires. It is generally not economically feasible to move this state back to State 1 with accelerated practices.

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/Grasslike | | | 220–450 | |
| | bluebunch wheatgrass | PSSPS | <i>Pseudoroegneria spicata ssp. spicata</i> | 100–225 | – |
| | Thurber's needlegrass | ACTH7 | <i>Achnatherum thurberianum</i> | 8–180 | – |

| | | | | | |
|--|--------------------------|--------|-------------------------------|-------|---|
| | squirreltail | ELEL5 | <i>Elymus elymoides</i> | 25–45 | – |
| | thickspike wheatgrass | ELLA3 | <i>Elymus lanceolatus</i> | 0–45 | – |
| | Sandberg bluegrass | POSE | <i>Poa secunda</i> | 25–45 | – |
| | Indian ricegrass | ACHY | <i>Achnatherum hymenoides</i> | 0–20 | – |
| | needle and thread | HECO26 | <i>Hesperostipa comata</i> | 0–20 | – |
| | basin wildrye | LECI4 | <i>Leymus cinereus</i> | 0–20 | – |
| | foxtail wheatgrass | PSSA2 | * <i>Pseudelymus saxicola</i> | 0–5 | – |

Forb

| | | | | | |
|---|-------------------------|--------|-------------------------------|--------|---|
| 2 | Forbs | | | 60–175 | |
| | arrowleaf balsamroot | BASA3 | <i>Balsamorhiza sagittata</i> | 10–25 | – |
| | tapertip hawksbeard | CRAC2 | <i>Crepis acuminata</i> | 1–25 | – |
| | little larkspur | DEBI | <i>Delphinium bicolor</i> | 0–5 | – |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 0–5 | – |
| | buckwheat | ERIOG | <i>Eriogonum</i> | 0–5 | – |
| | desert biscuitroot | LOFO | <i>Lomatium foeniculaceum</i> | 0–5 | – |
| | desertparsley | LOMAT | <i>Lomatium</i> | 0–5 | – |
| | lupine | LUPIN | <i>Lupinus</i> | 0–5 | – |
| | oblongleaf bluebells | MEOB | <i>Mertensia oblongifolia</i> | 0–5 | – |
| | beardtongue | PENST | <i>Penstemon</i> | 0–5 | – |
| | spiny phlox | PHHO | <i>Phlox hoodii</i> | 0–5 | – |
| | longleaf phlox | PHLO2 | <i>Phlox longifolia</i> | 0–5 | – |
| | scarlet globemallow | SPCO | <i>Sphaeralcea coccinea</i> | 0–5 | – |
| | foothill deathcamas | ZIPA2 | <i>Zigadenus paniculatus</i> | 0–5 | – |
| | common yarrow | ACMI2 | <i>Achillea millefolium</i> | 0–5 | – |
| | tapertip onion | ALAC4 | <i>Allium acuminatum</i> | 0–5 | – |
| | onion | ALLIU | <i>Allium</i> | 0–5 | – |
| | pussytoes | ANTEN | <i>Antennaria</i> | 0–5 | – |
| | aster | ASTER | <i>Aster</i> | 0–5 | – |
| | milkvetch | ASTRA | <i>Astragalus</i> | 0–5 | – |
| | Hooker's balsamroot | BAHO | <i>Balsamorhiza hookeri</i> | 0–5 | – |
| | pincushion | CHAEN | <i>Chaenactis</i> | 0–5 | – |

Shrub/Vine

| | | | | | |
|---|--------------------------|--------|---|---------|---|
| 3 | Shrub | | | 120–275 | |
| | Wyoming big sagebrush | ARTRW8 | <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> | 100–225 | – |
| | yellow rabbitbrush | CHVIV4 | <i>Chrysothamnus viscidiflorus</i> ssp. <i>viscidiflorus</i> var. <i>viscidiflorus</i> | 0–20 | – |
| | basin big sagebrush | ARTRT | <i>Artemisia tridentata</i> ssp. <i>tridentata</i> | 0–20 | – |
| | yellow rabbitbrush | CHVIV | <i>Chrysothamnus viscidiflorus</i> | 0–15 | – |

| | | | | | |
|--|----------------------|--------|------------------------------------|------|---|
| | yellow rabbitbrush | CHV10 | <i>Chrysothamnus viscidiflorus</i> | 0-10 | - |
| | rubber rabbitbrush | ERNA10 | <i>Ericameria nauseosa</i> | 0-10 | - |
| | spiny hopsage | GRSP | <i>Grayia spinosa</i> | 0-10 | - |
| | threetip sagebrush | ARTR4 | <i>Artemisia tripartita</i> | 0-10 | - |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 0-5 | - |
| | plains pricklypear | OPPO | <i>Opuntia polyacantha</i> | 0-5 | - |
| | antelope bitterbrush | PUTR2 | <i>Purshia tridentata</i> | 0-5 | - |
| | spineless horsebrush | TECA2 | <i>Tetradymia canescens</i> | 0-5 | - |

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. Encroachment of noxious and invasive plant species (cheatgrass, Rush skeleton weed, and knapweed) can replace native plant species which provide critical feed, brood-rearing, and nesting cover for a variety of native wildlife. Area sensitive species include pygmy rabbit, burrowing owl, Great Basin ground squirrel, long-nosed snake, groundsnake, Great Basin collared lizard, and Townsend pocket gopher. Water features are sparse provided by seasonal streams, artificial water catchments, and springs.

