USDA Natural Resources
Conservation Service

Ecological site R040XA105AZ
Shallow Hills 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:** Follow faults and bedding planes in parent material.

2. **Presence of water flow patterns:** Discontinuous, 10-15 feet in length. Will see shorter flow paths with high surface coarse fragments.

3. **Number and height of erosional pedestals or terracettes:** No accumulated or erosional pedestals.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 1-15% (low values due to high rock and gravel cover)

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):** Most litter size classes stay in place due to high rock and gravel cover.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Expect ratings of 1-3 in perennial plant interspaces, 4-5 under shrub canopies.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Weak thir platy to weak granular; color is 7.5-10YR5/4 dry, 7.5-10YR4/4 moist; thickness to 2 nches.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Canopy 15-20%; 50% shrubs, 10-15% subshrubs, 5-10% trees, 5-10% succulents, 5-10@ forbs and 2-% perennial grasses. Cover is well dispersed throughout the site.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** NOne

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 > subshrubs > trees > succulents > annual forbs & grasses > perennial forbs > perennial grasses

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** 20-50% tree & shrub canopy mortlity, 75-90% mortality of perennial grasses.

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

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 219 lbs/ac unfavorable precipitation, 790 lbs/ac normal precipitation, 1800 lbs/ac favorable precipitation

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:** triangle brsage, littleleaf palverde, wite brittlebush, cholla, bufflegrass, fountain grass

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