Ecological site R067BY008CO
Loamy Slopes

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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.

Author(s)/participant(s)	
Contact for lead author	
Date	11/01/2022
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 present, water flow patterns are on steeper slopes following intense storms, short and not connected.

3. **Number and height of erosional pedestals or terracettes:** None. “Cat-steps” naturally occur on this site.

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 2-3 inches in diameter. Extended drought can cause bare ground to increase upwards to 10-20 percent with bare patches reaching upwards to 6-12 inches in diameter. Cross sectional viewing of this site appears to have more bare ground than vertical viewing due to cat-steps.

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):** Minimal and short. Movement of 1-2 feet is possible following intense rain storms.

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 5-6 in interspace at soil surface.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soils are typically deep to very deep. Surface texture is typically silt loam. The A-horizon is 0-4 inches in depth. Soil is grayish brown, weak fine platy to weak fine granular structure.

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.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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 >

    Sub-dominant: Cool-season bunchgrass and grasslikes > warm-season short bunchgrass > warm-season mid bunchgrass > shrubs > leguminous forbs >

    Other: Warm-season short stoloniferous > warm-season forbs > cool-season forbs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Typically minimal. Expect slight mortality and decadence during and following drought, fire, and long-term lack of disturbance.

14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought ranges from 15-30 percent.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 500lbs./ac. low precip years; 1000 lbs./ac. average precip years; 1500 lbs./ac. above average precip

years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 350 – 600 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. 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.
