

Ecological site R025XY079NV

STREAMBANK

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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 Notes 25—Owyhee High Plateau This area is in Nevada (56 percent), Idaho (30 percent), Oregon (12 percent), and Utah (2 percent). It makes up about 27,443 square miles. MLRA 25 is characteristically cooler and wetter than the neighboring MLRAs of the Great Basin. The western boundary is marked by a gradual transition to the lower and warmer basins of MLRA 24. The boundary to the south-southeast, with MLRA 28B, is marked by gradual changes in geology marked by an increased dominance of singleleaf pinyon and Utah juniper and a reduced presence of Idaho fescue. The boundary to the north, with MLRA 11, is a rapid transition from the lava plateau topography to the lower elevation Snake River Plain. **Physiography:** All of this area lies within the Intermontane Plateaus. 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 province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Most of the northern half is in the Payette section, but the northeast corner is in the Snake River Plain section. Deep, narrow canyons draining into the Snake River have been incised into this broad basalt plain. Elevation ranges from 3,000 to 7,550 feet on rolling plateaus and in gently sloping basins. It is more than 9,840 feet on some steep mountains. The Humboldt River crosses the southern half of this area **Geology:** The dominant rock types in this MLRA are volcanic. They include andesite, basalt, tuff, and rhyolite. In the north and west parts of the area, Cretaceous granitic rocks are exposed among Miocene volcanic rocks in mountains. A Mesozoic igneous and metamorphic rock complex dominates the south and east parts of the area. Upper and Lower Paleozoic calcareous sediments, including oceanic deposits, are exposed with limited extent in the mountains. Alluvial fan and basin fill sediments occur in the valleys. **Climate:** The average annual precipitation in most of this area is typically 11 to 22 inches. It increases to as much as 49 inches at the higher elevations. Rainfall occurs in spring and sporadically in summer. Precipitation occurs mainly as snow in winter. The precipitation is distributed fairly evenly throughout fall, winter, and spring. The amount of precipitation is lowest from midsummer to early autumn. The average annual temperature is 33 to 51 degrees F. The freeze-free period averages 130 days and ranges from 65 to 190 days, decreasing in length with elevation. It is typically less than 70 days in the mountains. **Water:** The supply of water from precipitation and streamflow is small and unreliable, except along the Owyhee, Bruneau, and Humboldt Rivers. Streamflow depends largely on accumulated snow in the mountains. Surface water from mountain runoff is generally of excellent quality and suitable for all uses. The basin fill sediments in the narrow alluvial valleys between the mountain ranges provide some ground water for irrigation. The alluvial deposits along the large streams have the most ground water. Based on measurements of water quality in similar deposits in adjacent areas, the basin fill deposits probably contain moderately hard water. The water is suitable for almost all uses. The carbonate rocks in this area are considered aquifers, but they are little used. Springs are common along the edges of the limestone outcrops. **Soils:** The dominant soil orders in this MLRA are Aridisols and Mollisols. The soils in the area dominantly have a mesic or frigid temperature regime and an aridic, aridic bordering on xeric, or xeric moisture regime. Soils with aquic moisture regimes are limited to drainage or spring areas, where moisture originates or runs on and through. These soils are of a very limited extent throughout the MLRA. They generally are well drained, clayey or loamy, and shallow or moderately deep. Most of the soils formed in mixed parent material. Volcanic ash and loess mantle the landscape. Surface soil textures are loam and silt loam with ashy texture modifiers in some areas. Argillic horizons occur on the more stable landforms. They are exposed nearer the soil surface on convex landforms, where ash and loess deposits are more likely to erode. Soils that formed in carbonatic parent material in areas that receive less than 12 inches of precipitation are characterized by calcic horizons throughout the profile, while soils in areas that receive more than 12 inches of precipitation do not have calcic horizons in the upper part of the profile. Soils that formed on stable landforms at the lower elevations are dominated by ochric horizons. Soils that formed at the middle and upper elevations are characterized by mollic epipedons. Soils in drainage areas at all elevations that receive moisture running on or through them are characterized by thicker mollic epipedons. **Biological Resources:** This MLRA supports shrub-grass vegetation. Lower elevations are characterized by Wyoming big sagebrush associated with bluebunch wheatgrass, western wheatgrass, and Thurber's needlegrass. Other important plants include bluegrass, squirreltail, penstemon, phlox, milkvetch, lupine, Indian paintbrush, aster, and rabbitbrush. Black sagebrush occurs but is less extensive. Singleleaf pinyon and Utah juniper occur in limited areas. With increasing elevation and precipitation, vast areas characterized by mountain big sagebrush or low sagebrush/early sagebrush in association with Idaho fescue, bluebunch wheatgrass, needlegrasses,

