Ecological site R041XB210AZ
Loamy Upland 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 predominates as a process on this site. Sheet flow lengths are less than 5 feet.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are infrequent on all longer lived grasses and sub-shrubs. Terracettes are common on the site only in black grama areas.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Twenty-three percent (23%) bare ground. Ground cover was collected as point cover data concurrently with pace frequency method (300 pts). Bare areas are up to 3’ in diameter, somewhat connected, and evenly distributed.

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

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

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter size classes are moving less than a foot. 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):** Slake test values range from 4-6 across site.

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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 gravelly sandyloam 3 inches thick with a weak subangular blocky structure. Colors are 7.5 YR 5/4 dry and 7.5 YR 3/4 moist.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Perennial grasses dominate the site, are well-distributed across the site, and play an important role in the infiltration/hydrologic functioning by interrupting, slowing, overland sheet-flow of water. Black grama canopy is 17% and spidergrass canopy is 29% on this site. Only cane cholla and prickly pear have increased on the site.

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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 is 4.9 cm. The clayey argillic 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: Dom.Per.Grasses = Per.Three-Awns >

    Sub-dominant: Dom.Shrubs > Misc.Per.Grasses = Half Shrubs = Succulents = Per.Forbs > Annuals

    Other:

    Additional: Annual grasses and forbs can fluctuate within the ranking based on seasonal precipitation.

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality due to drought (2009 and very dry winter spring of 2011) is significant only on cane cholla. All other species show only natural rates of mortality.

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14. **Average percent litter cover (%) and depth (in):** Litter cover can vary widely due to annual grass and forb production fluctuating with rainfall cycles.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 148 lbs/ac. in a below average year; 400 lbs/ac. in an average year; 825 lbs/ac. in an above average year. Annual grass and forb production can exceed expected values based on recent weather patterns.

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:** Cholla and prickly pear are to natural to this site and expand to 9% canopy (about 200 plants/ac.) Mesquite and catclaw acacia are natural to this site and appears to exist in normal amounts at 8% canopy cover and with a density of 40 plants/ac. Other invasive species present include both Lehmann lovegrass and Boer lovegrass.

17. **Perennial plant reproductive capability:** Not impaired by drought on any species.