USDA Natural Resources Conservation Service

Ecological site R026XY037NV
CLAY BASIN

Last updated: 4/10/2024
Accessed: 05/05/2024

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): 026X–Carson Basin and Mountains

The area lies within western Nevada and eastern California, with about 69 percent being within Nevada, and 31 percent being within California. Almost all this area is in the Great Basin Section of the Basin and Range Province of the Intermontane Plateaus. Isolated north-south trending mountain ranges are separated by aggraded desert plains. The mountains are uplifted fault blocks with steep side slopes. Most of the valleys are drained by three major rivers flowing east across this MLRA. A narrow strip along the western border of the area is in the Sierra Nevada Section of the Cascade-Sierra Mountains Province of the Pacific Mountain System. The Sierra Nevada Mountains are primarily a large fault block that has been uplifted with a dominant tilt to the west. This structure leaves an impressive wall of mountains directly west of this area. This helps create a rain shadow affect to MLRA 26. Parts of this eastern face, but mostly just the foothills, mark the western boundary of this area. Elevations range from about 3,806 feet (1,160 meters) on the west shore of Pyramid Lake to 11,653 feet (3,552 meters) on the summit of Mount Patterson in the Sweetwater Mountains.

Valley areas are dominantly composed of Quaternary alluvial deposits with Quaternary playa or alluvial flat deposits often occupying the lowest valley bottoms in the internally drained valleys, and river deposited alluvium being dominant in externally drained valleys. Hills and mountains are dominantly Tertiary andesitic flows, breccias, ash flow tuffs, rhyolite tuffs or granodioritic rocks. Quaternary basalt flows are present in lesser amounts, and Jurassic and Triassic limestone and shale, and Precambrian limestone and dolomite are also present in very limited amounts. Also of limited extent are glacial till deposits along the east flank of the Sierra Nevada Mountains, the result of alpine glaciation.

The average annual precipitation in this area is 5 to 36 inches (125 to 915 millimeters), increasing with elevation. Most of the rainfall occurs as high-intensity, convective storms in spring and autumn. Precipitation is mostly snow in winter. Summers are dry. The average annual temperature is 37 to 54 degrees F (3 to 12 degrees C). The freeze-free period averages 115 days and ranges from 40 to 195 days, decreasing in length with elevation.

The dominant soil orders in this MLRA are Aridisols and Mollisols. The soils in the area dominantly have a mesic soil temperature regime, an aridic or xeric soil moisture regime, and mixed or smectitic mineralogy. They generally are well drained, are clayey or loamy and commonly skeletal, and are very shallow to moderately deep.

This area supports shrub-grass vegetation characterized by big sagebrush. Low sagebrush and Lahontan sagebrush occur on some soils. Antelope bitterbrush, squirreltail, desert needlegrass, Thurber needlegrass, and Indian ricegrass are important associated plants. Green ephedra, Sandberg bluegrass, Anderson peachbrush, and several forb species also are common. Juniper-pinyon woodland is typical on mountain slopes. Jeffrey pine, lodgepole pine, white fir, and manzanita grow on the highest mountain slopes. Shadscale is the typical plant in the drier parts of the area. Sedges, rushes, and moisture-loving grasses grow on the wettest parts of the wet flood plains and terraces. Basin wildrye, alkali sacaton, saltgrass, buffaloberry, black greasewood, and rubber rabbitbrush grow on the drier sites that have a high concentration of salts.

Some of the major wildlife species in this area are mule deer, coyote, beaver, muskrat, jackrabbit, cottontail, raptors, pheasant, chukar, blue grouse, mountain quail, and mourning dove. The species of fish in the area include trout and catfish. The Lahontan cutthroat trout in the Truckee River is a threatened and endangered species.

LRU notes

The Sierra Influenced Ranges LRU is characterized by wooded great basin mountains with climatic and biotic affinities to the Sierra Nevada mountain range. The Sierra Influences Ranges LRU receives greater precipitation that the mountain ranges of central NV. Amount of precipitation varies in relation to the local strength of the Sierra NV rain shadow, characterized by pinyon and juniper trees. The White, Sweetwater, Pine Nut, Wassuk, and Virginia ranges of Nevada support varying amounts of Sierra Nevada flora, such as ponderosa pine. Elevations range from 1610 to 2420 meters and slopes range from 5 to 49 percent, with a median value of 22 percent. Frost free days (FFD) ranges from 92 to 163.