and bluegrass become common. Snowberry, curl-leaf mountain mahogany, ceanothus, and juniper also occur. Mountains at the highest elevations support whitebark pine, Douglas-fir, limber pine, Engelmann spruce, subalpine fir, aspen, and curl-leaf mountain mahogany. Major wildlife species include mule deer, bighorn sheep, pronghorn, mountain lion, coyote, bobcat, badger, river otter, mink, weasel, golden eagle, red-tailed hawk, ferruginous hawk, Swainson's hawk, northern harrier, prairie falcon, kestrel, great horned owl, short-eared owl, long-eared owl, burrowing owl, pheasant, sage grouse, chukar, gray partridge, and California quail. Reptiles and amphibians include western racer, gopher snake, western rattlesnake, side-blotched lizard, western toad, and spotted frog. Fish species include bull, red band, and rainbow trout.

Ecological site concept

The Streambank site occurs along perennial streams of narrow mountain valleys. Slopes range from 2 to 15 percent. Elevations are 5000 to 6000 feet. The water table is typically between 20 and 60 inches of the soil surface. The soils associated with this site are very deep and poorly drained. Frequent flooding during the spring and a seasonally high water table within 10 to 20 inches of the surface during the early part of the growing season, supply additional moisture for plant growth. During the summer and fall months, the water table is at depths below 40 inches. The reference plant community is dominated by willows. Chokecherry is a common plant, and typically occurs intermingled within the willow overstory. Dominant plants of the willow understory are slender wheatgrass, sedges, and Nevada bluegrass.

Associated sites

F025XY064NV	Streambank Aspen
F025XY074NV	POBAT/SALIX/POA-CAREX
R025XY005NV	WET MEADOW
R025XY006NV	DRY MEADOW

Similar sites

R025XY005NV	WET MEADOW SALIX species minor component of plant community
R025XY003NV	LOAMY BOTTOM 8-14 P.Z. ARTR2 dominant woody species; LECI4 dominant plant
R025XY001NV	MOIST FLOODPLAIN LECI4-LETR5 dominant; different landform
R025XY006NV	DRY MEADOW SALIX species minor component of plant community

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Salix</i> (2) <i>Prunus virginiana</i> var. <i>melanocarpa</i>
Herbaceous	(1) <i>Elymus trachycaulus</i> (2) <i>Poa secunda</i>

Physiographic features

The Streambank site occurs along perennial streams of narrow mountain valleys. Slopes range from 2 to 15 percent. Elevations are 5000 to 6000 feet.

Table 2. Representative physiographic features

Landforms	(1) Stream (2) Mountain valley
Runoff class	Medium to very high
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Very rare to occasional
Ponding frequency	None
Elevation	1,520 – 1,830 m
Slope	0 – 20 %
Water table depth	50 – 150 cm
Aspect	Aspect is not a significant factor

Climatic features

The climate associated with this site is semiarid, characterized by cold, moist winters and warm, dry summers.

The average annual precipitation ranges from 12 to 14 inches. Mean annual air temperature is typically <45 degrees F. The average growing season is about 75 to 90 days.

Mean annual precipitation across the range in which this ES occurs is 13.13".

Monthly mean precipitation: January 1.45"; February 1.12"; March 1.20"; April 1.21"; May 1.62"; June 1.07"; July 0.55"; August 0.49"; September 0.62"; October 0.83"; November 1.41"; December 1.54".

