

Ecological site R041XA110AZ Sandy Loam Upland 16-20" 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:** No water flow patterns evident. Reference site is nearly flat terrain (1-2% slope) lending to sheet flow across site. Expect waterflow pattern presence to increase in length and continuity with increasing slope; at the steepest slopes (10-15% slope), short, discontinuous water flow patterns may occupy up to 15% of the area.

3. **Number and height of erosional pedestals or terracettes:** Pedestals (<1") common on perennial grasses; no terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground after fire was 55% and decreased to 30% within 4 years. Bare (unvegetated) areas are uncommon and small (3-5 ft diameter)

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):** Most litter stays in place with some fine litter moving off bare areas.
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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):** Highly stable soil surface with cryptobiotic crust. Soil slake test value was "6" for all samples.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface horizon was a gravelly sandy loam, 0-4" depth, color 5YR 6/4 dry, 5YR 3/3 moist, granular structure immediately below a platy surface.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Perennial grass basal cover (7-15%) is evenly distributed across site. Low perennial grass basal cover is expected after fire or drought. Well-dispersed perennial grasses slow rainfall run-off allowing infiltration.
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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):** No compaction. Average depth of penetration from an ARS field penetrometer with a 2.2 kg. sliding hammer was 4.2 cm. Argillic horizon at 4" depth may be mistaken for compaction.
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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: Mid-grasses > short-grasses
- Sub-dominant: Perennial forbs > low shrubs
- Other: few succulents
- Additional: annual grasses and annual forbs fluctuate with rainfall
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little mortality during periods between fire and drought. Mortality from fire depends upon season and intensity of burn.
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14. **Average percent litter cover (%) and depth (in):** 30-50% litter cover with fire dynamic from 10 years of monitoring data encompassing 2 burns. Litter cover on the low end of the range is expected immediately post-burn and increases with favorable weather and time.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): 1084 lbs/ac. in a below average year; 1645 lbs/ac. in an average year; 2374 lbs/ac. in an above average year.

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: Lehmann lovegrass, Boer lovegrass, yellow bluestem, velvet mesquite
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17. **Perennial plant reproductive capability:** Not impaired.
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