USDA Natural Resources
Conservation Service

Ecological site R036XB007NM
Malpais

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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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Date	09/27/2023
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** There are few to no rills.

2. **Presence of water flow patterns:** Water flow patterns are minimal to none.

3. **Number and height of erosional pedestals or terracettes:** There are minimal pedestals or terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground averages 10 percent.

5. **Number of gullies and erosion associated with gullies:** There are minimal or no gullies.

6. **Extent of wind scoured, blowouts and/or depositional areas:** There is minimal wind scouring.

7. **Amount of litter movement (describe size and distance expected to travel):** There is very little litter movement. Some movement is expected after major precipitation events.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** The stability should range from 4 to 6.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The A horizon is 0 to 4 inches in depth, and the hue ranges from 7.5 YR to 10 YR. The surface structure is typically sub-angular block or granular.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The composition/distribution of cool rhizomatous grasses, bunchgrasses and scattered shrubs tend to slow overland flow and reduce raindrop impact while improving infiltration.

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: WS Grasses>CS Grasses and Grasslikes.

    Sub-dominant: Shrubs>>Forbs>Trees

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** During years with average to above-average precipitation, there should be very little recent mortality or decadence apparent in either the grasses or shrubs.

14. **Average percent litter cover (%) and depth (in):** Litter ranges from 10 to 20 percent with an average depth of .25 inches.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** The total production ranges from 200 to 500 pounds per acre, averaging 350.

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: Tree species such as pinon and juniper can invade this site causing decreased hydrologic function.

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17. **Perennial plant reproductive capability:** During years with average to above average growing conditions, all perennial plants should have the ability in most years to produce see, tillers, or sprouts. Natural events that cause limitations to plant reproductive capability include: wildfire, drought, natural disease, inter-species competition, insect cycles, and wildlife activity.
