

Ecological site R028AY020UT

Wet Fresh Meadow

Accessed: 05/19/2024

General information

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

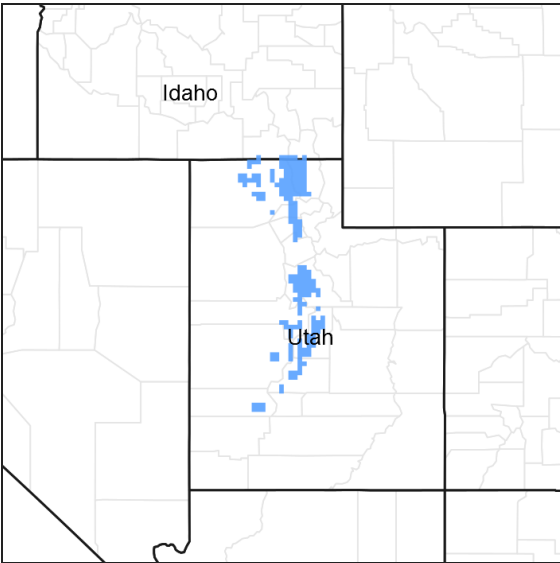


Figure 1. Mapped extent

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.

Associated sites

R028AY006UT	<b>Loamy Bottom (Great Basin Wildrye)</b>
R028AY012UT	<b>Semiwet Fresh Meadow</b> This site is also a similar site with soil, hydrology, and vegetation differentiae.
R028AY022UT	<b>Wet Fresh Streambank</b>

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on nearly level alluvial bottoms, floodplains, and lake terraces.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat (2) Flood plain (3) Terrace
Elevation	1,829–3,048 m
Slope	0–3%
Water table depth	51 cm

## Climatic features

Approximately 90 percent of the precipitation occurs as run-in from March through October. On the average January, February, and June are the driest months and July and August are the wettest months.

Mean Annual Air Temperature: 46-48

Mean Annual Soil Temperature: 48-50

**Table 3. Representative climatic features**

Frost-free period (average)	0 days
Freeze-free period (average)	110 days
Precipitation total (average)	406 mm

## Influencing water features

### Soil features

The characteristic soils in this site are deep and poorly drained. They formed in mixed alluvium and lacustine sediments derived mainly from mixed parent materials.

Salt accumulations are not a problem with these soils. Profile textures range within the loamy and clayey classes. The surface is high in organic matter. The water table fluctuates during the growing season, generally above 20 inches. Water is available for year long plant growth.

Average annual soil loss in potential is approximately 0 to 0.1 tons/acre.

**Table 4. Representative soil features**

Family particle size	(1) Loamy
Drainage class	Poorly drained
Soil depth	102–152 cm

## Ecological dynamics

As ecological condition deteriorates due to grazing pressure, palatable sedges, grasses, and forbs decrease, while rushes, arrowgrass, foxtail barley, and unpalatable forbs increase. Arrowgrass, foxtail barley, and rubber rabbitbrush are most likely to invade this site.

## State and transition model

Ecosystem states

1. Reference State

State 1 submodel, plant communities

1.1. Reference State

State 1  
Reference State

Community 1.1  
Reference State

The general view of this site is Nebraska sedge and arctic rush. The composition by air-dry weight is approximately 90 percent perennial grasses, 5 percent forbs, and 5 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1009	2774	8574
Shrub/Vine	50	155	476
Forb	50	155	476
Total	1109	3084	9526

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	1%
Grass/grasslike foliar cover	70-80%
Forb foliar cover	1-5%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Table 7. Canopy structure (% cover)

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	—	—	—	—
>0.15 <= 0.3	—	—	—	0-10%
>0.3 <= 0.6	—	—	75-85%	—
>0.6 <= 1.4	—	0-5%	—	—
>1.4 <= 4	—	—	—	—
>4 <= 12	—	—	—	—
>12 <= 24	—	—	—	—
>24 <= 37	—	—	—	—
>37	—	—	—	—