Ecological site concept

The Clay Basin site occurs on intermountain basins with slopes from 0 to 2 percent and at elevations of 5,800 to 5,900 feet. Silver sagebrush (Artemisia cana) is the dominant shrub and the dominant grasses are Nevada bluegrass (Poa nevadensis) and creeping wildrye (Leymus triticoides). Production is 800 lbs/acre in a normal year. The soils are moderately well to somewhat poorly drained.

Associated sites

R026XY010NV	**LOAMY 10-12 P.Z.**
R026XY023NV	**CLAYPAN 10-12 P.Z.**
R026XY030NV	**LOAMY BOTTOM 8-12 P.Z.**
R026XY036NV	**WET CLAY BASIN**

Similar sites

R026XY049NV	**MOUNTAIN BASIN** ACLE9 (and/or ACOCO)-MURI codominant grasses
R026XY036NV	**WET CLAY BASIN** JUBA-MURI codominant plants; soils are poorly drained
R026XY030NV	**LOAMY BOTTOM 8-12 P.Z.** ARTRT dominant shrub; LECI4 dominant grass; more productive site
R026XY012NV	**DRY FLOODPLAIN 8-10 P.Z.** ARTR2 dominant shrub; LECI4 dominant grass

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia cana*
Herbaceous	(1) *Poa nevadensis* (2) *Leymus triticoides*

Physiographic features

The Clay Basin site occurs on lake plains of intermountain basins. Slopes generally range from 0 to 2 percent. Elevations are 5800 to 5900 feet.

Table 2. Representative physiographic features

Landforms	(1) Lake plain

Flooding duration	Long (7 to 30 days)
Flooding frequency	Occasional
Elevation	5,800–5,900 ft
Slope	0–2%
Water table depth	60–72 in
Aspect	Aspect is not a significant factor

Climatic features

The climate associated with this site is semiarid, characterized by cool, moist winters and warm, dry summers. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 48 to 50 degrees F. The average growing season is about 80 to 110 days.

Nevada's climate is predominantly arid, with large daily ranges of temperature, infrequent severe storms, heavy snowfall in the higher mountains, and great location variations with elevation. Three basic geographical factors largely influence Nevada's climate: continentality, latitude, and elevation. Continentality is the most important factor. The strong continental effect is expressed in the form of both dryness and large temperature variations. Nevada lies on the eastern, lee side of the Sierra Nevada Range, a massive mountain barrier that markedly influences the climate of the State. The prevailing winds are from the west, and as the warm moist air from the Pacific Ocean ascend the western slopes of the Sierra Range, the air cools, condensation occurs and most of the moisture falls as precipitation. As the air descends the eastern slope, it is warmed by compression, and very little precipitation occurs. The effects of this mountain barrier are felt not only in the West but throughout the state, with the result that the lowlands of Nevada are largely desert or steppes. The temperature regime is also affected by the blocking of the inland-moving maritime air. Nevada sheltered from maritime winds, has a continental climate with well-developed seasons and the terrain responds quickly to changes in solar heating.

Nevada lies within the mid-latitude belt of prevailing westerly winds which occur most of the year. These winds bring frequent changes in weather during the late fall, winter and spring months, when most of the precipitation occurs. To the south of the mid-latitude westerlies, lies a zone of high pressure in subtropical latitudes, with a center over the Pacific Ocean. In the summer, this high-pressure belt shifts northward over the latitudes of Nevada, blocking storms from the ocean. The resulting weather is mostly clear and dry during the summer and early fall, with scattered thundershowers. The eastern portion of the state receives significant summer thunderstorms generated from monsoonal moisture pushed up from the Gulf of California, known as the North American monsoon. The monsoon system peaks in August and by October the monsoon high over the Western U.S. begins to weaken and the precipitation retreats southward towards the tropics (NOAA 2004).

