

## Ecological site R072XY111KS Sandy Plains

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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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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:** Typically none to slight. If present, are broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers.

3. **Number and height of erosional pedestals or terracettes:** Pedestalled plants caused by wind or water erosion would be minor.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10% or less bare ground, with bare patches ranging from 3-5 inches in diameter. Prolonged drought or wildfire events will cause bare ground to increase upwards to >10% with bare patches ranging from 8-12 inches in diameter.

5. **Number of gullies and erosion associated with gullies:** There are no gullies present on this site.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** Minor wind scouring may occur on knolls. Wind erosion can occur with disturbances such as wildfire or extended drought.
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7. **Amount of litter movement (describe size and distance expected to travel):** Litter should be uniformly distributed with little movement.
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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):** Plant canopy is sufficient to intercept the majority of raindrops. Soil organic matter is incorporated into aggregates at the surface, and/or adhesion of decomposing organic matter is present, and/or biological crusts are present on the surface. Soil stability scores will range from 4-6.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** SOM ranges from 2-4%. A-horizon ranges from 0-7 inches. Soils are very deep, very dark brown (10YR 2/2) moist; loamy sand; weak fine granular structure.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Diverse grass, forb, shrub canopy, and root structure reduces raindrop impact and slows overland flow, providing increased time for infiltration to occur. Extended drought and/or wildfire may reduce canopy cover and litter amounts, resulting in decreased infiltration and increased runoff on steeper slopes.
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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):** There is no evidence of compacted soil layers due to animal impact or cultural practices.
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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: Warm season dominant 43%; sand bluestem > prairie sandreed > blue grama > little bluestem
- Sub-dominant: Tall mid warm cool season grasses 26%; switchgrass = needleandthread >> Indiangrass = switchgrass  
Tall short warm cool season 13%; sand dropseed = western wheatgrass >> buffalograss
- Other: Forbs-Legumes 10%; Shrubs 5%
- Additional: See functional/structural group sheet for this site.
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** The majority of plants are alive and vigorous. Some mortality and decadence is expected for the site. This in part is due to drought, unexpected wildfire, or a combination of the two events. This would be expected for both dominant and subdominant groups.
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14. **Average percent litter cover (%) and depth ( in):** 40-65% litter cover at 0.25-0.50 inch depth. Litter cover during and following drought can range from 20-30% and 5-15% following wildfire.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 900 lbs./ac. low precip years, 1800 lbs./ac. average precip years, 2500 lbs./ac. high precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 500 lbs./ac. or more.
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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 should not occur in Reference Plant Community. Following wildfire or extended drought, cheatgrass, Russian thistle, and kochia will invade assuming a seed source is available. Blue grama, sand dropseed, and Fendler threeawn are the major native (non-invasive) increasers on this site.
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17. **Perennial plant reproductive capability:** The only limitations are weather-related, wildfire, natural disease, and insects that may temporarily reduce reproductive capability.
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