

Ecological site R012XY046ID**Wet Meadow
Carex-Juncus**

Last updated: 9/22/2020

Accessed: 09/15/2026

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): 012X—Lost River Valleys and Mountains

Land Resource Region: B (Northwestern Wheat and Range) MLRA: 12 (Lost River Valleys and Mountains) EPA EcoRegion: Level III (Middle Rockies)

LRU notes

012X—Lost River Valleys and Mountains Additional moisture site: <https://soils.usda.gov/survey/geography/mlra/index.html>

Ecological site concept

Site receives additional water. Soils are: None to slightly saline or saline-sodic. Deep to very deep, not skeletal within 20" of soil surface. Season water table 12" with high amounts of organic matter Not strongly or violently effervescent in surface mineral 10". Slope is 30%. Clay content is = 35% in surface mineral 4". Site does not have an argillic horizon with > 35% clay.

Associated sites

R012XY038ID	Meadow DECA18/CANE2
R012XY045ID	Riparian Wet Meadow Salix/Carex
R012XY047ID	Marsh TYLA-SCAC3

Similar sites

R012XY038ID	Meadow DECA18/CANE2
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	(1) <i>Carex</i> (2) <i>Juncus</i>
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Physiographic features

This site generally occurs on gently sloping to nearly level stream valleys, high mountain valleys on flood plains with slopes of 0 to 4 percent. It also occurs around localized seeps and springs. This site is frequently crossed by old stream courses, oxbows and potholes. The surface is not flat, but slightly undulating with small depressions and high spots. Elevation ranges between 3600 to 8000 feet (4000-9000 meters).

Table 2. Representative physiographic features

Landforms	(1) Valley
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Occasional to frequent
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	Occasional to frequent
Elevation	1,100 – 2,440 m
Slope	0 %
Ponding depth	10 – 30 cm
Water table depth	0 – 50 cm

Climatic features

MLRA 12 is dominated by dramatic changes in elevation which, in turn, influence local weather patterns. The intermontane valleys have elevations as low as 3800 feet, while the adjacent mountains may reach more than 12,600 feet. The average annual precipitation for the entire MLRA, based on 10 long term climate stations located throughout the MLRA, is approximately 9.38 inches. However, the dry valleys may have averages as low as 6 inches, while the upper peaks may have averages that exceed 46 inches per year.

Temperatures vary considerably over the year. The average annual temperature is 42.25 degrees F. The average low is 27.4 degrees while the average high temperature is 57 degrees.

In the summer the sun shines 78% of the time, but drops to 40% in the winter. The prevailing wind is location-dependent, and generally flows parallel to the orientation of the dominant valleys. In the summer localized afternoon upslope winds and evening downslope winds are common. The average windspeed is greatest in the spring and early summer.

The frost free period ranges from 102 to 107 days while the freeze free period ranges from 134 to 139 days across the MLRA.

Table 3 Representative climatic features

Frost-free period (average)	110 days
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Freeze-free period (average)	140 days
Precipitation total (average)	280 mm

Influencing water features

Wet Meadow site is influenced by additional water from either adjacent streams through seasonal flooding, water table, seeps or springs or from run-on from adjacent sites. The site may include the following wetlands and stream types.

Soil features

Soils on this site are mainly clays, clay loams or silty clay loams over 40 inches deep, alluvial in origin and may be somewhat stony or gravelly. The soils range from slightly alkaline to slightly acid in pH. The available water holding capacity (AWC) is moderate to high and is supplemented by upward capillary movement from the shallow water table. The effective rooting depth is limited by the high water table.

Erosion hazard is slight; however, the peaty and high organic soils tend to hummock severely from trampling. These soils are susceptible to gully formation which intercepts normal overflow patterns and results in site degradation. The soils are poorly drained and have a water table at or near the surface at the beginning of the growing season and down to 10 to 20 inches by the end of the growing season. Flooding is occasional to frequent during snowmelt and just after snowmelt. Ponding can occur in small depression areas during this time period. The plant community is dependent on nearly saturated or saturated soils during a major portion of the growing season. The water table is influenced by seasonal flooding, stream flows, seeps or springs or from run-on from adjacent sites. Soil characteristics, flooding, and water table can vary within a landscape delineation.

Ecological dynamics

The dominant visual aspect of this site is sedges and rushes with scattered forbs. If shrubs are present, they occur in small amounts. The site usually occurs within a complex of wetland sites. The soil surface of the area where the site is found is typically slightly undulating causing small depressions and high spots with variable soil moisture characteristics. The plant communities found on these areas are sites within the complex. Characteristics of these sites are as follows:

1. Marsh site.

Deeper depressions with water slightly above the surface. This site is dominated by Northwest territory sedge, common spikerush, broadleaf cattail, hardstem bulrush, common threesquare and beaked sedge.

2. Meadow site.

Slightly higher areas that are drier during the growing season. This site is dominated by tufted hairgrass, Nebraska sedge and alpine timothy.

3. Dry Meadow site.

Slightly higher areas that are drier during the growing season. This site is dominated by Nevada bluegrass, alpine timothy, meadow barley, baltic rush and tufted hairgrass.

Composition by weight is 80-90 sedges and rushes, 5-15 percent forbs and less than 0-5 percent shrubs.

During the last few thousand years, this site has evolved in an arid climate characterized by dry summers and cold, wet winters. The site has evolved on deep alluvial soils that are saturated to the surface at the beginning of the growing season and move down to about 10-20 inches by the end of the growing season and seasonal flooding. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include pronghorn antelope, mule deer, moose and Rocky Mountain elk. Fire has had little influence on the development of the site. Rare wildfires can occur following consecutive drought years.

The conditions for the plant community of this site are highly variable due to a wide variation of soils, flooding frequency and duration, water table fluctuations, air and soil temperatures and competition between plants that are mostly rhizomatous. These conditions can vary within the site at any given location. At any one point within the site, one species can occupy nearly 100 percent of a small area. Another point nearby, may have another species fully occupying that area. Due to these situations, the plant community in this ESD is written broadly.

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 depth and duration of ponding frequency, and the timing and duration of flooding frequency.

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 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 wet meadow ecological site provides diverse habitat for wetland and upland wildlife species. The long duration hydrology results in abundant forage and seasonal water attracting invertebrate and vertebrate animals to the ecological site. Important seasonal habitat is provided for over 80% of adjacent rangeland 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 this ecological site includes mule deer, elk, and moose . Native reptiles and amphibians are reliant on these meadow sites throughout the year. Loss of site hydrology significantly reduces the habitat value of the adjacent ecological sites. Open water is seasonal being provided by runoff, ponding, flooding, seasonal high water table, and natural springs. State 1 Phase 1.1 –Northwest Sedge/ Beaked Sedge/ Sedges/ Rushes Reference Plant Community (RPC): The RPC provides a diversity of sedges, rushes, 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, long-toed salamander, 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. Isolated patches of woody vegetation add horizontal and vertical structure for nesting and roosting sites for resident and migratory avian species. Bird species can include warbling vireo, black-capped chickadee, MacGillivray's warbler, fox sparrow, song sparrow, common snipe, long-billed curlew, and a variety of waterfowl that utilize the plant community for breeding and nesting cover. The plant community supports limited summer and fall forage needs of large mammals (antelope, mule deer, elk, and moose). The dominant plant community is not preferred forage for mule deer and antelope. Limited thermal cover for ungulates is provided with isolated patches of woody vegetation within the plant community. Small mammal populations include deer mouse, montane vole, and western jumping mouse. State 1 Phase 1.2- Nebraska Sedge/ Baltic Rush/ Forbs Plant Community: This plant community is the result of improper grazing management. Insect diversity and populations would be similar to Phase 1.1. With hydrologic conditions similar to Phase 1.1, amphibian use would still occur and prey species would be available. Improper grazing management would reduce the habitat cover value for reptiles and amphibians. The plant community provides summer and fall brood-rearing habitat for sage-grouse when sagebrush cover is nearby. Bird species can include warbling vireo, black-capped chickadee, MacGillivray's warbler, fox sparrow, song sparrow, common snipe, and long-billed curlew. Limited thermal cover for ungulates is provided by isolated patches of woody vegetation. The dominant plant community is preferred forage for deer and elk but improper grazing management would reduce the amount of available forage in the summer and fall. Small mammal populations and diversity would be reduced under an improper grazing management scenario that reduces vertical structure and increases vulnerability to predators. State 2 – Sedges/ Baltic Rush/ Kentucky Bluegrass/ Forbs Plant Community: This state has developed due to a permanent lowering of the water table and improper grazing