*The above data is averaged from the Mountain City RS and Wild horse RSVR WRCC climate stations.

Table 3 Representative climatic features

Frost-free period (characteristic range)	0-0 days
Freeze-free period (characteristic range)	10-30 days
Precipitation total (characteristic range)	330-360 mm
Frost-free period (actual range)	0-0 days
Freeze-free period (actual range)	10-30 days
Precipitation total (actual range)	330-360 mm
Frost-free period (average)	0 days
Freeze-free period (average)	20 days
Precipitation total (average)	330 mm

- (1) MTN CITY RS [USC00265392], Mountain City, NV
- (2) WILD HORSE RSVR [USC00269072], Deeth, NV

Influencing water features

This site is adjacent to perennial streams and is subject to flooding in the spring. There is also a seasonally high water table.

Soil features

The soils are very deep and poorly drained. Frequent flooding during the spring and a seasonally high water table within 10 to 20 inches of the surface during the early part of the growing season, supply additional moisture for plant growth. During the summer and fall months, the water table is at depths below 40 inches. These soils are stratified and have high volumes of gravels, cobbles, or stones throughout the soil profile.

Soil series correlated to this site are: Bendastik and Crooked Creek

Table 4. Representative soil features

Parent material	(1) Alluvium (2) Loess
Surface texture	(1) Clay loam (2) Highly organic loam

Family particle size	(1) Fine-loamy (2) Fine
Drainage class	Moderately well drained to poorly drained
Permeability class	Slow to very slow
Depth to restrictive layer	180 – 210 cm
Soil depth	180 – 210 cm
Surface fragment cover <=3"	0 – 10 %
Surface fragment cover >3"	0 – 10 %
Available water capacity (0-101.6cm)	10.16 – 21.08 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	6.6 – 7.3
Subsurface fragment volume <=3" (Depth not specified)	10 – 20 %
Subsurface fragment volume >3" (Depth not specified)	0 – 30 %

Ecological dynamics

As ecological condition declines, woody species become more dominant as Kentucky bluegrass and Baltic rush increase in the understory. Hoary nettle, redtop, and foxtail barley are species likely to invade this site.

Fire Ecology:

Fires are uncommon in riparian communities. Most fires kill only aboveground plant parts of willows. Willow will generally sprout from its root crown or stem base following fire. However, severe fires can completely remove organic soil layers, leaving willow roots exposed and charred, thus eliminating basal sprouting. Chokecherry is well adapted to disturbance by fire. Although susceptible to top-kill by fire, it resprouts rapidly and prolifically from surviving root crowns and rhizomes. The effects of fire on slender wheatgrass are dependent on its growth form. Tall, decadent plants with many leaves sustain the most fire damage, while those with short, sparse growth form, is the least likely to sustain damage to the root system during a fire. Nevada bluegrass is generally unharmed by fire. It produces little litter, and its small bunch size and sparse litter reduces the amount of heat transferred to perennating buds in the soil. Sedge is top-killed by fire, with rhizomes protected by insulating soil. The rhizomes of *Carex* species may be killed by high-severity fires that remove most of the soil organic layer. Reestablishment after fire occurs by seed establishment and/or rhizomatous spread.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Primary Perennial Grasses			3161-4573	
	slender wheatgrass	ELTR7	<i>Elymus trachycaulus</i>	1009-1345	–
	sedge	CAREX	<i>Carex</i>	1009-1345	–
	tufted hairgrass	DECE	<i>Deschampsia cespitosa</i>	135-538	–
2	Secondary Perennial Grasses/Grasslikes			135-538	
	rush	JUNCU	<i>Juncus</i>	34-135	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	34-135	–
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	34-135	–
	Kentucky bluegrass	POPR	<i>Poa pratensis</i>	34-135	–
Forb					
3	Perennial Forbs			135-538	
	mat muhly	MURI	<i>Muhlenbergia richardsonis</i>	34-336	–
	yarrow	ACHIL	<i>Achillea</i>	34-135	–
	columbine	AQUIL	<i>Aquilegia</i>	34-135	–
	aster	ASTER	<i>Aster</i>	34-135	–
	Rocky Mountain iris	IRMI	<i>Iris missouriensis</i>	34-135	–
	cinquefoil	POTEN	<i>Potentilla</i>	34-135	–
	ragwort	SENEC	<i>Senecio</i>	34-135	–
Shrub/Vine					
4	Primary Shrubs			2959-5784	
	willow	SALIX	<i>Salix</i>	2018-3363	–
	black chokecherry	PRVIM	<i>Prunus virginiana var. melanocarpa</i>	673-1345	–
	sedge	CAREX	<i>Carex</i>	1009-1345	–
	skunkbush sumac	RHTR	<i>Rhus trilobata</i>	135-538	–
	Woods' rose	ROWO	<i>Rosa woodsii</i>	135-538	–
	rush	JUNCU	<i>Juncus</i>	34-336	–
5	Secondary Shrubs			67-404	
	western white clematis	CLLI2	<i>Clematis ligusticifolia</i>	67-202	–
	currant	RIBES	<i>Ribes</i>	67-202	–

