USDA Natural Resources
Conservation Service

Ecological site R038XC303AZ
Clay Loam Upland 20-24" p.z.

Accessed: 04/23/2024

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	03/15/2011
Approved by	Byron Lambeth
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None present on the site. Perennial grass basal area is 15-20%, dominated by bunchgrasses less than 12" apart, promote infiltration, and break up water flow reducing its energy and ability to produce rills on the site.

2. **Presence of water flow patterns:** Water flow paths are less than 12 inches in length before encountering plant bases. Perennial grass basal area is 15-20%, dominated by bunchgrasses less than 12" apart and breaks up water flow paths.

3. **Number and height of erosional pedestals or terracettes:** None present on the site. Very high density of plants reduces potential for soil erosion and pedestal formation. Plant community is dominated by bunchgrasses that are not conducive to terracette formation.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 2-10%.

5. **Number of gullies and erosion associated with gullies:** None present on the site. See #2 above.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None present on the site. High density and canopy of

perennial grass not conducive to wind erosion.

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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous litter travels less than 12 inches in water flow paths before being trapped by plant bases.

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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):** Soil stability values range from 4-6.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is granular with weak to moderate rupture resistance. Surfaces range from 3 to 4 inches thick and have colors ranging from 7.5YR 4/3 to 10YR dry and 7.5YR 3/3 to 10YR 2/2 moist.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Midgrasses >> short grasses > cool season grasses = annual forbs & grasses = trees & shrubs > perennial forbs. High density and 15-20% basal area of perennial grasses is very conducive to slowing down water leaving the site.

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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):** None present on the site. Argillic horizon is 2-4 inches deep and when dry has moderate to strong structure that can be mistaken 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: Midgrasses >> short grasses

    Sub-dominant: cool season grass = annual forbs & grasses = trees & shrubs

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very low plant mortality; approximately 1-2% of short grasses are dead.

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1100 lbs/ac below average year, 1500 lbs/ac average year, 1950 lbs/ac above average year

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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:** Alligator juniper, yellow bluestem, yellow star thistle.

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17. **Perennial plant reproductive capability:** Not affected after several years of drought in the region

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