

Ecological site R041XB202AZ Clayey Swale 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	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:** Water flow paths occupy less than 5% of the surface area. Sheet flow dominates as a process on this site. Sheet flow lengths are 20-40 feet.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are common on tobosa and about 1 inch high. Terracettes (1-2' diam x 0.5" ht) are not common on the site making up less than 5% of the area.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is approximately 35-40%. Bare areas, 2'-8' in diameter, occasionally connected, are common. Bare areas are often masked by annuals and perennial herbaceous overstory.

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 2-3 feet in sheet flow areas. Coarse litter staying in place.
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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 of 2-3 in bare areas and 4-6 within vegetated patches.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A horizon is a silty clayloam, 0-3 inches thick with weak platy to weak, fine and medium subangular blocky structure. Colors are 10 YR 6/4 dry and 10 YR 4/3 moist.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Aspect is grassland. Perennial grasses (tobosa, burrograss and vine mesquite) dominate the site. Hydrology functions as sheet flow run-off supplementing soil moisture to perennial grass patches. Bare areas contribute to sheet flow and make up approximately 38% of area; vegetated areas are dense and occupy the remaining 62% of the area.
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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 5 cm. The dense (massive structure) silty clay C2 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 >
- Sub-dominant: annual grasses >> annual forbs > perennial forbs > large shrubs > sub-shrubs > succulents
- Other: large shrubs, sub-shrubs and succulents absent or in minor amounts
- 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 10% on perennial grasses, as expected for this site.
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14. **Average percent litter cover (%) and depth (in):** From the ESD, litter cover can be from 35-60% on this site.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 231 lbs/ac. in a below average year; 705 lbs/ac. in an average year; 1140 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, wolfberry, creosotebush, tumbleweed are present and can increase on the site but occur in trace amounts at present

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