USDA Natural Resources
Conservation Service

# Ecological site R035XB283AZ
# Mudstone Slopes 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 | 07/31/2012 |
| Approved by | |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** Somewhat common, due to steep slopes and low vegetation cover. Rills over 10 feet long can be expected. Site with significant amounts of coarse fragments will have shorter rills and less frequent.

2. **Presence of water flow patterns:** Somewhat common throughout site. Flow patterns may be long and sinuous and connected on steepest slopes. On sites with scattered coarse fragments and plant cover will have less evident flow patterns.

3. **Number and height of erosional pedestals or terracettes:** Some long-lived plants may show some slight pedestals of less than a ½” on slopes. Terracettes are few.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Expected bare ground ranges 75-95 percent. Do not count shale/rock fragments or functioning biological soil crust as bare ground.

5. **Number of gullies and erosion associated with gullies:** Very few to some. Most sites are moderately well-drained. When site is vegetated and covered with rock fragments gullies should show signs of minor active erosion.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Deposition and blowouts by wind are not expected. Some deposition by water can be expected around herbaceous plants and other obstructions.

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7. **Amount of litter movement (describe size and distance expected to travel):** Due to steepness of the site, litter redistribution by water is common and expected in water flow patterns, plant bases and other obstruction. Litter movement of 5-15 feet can be expected.

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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):** The expected average soil stability is 2 or 3. Surface fragments, litter, and vegetation cover aid in reducing erosion.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface horizon is 2 to 3 inches deep. Structure is moderate thin platy parting to moderate fine granular structure. Surface color can vary depending on parent material. See the specific information for the soils you are assessing in the local published soil survey.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Due to steepness and high amounts of bare ground and only scattered rock fragments on the site, vegetation only has a minimum effect on infiltration and runoff. This site is characterized by a relatively patchy distribution of shrubs with scattered grasses and lends to slowing runoff and allowing for some infiltration, if only minimal.

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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. Some site are very shallow to shale fragments or weathered bedrock within 10 inches of the surface.

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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: Salt tolerant Shrubs (Shadscale & Mound saltbush) > > Perennial grasses

    Sub-dominant: Annual forbs > Annual grasses > other 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):** All plant functional groups are adapted to survival in all but the most severe droughts. Severe winter droughts affect the shrubs the most. Severe summer droughts affect grasses the most.

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14. **Average percent litter cover (%) and depth ( in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** The expected annual total production in an average year is 40 – 60 lbs/ac.

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:** Shadscale, mound saltbush, and annual forbs are native to the site but may have the potential to increase with continued surface disturbance. Cheatgrass, annual wheatgrass, and Russian thistle are non-native annuals that have the potential to invade the site with or without disturbance.

17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and are capable of producing seeds, stolons, and/or rhizomes during the most severe droughts.