

## **Ecological site R041XB206AZ Limy Fan 8-12" p.z.**

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

### **Indicators**

1. **Number and extent of rills:** None

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2. **Presence of water flow patterns:** Water flow paths occupy less than 30-40% of the surface area. Flow paths are poorly defined and dominated by limited sheet flow among the hummocks among creosote.

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3. **Number and height of erosional pedestals or terracettes:** Pedestals are common on all longer lived grasses (bush muhly) and subshrubs (zinnia) and are from 1-2 inches in height. Pedestals on creosote bush are from 4-8 inches tall and symmetrical. They are well stabilized and most have rodent activity. Terracettes are uncommon on the site but when they occur they are large (approx. 3-5' diam x 4-8" ht) and bridged by the mounds of creosote bush.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare soil is 50-70%, gravel ranges from 7-10% and basal cover of live perennial grasses is 1%. Bare areas are 4-8 feet in diameter, well dispersed and generally connected.

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5. **Number of gullies and erosion associated with gullies:** None

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6. **Extent of wind scoured, blowouts and/or depositional areas:** Possible wind capture of dust around the bases of creosote bush. No wind scour. Deposition under creosote bush has symmetrical mounds.
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine and coarse litter size classes are moving short distances (1-2 feet) from water in open spaces and concentrating in dams. Under large shrubs, all litter classes are staying in place.
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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):** Values from soil slake test ratings were 2-4s under canopy and 1-2's from open spaces.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shrub canopy cover is 25-30%, annual forb and grass canopy is <15%, and perennial grass canopy is <5%. Perennial grasses are largely confined within creosote bush mounds. Shrubs are evenly distributed. Shrub canopy cover and soil texture (sandyloam) allow infiltration and limit run-off.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** None present, average depth of penetration from an ARS field penetrometer with a 2.2 kg. sliding hammer is 12.8 cm.
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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: large shrubs
- Sub-dominant: annual grass= annual forbs> perennial grasses = sub shrubs >> succulents
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Plant mortality is affected by recent droughty weather patterns; 10% mortality on perennial grasses and 30% on sub-shrubs. Some creosote canopy died back. Large crown-of-thorn shrubs have about 20% mortality.
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14. **Average percent litter cover (%) and depth ( in):** Litter is absent from water flow patterns and bare areas.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 80 lbs/ac. in a below average year; 200 lbs/ac. in an average year; 530 lbs/ac. in an above average year.

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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: Tumbleweed, Lehmann lovegrass in wet years

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17. **Perennial plant reproductive capability:** Not impaired for any perennial species.

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