Table 3. Representative climatic features

Frost-free period (characteristic range)	
Freeze-free period (characteristic range)	
Precipitation total (characteristic range)	8-10 in
Frost-free period (average)	95 days
Freeze-free period (average)	
Precipitation total (average)	9 in

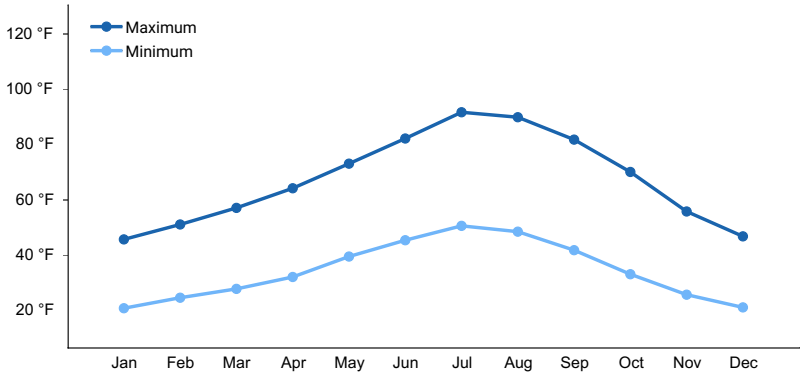


Figure 1. Monthly average minimum and maximum temperature

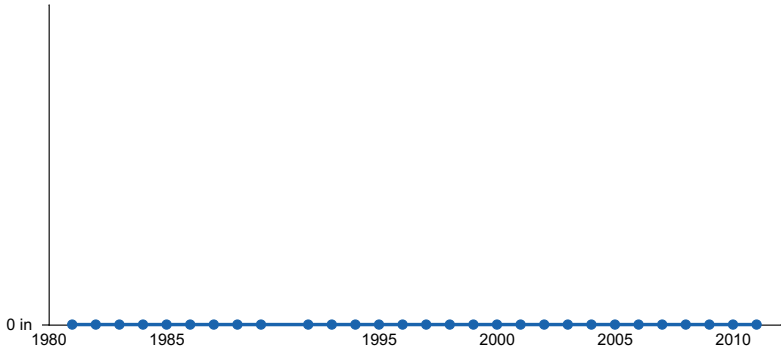


Figure 2. Annual precipitation pattern

Influencing water features

This site receives additional moisture from spring runoff and convective summer storms.

Soil features

The soils consist of very deep, moderately well drained soils that formed in alluvium over lacustrine deposits derived from mixed rocks. Endosaturation is present with an apparent seasonal high water table between 4 and 6 feet (deep free water occurrence class) between February and May. Soil moisture is usually moist for short periods in the winter and spring, dry from summer to mid fall. The soils have an aridic moisture regime that borders on xeric. Soil series associated with this site includes Updike.

Table 4. Representative soil features

Parent material	(1) Alluvium
Surface texture	(1) Silty clay loam
Family particle size	(1) Clayey
Drainage class	Moderately well drained
Permeability class	Very slow
Soil depth	72 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5.9–6.7 in
Calcium carbonate equivalent (0-40in)	0–10%

Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–5
Soil reaction (1:1 water) (0-40in)	7.9–8.4
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

As ecological condition declines, silver sagebrush becomes dominant.

Fire Ecology:
Silver sagebrush communities experience stand-replacement fires. Fire frequencies are uncertain; fire histories for silver sagebrush communities are sparse to altogether lacking. Since plant productivity and community structure vary across the species' wide geographical distribution, historic fire intervals were probably similarly varied. Surface top kills silver sagebrush. Silver sagebrush has a strong sprouting response after top kill fire. Because perennating buds on rhizomes and roots are protected by soil, silver sagebrush ordinarily survives even severe surface fires. Fall burning is more damaging to silver sagebrush than spring burning.
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. Its rapid maturation in the spring also reduces fire damage, since it is dormant when most fires occur.
Creeping wildrye is top-killed by fire. Creeping wildrye is generally tolerant of fire but may be damaged by early season fire combined with dry soil conditions.

State and Transition Model Narrative Group 5
This is a text description of the states, phases, transitions, and community pathways possible in the State and Transition model for the MLRA 26 Disturbance Response Group 5. Other sites that are included in this group are R026XY049NV and R026XF062CA. All sites in this group will respond similarly to disturbance and have a similar state and transition model.

Reference State 1.0:
The reference state 1.0 is a representative of the natural range of variability under pristine conditions. The reference state has three general community phases: a shrub-grass dominant phase, a perennial grass dominant phase and a shrub dominant phase. State dynamics are maintained by interactions between climatic patterns, hydrology and disturbance regimes. Negative feedbacks enhance ecosystem resilience and contribute to the stability of the state. These include the presence of all structural and functional groups, low fine fuel loads, and retention of organic matter and nutrients. Plant community phase changes are primarily driven by fire, periodic drought and/or insect or disease attack.