management. Loss of historic hydrology has reduced the habitat value for many animals present in State 1. The vigor and diversity of forbs would support a very limited diversity and population of pollinators. The loss of historic hydrology will limit or exclude use of the site by amphibians and many reptiles. Suitable habitat cover for the northern leopard frog, a species of concern, would not be provided. With continued improper grazing management the loss of vertical and horizontal structure would reduce diversity and populations of birds identified in State 1. The site would be more suitable for killdeer, western meadowlark, and horned lark. Birds of prey (northern harrier and Cooper's hawk) may range throughout this area looking for prey species. With improper grazing management forage for ungulates would be available for a shorter duration in the summer and fall. Small mammal diversity would shift to grass seed eating species (deer mouse) due to increased grass species in the plant community. Predation on small mammals would increase due to poor quality cover habitat. Grazing Interpretations This site is best suited for livestock grazing in the summer and fall. Wet soils can limit grazing opportunities, particularly in the late spring. Avoid heavy, continuous, season-long grazing as this can cause soil damage. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory, past use history and type, condition of vegetation, production, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrological functions

Soils in this site are generally grouped in hydrologic group D. When hydrologic condition of the vegetative cover is good, natural erosion hazard is slight.

Recreational uses

This site presents an aesthetically pleasing view of lush vegetation consisting primarily of grass-like plants. When livestock or big game are grazing or browsing on the site it presents a pleasant pastoral panorama. Hikers and fisherman often traverse the edges of this site. Picnickers and campers frequent the site in late summer and early fall as sometimes adjacent shaded wooded areas become less pleasant on cool days. Vehicular use can be very detrimental to this site with high water table conditions.

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 Dan Ogle, Plant Materials Specialist, NRCS, Idaho Chris Hoag, Wetland Plant Ecologist, NRCS, Idaho Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho Lee Brooks, Range Management Specialist, IASCD

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

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Approval

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	02/05/2008
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills do not occur on this site.

2. **Presence of water flow patterns:** Water flows over and through the plant community. Rarely are flows detrimental to the plants. The plants have adapted or evolved with this occurrence.

3. **Number and height of erosional pedestals or terracettes:** Erosional pedestals or terracettes do not occur on this site. Some plants may be hummocked due to trampling damage.

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 2-10 percent.

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

6. Extent of wind scoured, blowouts and/or depositional areas: Wind scoured, blowouts and/or depositional areas do not occur.

7. Amount of litter movement (describe size and distance expected to travel): Fine litter in the interspaces may move 6 feet or more due to seasonal flooding. Litter accumulates on the surface. There is little or no coarse litter developed on the site, and it will be removed from the site following seasonal flooding.

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 need to be tested.

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Rhizomatous sedges and rushes slow run-off and increase infiltration. The total vegetative cover should be >60 percent to optimize infiltration. The plant community does not depend solely on water infiltration but primarily on the water table. The water table controls rooting depth.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): Compaction layer is not present. Compaction layers can develop under stock trails made by livestock going to and from water or from long-term repetitive heavy grazing.

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: Rhizomatous sedges and rushes >>

Sub-dominant: perennial forbs> shrubs

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Normal mortality of grass and grass-like plants is slow and occurs as aging plants. This will go unnoticed due to regeneration from roots, seeds or other new plants filling the spaces.

14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 45-60 percent to a depth of 0.5-1.5 inches. Litter accumulates on the soil surface.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production is 4000 pounds per acre (4480 Kg/ha) in a year with normal precipitation and temperatures. Rhizomatous sedges and rushes produce 80-90 percent of the total production, forbs 5-15 percent and shrubs less than 5 percent.
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16. **Potential invasive (including noxious) species (native and non-native).** List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site: Invasive species includes whitetop, Leafy spurge, Dock, Canadian thistle, and reed canarygrass. Other invasive species may include redtop and Kentucky bluegrass. At low elevations, purple loosestrife may invade.
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17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in most years. Most of the plants reproduce vegetatively.
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