USDA Natural Resources
Conservation Service

Ecological site R030XB160CA
Shallow Limestone Slope 5-7" p.z.

Last updated: 2/25/2025
Accessed: 05/13/2025

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.

Ecological site concept

This site occurs on limestone hills and mountain slopes. This ecosite occurs on very shallow to shallow, loamy soils. The soils formed in colluvium and residuum from limestone and dolomite.

Please refer to group concept R030XB068NV to view the provisional STM.

Associated sites

R030XB102NV	**GRAVELLY LOAM 5-7 P.Z.** This ecosite occurs on moister adjacent slopes. Dominant species on this ecosite are white bursage (Ambrosia dumosa), big galleta (Pleuraphis rigida), and winterfat (Krascheninnikovia lanata).

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Gutierrezia sarothrae* (2) *Encelia virginensis*
Herbaceous	(1) *Pleuraphis rigida*

Physiographic features

This site occurs on limestone hills and mountain slopes.

Table 2. Representative physiographic features

Landforms	(1) Mountain
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to rare
Ponding frequency	None
Elevation	853–1,524 m
Slope	15–75%
Water table depth	152 cm
Aspect	Aspect is not a significant factor

Climatic features

The Mojave Desert experiences clear, dry conditions for a majority of the year. Winter temperatures are mild, summer temperatures are hot, and seasonal and diurnal temperature fluctuations are large. Monthly minimum

temperature averages range from 30 to 80 degrees F (-1 to 27 degrees C). Monthly maximum temperature averages range from 60 to 110 degrees F (16 to 43 degrees C) (CSU 2002).

Average annual rainfall is between 2 and 8 inches (50 to 205 millimeters) (USDA 2006). Snowfall is more common at elevations above 4000 feet (1220 meters), but it may not occur every year (WRCC 2002b). The Mojave Desert receives precipitation from two sources. Precipitation falls primarily in the winter as a result of storms originating in the northern Pacific Ocean. The Sierra Nevada and Transverse Ranges create a rain shadow effect, causing little precipitation to reach the Mojave Desert. Sporadic rainfall occurs during the summer as a result of convection storms formed when moisture from the Gulf of Mexico or Gulf of California moves into the region. Summer rainfall is more common and has a greater influence on soil moisture in the eastern Mojave Desert.

Windy conditions are also common in the Mojave Desert, particularly in the west and central Mojave Desert. Spring is typically the windiest season, with winds averaging 10-15 miles per hour (WRCC 2002a). Winds in excess of 25 miles per hour and gusts in excess of 50 miles per hour are not uncommon (CSU 2002).

In the BLM Grazing Allotments Soil Survey (Northeast Part of Mojave Desert Area, CA (CA805)), most areas receive approximately 5 to 7 inches of precipitation annually (WRCC 2002b). At elevations above 4000 feet (1370 meters), average annual precipitation in the form of rain may reach 8 inches or more, and average annual snowfall may reach up to 10 inches (WRCC 2002b).

The data from the following climate stations were used to describe the climate in the BLM Grazing Allotments Soil Survey (station number in parentheses):
Pahrump, NV (265890)
Mountain Pass, CA (045890)
Searchlight, NV (267369)
Red Rock Canyon State Park, NV (266691)

Due to the range of elevation at which this ecosite occurs, precipitation and temperature averages represent data from two weather stations.

"Maximum monthly precipitation" represents average monthly precipitation at Mountain Pass, CA (high elevation).

"Minimum monthly precipitation" represents average monthly precipitation at Pahrump, NV (low elevation).

Maximum and minimum temperatures are from Pahrump, NV. Average high temperatures at Mountain Pass are approximately 8-10 degrees cooler than at Pahrump, NV. Average low temperatures at Mountain Pass are within 3-5 degrees of average low temperatures at Pahrump.