Figure 4. Plant community growth curve (percent production by month).  
UT0201, PNC. Excellent.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	15	40	30	5	5	0	0	0	0

### Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
0	<b>Primary Grasses</b>			2118–2858	
	Nebraska sedge	CANE2	<i>Carex nebrascensis</i>	1177–1345	–
	clustered field sedge	CAPR5	<i>Carex praegracilis</i>	504–673	–
	arctic rush	JUAR2	<i>Juncus arcticus</i>	168–336	–
	creeping bentgrass	AGST2	<i>Agrostis stolonifera</i>	101–168	–
1	<b>Secenary Grasses</b>			101–168	
	common spikerush	ELPA3	<i>Eleocharis palustris</i>	34–101	–
	slender wheatgrass	ELTR7	<i>Elymus trachycaulus</i>	34–101	–
	meadow barley	HOBR2	<i>Hordeum brachyantherum</i>	34–101	–
	prairie wedgescale	SPOB	<i>Sphenopholis obtusata</i>	34–101	–
<b>Forb</b>					
2	<b>Forbs</b>			168–336	
	silverweed cinquefoil	ARAN7	<i>Argentina anserina</i>	34–101	–
	meadow milkvetch	ASDI5	<i>Astragalus diversifolius</i>	34–101	–
	nodding beggartick	BICE	<i>Bidens cernua</i>	34–101	–
	field horsetail	EQAR	<i>Equisetum arvense</i>	34–101	–
	wild mint	MEAR4	<i>Mentha arvensis</i>	34–101	–
	seep monkeyflower	MIGU	<i>Mimulus guttatus</i>	34–101	–
	yellow evening primrose	OEFL	<i>Oenothera flava</i>	34–101	–
	elephanthead lousewort	PEGR2	<i>Pedicularis groenlandica</i>	34–101	–
	alkali buttercup	RACY	<i>Ranunculus cymbalaria</i>	34–101	–
<b>Shrub/Vine</b>					
3	<b>Shrubs</b>			101–168	
	Woods' rose	ROWO	<i>Rosa woodsii</i>	34–101	–
	narrowleaf willow	SAEX	<i>Salix exigua</i>	34–101	–

## Animal community

This is one of Utah's highest yielding range sites. The plants are predominantly grasses and grasslike plants with a few forbs and practically no shrubs. To control soil erosion and degradation of the plant community, this site may be properly grazed early with animals being removed early to allow key plants to go ungrazed during the last part of the growing season. A stubble height of 4 to 6 inches should be adhered to.

Wildlife using this site include rabbit, coyote, birds, pronghorn antelope, and mule deer.

This is a short list of the more common species found. Many other species are present as well and migratory birds are present at times.

## Hydrological functions

The soil is in hydrologic group D. The hydrologic curve number is 80 when the vegetation is in good condition.

## Recreational uses

Recreation activities are hiking and hunting. Natural beauty exists in the more favorable plant growth environment on this site when compared to adjacent sites.

## Wood products

None

## Other information

Threatened and endangered species include plants and animals.

## Contributors

David J. Somorville  
DJS

## 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)	Jack Alexander, Range Specialist, Synergy Resource Solutions, Inc. Julia Kluck, Soil Scientist, Synergy Resource Solutions, Inc. Shane Green, State Range Specialist, Utah NRCS
Contact for lead author	Shane Green, Shane.Green@ut.usda.gov
Date	02/08/2010
Approved by	Shane A. Green
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

- 1. Number and extent of rills:** No rills present. Very minor rill development may occur in sparsely vegetated areas. If rills are present, they should be widely spaced and not connected. Rill development may increase following large storm events, but should begin to heal during the following growing season. Frost heaving will accelerate recovery. Rill development may increase when run inflow enters site from adjacent sites that produce large amounts of runoff (i.e. steeper sites, slickrock, rock outcrop). Site is essentially level and rills do not form.

---
- 2. Presence of water flow patterns:** Essentially none. Site is essentially level, water flow patterns are not expected to form.

