USDA Natural Resources
Conservation Service

Ecological site R030XA109AZ
Limy Upland 3-6" p.z. Deep

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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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Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. A cover of gravel and rock armor the soil surface against erosion.

2. **Presence of water flow patterns:** Few. This ecological site often occurs along fairly narrow ridge tops. The water flow patterns occur on the side slopes of these ridges as the slope nears 15 percent. Water flow patterns may be observed just above the natural drainages into the washes dissecting the fan terrace the site occurs on. The cover of gravel and rock armors the soil surface against erosion preventing water flow patterns from developing in other locations on the ecological site. No water flow patterns should be observed where the slope is less than 10 percent.

3. **Number and height of erosional pedestals or terracettes:** None. A cover of gravel and rock armors the soil surface against erosion and the creation of pedestals or terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground makes up 10 to 20 percent. Rock and gravel cover is 70 to 80 percent. Litter cover is 5 to 15 percent. Basal plant cover is generally less than 5 percent.

5. **Number of gullies and erosion associated with gullies:** Numerous drainages running approximately vertical to the direction of the ridge topography this ecological site generally occurs on may be observed. These are natural and no active erosion is seen associated with them.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None. A cover of gravel and rock armors the soil surface against wind erosion and the resulting scoured, blowout and/or depositional areas.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter is naturally concentrated underneath the scattered shrubs found on this ecological site. The residue of annual forbs and grasses, although naturally scarce, generally stays in place for several months after these plants have senesced due to the soil surface cover of gravel and rock found on this ecological site.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** No slake test information is available. The soil surface is very resistant to both water and wind erosion due to the cover of rocks and gravels.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Weak thick platy structure; color is 10YR4/3 moist. The thickness of the A horizon is 2 to 5 inches.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This plant community is characterized by widely scattered shrubs with average spacing of 20 to 30 feet. Canopy cover of shrubs is 5 to 15 percent.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layer exists on this ecological site. The soil surface cover of gravel and rock forms a somewhat impenetrable layer, but this is not due to compaction.

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: shrubs (75-85%)>>

    Sub-dominant: Forbs (5-15%)>> Grasses (1-10%)

    Other:

    Additional: During years of above average precipitation the ratio of shrubs to annual plants (dominantly annual forbs) will naturally change with the annually produced biomass produced and resulting percent composition of forbs increasing substantially while the biomass of the shrubs will increase only slightly.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Five to ten percent of the perennial plants may be dead or dying due to drought or natural senescence at any given time. Dead branched in the creosote bush and occasionally white bursage are common and natural, increasing during drought periods.

14. **Average percent litter cover (%) and depth (in):** Litter is naturally concentrated under shrubs. Litter from winter spring annual production generally stays in place for several months due to the rock and gravel cover found in interspaces.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average annual production on this site is expected to be 75 to 125 lbs/ac. in a year of average precipitation.

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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:** Red brome (Bromus rubens, Mediterranean grass, Schismus barbatus, and filaree, Erodium cicutarium may be found on the site in very small amounts (< 1% or < 1 lb/ac.).

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17. **Perennial plant reproductive capability:** All plants native to this site are adapted to the climate and are capable of producing seeds, stolons, and/or rhizomes except during the most severe droughts.
