USDA Natural Resources
Conservation Service

Ecological site R058AE015MT
Shale (Sh) RRU 58A-E 10-14" 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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Date	06/11/2014
Approved by	Jon Siddoway
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** On Slopes > 15% rill may be long (>5 feet) and continuous. If rills are present on slopes < 15% they should be < 3feet long and not continuous.

2. **Presence of water flow patterns:** Water flow paths may be obvious, regular and continuous with debris dams occurring only on lesser slopes.

3. **Number and height of erosional pedestals or terracettes:** Pedestals up to 0.5 inches and terracettes at debris dams are common.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is < 75%. Bare ground will occur in quite large areas.

5. **Number of gullies and erosion associated with gullies:** Active gullies may be present on steeper slopes.

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

7. **Amount of litter movement (describe size and distance expected to travel):** Plant litter movement is expected.

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Surface Soil Aggregate Stability under plant canopy should typically be 3 or greater. Surface Soil Aggregate Stability not under plant canopy should typically be 2 or slightly less.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Use soil series description.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Sparse plant canopy, slow infiltration rates, and the high amount of bare ground contribute to a naturally high runoff rate even in Reference condition.

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layer would be expected but soil surface is typically crusted when dry.

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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, mid-stature, rhizomatous grasses = shrubs and half shrubs

    Sub-dominant:

    Other: Minor Species: forbs = cool season, short-stature bunch grasses and sedges = Warm season, mid-stature, rhizomatous grasses = Warm season, tall-stature, rhizomatous grasses = Cool season, mid-stature, bunch grasses

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Some plant mortality and decadence (10 to 15%) is expected on this site.

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14. **Average percent litter cover (%) and depth (in):** Litter cover is in contact with soil surface with little evidence of biological activity.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 425 to 500 #/acre (13 to 14 inch precip. Zone) 200 to 350 #/ac (10 to 12 inch precip. Zone).

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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: Halogeton, Leafy spurge, knapweeds, whitetop, Dalmatian toadflax, yellow toadflax, St. Johnswort, perennial pepperweed, Yellow sweetclover

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17. **Perennial plant reproductive capability:** All species are capable of reproducing

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