State 1 Phase 1.1 - Wyoming Big Sagebrush/ Bluebunch Wheatgrass/ Thurber's Needlegrass Reference Plant Community (RPC): This plant community provides a diversity of grasses, forbs, and shrubs, used by native insect communities that assist in pollination. The reptile and amphibian community is represented by leopard lizard, short horned lizard, sagebrush lizard, western skink, western rattlesnake, and western toad. Amphibians are associated with springs and isolated water bodies adjacent to this plant community. Spring developments that capture all available water would preclude the use of these sites by amphibians. Native shrub-steppe obligate avian species include the Brewer's sparrow, sage sparrow, sage thrasher and sage-grouse. Critical habitat (brood-rearing and winter cover) for sage-grouse is provided by this diverse plant community. The plant community supports seasonal needs of large mammals (mule deer and antelope) providing food and cover. Wyoming big sagebrush is preferred browse for wild ungulates. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, and yellow-bellied marmots would utilize this plant community.

State 1 Phase 1.2 - Wyoming Big Sagebrush/ Sandberg Bluegrass Plant Community: This plant community is the result of improper grazing management. An increase in canopy cover of sagebrush contributes to a sparse herbaceous understory. 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 which will reduce reptile diversity and populations. Reduced herbaceous understory is a key factor in limiting the use of this plant community by avian species. Key shrub-steppe obligate avian species include Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. Critical habitat (brood-rearing and winter cover) for sage grouse is limited due to a less diverse herbaceous plant community. The plant community supports seasonal needs of large mammals (mule deer and antelope) providing food and cover. Wyoming big sagebrush is preferred browse for wild ungulates. A diverse small mammal population including golden-mantled ground squirrels, chipmunks, and yellow-bellied marmots would utilize this plant community.

State 1 Phase 1.3 - Bluebunch Wheatgrass/ Sandberg Bluegrass/ Bottlebrush Squirreltail 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 and limits use by shrub obligate animals. Insect diversity would be reduced but a native forb plant community would still support select pollinators. Reptile use, including short horned lizard, sagebrush lizard, and western rattlesnakes would be limited or excluded due to the absence of sagebrush. The dominance of herbaceous vegetation with little sagebrush canopy cover would prevent use of these areas for

nesting by Brewer's sparrow, sage sparrow, sage thrasher, and sage-grouse. This plant community provides limited brood-rearing habitat for sage-grouse if sagebrush cover is nearby. The site is not suitable as winter or nesting cover for sage grouse. The herbaceous vegetation improves habitat for grassland avian species (horned lark and western meadowlark). Large mammal (mule deer and antelope) forage use would be seasonal but the site would offer little thermal and young of year cover. Small mammal diversity would be reduced with an increase in hunting success by predators.

State 2 - Sandberg Bluegrass/ Cheatgrass and Annual Plant Community: This plant community is the result of continued improper grazing management and/or frequent fire. The loss of the native shrub and herbaceous 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 native reptilian species are not supported with food, water, or cover. This plant community does not support the habitat requirements for sage-grouse, sage thrasher, Brewer's sparrow, or sage sparrow. Diversity of grassland avian species is reduced due to poor cover and food. Birds of prey including hawks and falcons may range throughout these areas looking for prey species. Large mammals may utilize the herbaceous vegetation in the early part of the year when the invasive annuals (cheatgrass) are more palatable. At other times of the year large mammals would not regularly utilize these areas due to poor food and cover conditions. The reduction of insect population and diversity would reduce suitability of the site for bats. The populations of small mammals would be dominated by open grassland species like the Columbian ground squirrel.

State 3 - Range Seeding Plant Community: The seeding mixture (native or non-native) determines the animal species that utilize this site. A diverse seed mixture of grasses and forbs would provide similar habitat conditions as in the herbaceous plant community described in State 1 phase 1.3. A diverse seed mixture of grasses, forbs, and shrubs would provide similar habitat conditions as described in State 1 phase 1.1 or 1.2. A monoculture of non-native grass species would not support diverse populations of insects, reptiles, avians, mammals, or sagebrush obligate species. Grassland animal species including western meadowlark, horned lark, savannah sparrow, deer mouse, and kangaroo rat would utilize this site for nesting. Birds of prey including hawks and falcons may range throughout this community looking for prey species.

