USDA Natural Resources
Conservation Service

Ecological site R038XA107AZ
Loamy Bottom 12-16 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	05/17/2006
Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Some rills may form due to loamy surface textures, moderate permeability, moderate runoff and the location of the site on flood plains.

2. **Presence of water flow patterns:** Water flow patterns will be common due to moderate permeability, moderate runoff, and the location of the site on flood plains.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and terracettes may be common due to loamy surface textures and the occasional-to-frequent flooding.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** This site has an average available water capacity of 11 inches, so it has a high potential for the production of plant cover. Drought may cause an increase in bare ground.

5. **Number of gullies and erosion associated with gullies:** Occasional gullies may form due to the location of the site on flood plains.

6. **Extent of wind scoured, blowouts and/or depositional areas:** There may be occasional areas with blowouts or

deposition by wind if plant cover and litter are removed and the soil is exposed by flooding.

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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous, fine woody, and coarse woody litter will be transported throughout the site during periodic flood events. Herbaceous and fine woody litter will also be transported in water flow pathways during heavy rain events.

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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 surface structure is mostly loam, without any rock fragments. When well vegetated and not subject to severe flood events, the soils have a moderate to high resistance to both water and wind erosion.

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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 either granular (moderate, fine) or platy (medium to thick). The surface thickness is generally 2 inches. Color is variable depending upon parent material.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This site is characterized by a patchy distribution of mostly grasses with a few shrubs and forbs. Both canopy and basil cover values decrease during a prolonged drought. This type of plant community is highly effective at capturing and storing moisture from precipitation and flooding.

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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):** The soils may be easily compacted due to loamy textures, lack of rock fragments, and occasional-to-frequent moisture from flooding. Many of the soils have a naturally platy surface structure.

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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: warm-season bunchgrasses

    Sub-dominant: warm-season colonizing grasses cool-season colonizing grasses

    Other: Minor: shrubs sedges = cool-seaon bunchgrasses = forbs
    Trace: none

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** All plant functional groups are adapted to survival in all years except during the most severe droughts. Severe winter drought affects shrubs and trees most. Severe summer drought affects grasses the most.

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14. **Average percent litter cover (%) and depth (in):** Mostly herbaceous litter with some woody litter. Litter amounts increase during the first few years of drought, then decrease in later years.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 900 to 1,050 pounds per acre (dry weight) in drought years, 1,050 to 1,350 pounds per are in median years, 1,350 to 1,500 pounds per acre in wet years.

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:** Rubber rabbitbrush is native to the site, but has the potential to increase and dominate with heavy grazing. Saltcedar tamarisk is an exotic shrub that can invade and dominate the site, especially in areas that have the most frequent flooding.

17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and are capable of producing seed, stems, and rhizomes in most years except during the most severe droughts.