USDA Natural Resources Conservation Service

Ecological site R022AZ054CA
MOIST MOUNTAIN BASIN

Accessed: 05/14/2025

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): 022A–Sierra Nevada and Tehachapi Mountains

This ESD was developed using older policy requirements which have been improved with the intent of improving ESD products overall. Users should approach these materials with some caution as the content herein, while likely useful for some purposes, was developed within parameters now recognized as needing varying levels of improvement. As always, a site-specific investigation is highly recommended when site-specific management alternatives are to be developed and/or management decisions are to be made.

Each ESD is an interpretation of the ecological relationships between biotic and abiotic aspects of the landscape. Users of this document should be aware of the limitations of this tool to the extent that specific local conditions may not be entirely captured within the ESD. In particular, management decisions should be supported by site-specific inventories, assessments and planning processes based on the best available information including and extending beyond the ESD.

An ESD is not a permanent determination of ecological dynamics. Rather, each ESD is an evolving body of work intrinsically tied to the soil surveys and data associated with soil map unit components of correlated soil-ecological site relationships. As new information becomes available, updates may be made or may be underway at any given time. Minor updates may be made without announcement when such changes do not modify the ecological site concept, the soils correlated or the state-and-transition model.

Associated sites

R022AY016NV	**WET MEADOW**
R022AY017NV	**SEMI-WET MEADOW**
R022AY022NV	**LOAMY SLOPE 14-16 P.Z.**
R022AY027NV	**MOUNTAIN BASIN**
R022AY030NV	**GRAVELLY LOAM 14-16 P.Z.**

Similar sites

R022AY016NV	**WET MEADOW**
R022AY027NV	**MOUNTAIN BASIN**
R022AY017NV	**SEMI-WET MEADOW**

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Artemisia cana ssp. viscidula*

Herbaceous	(1) *Poa* (2) *Carex*

Physiographic features

This site occurs on low stream terraces and toe slope positions of mountains. Slopes range from 0 to 8 percent. Elevations are 6500 to 9500 feet.

Table 2. Representative physiographic features

Landforms	(1) Stream terrace
Elevation	1,981–2,896 m
Slope	0–8%
Aspect	Aspect is not a significant factor

Climatic features

The climate is subhumid-continental with cold, moist winters and cool, dry summers. Average annual precipitation is 16 to 45 inches. Mean annual air temperature is to 36 to 44 degrees F. The average growing season is about 30 to 70 days. Climate data used to support this section were derived from PRISM and is not specifically tied to any dominant climate station.

Table 3. Representative climatic features

Frost-free period (average)	70 days
Freeze-free period (average)	0 days
Precipitation total (average)	1,143 mm

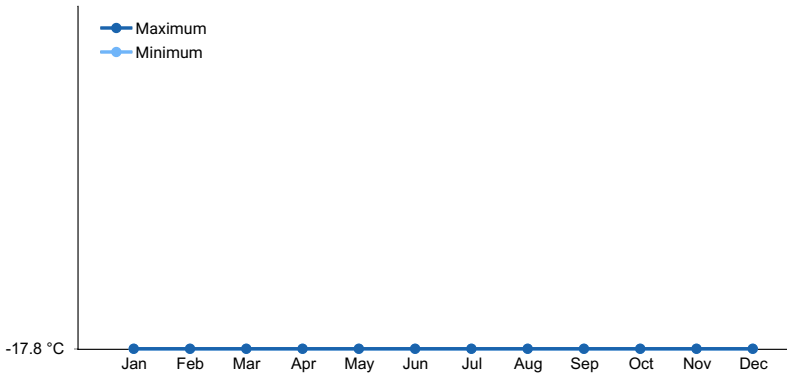

Figure 1. Monthly average minimum and maximum temperature

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils associated with this site are very deep and moderately well drained to somewhat poorly drained. They are formed in alluvium from mixed sources. The soils typically have a mollic epipedon and an argillic horizon. Endosaturation is present with an apparent seasonal high water table between 1.6 and 3.3 feet between January and July. Runoff is low to very low and permeability is moderately rapid to moderately slow. These soils are susceptible to rare flooding for very brief periods year-round.

Soils correlated to this site include Corralval, Trespass and Vermdig.

