USDA Natural Resources
Conservation Service

Ecological site R041XC305AZ
Clay Loam Upland 12-16" 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	Curtis Talbot
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None present on this site.

2. **Presence of water flow patterns:** Uncommon; probably cover no more than 2-5% of area; discontinuous, 2-20 feet in length.

3. **Number and height of erosional pedestals or terracettes:** Accumulated pedestals are 1 inch tall and are common on perennial grass plants. The presence of terracettes depends on slope; terrecettes are very uncommon on low slopes (1-2%) and become common, with heights between 1-2 inches, as slopes increase (3-6%).

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Estimated from 200 points at 55%. This site is characterized by perennial grass patches alternating with bare areas 10-20 feet in diameter.

5. **Number of gullies and erosion associated with gullies:** None present on this site.

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

7. **Amount of litter movement (describe size and distance expected to travel):** All litter size classes staying in place.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** No slake test done; expect values of 1-2 in bare ground areas and 4-6 in canopy areas.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Thin (1/8 inch) rain drop compacted laminar layer, weak granular; Color is 10YR5/4 Dry, 10YR3/4 Moist; A horizon to 2 inches.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Cover estimated from 200 points was: Canopy 9%, Basal 9%, Litter 8%, and Gravel 18%; 85% of canopy cover is perennial grasses and 13% is subshrubs and 2% shrubs & succulents. Cover is relatively well dispersed throughout site,with bare patches 10-20 feet wide dispersed throughout site. Bare areas tend to shed water into the grassy areas.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None present on this site. Penetrometer tests with weight dropped 5 times at a distance from top of weight to top of impact ring = 2.24 feet were: average = 2.91 inches, s.d = 0.40 inches. Subsurface argillic horizon may be mistaken for 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: Perennial grass >>

    Sub-dominant: subshrubs > annual forbs > shrubs > perennial forbs > succulents

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** 20% basal mortality (prior years mortality not well evidenced).

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):** 600 lbs/acre unfavorable precipitation, 1,000 lbs/acre normal precipitation, 1,500 lbs/acre 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:** Snakeweed, burroweed

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17. **Perennial plant reproductive capability:** Not affected even following several years of prolonged drought period for region.
