USDA Natural Resources
Conservation Service

Ecological site R051XY278CO
Valley Bench 8-12 PZ

Last updated: 9/07/2023
Accessed: 05/04/2024

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)	C. Villa, H. Garcia, T. Lucero
Contact for lead author	
Date	12/14/2004
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to slight. If present, very short and apparent following intense rainfall events, on steeper slopes.

2. **Presence of water flow patterns:** None, except following high intensity storms. Flow paths if present will be short (1-3 feet), with minimal evidence of past or current soil deposition. Evidence of debris dams possible.

3. **Number and height of erosional pedestals or terracettes:** None to slight. Terracettes/pedestals may occur in or near edges of flow paths. More obvious following intense storms, especially on steeper slopes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10-15% bare ground, with bare patches averaging 3-6 inches in diameter. Extended drought can cause bare ground to increase up to 20% with bare patches averaging 6-12 inches in diameter and may become interconnected.

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):** Litter movement is minimal and short.

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 4-5 in interspaces at soil surface.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soils are deep and well drained. Surface soils range from fine sandy loam, sandy loam to loam. The A-horizon is yellowish brown to dark yellowish brown that can extend to up 9 inches in depth. The structure is typically weak fine granular.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The composition and distribution of rhizomatous grass, bunchgrasses and shrubs tends to slow overland flow and moderate runoff. Diverse canopy structure reduces raindrop impact allowing for increased time for infiltration. Extended drought reduces grass and forb production causing decreased infiltration and increased runoff following intense storms.

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 rhizomatous grass = shrubs >

    Sub-dominant: cool season bunchgrass > warm season bunchgrass >

    Other: forbs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Minimum. Expect some natural mortality and decadence on bunchgrasses and shrubs. Extended drought will cause mortality and decadence to increase.

14. **Average percent litter cover (%) and depth (in):** 15-25% litter cover at 0.25 inch depth. Litter cover during and following extended drought ranges from 10-15%.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 600 lbs./ac. low precip years; 900 lbs./ac. average precip years; 1200 lbs./ac. above average precip years. After extended drought, production can be reduced by 300 – 600 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:** Greene's rabbitbrush, pricklypear cactus, broom snakeweed, big sagebrush

17. **Perennial plant reproductive capability:** The only limitations are weather-related, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability.