

Ecological site R011XY020ID

Dry Meadow POSE-PHAL2

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

MLRA notes

Major Land Resource Area (MLRA): 011X–Snake River Plains

Major Land Resource Area (MLRA): 011X – Snake River Plains Precipitation or Climate Zone: Additional moisture site

Classification relationships

Land Resource Region: B (Northwest Wheat and Range) MLRA: 11 (Snake River Plains) EPA Eco Region: Level III (Snake River Plain)

Ecological site concept

Site does receive additional moisture Soils are: Not saline or saline sodic Moderately well drained, with fluctuating water table from surface to 40+” Moderately deep to very deep, with 35% coarse fragments (by volume). Not skeletal not strongly or violently effervescent in the surface mineral 10” Textures range from fine sandy loam to clay loam in the surface mineral 4” Slope is 30% Clay content is =35% in surface mineral 4” Site does not have an argillic horizon with >35% clay

Associated sites

R010XA016ID	Quaking Aspen 20+ PZ POTR5
R011XY019ID	Meadow DECA18-CANE2
R012XY045ID	Riparian Wet Meadow Salix/Carex

Similar sites

R011XY019ID	Meadow DECA18-CANE2
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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Physiographic features

This site occurs on gently sloping topography in small stream and high mountain valleys. Slopes are generally less than 5 percent. The site is frequently dissected by old stream courses. Elevations range from 2000 to 5000 feet (600-1550 meters).

Table 2. Representative physiographic features

Landforms	(1) Hill
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Very rare to rare
Ponding duration	Very brief (4 to 48 hours)
Ponding frequency	Rare
Elevation	610 – 1,520 m
Slope	0 – 10 %
Ponding depth	0 – 30 cm
Water table depth	0 – 100 cm

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)	170 days
Freeze-free period (average)	200 days
Precipitation total (average)	310 mm

Influencing water features

This site is influenced by adjacent wetlands, streams, or run on.

Soil features

The soils on this site are moderately well drained and have moderate to moderately slow permeability. The water table fluctuates from the surface down to 40+ inches during the growing season, restricting most deep-rooted shrubs. Run-off is ponded or very slow and depressional areas usually accumulate local sediment instead of eroding. Severe removal of vegetation can cause channel cutting, which may cause a lowering of the water table. These deep to very deep soils are formed from local alluvium. Reactions range from neutral to moderately alkaline. The available water holding capacity (AWC) ranges from low to high and is supplemented by upward capillary movement of water from the water table. The surface is usually dark and high in organic matter. The surface textures range from fine sandy loams to clay loams.

Ecological dynamics

The dominant visual aspect of this site is a plant community dominated by Nevada bluegrass, alpine timothy and meadow barley. Shrubs are normally not present, however several willow species can be found in small amounts. Composition by weight is approximately 80-90 percent grasses and grass-like and 10-20 percent forbs. The soil surface of the site is typically slightly undulating causing small depressions and high spots with variable soil moisture characteristics. This site is commonly found in complex with the following sites:

1. Marsh site. Deeper depressions with the water table at or near the surface or slightly above the surface for the entire growing season. This site is dominated by broadleaf cattail, hardstem bulrush, and common threesquare.
2. Wet Meadow site. Shallow depression areas with the water table at or near the surface for the entire growing season. This site is dominated by *Carex* spp. and *Juncus* spp.
3. Meadow site. Slightly higher areas that are drier during the growing season. The water table is down to a depth of 20-40 inches by the end of the growing season. This site is dominated by tufted hairgrass and Nebraska sedge.

During the last few thousand years, this Dry Meadow site has evolved in a semi-arid climate characterized by dry summers and cold, wet winters. Flooding and high water table have also influenced the development of this site. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include pronghorn antelope, mule deer, Rocky Mountain elk, sage grouse, lagomorphs, and small rodents.

Fire has historically occurred on the site at intervals of 20-40 years. Fire has had little influence on the development of the site. This site normally burns in conjunction with an adjacent upland site.

The soils within any complex of meadow sites are highly variable. Factors that affect the determination of the site include depth to water table at end of growing season, micro-topography and drainage class. Depth to water table and micro-topography are measurable features. Determination of drainage class requires the use of soil interpretation tables. Other interpretive factors that may be used for site determination are the frequency and duration of flooding and the depth, frequency, and duration of ponding.

Micro-topography is a feature that has a dramatic effect on depth to water table and the resulting plant communities. A few inches of change in surface elevation changes species composition and/ or production. Slightly undulating topography is common in meadow complexes, therefore, more than one site should be expected.

An infinite number of combinations of factors that influence the ecology of potential plant communities exist. For practical purposes, four (4) plant communities where the depth to the water table drives the vegetative composition have been described. They are:

- Dry meadow Water table at >40" at end of growing season
- Meadow Water table at 20-40" at end of growing season
- Wet meadow Water table at 10-20" at end of growing season
- Marsh Water at surface to

State and transition model

Additional community tables

Table 4. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 5. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 6. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 4.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Animal community

Wildlife Interpretations. Animal Community – Wildlife Interpretations This dry meadow ecological site provides diverse habitat for wetland and upland wildlife species. The seasonal hydrology results in abundant forage attracting invertebrate and vertebrate animals to this ecological site. Seasonal habitat is provided for resident and migratory animals including western toad, western rattlesnake, shrews, bats, jackrabbits, ground squirrels, mice, coyote, red fox, badger, sage-grouse, Ferruginous hawk, prairie falcon, horned lark, and western meadowlark. Large herbivore use of the ecological site includes mule deer, pronghorn antelope, and elk. Native reptiles and amphibians are reliant on these dry meadow sites throughout the year. Loss of site hydrology significantly reduces habitat value of this ecological site and also adjacent ecological sites. Open water is seasonal, only being provided by seasonal runoff, ponding, seasonal high water table, and natural springs. State 1 Phase 1.1 - Nevada Bluegrass/ Alpine Timothy/ Meadow Barley Reference Plant Community (RPC): The RPC provides a diversity of grasses and forbs used by native insect communities who assist in pollination of the plant community. The insects are food for the many predator species utilizing the site. The reptile and amphibian community is represented by leopard lizard, western skink, rubber boa, western rattlesnake, western toad, boreal chorus frog, and northern leopard frog. A diverse amphibian population is a key indicator of good ecological health on this site. Loss of hydrology will limit or exclude amphibians from this ecological site. Sage-grouse utilize the meadows as summer and fall brood-rearing habitat. The plant community supports the summer and fall forage needs of large mammals (antelope, mule deer, and elk.). Limited thermal cover for ungulates is provided due to the lack of woody vegetation in the plant community. A diverse small mammal population including deer mouse, golden-mantled ground squirrels, chipmunks, and yellow-bellied marmots may utilize the habitat on a seasonal basis. State 1 Phase 1.2 - Threadleaf Sedge/ Meadow Barley/ Baltic Rush/ Rocky Mountain Iris/ Louisiana Sagewort Plant Community: This phase has developed due to improper grazing management. Insect diversity and populations would be similar to a Phase 1.1 plant community although continued improper grazing management would lower the quality of amphibian and reptile habitat due to a more open landscape and reduced vertical plant structure. The plant community provides summer and fall brood-rearing habitat for sage-grouse when sagebrush cover is nearby. The plant community is desirable forage for ungulates but with continued improper grazing management forage availability would be reduced in the summer and fall. Small mammal populations and diversity would be reduced due to reduced vertical structure and increased vulnerability to predators. State 2 –Kentucky Bluegrass/ Louisiana Sagewort Plant Community: This state developed due to continued improper grazing management and a permanent lowering of the water table. Pollinators would be supported by an increase in forbs that require less moisture than the plants in State 1. The loss of historic hydrology will limit or exclude use of the site by amphibians and many reptiles. Suitable habitat for the northern leopard frog, a species of concern, would not be provided. Habitat for grassland bird species would increase if the plant community is managed properly. If the plant community is not managed properly grassland bird use for nesting would be minimal. Birds of prey (northern harrier and Cooper's hawk) may range throughout these areas looking for prey species. Ungulates will utilize the herbaceous vegetation in summer and fall. If the plant community is managed properly Kentucky bluegrass is desirable forage for deer and elk. Small mammal populations and diversity would be reduced due to reduced vertical structure and vulnerability to predators. Grazing Interpretations. This site is suitable for grazing in late spring after soils have dried sufficiently to prevent trampling and in the summer and fall. Natural water supplies are likely to be limited or absent on the site in late summer and fall. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use, and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrological functions

Soils on this site are in hydrologic groups B, C, and D.

Recreational uses

This site has some value for aesthetics and natural beauty due to several spring and early summer blooming forbs and shrubs. Some hunting for sage grouse, rabbits, elk and deer occurs. Hikers and fishermen may traverse the edge of the site where it is adjacent to streams.

Wood products

None.

Other products

None.

Other information

Field Offices Meridian, ID Caldwell, ID Mountain Home, ID Marsing, ID Payette, ID Weiser, ID Emmett, ID Gooding, ID Twin Falls, ID Jerome, ID Shoshone, ID Burley, ID Rupert, 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 Chris Hoag, Wetland Specialist, NRCS, Idaho Dan Ogle, Plant Materials Specialist, Acting State Rangeland Management Specialist, NRCS, Idaho Leah Juarros, Resource Soil Scientist, NRCS, Idaho Lee Brooks, Range Management Specialist, IASCD

Other references

Hironaka, M., M.A. Fosberg, A. H. Winward. 1983. Sagebrush-Grass Habitat Types of Southern Idaho. University of Idaho, Moscow, Idaho. Bulletin Number "35".

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.

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.

Approval

Kendra Moseley, 4/06/2020

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	04/24/2009
Approved by	

Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** are not common on this site. If the site is degrading due to gully down-cutting, rills may occur on the side slopes of the gully.

- 2. Presence of water flow patterns:** water-flow patterns are common on this site. When they occur they are long, often running the length of the site and disrupted by cool season grasses. Water flow patterns are also common from run-on from the adjacent uplands.

- 3. Number and height of erosional pedestals or terracettes:** both are rare on this site.

- 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 but more data is needed.

- 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:** usually not present.

- 7. Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move more than 6 feet or even off the site following a significant flooding or run-off event.

- 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 3-5 but needs to be tested.

- 9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** structure ranges from _____ to _____. Soil organic matter (SOM) needs to be determined. The A or A1 horizon is typically _____ inches thick.

- 10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** deep-rooted grasses and grass-like 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): normally not present. A compaction layer can develop if grazing occurs when the soils are wet.
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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 grasses and grass-like

Sub-dominant: perennial forbs

Other: shallow rooted bunchgrasses

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): most of the grasses and grass-like on this site will become decadent in the absence of fire and ungulate grazing. Decadence or low vigor is a result of litter buildup in the crowns of the plants.
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14. Average percent litter cover (%) and depth (in): additional litter cover data is needed but is expected to be 35 to 50 percent to a depth of 0.2 inches. Under mature shrubs and basin wildrye, 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 1300 pounds per acre (1444 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses produce 80-90 percent of the total production and forbs 10-20 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, leafy spurge, whitetop, perennial pepperweed, rush skeletonweed, Canada, musk, 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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