

Ecological site R067BY036CO Overflow

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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

- Number and extent of rills:** None

- Presence of water flow patterns:** Typically none, if water flow patterns are present, they are short and not connected.

- Number and height of erosional pedestals or terracettes:** None

- 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.

- Number of gullies and erosion associated with gullies:** None

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

7. **Amount of litter movement (describe size and distance expected to travel):** Minimal and short. Extreme flooding events causes litter to be displaced or captured.
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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 5 to 6 in interspace at soil surface. Soil surface is stabilized by decomposing organic matter. Biological crusts (lichens, algae, cyanobacteria, mosses) may be present on or just below soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM is 2 to 4 percent. Soils are typically deep and well drained. Surface texture ranges from loam to silt loam. A-horizon ranges from 0 to 7 inches in depth with a pale brown color. Structure is weak medium sub-angular blocky to strong fine granular.
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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: Cool-season mid rhizomatous grass = warm-season tall bunchgrass >
- Sub-dominant: Cool-season mid bunchgrasses > shrubs >
- Other: Warm-season short bunchgrass = warm-season mid bunchgrass = leguminous forbs = other forbs > warm-season short stoloniferous grass
- 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.
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14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought ranges from 25 to 35 percent.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): 1200 lbs./ac. low precipitation years; 2000 lbs./ac. average; 2800 lbs./ac. above average. After extended drought or the first growing season following wildfire, production may be significantly reduced by 500 – 1000 lbs./ac. or more.

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 the reference plant community. Cheatgrass, Russian thistle, burningbush, and other non-native annuals 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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