USDA Natural Resources
Conservation Service

Ecological site R009XY015ID
Dense Stony Clay 22+ PZ DACA3-JUBA

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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:** Rills rarely occur on this site. If rills are present they are likely to occur on slopes greater than 15 percent and immediately following wildfire. Surface stones reduce rill development.

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2. **Presence of water flow patterns:** Water-flow patterns can occur on this site, particularly on slopes greater than 10 percent. When they occur they are short and disrupted by cool season grasses and surface stones and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** Both are rare on this site. In areas where slopes approach 10 percent and where flow patterns and/or rills are present, a few pedestals may be expected. Do not mistake frost heaving for pedestals.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Data is not available. On sites in mid-seral status bare ground may 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:** None are present.

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 or fall into cracks in the soil. 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 3 to 6 but needs to be tested.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure is strong fine and very fine granular; very hard, firm, very sticky and very plastic. Soil organic matter ranges from 2 to 4 percent. The Ap horizon is typically 6 inches thick. Moist surface color is very dark gray.

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 run-off and increase infiltration.

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 for a compaction layer.

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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: cool season deep-rooted perennial bunchgrasses

    Sub-dominant: perennial forbs

    Other: shallow rooted bunchgrasses

    Additional: shrubs

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Plant decadence usually does not occur. Some mortality may occur from the shrink-swell of the clay soils.

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14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 20-25 percent to a depth of < 0.1 inches.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Is 1600 pounds per acre (1792 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 75-85 percent of the total production, forbs 15-20 percent, and shrubs a trace to 3 percent.

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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:** Includes cheatgrass,

bulbous bluegrass, rush skeletonweed, musk and scotch thistle, diffuse and spotted knapweed, leafy spurge, Kentucky bluegrass, medusahead, and tarweed.

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