USDA Natural Resources
Conservation Service

# Ecological site R035XB232AZ
# Limestone/Sandstone Upland 6-10" 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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| Date | 11/16/2010 |
| Approved by | Steve Barker |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** None. May see a few short rills on steeper slopes.

2. **Presence of water flow patterns:** None. May see a few short flow patterns on steeper slopes

3. **Number and height of erosional pedestals or terracettes:** None.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Expect 30 to 35 percent bare ground.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Vegetative cover and rock fragments on soil surface proctect the soil surface against wind erosion.

7. **Amount of litter movement (describe size and distance expected to travel):** Expect very little litter movement.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Expect an average soil surface stability value of 3.0 to 4.0. The average value under canopy is 5.0 to 6.0. The average value on non-canopied areas is 2.3 to 3.6. In areas with substantial rock outcrop the values should be expected to be on the higher end of these ranges and, conversely, areas with less rock outcrop expect the values to be on the lower end of these ranges.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** SOM is naturally very low in soils associated with this ecological site. A-horizons may be very hard to distinguish even in reference state. Evidence of SOM loss is noticeable sheet erosion, rills, water flow patterns, wind scouring, litter movement and/or reduced soil surface stability scores.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Expect shrubs to be randomly, but uniformly scattered across the ecological site. Herbaceous vegetation is generally uniformly scattered within the interspaces, but may be in patches, especially galleta and black grama. Expect larger patches without herbaceous vegetation in areas where bedrock is at or very near the surface. The average fetch (the distance from a sample point, such as line point, to the nearest perennial plant) is 5 to 15 inches. Extremes of 0 (basal occurences) to as high as 41 inches (areas with bedrock at or near the surface) should be expected. Typically the range will be 3 to 18 inches.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.

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: Shrubs

    Other:

    Additional: Warm season perennial grasses > shrubs> cool season perennial grasses >> native forbs > native annual grasses > exotic annual grasses and forbs.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Expect to see some evidence of decadance in longer lived perennial bunch grasses, such as black grama and to a lesser extent Indian ricegrass. Expect to see some dead fourwing saltbush in various stages of decay, but should be less than 10 percent of the total number of plants.

14. **Average percent litter cover (%) and depth ( in):** In ungrazed areas the majority of litter seen in interspaces is from annual forbs and grasses. Even this tends to remain standing for several months after the plant has senesced. Leaf litter from shrubs tends to stay within a few inches of the dripline of the shrub. Litter from perennial grasses and forbs often remains standing for several years.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Expect in an average year 350 to 450 pounds per acre (air-dried).

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:** Invasives plants expected in minor amounts are Russian thistle, cheatgrass and red brome. The total annual production of these should never be more than 10 pounds per acre (air-dried).

17. **Perennial plant reproductive capability:** The only natural limitations to reproductive capability are weather related and natural disease or herbivory that reduces reproductive capability.