Ecological site R041XB211AZ
Saline Bottom 8-12" 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	Byron Lambeth
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. However, this site can have a few rills (discontinuous, 30-50 feet long) when an associated feature such as an adjacent road drains water from the site.

2. **Presence of water flow patterns:** Water flow paths occupy 40-50% of the surface area. They are discontinuous, 20-50 feet in length and show signs of strengthening with recent drought.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are common on alkalai sacaton and mound saltbush. They are between 1-2 inches in height. Terracettes are uncommon on the site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground from the pace frequency transect (300 pts) done on site was 63%. Gravel cover was 0% and basal cover of live perennial grasses was 5%. Vegetation occurs in patches with bare areas up to 5-8’ diameter. Bare areas are generally connected.

5. **Number of gullies and erosion associated with gullies:** None

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):** Fine litter size classes are moving a few feet in bare areas and water flow areas. Coarse litter staying in place under grass and shrubs.

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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):** Values from a soil slake test average 3.3. About 50% of the ratings were 1-3s and 50% of the ratings were 4-6s.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** An1 horizon is a sandy clayloam, 1 inch thick with weak medium and thin platy structure and low organic matter. The An2 horizon (bisquit caps on columnar structure) is sandyloam with vesicular structure. Colors are 7.5 YR 7/2 dry and 7.5 YR 4/4 moist.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** A shrub, mound saltbush, and perennial grasses dominate the site. Alkalai sacaton grass canopy is 16.7% and mound saltbush canopy is 14% on this site. Annual forbs/grass canopy fluctuates with rainfall. Vegetation presents in a patchy distribution. Bare areas act as a watershed supplementing soil moisture of perennial vegetation patches.

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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, average depth of penetration from an ARS field penetrometer with a 2.2 kg. sliding hammer, set at 20 inches fall height, is 6.4 cm. The dense (massive structure) siltyclay Btknz1 horizon at 3 inches can feel like a compacted 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: perennial grasses = shrubs >

    Sub-dominant: annual grasses > annual forbs > perennial forbs > trees > succulents

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality estimated at about 20% on perennial grasses, likely due to drought and grazing.
    Mortality on shrubs is estimated at 10%, also likely due to drought and grazing.

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14. **Average percent litter cover (%) and depth (in):** Litter cover ranged from 13-32%. Litter was generally confined to vegetation patches.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 422 lbs/ac. in a below average year; 1060 lbs/ac. in an average year; 2070 lbs/ac. in an above average year. Production of summer annual grasses can exceed expected on years with above average seasonal precipitation.

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:** mesquite, tumbleweed and cocklebur

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