USDA Natural Resources
Conservation Service

Ecological site R035XB206AZ
Sandy Upland 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	Stephen E. Cassady
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:** None expected due to rapid permeability and very low runoff characteristics of soils.

3. **Number and height of erosional pedestals or terracettes:** No pedestal and terracettes, some mounding around long-lived perennial shrubs and grasses

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 40-70% and can vary considerably due to the droughty nature of the site. Bare ground may be higher where this site intergrades with active sand dunes.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Uncommon.

7. **Amount of litter movement (describe size and distance expected to travel):** No appreciable movement of woody litter, some fine herbaceous litter movement expected by wind

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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):** Soils associated with this site develop a thin crust (physical or biological crust) resistant to erosion. Expected values of 2-3

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface of soils associated with this site are single grained; loose. Most surface textures are fine sands, but include sand and loamy fine sands.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The site is characterized by a mix of shrub canopy (60%), scattered grasses (35%) and forbs (5%). A good mix of perennial bunchgrasses provide the best infiltration on the site.

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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: Cool–season perennial grasses >= warm–season grasses > half-shrubs

    Other: Annual forbs > perennial forbs >= annual grasses

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** In normal years mortality is very low for all functional groups. Less than 10% canopy decline in shrubs and perennial grasses. Summer droughts affect warm-season grasses the most and winter droughts affect shrubs and cool-season grasses the most.

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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):** In normal rainfall years about 350 lbs/ac is expected.

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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: Cheat grass and/or red brome, Russian thistle and other introduced annual forbs

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