Table 3. Representative climatic features

Frost-free period (average)	300 days
Freeze-free period (average)	270 days
Precipitation total (average)	178 mm

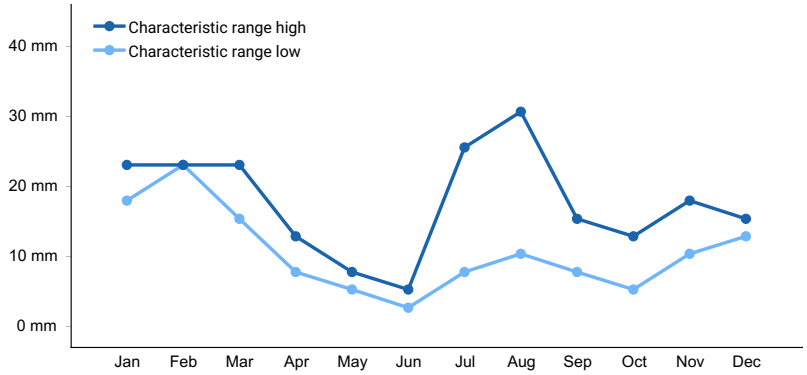


Figure 1. Monthly precipitation range

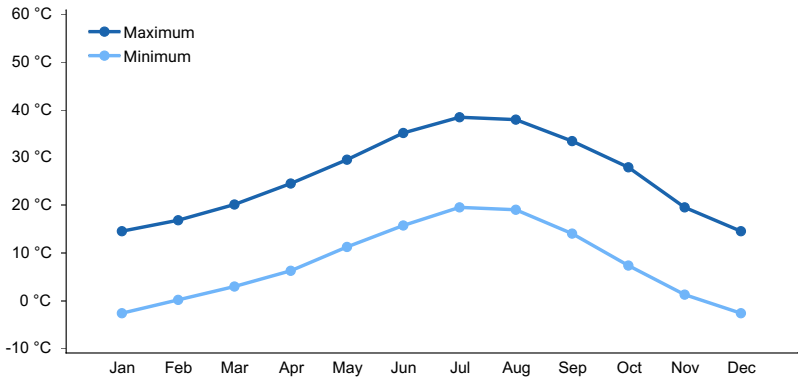


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

This ecosite occurs on very shallow to shallow, loamy soils. The soils formed in colluvium and residuum from limestone and dolomite. They are classified as loamy-skeletal, carbonatic Lithic Torriorthents, and have little to no soil pedogenesis. These soils have moderately rapid permeability above the very slow to impermeable bedrock. They have high to very high runoff due to the steep slopes on which they occur, and soils are somewhat excessively to excessively drained. Steep slopes and shallow depths to nearly impermeable bedrock play key roles in the plant community on these soils.

Soil survey area - Map unit symbol - Component
CA805 - 3320 - Umberci
CA805 - 3320 - Umberci, rarely flooded (minor component)

Table 4. Representative soil features

Surface texture	(1) Very gravelly fine sandy loam
Family particle size	(1) Loamy
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Moderately rapid to rapid
Soil depth	13–30 cm
Surface fragment cover <=3"	40–85%
Surface fragment cover >3"	4–65%
Available water capacity (0-101.6cm)	0.51–2.54 cm
Calcium carbonate equivalent (0-101.6cm)	60–70%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–1
Soil reaction (1:1 water) (0-101.6cm)	8.2–8.4
Subsurface fragment volume <=3" (Depth not specified)	5–50%
Subsurface fragment volume >3" (Depth not specified)	0–17%

Ecological dynamics

Please refer to group concept R030XB068NV to view the provisional STM.

This ecosite occurs on steep, rocky, limestone slopes. Water infiltration is low due to steep slopes, and very shallow to shallow soils hold little water. This results in high to very high runoff and creates a surface disturbance similar to that found in drainageways. Loose surface rocks, similar to rubble land are a feature of this site. The influence of loose surface material adds to the disturbance dynamic on this ecosite, leading to a large diversity in species composition.

