USDA Natural Resources
Conservation Service

Ecological site R058AE017MT
Very Shallow (VSw) 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	06/11/2104
Approved by	Jon Siddoway
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None.

2. **Presence of water flow patterns:** None on slopes less than 15%. On slopes 25 – 40% water flow patterns may be 3-4 feet long and 5 inches wide.

3. **Number and height of erosional pedestals or terracettes:** No pedestals on slopes < 10%. On slopes 10 - 25% pedestals up to 0.5 inch high are common. No terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is < 50%. Bare ground will occur as small areas less than 10 inches in diameter.

5. **Number of gullies and erosion associated with gullies:** Active gullies should not be present. Existing gullies should be “healed” with a good vegetative cover.

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 remains in place and is not moved by erosional forces on slopes less than 10%. Herbaceous litter may move up to 4 inches on slopes > 10%.

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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 5 or greater. Surface Soil Aggregate Stability not under plant canopy should typically be 3 or greater.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Use soil survey 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:** Plant canopy (50% maximum). Low grass canopy and basal cover and large gaps between plants allows significant raindrop impact and overland flow. A combination of shallow and deep rooted species has a positive effect on infiltration.

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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 except for the naturally occurring rooting restriction.

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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, bunch grasses = Warm season, mid-stature, bunch grasses

    Sub-dominant: shrubs and half shrubs > Warm season, mid-stature, rhizomatous grasses = Cool season, short-stature, bunch grasses and sedges

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

    Additional: (Blue grama should be grouped with warm season, short-stature, rhizomatous grasses due to its growth form)

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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 would be expected (10 – 15%).

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

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 625 to 700 #/acre (13 to 14 inch precip. Zone) 250 to 550 #/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: Sulphur cinquefoil, Leafy spurge, knapweeds, whitetop, Dalmatian toadflax, St. Johnswort, perennial pepperweed.

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