Ecological site R025XY010UT
Riparian (Narrowleaf Cottonwood)

Accessed: 05/03/2024

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.

MLRA notes

Major Land Resource Area (MLRA): 025X–Owyhee High Plateau

MLRA 25 lies within the Intermontane Plateaus physiographic province. The southern half is in the Great Basin Section of the Basin and Range Province. This part of the MLRA is characterized by isolated, uplifted fault-block mountain ranges separated by narrow, aggraded desert plains. This geologically older terrain has been dissected by numerous streams draining to the Humboldt River. The northern half of the area lies within the Columbia Plateaus geologic province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Deep, narrow canyons drain to the Snake River which incise the broad volcanic plain. The Humboldt River, route of a major western pioneer trail, crosses the southern half of this area. Reaches of the Owyhee River in this area have been designated as National Wild and Scenic Rivers.

Associated sites

R025XY412UT	**Mountain Gravelly Loam (Mountain Big Sagebrush)** Also R025XY030UT and R025XY410UT

Table 1. Dominant plant species

Tree	(1) *Populus angustifolia*
Shrub	(1) *Salix lutea*
Herbaceous	Not specified

Physiographic features

This site occurs on gently sloping flood plains in canyon and small valley bottoms. Slopes are mostly 1 to 10 percent. Elevations range from 5,000 to 8,000 feet on all aspects.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Valley floor
Flooding frequency	None
Ponding frequency	None
Elevation	1,524–2,438 m
Slope	1–10%
Water table depth	51–102 cm
Aspect	Aspect is not a significant factor

Climatic features

Mean Annual Air Temperature: 43-46
Mean Annual Soil Temperature: 45-48

Table 3. Representative climatic features

Frost-free period (average)	0 days
Freeze-free period (average)	120 days
Precipitation total (average)	508 mm

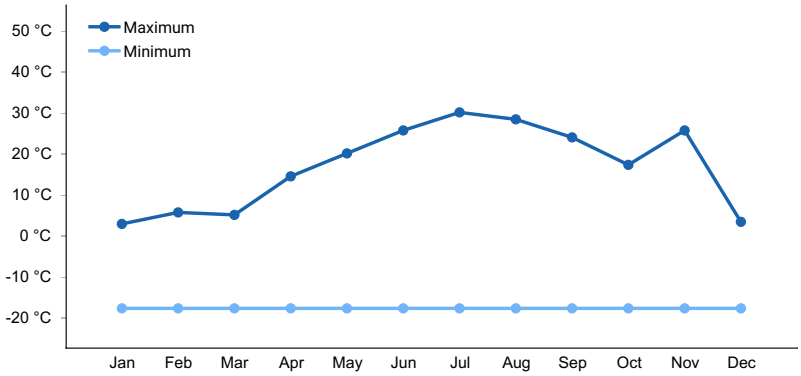

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Characteristic soils in this site are 10 to over 60 inches. Soils are deep and somewhat poorly drained. They formed in alluvium derived mainly from mixed parent materials. These soils are moist throughout the year. They have moderate to rapid permeability. The water table is usually below 40 inches but may be present at 20 inches in the spring. Rock fragment content range from 0 to 70 percent in the profile. The high water table in this soil is the main soil property affecting plant growth. The water supplying capacity is 5 to 14 inches.
Average annual soil loss in potential is approximately 0.5 tons/acre. Average annual precipitation is 7 to 20 inches.

Approximately 25 percent occurs as rain from May through September. On the average, July through September are the driest months and April through June are the wettest months. The mean annual air temperature is 43 to 46 degrees F. and the soil temperatures are in the cryic regime. The average freeze free period is 60 to 120 days. In average years, grasses begin growth around May 1 and end growth around September 30.

Table 4. Representative soil features

Drainage class	Somewhat poorly drained
Permeability class	Moderate to rapid
Soil depth	25–152 cm
Subsurface fragment volume <=3" (Depth not specified)	0–35%
Subsurface fragment volume >3" (Depth not specified)	0–35%

Ecological dynamics

As ecological condition deteriorates due to grazing pressure, palatable grasses, grasslike plants, forbs, and shrubs decrease while unpalatable plants 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 the potential natural plant community is narrowleaf cottonwood and willow. The composition by air-dry weight is approximately 45 percent perennial grasses and grass-like plants, 15 percent forbs, 20 percent shrubs, and 20 percent trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	706	984	1261
Shrub/Vine	314	437	560
Tree	314	437	560
Forb	235	328	420
Total	**1569**	**2186**	**2801**

Table 6. Soil surface cover

Tree basal cover	10-20%
Shrub/vine/liana basal cover	10-20%
Grass/grasslike basal cover	20-40%
Forb basal cover	5-10%
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	–	–	–	5-15%
>0.3 <= 0.6	–	–	35-45%	–
>0.6 <= 1.4	–	–	–	–
>1.4 <= 4	–	15-25%	–	–
>4 <= 12	–	–	–	–
>12 <= 24	15-25%	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