Vegetation grows in shallow soil pockets around rock outcrops. This ecosite has a high diversity of species, including small amounts of late seral species such as creosote bush (Larrea tridenta) and white bursage (*Ambrosia dumosa*). The dominant species on this ecosite are broom snakeweed (*Gutierrezia sarothrae*), Virgin River brittlebush (*Encelia virginensis*), and big galleta (*Pleuraphis rigida*). These species are commonly found in disturbed areas (Bowers et al. 1997, Hickman 1993, Tirmenstein 1999).

Broom snakeweed is present in a variety of habitats, but enhanced growth has been observed on limestone compared with other substrates (Tirmenstein 1999). Broom snakeweed (*Gutierrezia sarothrae*) readily colonizes disturbed sites through abundant seed production and wind dispersal. Germination is high in wet years, grows quickly, and can better compete with established plants for resources (Tirmenstein 1999).

Virgin River brittlebush is commonly found on rocky slopes and in drainageways (Hickman 1993, Munz 1974). Virgin River brittlebush also has well-developed lateral root systems that may enhance water uptake on this ecosite (Rundel and Gibson 1996). Seeds of other Mojave Desert brittlebush species are dispersed by wind and can easily colonize disturbed areas (Esser 1993).

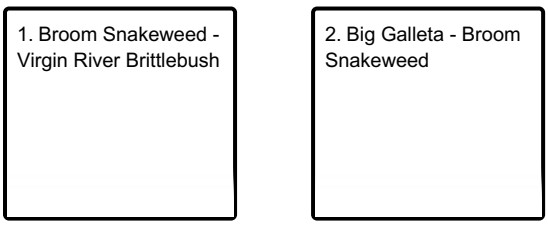
Big galleta (*Pleuraphis rigida*), often grows on rocky and disturbed areas (Nobel 1980). Its adaptations for surviving on this ecosite include an extensive root system that anchors the plant and facilitates water uptake. Big galleta is effective at extracting water during dry periods and efficient at using it (Matthews 2000). It has a bimodal growth pattern associated with winter and summer rainfalls, but will grow opportunistically in response to sporadic rain events (Robberecht 1988). Because the harsh environment minimizes seedling recruitment, new plants produced via rhizomes help the species persist.

Wildfire has historically been rare in desert ecosystems due to low and widely spaced fuels. Mediterranean grass (*Schismus arabicus*), cheatgrass (*Bromus tectorum*), and red brome (*Bromus rubens*) are present in small amounts on this ecosite. Spread of these species may increase the risk of fire on this ecosite by forming a more continuous, easily ignitable fuel source, but the large amount of surface rock fragments on this ecosite may limit the risk.

Different communities have been observed in this ecosite. These communities are dominated by early and mid-seral species. Frequent disturbances and poorly developed soils likely prevent dominance of late seral species on this ecosite. The reference plant community prior to European colonization may have been similar to the present vegetation in these communities. Disturbance regimes and the soil environment were likely similar, and there is no indication of a major shift in species.

