

Ecological site R022AZ048CA GRANITIC SOUTH SLOPE 14-16 P.Z.

Accessed: 05/11/2025

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

R022AY024NV	MAHOGANY SAVANNA
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> (2) <i>Purshia tridentata</i>
Herbaceous	(1) <i>Achnatherum speciosum</i>

Physiographic features

This site occurs on mountain sideslopes of southerly aspects. Slopes range from 15 to 75 percent, but slope gradients of 30 to 50 are most typical. Elevations are 6000 to over 8000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope
Elevation	6,000–10,000 ft

Slope	15–75%
Aspect	SE, S, SW

Climatic features

The climate on this site is subhumid-continental, characterized by cold, moist winters, and cool dry summers. The average annual precipitation ranges from 16 to 24 inches, mostly occurring as snow. The linear to convex slope shapes associated with this site cause some of the precipitation to be removed from the site because of wind action, thus reducing the moisture available for plant growth. The mean annual air temperature ranges from 39 to 45 degrees F. The average frost free growing season is 50 to 80 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)	80 days
Freeze-free period (average)	0 days
Precipitation total (average)	24 in

Influencing water features

There are no influencing water features associated with this site.

Soil features

The soils associated with this site are shallow, well drained soils that formed in residuum and colluvium derived from granitic rock. The soils are skeletal and have an argillic horizon and a mollic epipedon. Runoff is high and permeability is moderate. The soils are moist during late fall, winter and spring and dry from July through early October. The moisture regime is xeric bordering on aridic.

Soils correlated to this ecological site include Granidry.

CA729 Toiyabe National Forest Area, California

460;Toejom-Pimogran-Rock outcrop association;Granidry

461;Toejom-Pimogran-Rock outcrop association, 50 to 75 percent slopes;Granidry

530;Elaero-Lockgate-Granhogany association;Granidry

532;Elaero-Granidry-Rock outcrop association;Granidry

Table 4. Representative soil features

Surface texture	(1) Very gravelly coarse sandy loam (2) Extremely gravelly coarse sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	14–20 in
Surface fragment cover ≤3"	40–45%
Surface fragment cover >3"	15–18%
Available water capacity (0-40in)	1.4 in
Electrical conductivity (0-40in)	0 mmhos/cm

Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	6.1–7.3
Subsurface fragment volume <=3" (Depth not specified)	29–41%
Subsurface fragment volume >3" (Depth not specified)	2–13%

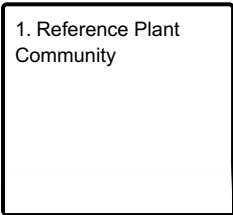
Ecological dynamics

As ecological condition declines, big sagebrush, snowberry and other woody plants increase in prevalence as Letterman's needlegrass, mountain brome and other perennial grasses and forbs decline in the understory.

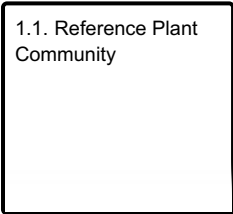
Fire Ecology:
The fire return interval for mountain big sagebrush communities ranges from 15 to 40 years. Mountain big sagebrush is highly susceptible to injury from fire. Plants are readily killed in all seasons, even by light severity fires. Mountain big sagebrush plants are top-killed by fire and will not resprout. Regeneration of mountain big sagebrush is from on-site or off-site seed. Depending on circumstances of the environment and seed source, mountain big sagebrush seeds may sprout profusely the spring after burning, or very sparsely.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Reference Plant Community

Community 1.1
Reference Plant Community

The reference plant community are characterized by a dense stand of perennial grasses and woody shrubs. The plant community is dominated by desert needlegrass, antelope bitterbrush and mountain big sagebrush. Potential vegetative composition is about 20% grasses, 5% forbs and 70% shrubs and trees. Approximate ground cover (basal and crown) is 40 to 60 percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	560	700	840
Grass/Grasslike	160	200	240
Forb	40	50	60
Tree	40	50	60
Total	800	1000	1200

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			100–200	
	desert needlegrass	ACSP12	<i>Achnatherum speciosum</i>	100–200	–
2	Secondary Perennial Grasses/Grasslikes			50–100	
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	5–30	–
	mountain brome	BRMA4	<i>Bromus marginatus</i>	5–30	–
	sedge	CAREX	<i>Carex</i>	5–30	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	5–30	–
	big squirreltail	ELMU3	<i>Elymus multisetus</i>	5–30	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	5–30	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	5–30	–
	spike fescue	LEKI2	<i>Leucopoa kingii</i>	5–30	–
Forb					
3	Perennial Forbs			20–80	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	8–20	–
	aster	ASTER	<i>Aster</i>	5–20	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	5–20	–
Shrub/Vine					
4	Primary Shrubs			550–700	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	350–400	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	200–300	–
5	Secondary Shrubs			80–100	
	curl-leaf mountain mahogany	CELE3	<i>Cercocarpus ledifolius</i>	5–20	–
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	5–20	–
	desert peach	PRAN2	<i>Prunus andersonii</i>	5–20	–
	horsebrush	TETRA3	<i>Tetradymia</i>	5–20	–
Tree					
6	Trees			5–20	
	singleleaf pinyon	PIMO	<i>Pinus monophylla</i>	5–20	–

Animal community

Livestock Interpretations:

Mountain big sagebrush is eaten by domestic sheep and cattle, but has long been considered to be of low palatability to domestic livestock, a competitor with more desirable species, and a physical impediment to grazing.

Desert needlegrass is palatable to all classes of livestock throughout the growing season. Plants become fibrous at maturity but livestock readily graze the ripe seed heads. Domestic sheep have shown rapid weight gain on ranges with an abundance of ripe Mountain brome seed heads.

Wildlife Interpretations:

Mountain big sagebrush is highly preferred and nutritious winter forage for mule deer.

Desert needlegrass provides high-quality forage and is sometimes planted as a pasture grass. Various small animals including rodents and geese graze Mountain brome foliage, and the seeds furnish food for many bird and rodent species.

Other information

Mountain big sagebrush is easily propagated from seed under greenhouse, nursery, and common garden conditions and has been successfully seeded directly into field sites. Mountain big sagebrush has also been successfully planted in field sites using nursery-grown bareroot and containerized stock.

Type locality

Location 1: Mono County, CA	
Township/Range/Section	T6N R24E S34
Latitude	38° 19' 44"
Longitude	119° 20' 5"
General legal description	Toiyabe National Forest, Sario Canyon, Huntoon Valley, Mono County, California

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

ALM/GKB

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:**
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17. **Perennial plant reproductive capability:**
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