USDA Natural Resources
Conservation Service

Ecological site R041XA114AZ
Loamy Bottom 16-20" 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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Approved by	Curtis Talbot
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 present. Water movement is even sheet flow lacking energy.

3. **Number and height of erosional pedestals or terracettes:** Pedestals (2-4" height) common on big sacaton plants; pedestals disappear after fire and reform within 10 years after fire. No terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10% bare ground with bare areas 2-5 ft in diameter common across site. Bare ground exposed after fire is covered with litter within 1-2 years after burning.

5. **Number of gullies and erosion associated with gullies:** Discontinuous gullies, although infrequent, are occasionally present. When present, gullies are generally 100-200ft in length, 1-3ft wide, and 1-3 ft deep.

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

7. **Amount of litter movement (describe size and distance expected to travel):** All litter remains in place. After fire, litte moves and deposits in debris dams.

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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):** Slake test values collected from under grass canopy were scored from 4 to 6 with 85% of the samples at 5 and 6; samples collect from outside of canopy also scored from 4 to 6 with 75% of the samples at 5 and 6.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface horizon 0-3" depth was silt loam with a weak platy structure. Color 7.5 YR 3/2 moist.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant basal cover is well-dispersed across site (5-15% basal cover; tall grasses 50-80% foliar canopy cover) and dissipates overbank flood events resulting in sheet floods on the site 1-2" deep.

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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. Soil penetrometer averaged 6 cm with a range of depths from 4-10 cm.

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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: Tall grasses

    Sub-dominant: Sod-forming perennial midgrasses

    Other: Perennial vining forbs

    Additional: Tall annual forbs fluctuate with rainfall

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little mortality or decadence (<5%) at 4 years after fire. Decadence increases with time post-burn.

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14. **Average percent litter cover (%) and depth (in):** Expect a marked reduction in litter cover after fire. Litter cover recovers within one year.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 3065 lbs/ac. in a below average year; 4105 lbs/ac. in an average year; 7250 lbs/ac. in an 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: Johnson grass, hoary cress, bermudagrass, mesquite, burrobrush

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17. **Perennial plant reproductive capability:** Not impaired.
