

## Ecological site R035XB251AZ Mudstone/Sandstone Hills 6-10" p.z. Warm

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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	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### Indicators

1. **Number and extent of rills:** Some rilling is expected, especially on the steeper slopes where rill intervals may be as close as 15 to 20 feet.

2. **Presence of water flow patterns:** Some water flow patterns are expected, especially on the steeper slopes where water flow pattern intervals may be as close as 20 to 25 feet.

3. **Number and height of erosional pedestals or terracettes:** Pedestalling and/or terracettes are rare.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Although interspaces may appear bare the soil surface is covered with rock fragments. Bare ground is generally somewhere between 2 to 20 percent.

5. **Number of gullies and erosion associated with gullies:** Deeply incised water flow patterns do occur, especially on the steeper slopes.

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):** Litter in interspaces is easily moved. Litter under shrubs generally stays 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):** Expect an average soil surface stability value of 1.5 to 2. The average value under canopy should be 4 to 6. The average value on non-canopied areas is 1 to 2.
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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 excessive sheet erosion, rills, water flow patterns, wind scouring, litter movement and/or reduced soil surface stability scores.
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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. Interspaces are generally 15 to 20 feet.
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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.
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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: Shrubs
- Sub-dominant: Forbs
- Other: Grasses
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Expect up to 10 percent mortality on long-lived shrubs.
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14. **Average percent litter cover (%) and depth ( in):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Expect in an average year 125 to 175 pounds per acre (air-dried).
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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: Invasive plants expected in minor amounts are Russian thistle and filaree. The total annual production of these combined should never be more than one pound per acre.

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