Grazing Interpretations.

There are few limitations to grazing. The site is suited for grazing in the spring, early summer and fall for livestock. The distance to water may be a problem in some areas and water developments may be necessary. Hauling water is also an option. This site is often the key area in a management program.

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 generally in hydrologic group B or C.

Recreational uses

This site has limited recreational opportunities. Some hunting, hiking, horseback riding and off-road vehicle use do occur. Early spring flowers offer some opportunities for photography.

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, Range Management Specialist, IASCD

Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho

Lee Brooks, Range Management Specialist, IASCD

Type locality

| | |
|--------------------------------|--|
| Location 1: Payette County, ID | |
| Township/Range/Section | T3 R7 S22 |
| General legal description | 3 S 7 E NW ¼, SW ¼, Sec. 22 2 S 6 E NW ¼, NE ¼, Sec. 13 Field Offices. Meridian, ID Caldwell, ID Mountain Home, ID Marsing, ID Payette, ID Weiser, ID Emmett, ID |

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

Contributors

Dave Franzen

DLF

Approval

Kendra Moseley, 10/30/2018

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 Idaho BLM |
|--------------------------|--|

| | |
|---|---|
| Contact for lead author | Brendan Brazee, State Rangeland Management Specialist USDA-NRCS 9173 W. Barnes Drive, Suite C Boise, ID 83709 |
| Date | 03/27/2007 |
| Approved by | Brendan Brazee |
| 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 they do occur they are most likely to be on slopes greater than 15% and immediately following wildfire but remain short (<3 feet) and shallow (<1 inch), generally equating to the distance of burned shrub patches. When present, gravels on the surface reduce erosion.

2. **Presence of water flow patterns:** Water-Flow Patterns rarely occur on this site. On slopes greater than 15% a few water flow patterns may be present, but they are short and disconnected, disrupted by cool season perennial grasses and tall shrubs and are not extensive. After wildfires, water-flow patterns may be longer (2-4 ft. generally the distance of shrub canopies that were burned) on slopes >15% where they may initiate from burned shrub patches if fire intensity is high enough to burn the duff and all woody material.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and/or Terracettes are rare to nonexistent on this site. In areas susceptible to wind and on slopes greater than 15% where flow patterns and/or rills are present, a few pedestals and terracettes may be expected after a wildfire, but these should be less than ½ inch and should not expose roots.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 5 - 20% cover (top layer cover data). Bare areas should be small and scattered across the site; harvester ant mounds and small mammal burrows may cause isolated patches to exceed 5 ft. in diameter. Playettes (slickspots) are common and can range in size from 2 to 30 feet, and may be connected.

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 are usually not present. In rare occasions scouring may be associated with harvester ant discs or rodent burrows. After one growing season post-fire, herbaceous cover should be sufficient to protect the site from wind erosion.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 2 feet or further following a significant run-off event. Coarse litter generally does not move.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface stability values should be >4. Soil disturbances associated with rodent burrows and ant mounds will create values near 1.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface horizon is typically 2 to 7 inches thick. Structure typically includes weak thin and moderately thick platy, weak fine and moderate fine granular, and weak fine to medium sub-angular blocky. 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: Deep-rooted perennial bunchgrasses and shrubs are distributed to catch snow, slow run-off, and increase infiltration.

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

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

Dominant: Dominant: cool season deep-rooted perennial bunchgrasses; >>

Subdominant: shrubs (non-sprouting); >

Minor: shallow rooted perennial grasses; =

Minor: forbs; >

Trace: native annual grasses

After fire

Dominant: cool season deep-rooted perennial bunchgrasses, >>

Minor: shallow rooted grasses; >=

Minor: perennial forbs; >

Trace: shrubs (non-sprouting); =

Trace: native annual grasses

Additional: Biological soil crusts should cover most interspaces among perennial plants and be common under shrubs except after wildfires, when they will be consumed under shrubs and other plants, but should remain in interspaces.

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Wyoming big sagebrush may show some dead branches as plants age and experience insect defoliation or snow molds. Dead centers may occur in bunchgrasses.

14. **Average percent litter cover (%) and depth (in):** Total litter cover will be 30 - 40 percent to a depth of <0.1. Under mature shrubs litter is greater than 0.5 inches.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual Production is 700 lbs. per acre in a year with normal precipitation and temperatures. Low and high production years should yield 400 and 900 lbs/ac. Perennial grasses produce 45-55 percent of the total, forbs 10-20 percent, and shrubs 25-35 percent.

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** This includes 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, these species are NOT expected in the reference state for the ecological site: cheatgrass, burr buttercup, spotted and diffuse knapweed, Russian knapweed, scotch thistle, Canada thistle, among others.

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