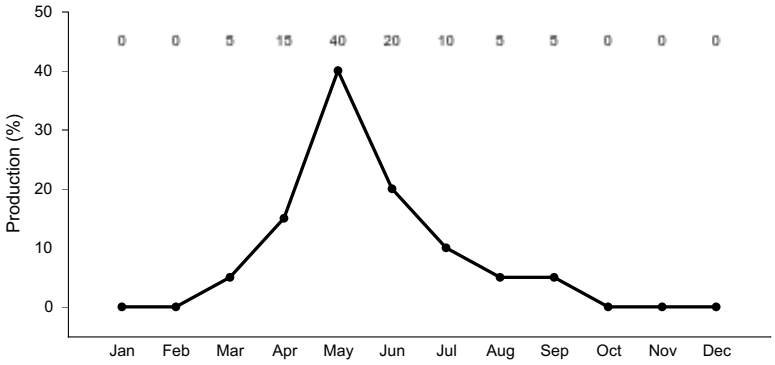

Figure 3. Plant community growth curve (percent production by month). UT0101, PNC 0101. Excellent Condition.

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	**Primary Trees**			224–336	
	narrowleaf cottonwood	POAN3	*Populus angustifolia*	224–336	–
4	**Secondary Trees**			45–135	
	Rocky Mountain maple	ACGL	*Acer glabrum*	22–67	–
	quaking aspen	POTR5	*Populus tremuloides*	22–67	–
Shrub/Vine					
0	**Primary Shrubs**			269–516	
	yellow willow	SALU2	*Salix lutea*	112–224	–
	Woods' rose	ROWO	*Rosa woodsii*	67–112	–
	narrowleaf willow	SAEX	*Salix exigua*	67–112	–
	gray alder	ALIN2	*Alnus incana*	22–67	–
3	**Secondary Shrubs**			112–224	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	112–224	–
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	22–67	–
	redosier dogwood	COSE16	*Cornus sericea*	22–67	–
	black hawthorn	CRDO2	*Crataegus douglasii*	22–67	–
	golden currant	RIAU	*Ribes aureum*	22–67	

	golden currant	RIAU	*Ribes aureum*	22–67	–
Grass/Grasslike					
0	**Primary Grasses**			628–1121	
	fowl bluegrass	POPA2	*Poa palustris*	224–336	–
	basin wildrye	LECI4	*Leymus cinereus*	112–224	–
	Hood's sedge	CAHO5	*Carex hoodii*	112–224	–
	woolly sedge	CAPE42	*Carex pellita*	112–224	–
	common spikerush	ELPA3	*Eleocharis palustris*	67–112	–
1	**Secondary Grasses**			67–112	
	Grass, annual	2GA	*Grass, annual*	67–112	–
	Grass, perennial	2GP	*Grass, perennial*	67–112	–
	creeping bentgrass	AGST2	*Agrostis stolonifera*	22–67	–
	slender wheatgrass	ELTR7	*Elymus trachycaulus*	22–67	–
	western wheatgrass	PASM	*Pascopyrum smithii*	22–67	–
Forb					
0	**Primary Forbs**			67–112	
	Richardson's geranium	GERI	*Geranium richardsonii*	67–112	–
2	**Secondary Forbs**			224–336	
	Forb, annual	2FA	*Forb, annual*	224–336	–
	Forb, perennial	2FP	*Forb, perennial*	224–336	–
	common yarrow	ACMI2	*Achillea millefolium*	22–67	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	22–67	–
	Rocky Mountain iris	IRMI	*Iris missouriensis*	22–67	–
	Rocky Mountain groundsel	PAST10	*Packera streptanthifolia*	22–67	–
	English cinquefoil	POAN7	*Potentilla anglica*	22–67	–
	common dandelion	TAOF	*Taraxacum officinale*	22–67	–
	cows clover	TRWO	*Trifolium wormskioldii*	22–67	–

Animal community

Wildlife using this site include rabbit, coyote, owl, hawk, mule deer, and elk.

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.

Recreational uses

Recreation values are camping, fishing, hunting, and hiking. Natural beauty values exist in the diversity and abundance of plant growth coming from the moist soils found in this site.

Wood products

Fire wood

Other information

Site Factors Influencing Management
For proper maintenance of the key species, this site should be deferred from grazing during the last half of the growing season; at least one year in three or as prescribed after upon examination of the site by qualified

authorities.

Type locality

Location 1: Box Elder County, UT	
Township/Range/Section	T13N R17W S36
General legal description	Type location: NE ¼ SW ¼ Section 2, Township 13N, Range 17W Legal Description: NE ¼ of the SW ¼, Section 36, Township 13N, Range 17W. Basin Creek at Lynn, Utah

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:**

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

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

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

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

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

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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:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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:

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

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

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

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:**

17. **Perennial plant reproductive capability:**