	yarrow	ACHIL	<i>Achillea</i>	22-90	–
	columbine	AQUIL	<i>Aquilegia</i>	22-90	–
	aster	ASTER	<i>Aster</i>	22-90	–
	Rocky Mountain iris	IRMI	<i>Iris missouriensis</i>	22-90	–
	cinquefoil	POTEN	<i>Potentilla</i>	22-90	–
	ragwort	SENEC	<i>Senecio</i>	22-90	–
Tree					
6	Trees			67-269	
	willow	SALIX	<i>Salix</i>	2018-3363	–
	black chokecherry	PRVIM	<i>Prunus virginiana</i> var. <i>melanocarpa</i>	673-1345	–
	skunkbush sumac	RHTR	<i>Rhus trilobata</i>	135-538	–
	Woods' rose	ROWO	<i>Rosa woodsii</i>	135-538	–
	currant	RIBES	<i>Ribes</i>	34-336	–
	western white clematis	CLLI2	<i>Clematis ligusticifolia</i>	34-336	–
	Rocky Mountain juniper	JUSC2	<i>Juniperus scopulorum</i>	34-135	–
	quaking aspen	POTR5	<i>Populus tremuloides</i>	34-135	–

Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Animal community

Livestock Interpretations: This site is suited for livestock grazing. Grazing management should be keyed to perennial grass production. Slender wheatgrass is grazed by all classes of livestock. Nevada bluegrass is a widespread forage grass. It is one of the earliest grasses in the spring and is sought by domestic livestock and several wildlife species. It produces little forage in drought years, making it a less dependable food source than other perennial bunchgrasses. Sedge provides good to fair forage for domestic grazing. Tufted hairgrass provides good to excellent forage for all classes of livestock. It is often an abundant source of forage throughout its growing season. Chokecherry is moderately palatable to all classes of livestock, although it is more heavily browsed by domestic sheep than by cattle. Because of its toxicity, poisoning sometimes occurs. Livestock normally do not eat fatal quantities except when other forage is scarce. Chokecherry provides important cover and habitat for livestock. The leaves of Wood's rose are considered fair to fairly good livestock forage, particularly for domestic sheep. Stocking rates vary over time depending upon season of use, climate variations, site, and previous and current management goals. A safe starting stocking rate is an estimated stocking rate that is fine tuned by the client by adaptive management through the year and from year to year. Wildlife Interpretations: Chokecherry is widely regarded as an important wildlife food plant and provides habitat, watershed protection, and species diversity. Fruits, leaves, and twigs are utilized. Large mammals use chokecherry as browse. Chokecherry is also a food source for small mammals. The fruits are important food for many birds. It is a preferred mule deer browse on many winter ranges. Chokecherry provides important cover and habitat for many bird species, small mammals, and large mammals. Mule deer browse Wood's rose throughout the growing season. Wood's rose has good food value for upland game birds, nongame birds, and small mammals, but poor food value for waterfowl. Slender wheatgrass is grazed by sage grouse, deer, elk, moose, and bighorn sheep, mountain goat, pronghorn, various rodents, and all classes of livestock. The seeds are eaten by various seed predators. Slender wheatgrass provides hiding and thermal cover for songbirds, upland game birds, waterfowl, and small mammals. Nevada bluegrass is desirable for pronghorn antelope and mule deer in the spring and preferable in the spring, summer, and fall for elk and desirable as part of their winter range. Sedges have a high to moderate resource value for elk and a medium value for mule deer. Elk consume beaked sedge later in the growing season. Tufted hairgrass has a high to moderate resource value for elk and a medium value for mule deer. Use of tufted hairgrass by wildlife species is variable. Tufted hairgrass forage value for wildlife has been rated fair to good.

