USDA Natural Resources
Conservation Service

Ecological site R080AY045OK
Clay Bottomland

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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	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** This site usually has flatter slopes. There are few, if any, rills (only in lowest area where flooding occurs) and there is no active headcutting and sides are covered with vegetation.

2. **Presence of water flow patterns:** There is some evidence of soil deposition or erosion (particularly after a flood event). Water generally flows evenly over the entire landscape.

3. **Number and height of erosional pedestals or terracettes:** There should not be any evidence of erosional pedestals or terracettes on this site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** There is 0-5% bare ground on this site. Bare areas are small and not connected.

5. **Number of gullies and erosion associated with gullies:** Usually none. Most drainages are represented as natural stable channels; vegetation is common with no signs of erosion. Some nick points can occur where trees are uprooted from floods.

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

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7. **Amount of litter movement (describe size and distance expected to travel):** Uniform distribution of litter. Litter rarely moves >12 inches on flatter slopes and may be as much as doubled on steeper slopes, then only during high intensity storms.

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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 is stabilized (Stability Score 5 – 6). Stability scores based on a minimum of 6 samples tested.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Ap horizon: 0 to 7 inches, reddish brown clay, weak medium granular structure. A1 horizon: 7 to 14 inches; reddish brown clay, moderate fine blocky structure.

   Refer to specific description for component sampled.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Infiltration and runoff are not affected by any changes in plant community composition and distribution. (Tallgrass/Midgrass dominated).

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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):** There is usually no compaction layer. Clayey soil layers may 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: Tallgrasses Midgrasses

    Sub-dominant: Forbs Cool season perennial grass

    Other: Trees, Shrubs, Shortgrasses, Annuals

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** There is some plant mortality and decadence on the perennial grasses, especially in the absence of fire and herbivory, but usually <5%.

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14. **Average percent litter cover (%) and depth (in):** Litter should cover 50 - 75% of the area between plants with accumulations of .5 - 1 inches deep.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Reference production is 2500 - 5500 pounds per 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:** No invasive species. Invasives might include: eastern redcedar, locust, salt cedar, Russian olive, annuals and non-natives. Also mesquite in the south.

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17. **Perennial plant reproductive capability:** All plants capable of reproducing at least every year.