---
- 3. Number and height of erosional pedestals or terracettes:** Plants may have small pedestals (1-3") where they are adjacent to water flow patterns, but without exposed roots. Terracettes should be few and stable. Terracettes should be small (1-3") and show little sign of active erosion. Some plants may appear to have a pedestal but rather than be formed by erosion, the only place litter accumulates and soil collects is at plant bases forming the appearance of a pedestal.

---
- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Essentially none. Litter or other ground cover fills all plant interspaces.

---

5. **Number of gullies and erosion associated with gullies:** No gullies present.

---

6. **Extent of wind scoured, blowouts and/or depositional areas:** Very minor evidence of active wind-generated soil movement. Wind scoured (blowouts) and depositional areas are rarely present. If present they have muted features and are mostly stabilized with vegetation and/or biological crust. Gravel or desert pavement protects the site from wind scour.

---

7. **Amount of litter movement (describe size and distance expected to travel):** Most litter resides in place with some redistribution caused by water and wind movement. Very minor litter removal may occur in flow patterns and rills with deposition occurring at points of obstruction. The majority of litter accumulates at the base of plants. Some leaves, stems, and small twigs may accumulate in soil depressions adjacent to plants. Woody stems are not likely to move.

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface is moderately stable (average soil stability score of 3.5 -5).

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** This description is based on the modal soil (Logan, soil survey area: 601, West Box Elder), the only soil correlated with this site.

Soil surface horizon is typically 10 to 16 inches deep. Structure is typically medium granular. Color is typically very dark gray (10YR 3/1), black (10YR 2/1) moist. Mollic epipedon is common. Use the specific information for the soil you are assessing found in the published soil survey to supplement this description.

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Vascular plants and any well-developed biological soil crusts (where present) will break raindrop impact and splash erosion. Spatial distribution of vascular plants and interspaces between well-developed biological soil crusts (where present) provide detention storage and surface roughness that slows runoff allowing time for infiltration. Since site is level and well covered, infiltration is very high and runoff very low.

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. Naturally occurring soil horizons may be harder than the surface because of an accumulation of calcium carbonate and should not be considered as compaction layers.

---

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: Nebraska sedge

Sub-dominant: clustered field sedge

Other: rushes> perennial grasses = forbs = shrubs

Additional: Functional/structural groups may appropriately contain non-native species if their ecological function is the same as the native species in the reference state (e.g. crested wheatgrass and Russian wildrye may substitute for mid stature cool season perennial native bunchgrasses.). Biological soil crust is variable in its expression on this site and is measured as a component of ground cover. Forbs can be expected to vary widely in their expression in the plant community based upon departures from average growing conditions.

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** During years with average to above average precipitation, there should be very little recent mortality or decadence apparent in either the shrubs or grasses. Some mortality of bunchgrass and other shrubs may occur during very severe (long-term) droughts. There may be partial mortality of individual bunchgrasses and shrubs during less severe drought. Long-lived species dominate site. Open spaces from disturbance are quickly filled by new plants through seedlings and reproductive reproduction (tillering).
- 

14. **Average percent litter cover (%) and depth ( in):** Litter cover includes litter under plants. Most litter will be fine litter. Depth should be 1-2 leaf thickness in the interspaces and up to 1/2" under canopies. Litter cover may increase to 25-30% following years with favorable growing conditions. Excess litter may accumulate in absence of disturbance. Vegetative production may be reduced if litter cover exceeds 40%.
- 

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 2750#/acre.  
Even the most stable communities exhibit a range of production values. Production will vary between communities and across the MRLA. Refer to the community descriptions in the ESD. Production will differ across the MLRA due to the naturally occurring variability in weather, soils, and aspect. The biological processes on this site are complex; therefore, representative values are presented in a land management context.
- 

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:** Arrowgrass, foxtail barley, and rubber rabbitbrush
- 

17. **Perennial plant reproductive capability:** All perennial plants should have the ability to reproduce sexually or asexually, except in drought years. Density of plants indicates that plants reproduce at level sufficient to fill available resource. Within capability of site there are no restrictions on seed or vegetative reproductive capacity.
-