USDA Natural Resources
Conservation Service

Ecological site R070AY002NM
Clayey Upland

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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	Kendra Moseley
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 (steeper slopes following intense storm events) short and not connected.

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):** 15-25 percent or less bare ground with bare patches generally less than 5 inches in diameter. Extended drought can cause bare ground to increase and bare patches are more evident.

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

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

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7. **Amount of litter movement (describe size and distance expected to travel):** Minimal and short small fine litter movement is more prevalent with any increase of slope or extreme storm events.

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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 anticipated to be 5-6 in interspaces at soil surface. These values need verification at reference site.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM is 1-5 percent. (Litle) A1-0 to 6 inches; grayish brown (10YR 5/2) clay loam, dark grayish brown (10 YR 4/2) moist; weak very fine granular structure; soft, very friable, sticky and plastic; many very fine and fine roots; strongly effervescent; 5 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

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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 functional/structural groups and diverse root structure/patterns reduces raindrop impact slows overland flow providing increased time for infiltration to occur. Extended drought reduces short and mid bunchgrasses causing decreased infiltration and increased runoff.

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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 short bunchgrasses

    Sub-dominant: Cool-season mid rhizomatous=Warm-season bunchgrass>Warm-season mid rhizomatous>Warm-season stoloniferous>shrub

    Other: Warm-season forbs>Cool-season forbs> annual native grasses

    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 short/mid bunchgrasses mortality/decadence during or following drought.

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14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought ranges from 10-20 percent.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): (Low Production 400 pounds per acre) (Average RV Production 800 pounds per acre) (High Production 1,200 pounds per acre) Production can be reduced following extended drought or in the first growing season following wildfire.

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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. However, cheatgrass, Russian thistle, kochia, and other non-native annuals may invade following extended drought if a seed source is available. Oneseed juniper may encroach from adjacent sites with lack of fire.

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17. **Perennial plant reproductive capability:** All plants should be vigorous, healthy and reproductive depending on disturbances i.e. drought. Plants should have numerous seed heads, vegetative tillers etc. The only limitations are weather, wildfire, and natural disease that may temporarily reduce reproductive capability.
