

Ecological site R067BY045CO Shaly 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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Approved by	Kirt Walstad
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, if flow patterns are present, they are short and not connected with debris or obstacle dams.

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):** 3 percent or less bare ground, with bare patches generally less than 2 to 3 inches in diameter. Extended drought can cause bare ground to increase upwards to 10 to 20 percent with bare patches reaching upwards to 6 to 12 inches in diameter.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is minimal and travels a short distance.
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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):** Stability class rating is anticipated to be 4 to 6 in interspaces at soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** SOM ranges from 1 to 2 percent. Soils formed in clayey material underlain by shale. A-horizon color is light grayish-brown at 0 to 6 inches in depth. Structure is moderate fine to very fine granular and calcareous.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Raindrop impact is reduced by the diverse grass, forb, shrub functional/structural groups and root structure. This slows overland flow and provides increased time for infiltration to occur. Extended drought, wildfire or both may reduce basal density, canopy cover, and litter amounts (primarily from tall, warm-season bunch and rhizomatous grasses), resulting in decreased infiltration and increased runoff on steep slopes following intense rainfall events.
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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: Warm-season mid bunchgrass >
- Sub-dominant: Cool-season mid rhizomatous > cool-season mid bunchgrass >= warm-season short bunchgrass = shrubs >
- Other: forbs > warm-season short rhizomatous
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Typically minimal. Expect slight short and mid bunchgrass and shrub mortality and decadence during and following drought.
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14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought ranges from 20 to 30 percent.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 450 lbs./ac. low precip years; 850 lbs./ac. average precip years; 1300 lbs./ac. high precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 250 – 400

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. Russian thistle, burningbush, or other non-native species may invade following extended drought or fire assuming a seed source is available.
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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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