

Ecological site R034BY404CO Semidesert Stony Loam (Shadscale)

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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.

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Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to slight. A slight increase in rill development may occur on steeper slopes or on areas located below exposed bedrock, or other water shedding areas, where increased runoff may occur. If present, shallow and short and usually after a rainfall event and should heal after the next growing season.

2. **Presence of water flow patterns:** None to slight. If present, short and usually disconnected with debris dams and vegetative barriers obvious after rainfall events.

3. **Number and height of erosional pedestals or terracettes:** Slight pedestalling infrequent, occurring in or near flow paths usually around shrubs. Minor evidence of pedestals after intense rainfall events.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Expect 40-60% bare ground. Extended drought can cause bare ground to increase. Basalt cobbles and stones are obvious on the surface and are inherent to the site and not considered bare ground.

5. **Number of gullies and erosion associated with gullies:** Rare, depending on landscape position. Edges should be muted or rounded with vegetated side slopes. Usually caused by off-site influence.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** None to Slight on exposed areas. The gravels and rock fragments on the soil surface help armor it and reduce the potential for wind erosion.
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7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement associated with flow paths and disturbed areas. Movement is typically short (1-2 feet), but can be moderate under intense rainfall events.
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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):** This site should have a stability rating of 4 to 6 under the plant canopies, and a rating of 2 to 4 in the interspaces. Vegetation cover, litter, biological soil crusts and surface rock reduce erosion. Soil surface is stabilized by decomposing organic matter. Biological crusts (lichens, algae, cyanobacteria, mosses) may be present on or just below soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soils are very deep and well drained. Surface texture ranges from sandy loam to very cobbly loam. The A-horizon ranges from 4-9 inches in depth with moderate granular to weak platy structure. Rock fragments are obvious.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Grass, forb and shrub canopy reduce raindrop impact. Basal cover of cool season bunchgrasses and rhizomatous characteristic of galleta aid in slowing overland flow allowing time for infiltration. Grass and shrub canopy, basal cover, and inherent interspaces between plants allow for some overland flow, providing a lost opportunity for infiltration to occur, especially during or after high intensity rainfall events. Soil texture promotes infiltration.
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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):** none
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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: Native Warm Season Perennial Rhizomatous Grasses >= Native Shrubs >>
- Sub-dominant: Perennial Native Forbs >= Native Cool Season Bunchgrasses >>>
- Other: Annual Native Forbs
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Typically minimal. Expect slight shrub and grass mortality/decadence during and following drought or lack of disturbance.
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14. **Average percent litter cover (%) and depth (in):** 25-35% litter cover at 0.25 inch depth. Litter cover declines during and following extended drought.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 400bs./ac. low precipitation years; 600 lbs./ac. average precipitation years; 800 lbs./ac. above average precipitation years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 100 – 250 lbs./ac. or more.

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:** Cheatgrass, halogeton, annual mustards, storksbill, Russian thistle, annual wheatgrass, and other noxious weeds.

17. **Perennial plant reproductive capability:** Variable due to unreliable moisture availability. The only limitations are weather related, wildfire, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability. This site is temperature driven with most of the growing accruing during the cool winter months.