State and transition model

Ecosystem states



State 1 submodel, plant communities

1.1. Broom Snakeweed - Virgin River Brittlebush

State 2 submodel, plant communities

2.2. Big Galleta - Broom Snakeweed

State 1
Broom Snakeweed - Virgin River Brittlebush

Community 1.1
Broom Snakeweed - Virgin River Brittlebush

This community has a high diversity of species, including small amounts of late seral species such as creosote bush (Larrea tridenta). The most dominant species are broom snakeweed (*Gutierrezia sarothrae*) and Virgin River brittlebush (*Encelia virginensis*). These species are commonly found in disturbed areas (Bowers et al. 1997, Hickman 1993, Tirmenstein 1999). Other abundant shrubs on the site include Utah mortonia (*Mortonia utahensis*), California buckwheat (*Eriogonum fasciculatum*), Mojave sage (*Salvia mohavensis*), and Death Valley jointfir (*Ephedra funerea*). Big galleta (*Pleuraphis rigida*) and Sandberg bluegrass (*Poa secunda*) are relatively common, as are shallow rooted plants such as cacti, agaves, and yuccas. Species such as Mojave sage and blackbrush are typically restricted to north-facing slopes. Because these species are uncommon on this ecosite, the variation due to aspect is minimal. “Percent Composition by Frequency of Overstory Species” represents only low, RV, and high canopy cover. Production values are not listed.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	69	115	183
Grass/Grasslike	13	22	37
Forb	1	2	4
Total	**83**	**139**	**224**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	2-4%
Grass/grasslike foliar cover	0-1%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	10-20%
Surface fragments >0.25" and <=3"	25-40%
Surface fragments >3"	10-15%

Bedrock	10-20%
Water	0%
Bare ground	0%

Table 7. Canopy structure (% cover)

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	10-15%	–	0-1%
>0.15 <= 0.3	–	30-50%	2-6%	–
>0.3 <= 0.6	–	10-15%	4-8%	–
>0.6 <= 1.4	–	2-5%	–	–
>1.4 <= 4	–	–	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

State 2
Big Galleta - Broom Snakeweed

Community 2.1
Big Galleta - Broom Snakeweed

This community occurs where runoff from adjacent rock outcrops is high and has a higher flooding frequency than the Broom Snakeweed-Virgin River Brittlebush community. Species diversity is relatively high. A few species are late seral species, such as white bursage (*Ambrosia dumosa*), but the most common are early and mid-seral species. The community is dominated by big galleta (*Pleuraphis rigida*) and broom snakeweed (*Gutierrezia sarothrae*). Other species commonly found in drainageways are present on this ecosite. These include desert almond (*Prunus fasciculata*) and Stansbury cliffrose (Purshia stansburyana). “Percent Composition by Frequency of Overstory Species” represents only low, RV, and high canopy cover. Production values are not listed.

Table 8. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	130	251	389
Grass/Grasslike	74	152	221
Forb	20	45	63
Total	**224**	**448**	**673**

Table 9. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0-2%
Grass/grasslike foliar cover	1-4%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	10-22%
Surface fragments >0.25" and <=3"	20-40%

Surface fragments >3"	10-20%
Bedrock	20-30%
Water	0%
Bare ground	0%

Table 10. Canopy structure (% cover)

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	1-2%	3-7%	1-4%
>0.15 <= 0.3	–	5-9%	5-12%	1-3%
>0.3 <= 0.6	–	20-40%	5-13%	–
>0.6 <= 1.4	–	5-10%	–	–
>1.4 <= 4	–	–	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

