USDA Natural Resources
Conservation Service

Ecological site R012XY041ID
Gravelly 7-10 PZ ATCO/SPCR

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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)	
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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:** Rills rarely occur on this site. They are most likely to occur immediately following a wildfire. Gravels on the surface reduce erosion.

2. **Presence of water flow patterns:** Water flow patterns are rare on this site. When they do occur, they are short, disrupted by cool season perennial grasses, medium shrubs and gravels and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** Erosional pedestals or terracettes are rare on this site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 25-40 percent.

5. **Number of gullies and erosion associated with gullies:** Gullies do not occur on this site.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Blowouts and depositional areas are usually not present.

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 2-3 feet or further following a significant run-off event. Coarse litter generally does not move.

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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):** Values should range from 3 to 5 but need to be tested.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure ranges from weak thin platy to weak medium, coarse or moderate very fine, fine subangular blocky. The A or A1 horizon is typically 3 to 9 inches thick. Soil organic matter (SOM) ranges from 0.5 to 1 percent.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Bunchgrasses, especially deep-rooted, slow run-off and increase infiltration.

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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):** Compaction layer is not present.

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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: Medium shrubs>>

    Sub-dominant: Warm season deep-rooted perennial bunchgrasses>cool season bunchgrasses >perennial forbs> shallow rooted bunchgrasses

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little decadence is expected to occur on this site. Mortality can occur following a mealy bug infestation and extended drought.

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14. **Average percent litter cover (%) and depth (in):** Annual litter cover in the interspaces will be 5-10 percent to a depth of <0.1 foot. Under the mature shrubs, litter is greater than 0.5 inches. Fine litter can accumulate on the terracettes.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production is 225 lbs. per acre in a year with normal precipitation and temperatures. Perennial grasses produce 35-45 percent of the total, forbs 5-10percent and shrubs 50-60 percent.

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 species include cheatgrass, annual kochia, annual mustards, Russian thistle and halogeton.

17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in normal years.