USDA Natural Resources
Conservation Service

Ecological site R040XA108AZ
Limy Fan 10"-13" 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	S. Cassady
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 patterns are common on this site covering 10-15% of the area.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are uncommon on grasses and gravels. Terracettes aer uncommon. Mounds ae common on shrubs like creosote bush.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground on this site is 25-40%.

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):** Herbaceous litter moves only in water flow paths 10-15 feet and is deposited in terracettes at curves in flow paths. Woody litter remains in place under shrub

canopies.

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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):** Expect ratings of 4-6 under shrub and grass canopies, and 1-3 in openings. High gravel/cobble cover provides good resistance to erosion.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Thin platy structure from rain drop impact to weak granular; 7.5-10YR5-6/5-6 dry; 7.5-10YR4/4-6 moist; thickness to 4 inches

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** large shrubs (creosote #1, whitethorn #2, mesquite #3) 15-20% canopy cover; shrublike grasses (bush muhly) have a 2-5% canopy cover, sub-shrubs including desert zinnia, burroweed, and paper flower have a 2-5% canopy cover and succulents like prickly pear, agave, and barrel cactus have a 1-2% canopy cover.

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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):** Soil surface (0.25-0.5 inch) has a platy structure due to overland water flow and some raindrop impact. There is no subsurface soil compaction.

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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 > shrub-like grasses > sub-shrubs > annual forbs and grasses > other perennial grasses > succulents > perennial forbs > cryptogams. (In El Nino years, the production of annual forbs can exceed all other plant species.)

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Severe drought last several years resulting in 90-100% mortality on short perennial grasses (threeawns), 50% mortality on bush muhly, 75% mortality on sub-shrubs and 10-15% mortality on large shrubs.

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 110 lbs/ac unfavorable precipitation; 505 lbs/ac normal precipitation; 1305 lbs/ac favorable 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: schismus, filaree, malta srarthistle

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17. **Perennial plant reproductive capability:** not impaired for shrubs, drought impaired for perennial grasses and forbs.