Additional community tables

Table 11. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
1	**Perennial Shrubs**			69–183	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	20–50	–
	Virgin River brittlebush	ENVI	*Encelia virginensis*	16–36	–
	Utah mortonia	MOUT	*Mortonia utahensis*	6–13	–
	Eastern Mojave buckwheat	ERFA2	*Eriogonum fasciculatum*	4–11	–
	Mojave sage	SAMO3	*Salvia mohavensis*	2–7	–
	creosote bush	LATR2	*Larrea tridentata*	1–4	–
	Stansbury cliffrose	PUST	*Purshia stansburiana*	1–4	–
	Death Valley jointfir	EPFU	*Ephedra funerea*	2–4	–
	Utah agave	AGUT	*Agave utahensis*	1–4	–
	pungent brickellbush	BRAR2	*Brickellia arguta*	2–4	–
	Mojave yucca	YUSC2	*Yucca schidigera*	2–4	–
	Utah butterflybush	BUUT	*Buddleja utahensis*	1–2	–
	blackbrush	CORA	*Coleogyne ramosissima*	1–2	–
	Engelmann's hedgehog cactus	ECEN	*Echinocereus engelmannii*	1–2	–
	burrobush	AMDU2	*Ambrosia dumosa*	0–2	–
	woolly bluestar	AMTO2	*Amsonia tomentosa*	0–2	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	0–2	–
	catclaw acacia	ACGR	*Acacia greggii*	0–2	–
	littleleaf ratany	KRER	*Krameria erecta*	1–2	–
	turpentinebroom	THMO	*Thamnosma montana*	1–2	–
	Mojave woodyaster	XYTO2	*Xylorhiza tortifolia*	1–2	–
	Clark Mountain buckwheat	ERHEF	*Eriogonum heermannii var. floccosum*	1–2	–
	California barrel cactus	FECY	*Ferocactus cylindraceus*	1–2	–
	starry bedstraw	GAST	*Galium stellatum*	0–2	–
	Schott's pygmycedar	PESC4	*Peucephyllum schottii*	0–2	–
	desert almond	PRFA	*Prunus fasciculata*	1–2	–
Grass/Grasslike					
2	**Perennial Grasses**			13–37	
	big galleta	PLRI3	*Pleuraphis rigida*	7–17	–
	Sandberg bluegrass	POSE	*Poa secunda*	4–11	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	2–4	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	0–2	–
	desert needlegrass	ACSP12	*Achnatherum speciosum*	0–2	–
Forb					
3	**Annual Forbs**			1–4	
	desert trumpet	ERIN4	*Eriogonum inflatum*	1–2	–
	fiveneedle pricklyleaf	THPE4	*Thymophylla pentachaeta*	0–2	–

Table 12. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Shrub/Vine					
1	**Shrubs**			130–389	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	25–62	–
	desert almond	PRFA	*Prunus fasciculata*	11–34	–
	Stansbury cliffrose	PUST	*Purshia stansburiana*	11–34	–
	Clark Mountain buckwheat	ERHEF	*Eriogonum heermannii var. floccosum*	6–20	–
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	7–20	–
	Mojave yucca	YUSC2	*Yucca schidigera*	9–20	–
	Arizona honeysweet	TIOB	*Tidestromia oblongifolia*	7–18	–
	desert tobacco	NIOB	*Nicotiana obtusifolia*	6–17	–
	desert pepperweed	LEFR2	*Lepidium fremontii*	6–17	–
	Mexican bladdersage	SAME	*Salazaria mexicana*	6–17	–
	pungent brickellbush	BRAR2	*Brickellia arguta*	6–16	–
	Utah butterflybush	BUUT	*Buddleja utahensis*	6–16	–
	Utah mortonia	MOUT	*Mortonia utahensis*	4–13	–
	Death Valley jointfir	EPFU	*Ephedra funerea*	4–13	–
	Schott's pygmycedar	PESC4	*Peucephyllum schottii*	4–13	–
	Virgin River brittlebush	ENVI	*Encelia virginensis*	4–11	–
	mormon tea	EPVI	*Ephedra viridis*	2–7	–
	Eastern Mojave buckwheat	ERFA2	*Eriogonum fasciculatum*	2–7	–
	blackbrush	CORA	*Coleogyne ramosissima*	0–6	–
	Utah agave	AGUT	*Agave utahensis*	0–6	–
	burrobush	AMDU2	*Ambrosia dumosa*	2–6	–
	milkvetch	ASTRA	*Astragalus*	2–4	–
	buckhorn cholla	CYACA2	*Cylindropuntia acanthocarpa var. acanthocarpa*	0–2	–
	cottontop cactus	ECPO2	*Echinocactus polycephalus*	0–2	–
	Nevada jointfir	EPNE	*Ephedra nevadensis*	0–1	–
	starry bedstraw	GAST	*Galium stellatum*	0–1	–
	Mojave sage	SAMO3	*Salvia mohavensis*	0–1	–
	Engelmann's hedgehog cactus	ECEN	*Echinocereus engelmannii*	0–1	–
	shadscale saltbush	ATCO	*Atriplex confertifolia*	0–1	–
	Mojave woodyaster	XYTO2	*Xylorhiza tortifolia*	0–1	–
	brownplume wirelettuce	STPA4	*Stephanomeria pauciflora*	0–1	–
	turpentinebroom	THMO	*Thamnosma montana*	0–1	–
Grass/Grasslike					
2	**Perennial grasses**			74–221	
	big galleta	PLRI3	*Pleuraphis rigida*	45–135	–
	Sandberg bluegrass	POSE	*Poa secunda*	11–34	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	9–27	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	7–20	

