

Ecological site R041XB215AZ Sandy Loam 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:** Rills have formed out of water flow paths in recent past. They are 10-30 feet in length and continuous with flow paths.

- 2. Presence of water flow patterns:** Water flow paths occupy 10% of the surface area. Steeper sections have flow paths which are continuous and smaller flow paths are discontinuous and 10-20 feet in length.

- 3. Number and height of erosional pedestals or terracettes:** Pedestals are common on all longer lived grasses and sub-shrubs and are from 1-2 inches in height. Terracettes are uncommon on the site except in water flow paths where they occur at 10-20 foot intervals in smaller flow paths.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare soil is 10-80%, gravel ranges from 5-35% and basal cover of live perennial grasses is 1-2%. Bare areas are 3-5' in diameter and 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):** Both fine and coarse litter size-classes are moving moderate distances (10-20 feet) in water flow paths, between vegetation patches, and on areas with increased slope. All litter size-classes are staying in place within vegetation patches and flat 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):** Values from a soil slake test ratings were 2-3s from outside canopy and were 4-6s from under canopy.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A horizon is 7 inches thick with a weak sub-angular 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 grass canopy cover ranges from 3-20%; sub-shrub cover 1-5%; tree cover 5-7%; succulents 1-2%; annuals are highly variable. The patch-distribution of perennial grass cover plays the primary role in slowing sheet flow run-off coming from bare areas and allowing infiltration. As tree cover increases on the site, surface water flow becomes more continuous, therefore, resulting in decreased 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):** None present, average depth of penetration from an ARS field penetrometer with a 2.2 kg. sliding hammer is 8.5 cm. The argillic horizon could be mistaken for 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 (black grama, bush muhly) > Per.3-awns > Misc.Per.Grasses = Ann.Grass >>
- Sub-dominant: Dom.Trees > Half Shrubs = Succulents = Dom.Shrubs (4-wing saltbush, catclaw) = Forbs >>
Misc.Shrubs.
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Plant mortality strongly affected by weather patterns; >20% mortality on perennial grasses and sub-shrubs can occur during short-term drought. Mortality on trees (<10%) is steady.
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14. **Average percent litter cover (%) and depth (in):** From the ESD, litter cover can be from 15-65% on this site.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 217 lbs/ac. in a below average year; 550 lbs/ac. in an average year; 1065 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: Mesquite (mesquite canopy should be less than 5% on this site). Other invasive species present include both Lehmann and Boer lovegrass.
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17. **Perennial plant reproductive capability:** Moderately impaired by drought on perennial grass and sub-shrub species.
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