Community Phase 1.1:
This community is dominated by silver sagebrush and needlegrasses. Mat muhly and western wheatgrass can be significant components. Forbs and other grasses make up smaller components.

Community Phase Pathway 1.1a, from Phase 1.1 to 1.2:
Fire will top-kill silver sagebrush and allow for the perennial bunchgrasses and mat-forming grasses to increase. Fire severity is dependent on amount of fine fuels in the understory.

Community Phase Pathway 1.1b, from Phase 1.1 to 1.3:
Ponding reduces plant productivity and may allow rabbitbrush to dominate.

Community Phase 1.2:
This community phase is characteristic of a post-disturbance, early- to mid-seral community. Needlegrasses and

other perennial grasses dominate. Silver sagebrush is reduced within the community after fire, but will be sprouting. Rabbitbrush and other sprouting shrubs may increase. Perennial forbs may be a significant component for a number of years following fire. If coming from a Phase 1.3 (post-flood), silver sagebrush will reestablish by seed.

Community Phase Pathway 1.2a, from Phase 1.2 to 1.1:
Time and lack of disturbance will allow sagebrush to increase.

Community Phase Pathway 1.2b, from Phase 1.2 to 1.3:
Prolonged ponding reduces plant productivity, causes silver sagebrush stress, and may allow rabbitbrush to dominate once the site dries.

Community Phase 1.3:
Rubber rabbitbrush becomes dominant after a wet year or years that result in ponded conditions. Bare ground increases and may dominate the visual aspect. Silver sagebrush and grasses are reduced.

Community Phase Pathway 1.3a, from Phase 1.3 to 1.1:
Release from ponded conditions allows silver sagebrush to dominate.

T1A: Transition from the Reference State 1.0 to Current Potential State 2.0
Trigger: This transition is caused by the introduction of non-native annual plants.
Slow variables: Over time the annual non-native species will increase within the community.
Threshold: Any amount of introduced non-native species causes an immediate decrease in the resilience of the site. Annual non-native species cannot be easily removed from the system and have the potential to significantly alter disturbance regimes from their historic range of variation.

T1B: Transition from the Reference State 1.0 to Sagebrush State 3.0
Trigger: Long term drought, incision, or other significant hydrological change that lowers the water table. May be coupled with lack of fire and inappropriate grazing management. Transition not associated with introduction of annual non-native species.
Slow Variables: Silver sagebrush is not capable of surviving with a low water table. Over time, plants die off and are not capable of reproducing in the drier soil conditions. Wyoming big sagebrush is able to populate the area. If coupled with inappropriate grazing management, needlegrasses are lost from excessive long-term use.
Threshold: Permanent lowering of the water table beyond the reach of silver sagebrush that results in mortality of adult plants.

Current Potential State 2.0:
This state is similar to the Reference State 1.0. Ecological function has not changed, however the resiliency of the state has been reduced by the presence of invasive weeds. This state has four general community phases: a shrub-grass dominant phase, a perennial grass dominant phase, a shrub dominant phase and a sprouting shrub dominant phase. These non-native species can be highly flammable and promote fire where historically fire had been infrequent. Negative feedbacks enhance ecosystem resilience and contribute to the stability of the state. These feedbacks include the presence of all structural and functional groups, low fine fuel loads, and retention of organic matter and nutrients. Positive feedbacks decrease ecosystem resilience and stability of the state. These include the non-natives' high seed output, persistent seed bank, rapid growth rate, ability to cross pollinate, and adaptations for seed dispersal.

Community Phase 2.1:
This community phase is similar to the Reference State Community Phase 1.1, with the presence of non-native species in trace amounts. Silver sagebrush, needlegrasses and mat muhly dominate the site. Forbs and other shrubs and grasses make up smaller components of this site.

Community Phase Pathway 2.1a, from Phase 2.1 to 2.2:
Fire will top kill silver sagebrush and allow for the herbaceous community to increase. Fire severity is dependent on amount of fine fuels in the understory. Annual non-native species are likely to increase after fire.

Community Phase Pathway 2.1b, from Phase 2.1 to 2.3:
Ponding reduces plant productivity and may allow rabbitbrush to dominate.

Community Phase Pathway 2.1c, from Phase 2.1 to 2.4:
Time without disturbance such as fire. May be coupled with inappropriate grazing management.

