Ecological site R047XC006UT
Semi-wet Fresh Streambank (narrowleaf cottonwood)

Accessed: 05/18/2024

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.

Classification relationships

Modal Soil: Straw CL Moist 2-6% — fine-loamy, mixed Cumulic Haploborolls

Associated sites

R047XC430UT	**Mountain Loam (mountain big sagebrush)**
R047XC462UT	**Mountain Stony Loam (mountain big sagebrush)**

Similar sites

R047XC430UT	**Mountain Loam (mountain big sagebrush)**
R047XC462UT	**Mountain Stony Loam (mountain big sagebrush)**

Table 1. Dominant plant species

Tree	(1) *Populus angustifolia*
Shrub	(1) *Salix exigua*
Herbaceous	(1) *Leymus cinereus*

Physiographic features

Gently Sloping Floodplains, Small Valley Bottoms, and Low Terraces adjacent to Stream Bottoms

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Valley floor (3) Terrace
Elevation	1,600–2,743 m
Slope	3–15%

Climatic features

The climate of this zone is characterized by cool, moist summers and cold, snowy winters. Approximately 55 percent of the precipitation occurs as rain from April through September. This site receives additional moisture from flooding and from a water table close enough to the surface to support phreatophytic vegetation. On the average, October, November, and December are the driest months and April, May, and June are the wettest months because of flooding associated with spring runoff.

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	711 mm

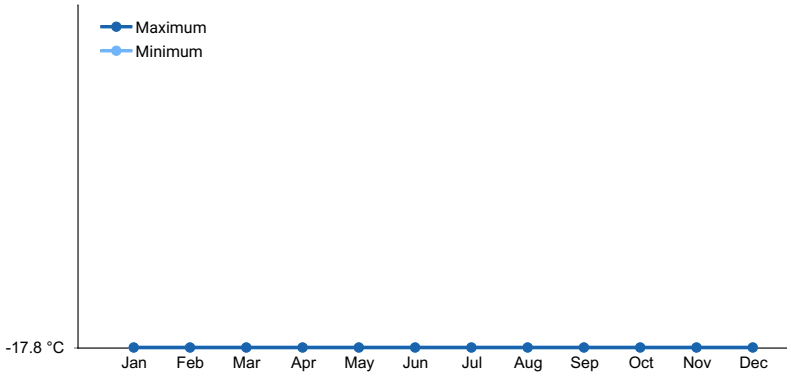

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The soil is deep to very deep with a dark (mollic) surface horizon. It formed in alluvium derived mainly from sedimentary parent materials. The soil is often rocky. The water table is between 20 to 60 inches deep during the plant growth period. Spring season flooding often occurs from runoff. The water supplying capacity is 10 to 12 inches. The available water capacity os 0.04 to 0.17 inches per inch.

Table 4. Representative soil features

Drainage class	Well drained
Soil depth	102–152 cm
Available water capacity (0-101.6cm)	0.1–0.43 cm

Ecological dynamics

As this site deteriorates due to grazing pressure, willow, cottonwood suckers and seedlings, and great basin wildrye decrease while big sagebrush, western wheatgrass, rabbitbrush, Kentucky bluegrass, yarrow, weedy forbs increase. When the potential natural plant community is burned, shrubs will temporarily decrease while perennial grasses greatly increase if they are on the site; if not, annuals will increase.