Hydrological functions

Runoff is high.

Recreational uses

Aesthetic value is derived from the diverse floral and faunal composition and the colorful flowering of wild flowers and shrubs during the spring and early summer. This site offers rewarding opportunities to photographers and for nature study. This site has potential for upland and big game hunting.

Other products

Native Americans used the leaves of willows to treat mosquito bites, bee stings and stomach aches and used to stems for implements such as baskets, arrow shafts, scoops and fish traps. Indigenous peoples gathered chokecherries and used them to make pemmican and treat cold sores. The Paiutes made a medicinal tea from the leaves and twigs to treat colds and rheumatism. Native Americans made extensive use of Wood's rose roots, stems, leaves, flowers, and hips for foods and therapeutic materials. The hips are a source of vitamin C and are dried for use in flavoring teas, jellies, fruitcakes and puddings. Wood's rose is used as an ornamental near homes to attract birds and other wildlife.

Other information

Willow is useful in stabilizing streambanks and providing erosion control on severely disturbed sites. It is valuable in revegetating disturbed riparian sites having high water tables and low elevations. Chokecherry has been selected as a revegetation species for wildlife habitat, shelterbelts, mine spoils and soil stabilization. Wood's rose extensive rhizomes, and good survivability and revegetation characteristics even on harsh sites makes this species an effective tool in erosion control. It has also been suggested as a useful species for revegetation on high pH and lime soils. Wood's rose is used to revegetate disturbed sites along streambanks and seeps. Slender wheatgrass is widely used for revegetating disturbed lands. It has been used for rehabilitating mine spoils, livestock ranges, and wildlife habitat and watershed areas. Slender wheatgrass is used for rehabilitating alpine meadows and other high elevation habitats. Tufted hairgrass has a broad ecological range and is useful for revegetation, particularly on disturbances at high elevation or high latitude. Tufted hairgrass has been successfully established by seeding on alpine disturbances. It is a valuable soil stabilizer, especially in wet, acid locations.

Inventory data references

NV-ECS-1 - 1 record Soils and Physiographic features were gathered from NASIS.

Type locality

Location 1: Elko County, NV	
Township/Range/Section	T45N R57E S31
UTM zone	N
UTM northing	4622942
UTM easting	617741
Latitude	41° 44'58"
Longitude	115° 35'1"
General legal description	Along Meadow Creek, 4 miles north of Waterlog Summit, Elko County, Nevada.

Other references

Fire Effects Information System (online <http://www.fs.fed.us/database/feis>)

Houghton, J.G., C.M. Sakamoto, and R.O. Gifford. 1975. Nevada's Weather and Climate, Special Publication 2. Nevada Bureau of Mines and Geology, Mackay School of Mines, University of Nevada, Reno, NV.

National Oceanic and Atmospheric Administration. 2004. The North American Monsoon. Reports to the Nation. National Weather Service, Climate Prediction Center. Available online: <http://www.weather.gov/>

USDA-NRCS Plants Database (online <http://plants.usda.gov/>)

Contributors

GKB

Approval

Kendra Moseley, 4/25/2024

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	09/15/2026
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:

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:
