USDA Natural Resources
Conservation Service

Ecological site R011XB013ID
Shallow Loamy 8-12 PZ ARAR8/PSSPS

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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:** are rare on this site. If rills are present they are likely to occur on slopes greater than 10 percent and immediately following a wildfire or high intensity storm. Rills are most likely to occur on soils with silt loam or clay loam surface texture. Surface stones reduce rill development.

2. **Presence of water flow patterns:** are rare on this site. They are most likely to occur on slopes greater than 10 percent. When they do occur they are short and disrupted by cool season grasses, shrubs, and surface stones. They are not extensive.

3. **Number and height of erosional pedestals or terracettes:** pedestals are common on the site where flow patterns are present and the surface soils have high clay content. Do not mistake frost-heaving for pedestals. Terracettes occur occasionally.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** need data but is expected to range from 25-35 percent.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** usually not present in Phase A, State 1.

7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move up to 2 feet following a significant run-off event. Coarse litter generally does not move.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** values should range from 4-6 but needs to be tested.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** structure typically includes weak thin and moderately thick platy and weak fine granular. Soil organic matter (SOM) ranges from 0.5 to 3 percent. The surface horizon is typically 1 to 6 inches thick.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** bunchgrasses, especially deep rooted perennials, slow runoff and increase infiltration. Surface stones aid in slowing water movement and increasing infiltration. Shrubs accumulate some snow in the interspaces.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** is not present. Do not mistake an increase in clay content in the subsoil as a compaction layer.

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: cool season deep-rooted perennial bunchgrasses

    Sub-dominant: medium shrubs

    Other: perennial forbs

    Additional: shallow rooted bunchgrasses

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** very little mortality or decadence is expected on this site. Mortality of shallow rooted grasses may occur due to extended periods of drought.

14. **Average percent litter cover (%) and depth (in):** additional data is needed but is expected to be low and at a shallow depth.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 450 pounds per acre in a year with normal precipitation and temperatures. Perennial grasses produce 60-70 percent of the total production, forbs 10-20 percent and shrubs 15-25 percent.

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:** includes cheatgrass, clasping pepperweed, beggars ticks, tansymustard, Jim Hill tumblemustard, yellow salsify, burr buttercup, medusahead, Russian thistle, annual kochia, and halogeton.

17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in favorable years.