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 dominant aspect of this plant community is coyote willow with an understory of narrowleaf cottonwood. The composition by air-dry weight is approximately 40 percent grasses and grasslike plants, 15 percent forbs, 45 percent shrubs, and 5 percent trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	516	874	1973
Shrub/Vine	412	581	984
Forb	194	328	412
Tree	65	110	138
Total	**1187**	**1893**	**3507**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	29-31%
Grass/grasslike foliar cover	29-31%
Forb foliar cover	9-11%
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	–	–	–	–
>0.3 <= 0.6	–	–	–	9-11%
>0.6 <= 1.4	–	–	29-31%	–
>1.4 <= 4	–	29-31%	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Tree					
0	**Dominant Trees**			22–112	
	narrowleaf cottonwood	POAN3	*Populus angustifolia*	22–112	–
Shrub/Vine					
0	**Dominant Shrub**			314–560	
	narrowleaf willow	SAEX	*Salix exigua*	336–448	–
	western snowberry	SYOC	*Symphoricarpos occidentalis*	67–112	–
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	67–112	–
	chokecherry	PRVI	*Prunus virginiana*	67–112	–
3	**Sub-Dominant Shrubs**			314–829	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	112–224	–
	Utah serviceberry	AMUT	*Amelanchier utahensis*	22–67	–
	water birch	BEOC2	*Betula occidentalis*	22–67	–
	yellow rabbitbrush	CHVIL4	*Chrysothamnus viscidiflorus ssp. lanceolatus*	22–67	–
	western white clematis	CLLI2	*Clematis ligusticifolia*	22–67	–
	creeping barberry	MARE11	*Mahonia repens*	22–67	–
	quaking aspen	POTR5	*Populus tremuloides*	22–67	–
	whitestem gooseberry	RIIN2	*Ribes inerme*	22–67	–
	Woods' rose	ROWO	*Rosa woodsii*	22–67	–
	silver buffaloberry	SHAR	*Shepherdia argentea*	22–67	–
Grass/Grasslike					
0	**Dominant Grasses**			381–673	
	basin wildrye	LECI4	*Leymus cinereus*	112–224	–
	muttongrass	POFE	*Poa fendleriana*	67–112	–
	Letterman's needlegrass	ACLE9	*Achnatherum lettermanii*	67–112	–
	Columbia needlegrass	ACNE9	*Achnatherum nelsonii*	67–112	–
	Geyer's sedge	CAGE2	*Carex geyeri*	67–112	–
1	**Sub-Dominant G**			157–1008	

1	**Sub-Dominant Grasses**			157–1009	
	Grass, annual	2GA	*Grass, annual*	22–336	–
	Grass, perennial	2GP	*Grass, perennial*	22–336	–
	creeping bentgrass	AGST2	*Agrostis stolonifera*	22–67	–
	California brome	BRCA5	*Bromus carinatus*	22–67	–
	oniongrass	MEBU	*Melica bulbosa*	22–67	–
	western wheatgrass	PASM	*Pascopyrum smithii*	22–67	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	22–67	–
Forb					
0	**Dominant Forbs**			67–112	
	western sweetroot	OSOC	*Osmorhiza occidentalis*	67–112	–
2	**Sub-Dominant Shrubs**			762–1614	
	Forb, annual	2FA	*Forb, annual*	224–336	–
	Forb, perennial	2FP	*Forb, perennial*	224–336	–
	common yarrow	ACMI2	*Achillea millefolium*	22–67	–
	sticky purple geranium	GEVI2	*Geranium viscosissimum*	22–67	–
	common cowparsnip	HEMA80	*Heracleum maximum*	22–67	–
	aspen pea	LALA6	*Lathyrus laetivirens*	22–67	–
	silvery lupine	LUARR	*Lupinus argenteus ssp. rubricaulis*	22–67	–
	feathery false lily of the valley	MARAR	*Maianthemum racemosum ssp. racemosum*	22–67	–
	slender cinquefoil	POGRF2	*Potentilla gracilis var. fastigiata*	22–67	–
	lambstongue ragwort	SEIN2	*Senecio integerrimus*	22–67	–
	tall ragwort	SESE2	*Senecio serra*	22–67	–
	Missouri goldenrod	SOMI2	*Solidago missouriensis*	22–67	–
	mountain goldenbanner	THMOM3	*Thermopsis montana var. montana*	22–67	–
	white clover	TRRE3	*Trifolium repens*	22–67	–
	tobacco root	VAED	*Valeriana edulis*	22–67	–

Animal community

This site provides forage for cattle, sheep, and horses during spring, summer, and fall. To ensure the survival of willows and other shrubs, periodic spring deferred grazing is appropriate.
Water, Food, and Cover
Wildlife using this site include rabbit, coyote, badger, mule deer, elk, moose, blackbird, and oriole.

Hydrological functions

The soil series is in hydrologic group b. The hydrologic curve number is 61 when the vegetation is in good condition.

Recreational uses

Hunting, Hiking, and Camping

Wood products

Narrowleaf cottonwood has limited use.

Contributors

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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)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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:**

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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):**

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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:

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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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:**

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17. **Perennial plant reproductive capability:**