Community Phase 2.2:
This community phase is characteristic of a post-disturbance, early/mid-seral community. Needlegrasses and other perennial bunchgrasses dominate. Silver sagebrush is reduced within the community post-fire, but will resprout. Rabbitbrush and other sprouting shrubs may increase. Perennial forbs may be a significant component for a number of years following fire. If coming from a Phase 2.3 (post-flood), silver sagebrush will reestablish by seed. Annual non-native species are stable or increasing within the community.

Community Phase Pathway 2.2a, from Phase 2.2 to 2.1:
Time and lack of disturbance and/or grazing management that favors the establishment and growth of sagebrush allows the shrub component to recover. Silver sagebrush sprouts and will be able to return to pre-burn levels quickly.

Community Phase Pathway 2.2b, from Phase 2.2 to 2.3:
Prolonged ponding reduces plant productivity, causes silver sagebrush stress, and may allow rabbitbrush to dominate once the site dries.

Community Phase 2.3:
Rubber rabbitbrush becomes dominant after a wet year or years that result in ponded conditions. Bare ground increases and may dominate the visual aspect. Silver sagebrush and bunchgrasses are reduced.

Community Phase Pathway 2.3a, from Phase 2.3 to 2.1:
Release from ponded conditions allows silver sagebrush to dominate.

Community Phase 2.4:
Sagebrush dominates the overstory and perennial bunchgrasses in the understory are reduced, either from competition with shrubs or from inappropriate grazing, or from both. Rabbitbrush may be a significant component. Mat muhly may increase. This site is susceptible to further degradation from grazing, drought, and fire.

Community Phase Pathway 2.4a, from Phase 2.4 to 2.2:
Fire will top kill silver sagebrush and allow for the herbaceous community to increase. Fire severity is dependent on amount of fine fuels in the understory.

T2A: Transition from Current Potential State 2.0 to Sagebrush State 3.0
Trigger: Long term drought, incision, or other significant hydrological change that lowers the water table. May be coupled with lack of fire and inappropriate grazing management. Transition not associated with introduction of annual non-native species.
Slow Variables: Silver sagebrush is not capable of surviving with a water table below the rooting zone during spring growing season. Over time, plants die off and are not capable of reproducing in the drier soil conditions. Big sagebrush (*Artemisia tridentata*) is able to populate the area. If coupled with inappropriate grazing management, needlegrasses are lost from excessive long-term use. Rhizomatous grasses or dryland sedge may become the dominant understory.
Threshold: Permanent lowering of the water table beyond the reach of silver sagebrush that results in mortality of adult plants.

Shrub State 3.0:
This state has two community phases, a silver sagebrush-dominated phase and a post-fire phase. Long-term inappropriate grazing management reduces or eliminates grazing-intolerant grasses like needlegrasses and basin wildrye. Repeated heavy utilization in the spring or season-long use is damaging to the bunchgrass community on this site. Shrubs and grazing-tolerant grasses and grass-likes become dominant. The loss of deep-rooted grasses reduces the amount and depth of organic matter that is cycled in the soil. Shrub cover exceeds site concept and may be decadent, reflecting stand maturity and lack of seedling establishment due to competition with mature plants. The shrub overstory and rhizomatous grass and/or sedge understory dominate site resources such that soil water, nutrient capture, nutrient cycling and soil organic matter are temporally and spatially redistributed.

Community Phase 3.1:

Decadent silver sagebrush dominates the overstory. Deep-rooted perennial bunchgrasses are present in only trace amounts or are absent from the community. Mat muhly, western wheatgrass, and dryland sedges increase. Bare ground may be significant. Annual non-native species may be present.

