# Ecological site R041XB208AZ
# Limy Upland 8-12" p.z.

Last updated: 7/28/2020
Accessed: 05/08/2024

## 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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| Date | 11/05/2012 |
| Approved by | Scott Woodall |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

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

2. **Presence of water flow patterns:** Water flow paths are not distinct but occur between clumps of creosote bush. They occupy 30-40% of the area and are discontinuous, averaging 20-30 feet in length.

3. **Number and height of erosional pedestals or terracettes:** Terrecettes do not occur. Pedestals occur on creosote bush and are 2-3 inches in height.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground from the reference site was 36% with 45% gravel cover. Non-vegetated areas are plant/shrub interspaces; soil is well armored with gravel. Actual exposed soil areas are small (<2’ in diameter) and not connected.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** None observed, but in some years fine litter classes can move short distances (2 -3 feet). All coarse litter classes stay in place.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Average value from soil slake test is 3. The average value from areas without canopy cover is 2 and average values from areas with creosote canopy is 4.3

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A horizon is two inches thick with a weak granular structure. Surface soil colors are 10 YR 5/3 dry and 10YR 3/4 moist.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** 13% canopy cover. Shrubs are evenly distributed across site. Perennial grasses are generally confined within shrub canopies.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. Abrupt change in texture from the B2tk horizon to the Ck horizon (at 12 inches) can be mistaken for a compaction zone. This is a laminar cap of cemented calcium carbonates on top of the Ck horizon. Average depth of penetration from a field penetrometer with a 2 kg sliding hammer is 7.6 cm.

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: Dom.Shrub (creosote) >>

    Sub-dominant: Dom.Per.Grasses > Misc.Shrubs = Half Shrubs = Succulents > Misc.Per.Grasses = Annuals = Per.Forbs

    Other:

    Additional: Annuals fluctuate based on weather cycles.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Complete mortality of perennial grasses and sub-shrubs in past several years due to severe drought since 2002.

14. **Average percent litter cover (%) and depth ( in):** Litter is mainly from annual grasses like needle grama, annual threeawn and six weeks grama. Coarse litter is all from creosote bush and tends to stay under the canopy.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 86 lbs/ac for a below average year; 200 lbs/ac for an average year; 400 lbs/ac for an above average year;

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:** None

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17. **Perennial plant reproductive capability:** Can be severely impaired for perennial grasses like bush muhly, threeawn, fluffgrass and black grama from severe drought. All desert zinnia plants on site are dead except those in small associated drainage ways.

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