

## Ecological site R011XB023ID

### Wet Meadow Carex-Juncus

Last updated: 4/06/2020  
Accessed: 09/24/2026

#### 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): 011X–Snake River Plains

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

#### 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 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

|             |                       |
|-------------|-----------------------|
| R011XB021ID | Meadow DECA18-CANE2   |
| R011XB022ID | Dry Meadow POSE-PHAL2 |
| R011XB025ID | Marsh TYLA-SCAC3      |

#### Similar sites

|             |                     |
|-------------|---------------------|
| R011XB021ID | Meadow DECA18-CANE2 |
|-------------|---------------------|

Table 1. Dominant plant species

|       |               |
|-------|---------------|
| Tree  | Not specified |
| Shrub | Not specified |

|            |                                       |
|------------|---------------------------------------|
| Herbaceous | (1) <i>Carex</i><br>(2) <i>Juncus</i> |
|------------|---------------------------------------|

## Physiographic features

This site generally occurs on gently sloping to nearly level stream valleys, high mountain valleys, and on flood plains with slopes of 0 to 4 percent. It also occurs around localized seeps and springs. This site is frequently dissected by old stream courses, oxbows, and potholes. The surface is not flat, but slightly undulating with small depressions and high spots. Elevations range between 4000 to 6000 feet (120 to 1850 meters).

Table 2. Representative physiographic features

|                    |                                            |
|--------------------|--------------------------------------------|
| Landforms          | (1) Hill                                   |
| 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          | 1,220 – 1,830 m                            |
| Slope              | 0 %                                        |
| Ponding depth      | 10 – 30 cm                                 |
| Water table depth  | 0 – 50 cm                                  |

## Climatic features

The Upper Snake River Plain, MLRA 11B, is part of the Northwestern Wheat and range Region. It has a mean elevation of 4841 feet above sea level, and varies from 4177 to 4841 feet. In general, it is a geologically young, level to gently sloping lava plateau. In places larger streams have cut deep, steep-walled canyons. The average annual precipitation, based on 10 long term climate stations located throughout the MLRA, is 10.88 inches. The averaged low is 8.74 inches and the maximum average is 12.69. Monthly precipitation usually peaks in May, then drop off rapidly to reach its low in July and August. The climate station at Aberdeen Experiment Station (1000010) has records of zero precipitation in 11 months of the year, and as low as 0.03 inches in December, the lone non-zero month.

Temperatures can be extremely variable across the year. Highs of up to 104° and lows down to -42° Fahrenheit have been recorded. The average annual temperature from ten climate stations is 44.75° F. The frost-free period ranges from 91 to 115 days. The freeze-free period can last from 123 to 146 days.

Both morning and afternoon average relative humidity values reach their low in August, and are far below the national average. Wind speed peaks in the Spring, and is generally somewhat above the national average. The average number of sunny, cloud-free days is above average for the summer months, but below average for the period from November through February. The average total snowfall is approximately 29 inches.

Table 3 Representative climatic features

|                               |          |
|-------------------------------|----------|
| Frost-free period (average)   | 120 days |
| Freeze-free period (average)  | 150 days |
| Precipitation total (average) | 330 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 that moves down to a depth of 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 depressional 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 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. Meadow site. Slightly higher areas that is drier during the growing season. The water table is down to a depth of 20 to 40 inches by the end of the growing season. The site is dominated by tufted hairgrass and Nebraska sedge.
3. Dry Meadow site. Even higher areas that are even drier during the growing season and the water table is > 40 inches deep by the end of the growing season. The plant community is dominated by Nevada bluegrass and alpine timothy.

Composition by weight is 80-90 sedges and rushes, 5-15 percent forbs, and less than 0-5 percent shrubs. The depression area plant communities are inclusions and may have sedge and rush species making up nearly 100 percent of the community.

During the last few thousand years, this site has evolved in a semi-arid climate characterized by dry summers and cold, wet winters. The site has evolved on deep alluvial soils that are saturated to the surface in the beginning of the growing season that moves down to about 10-20 inches of depth 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 mostly rhizomatous plants. 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 frequency and duration of flooding, and 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 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 (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

Table 5. Community 2.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

Table 6. Community 3.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

Table 7. Community 4.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production () | Foliar Cover (%) |
|-------|-------------|--------|-----------------|----------------------|------------------|
|-------|-------------|--------|-----------------|----------------------|------------------|

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 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, pronghorn antelope, and elk. Native reptiles and amphibians are reliant on these meadow sites throughout the year. Loss of site hydrology significantly reduces habitat value of the adjacent ecological sites. Open water is seasonal being provided by seasonal 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 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. 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, and long-billed curlew. The plant community supports limited summer and fall forage needs of large mammals (antelope, mule deer, and elk.). The dominant plant community is not preferred forage for the ungulates utilizing the site. Limited thermal cover for ungulates is provided with isolated patches of woody vegetation within the plant community. A diverse small mammal population including deer mouse, montane vole, and western jumping mouse would utilize the habitat throughout the year. State 1 Phase 1.2- Nebraska Sedge/ Baltic Rush/ Forbs Plant Community: The plant community is the result of improper grazing management. With the hydrologic conditions similar to Phase 1.1, amphibian use would still occur and prey species would be abundant. Improper grazing management would reduce the 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 with isolated patches of woody vegetation. The dominant plant community is preferred forage for deer and elk but with improper grazing management available forage

would be reduced in the summer and fall. Small mammal populations would be reduced under an improper grazing management scenario reducing vertical structure and increasing 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 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 improper grazing management the loss of vertical and horizontal structure would reduce diversity and populations of all species of birds. 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. Bat populations and diversity may be reduced by the change in plant community and change in diversity of insects. Small mammal diversity would change to grass seed eating species (deer mouse) due to increased grass species in the plant community. 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 the 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 animals 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 sometime 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.

## Other information

Field Offices Burley, ID Shoshone American Falls, ID Pocatello, ID Blackfoot, ID Arco, ID Rexburg, ID St. Anthony, ID Rigby, ID Fort Hall, ID Idaho Falls, 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 Dan Ogle, Plant Materials Specialist, NRCS, Idaho Chris Hoag, Wetland Plant Ecologist, NRCS, Idaho Brendan Brazee, State Rangeland Management Specialist, NRCS, Idaho Leah Juarros, Resource Soil Scientist, NRCS, Idaho Lee Brooks, Range Management Specialist, IASCD

## Other references

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USDA, Forest Service. 2004. ([www.fs.fed.us/database/feis/plants](http://www.fs.fed.us/database/feis/plants)).

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

DF

## 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.

|                                             |                                                                                                                   |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Author(s)/participant(s)                    | Dave Franzen and Jacy Gibbs Intermountain Range<br>Consultants 17700 Fargo Rd. Wilder, ID 83676                   |
| Contact for lead author                     | Brendan Brazee, State Rangeland Management Specialist<br>USDA-NRCS 9173 W. Barnes Drive, Suite C, Boise, ID 83709 |
| Date                                        | 04/24/2009                                                                                                        |
| 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.

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2. **Presence of water flow patterns:** none. Water flows over and through the plant community. Rarely are flows detrimental to the plants. The plants have adapted or evolved with this occurrence.

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3. **Number and height of erosional pedestals or terracettes:** neither occurs on this site. Some plants may be hummocked due to trampling damage.

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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 2-10 percent.

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5. Number of gullies and erosion associated with gullies: gullies do not occur.

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

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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.

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8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): values should range from 4 to 6 but needs to be tested.

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9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): no data.

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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 vegetation cover should be >60 percent to optimize infiltration. The plant community does not depend on water infiltration alone, but on the water table. The water table controls rooting depth.

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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. Compaction layers can develop under stock trails made by livestock going to and from water or from long-term repetitive heavy grazing.

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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: rhizomatous sedges and rushes

Sub-dominant: perennial forbs

Other: shrubs

Additional:

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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 is slow and occurs as aging plants. This will go unnoticed due to regeneration from roots, seeds,

or other new plants filling the spaces.

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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):** 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 < 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: 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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