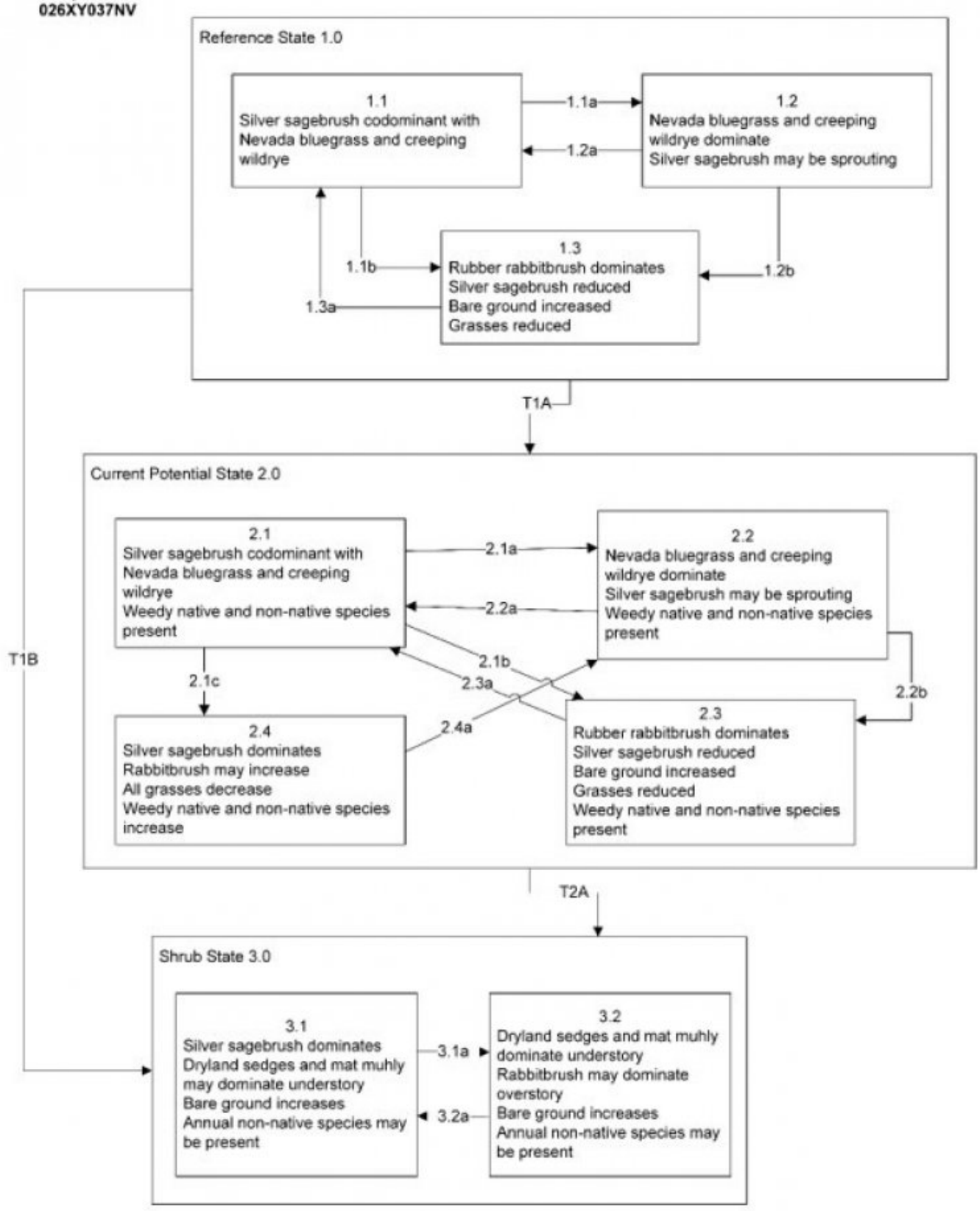
Community Phase Pathway 3.1a, from Phase 3.1 to 3.2:
Fire reduces cover and production of silver sagebrush. Rabbitbrush sprouts after fire and becomes the dominant shrub. Mat muhly, western wheatgrass, and sedges survive fire and increase in the understory.

Community Phase 3.2:
Mat muhly, western wheatgrass, and/or Douglas sedge dominate. Rubber rabbitbrush may be a significant component. Basin wildrye and needlegrasses are missing. Silver sagebrush may be sprouting.

Community Phase Pathway 3.2a, from Phase 3.2 to 3.1:
Time without disturbance allows silver sagebrush to again become dominant.

State and transition model

Clay Basin
026XY037NV



Clay Basin
026XY037NV
KEY

Reference State 1.0 Community Phase Pathways
1.1a: Fire.
1.1b: Ponding reduces plant productivity and may allow rabbitbrush to dominate after site dries. Excessive herbivory results in a reduction in grasses.
1.2a: Time without disturbance.
1.2b: Ponding reduces plant productivity and may allow rabbitbrush to dominate after site dries. Excessive herbivory results in a reduction in grasses.
1.3a: Release from ponded conditions allows silver sagebrush to dominate.