	low woollygrass	DAPU7	*Dasyochloa pulchella*	7–20	–
	desert needlegrass	ACSP12	*Achnatherum speciosum*	2–6	–
Forb					
3	**Annual forbs**			20–63	
	fiveneedle pricklyleaf	THPE4	*Thymophylla pentachaeta*	7–20	–
	desert trumpet	ERIN4	*Eriogonum inflatum*	4–16	–
	trailing windmills	ALIN	*Allionia incarnata*	2–7	–
	brittle spineflower	CHBR	*Chorizanthe brevicornu*	2–7	–
	cryptantha	CRYPT	*Cryptantha*	2–7	–
	flatcrown buckwheat	ERDE6	*Eriogonum deflexum*	2–7	–

Animal community

This ecosite provides cover for small animals. Big galleta is an important forage species, especially new growth. Big galleta becomes coarser and less palatable as it ages. California bighorn sheep (O. canadensis ssp. californiana Douglas) have been observed in the area.

This ecosite is poorly suited for livestock grazing due to steep slopes. Big galleta is valuable to livestock (Matthews 2000), but broom snakeweed is toxic (Hickman 1993). Forage values specific to Virgin River brittlebush were unavailable, but other Mojave Desert species of Encelia are considered to have little forage value (Esser 1993).

Hydrological functions

This ecological site occurs on shallow soils, and precipitation will rapidly run off this ecosite. This creates disturbances similar to those of water flowing in a drainageway.

Recreational uses

This site is very scenic and lends itself well to photography and those interested in geology.

Inventory data references

Vegetation cover was sampled in lieu of production due to a poor growing season. Vegetation was sampled at type localities on 24-25 April 2006. Ten 100-foot point-intercept transects were sampled. The top two tiers of vegetation or other cover class (e.g. bare soil, gravel, rock, litter, biological soil crust) were recorded at every foot.

Annual production numbers were estimated based on similar ecological sites.

Type locality

Location 1: San Bernardino County, CA	
UTM zone	N
UTM northing	3952348
UTM easting	621674
General legal description	Located on the north side of the Mesquite Mountains Wilderness, about 1 mile west of Old Traction Road. (Big Galleta - Broom Snakeweed)

Location 2: San Bernardino County, CA	
UTM zone	N
UTM northing	3942467
UTM easting	636443
Latitude	35° 36′ 59″

Longitude	115° 29′ 36″
General legal description	Located in the Clark Mountains near the Umberci Mine. (Broom Snakeweed - Virgin River Brittlebush)
Location 3: San Bernardino County, CA	
UTM zone	N
UTM northing	3951700
UTM easting	621443
Latitude	35° 42′ 6″
Longitude	115° 39′ 27″
General legal description	Located in the Mesquite Mountain Wilderness at the north end of the range. (Broom Snakeweed - Virgin River Brittlebush)
Location 4: San Bernardino County, CA	
UTM zone	N
UTM northing	3943835
UTM easting	640250
General legal description	Located on the eastern extent of the Clark Mountains, about 1 mile from Stateline Pass Road. (Big Galleta - Broom Snakeweed)

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Contributors

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Approval

Sarah Quistberg, 2/25/2025

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	05/13/2025
Approved by	Sarah Quistberg
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:**
