Ecological site R070AY003NM
Shallow Upland

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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	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None on gentle slopes less than 10 percent, slight on steeper slopes over 10 percent.

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2. **Presence of water flow patterns:** None to minimal on gentle slopes less than 10 percent. On steeper slopes over 10 percent, flow paths should be broken and irregular in appearance. As slope increases, flow paths become more apparent and may be connected.

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3. **Number and height of erosional pedestals or terracettes:** None to slight on gentle slopes less than 10 percent. Expect some evidence of pedestalled plants when slope increase over 10 percent.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 25-35 percent or less bare ground, with bare patches generally less than 12 inches. Extended drought may increase bare ground by 5-10 percent.

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5. **Number of gullies and erosion associated with gullies:** Generally none. If present, usually on steeper slopes.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None to slight. Minor wind erosion can occur with disturbances such as wildfire or extended drought.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is associated with water flow patterns and may move as much as 1-3 feet or more down slope during extreme storm events, especially on steeper slopes.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Stability class rating anticipated to be 3-4 inch interspaces at soil surface. These values need verification.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM ranges from 1-5 percent. (Bernal) A1-0 to 4 inches; brown 7.5YR 5/2) loam, dark brown (7.5YR 3/2) moist; weak very fine granular structure; loose, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine interstitial pores.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Diverse grass, forb, shrub functional/structural groups and diverse root structure reduces raindrop impact and slows overland flow, providing increased time for infiltration to occur. However, the composition of the plant community has less effect on infiltration and runoff than does slope or amount of bare ground.

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: Warm-Season Mid Bunchgrass=Warm-Season Short Bunchgrass

    Sub-dominant: Cool-Season Mid Bunchgrass

    Other: Cool-Season Grasses=Shrubs=Forbs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** None to slight. Decadence may exist on areas inaccessible to grazing animals, usually when slope increases.

14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought can drop to less than 5 percent.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** (Low Production 400 pounds per acre) (Average RV Production 750 pounds per acre) (High Production 1,100 pounds per acre) Production can be reduced following extended drought or in the first growing season following wildfire.

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:** Invasive plants should not occur in reference plant community. However, cheatgrass, Russian thistle, kochia, and other non-native annuals may invade following extended drought if a seed source is available. Oneseed juniper may encroach from adjacent sites with lack of fire.

17. **Perennial plant reproductive capability:** All plants should be vigorous, healthy and reproductive depending on disturbances i.e. drought. Plants should have numerous seedheads, vegetation, tillers etc. The only limitations are weather, wildfire, and natural disease that may temporarily reduce reproductive capability.