CA729 Toiyabe National Forest Area, California
162;Hopeval-Corralval complex, 0 to 4 percent slopes;Corralval
172;Stumpatil very gravelly sandy loam, 30 to 50 percent slopes;Corralval
173;Stumpatil very gravelly sandy loam, 8 to 30 percent slopes;Corralval
212;Waterpeak-Sofgran-Temo association;Corralval
360;Monibasin-Vermdig association;Vermdig
392;Heenlake-Loope association;Vermdig
840;Lavaspring-Trespass complex, 0 to 4 percent slopes;Trespass
930;Lavaspring complex, 0 to 4 percent slopes;Trespass

Table 4. Representative soil features

Surface texture	(1) Very gravelly coarse sandy loam (2) Very gravelly sandy loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Moderately slow to moderately rapid
Soil depth	183 cm
Surface fragment cover <=3"	10–25%
Available water capacity (0-101.6cm)	9.91–13.72 cm
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	5.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	7–41%
Subsurface fragment volume >3" (Depth not specified)	3–20%

Ecological dynamics

As ecological condition declines, silver sagebrush, rabbitbrush and other woody plants increase in prevalence as bluegrasses , sedges and other perennial grasses and forbs decline in the understory.
Fire Ecology:
Silver sagebrush steppes experience stand-replacement fires. Fire ecologists estimate frequent stand-replacement fires in this type, with mean fire return intervals ranging from 3 to 45+ years Silver sagebrush has a strong sprouting response after top-kill by fire. Because it possesses several organs capable of regeneration, including roots and rhizomes that are protected by soil, it is not as susceptible to fire mortality as most woody sagebrush species

State and transition model

Ecosystem states

1. Reference Plant Community

State 1 submodel, plant communities

1.1. Reference Plant Community

State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community is characterized by an open canopy of soft-woody shrubs and a dense understory of perennial grasses. The plant community is dominated by bluegrasses, sedge, mat muhly and silver sagebrush. Potential vegetative composition is about 60% grasses, 10% forbs, and 30% shrubs. Approximate ground cover(basal and crown) is 20 to 35 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	404	538	673
Shrub/Vine	202	269	336
Forb	67	90	112
Total	**673**	**897**	**1121**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Primary Perennial Grasses/Grasslikes**			164–637	
	threadleaf sedge	CAFI	*Carex filifolia*	55–224	–
	clustered field sedge	CAPR5	*Carex praegracilis*	55–224	–
	Douglas' sedge	CADO2	*Carex douglasii*	18–72	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	18–72	–
2	**Secondary Perennnial Grasses**			18–90	
	Nebraska sedge	CANE2	*Carex nebrascensis*	4–9	–
	slender wheatgrass	ELTRT	*Elymus trachycaulus ssp. trachycaulus*	4–9	–
	meadow barley	HOBR2	*Hordeum brachyantherum*	4–9	–
	roundfruit rush	JUCO	*Juncus compressus*	4–9	–
	basin wildrye	LECI4	*Leymus cinereus*	4–9	–
	beardless wildrye	LETR5	*Leymus triticoides*	4–9	–
	Kentucky bluegrass	POPR	*Poa pratensis*	4–9	–
Forb					
3	**Perennial Forbs**			45–135	
	mat muhly	MURI	*Muhlenbergia richardsonis*	18–72	–
	common yarrow	ACMI2	*Achillea millefolium*	4–27	–
	Bering chickweed	CEBE2	*Cerastium beeringianum*	4–27	–
	Rocky Mountain iris	IRMI	*Iris missouriensis*	4–27	–
	Sierra Valley mousetail	IVAPA	*Ivesia aperta var. aperta*	4–27	–
	Pacific lupine	LULE2	*Lupinus lepidus*	4–27	–
	herbaceous penstemon	PERYO	*Penstemon rydbergii var. oreocharis*	4–27	–
	slender cinquefoil	POGR9	*Potentilla gracilis*	4–27	–
Shrub/Vine					
4	**Primary Shrubs**			224–269	
	silver sagebrush	ARCA13	*Artemisia cana*	224–269	–
5	**Secondary Shrubs**			18–45	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	4–18	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	4–18	–

Animal community

Livestock Interpretations:
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.
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.

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.

Type locality

Location 1: Mono County, CA	
Township/Range/Section	T8N R22E S33
Latitude	38° 29′ 19″
Longitude	119° 34′ 3″
General legal description	Toiyabe National Forest in Corral Valley, about two miles south of Rodriguez Flat.

Other references

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

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

Contributors

A Mushrush

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:**

---

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:**