Transition T1A: Introduction of non-native annual species.
Transition T1B: Long term drought, incision, or other significant hydrological change that lowers the water table. May be coupled with lack of fire and inappropriate grazing management. Transition not associated with introduction of annual non-native species.

Current Potential State 2.0 Community Phase Pathways
2.1a: Fire.
2.1b: Ponding reduces plant productivity and may allow rabbitbrush to dominate after site dries. Excessive herbivory or inappropriate grazing management results in a reduction in grasses.
2.2a: Time without disturbance.
2.2b: Ponding reduces plant productivity and may allow rabbitbrush to dominate after site dries. Excessive herbivory or inappropriate grazing management results in a reduction in grasses.
2.3a: Release from ponded conditions allows silver sagebrush to dominate.
2.1c: Time without disturbance such as fire. May be coupled with inappropriate grazing management.
2.4a: Fire.

Transition T2A: Long term drought, incision, or other significant hydrological change that lowers the water table. May be coupled with lack of fire and inappropriate grazing management.

Shrub State 3.0 Community Phase Pathways
3.1a: Fire.
3.2a: Time without disturbance allows silver sagebrush to reestablish.

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community is dominated by silver sagebrush, Nevada bluegrass and creeping wildrye. Potential vegetative composition is about 55% grasses and grass-like plants, 10% forbs and 35% shrubs. Approximate ground cover (basal and crown) is 20 to 40 percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	330	440	495
Shrub/Vine	210	280	315
Forb	60	80	90
Total	**600**	**800**	**900**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Primary Perennial Grasses**			136–480	
	beardless wildrye	LETR5	*Leymus triticoides*	40–160	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	16–40	–
2	**Secondary Perennial Grasses**			40–120	
	sedge	CAREX	*Carex*	4–24	–
	squirreltail	ELEL5	*Elymus elymoides*	4–24	–
	basin wildrye	LECI4	*Leymus cinereus*	4–24	–
	Sandberg bluegrass	POSE	*Poa secunda*	4–24	–
Forb					
3	**Perennial**			40–120	
	sedge	CAREX	*Carex*	4–24	–
4	**Annual**			1–40	
	basin wildrye	LECI4	*Leymus cinereus*	4–24	–
Shrub/Vine					
5	**Primary Shrubs**			200–280	
	silver sagebrush	ARCA13	*Artemisia cana*	200–280	–
6	**Secondary Shrubs**			40–80	

Animal community

Livestock Interpretations:
This site is suitable for livestock grazing. Grazing should be keyed to Nevada bluegrass. Livestock use of silver sagebrush is variable depending upon availability of palatable herbs. Domestic sheep generally browse silver sagebrush more heavily than cattle. Livestock may actually make greater use of silver sagebrush when there is ample grass to go with it.

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:
Silver sagebrush provides valuable habitat and forage for wildlife. Deer, pronghorn, bighorn sheep, and sage-grouse browse the foliage. Mule deer may browse silver sagebrush heavily when other forage is dormant. Silver sagebrush is also important on fall and winter ranges. Nevada bluegrass and creeping wildrye are other important forage species for several wildlife species.

Hydrological functions

Runoff is very high and permeability is very slow.

Recreational uses

This site is has potential for upland and game hunting and photography.

Other products

Tribes of the Great Basin used silver sagebrush branches as a fuelbed for roasting pinyon pinecones. Many tribes use the branches in ceremonial rites.

Other information

Silver sagebrush has potential as a soil stabilizer and for use in rangeland, wildlife and riparian restoration projects.

Inventory data references

NASIS data for soil survey area NV773.

Type locality

Location 1: Carson City County, NV	
General legal description	This site also occurs in Douglas, Lyon, Mineral, Storey and Washoe Counties, Nevada.

References

Stringham, T.K., D. Snyder, P. Novak-Echenique, K. O'Neill, A. Lyons, and M. Johns. 2021. Great Basin Ecological Site Development Project: State-and-Transition Models for Major Land Resource Area 26, Nevada and Portions of California..

Other references

Fire Effects Information System (Online; http://www.fs.fed.us/database/feis/plants/).

USDA-NRCS Plants Database (Online; http://www.plants.usda.gov).

Contributors

DK/FR
Tamzen Stringham
Patti Novak-Echenique

Approval

Kendra Moseley, 4/10/2024

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	05/05/2024
Approved by	Kendra Moseley
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):**

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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):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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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:**
