USDA Natural Resources
Conservation Service

Ecological site R051XY294CO
Valley Sand

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)	S. Woodall, C. Villa, K. Diller
Contact for lead author	Rachel Meade, CO NRCS State Rangeland Management Specialist
Date	12/15/2004
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:** Very slight and short, if at all

3. **Number and height of erosional pedestals or terracettes:** Pedestalled plants are common at or near wind scoured areas.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 30% or less bare ground, with bare patches ranging from 5-10 inches in diameter. Prolonged drought or wildfire events will cause bare ground to increase upwards to 15-30% with bare patches ranging from 10-20 inches in diameter.

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind scouring is inherent to this site. Soil movement can intensify with disturbances such as wildfire, wildlife, or extended drought.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter will move on this site. Interspaces can be void of litter. Litter collects around base of established vegetation.

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 2-3 in interspace at soil surface.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface soils are usually a loamy fine sand. The A-horizon averages 0-8 inches in depth with a brown to a grayish brown or brownish gray color. Single grain to a weak fine granular structure.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community composition has a moderate effect on infiltration and runoff on this site. Infiltration rates are high. These soils have a low water holding capacity and moderately rapid to rapid permeability.

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 bunchgrass = shrubs >

    Sub-dominant: warm season bunchgrass > cool season rhizomatous grass = shrubs = forbs

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Minimal. Decadence will exist on areas inaccessible to grazing animals.

14. **Average percent litter cover (%) and depth (in):** 20-30% litter cover at 0.25 inch depth. Litter cover during and following drought can range from 10-15% and 5-10% following wildfire.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 400 lbs./ac. low precipitation years; 800 lbs./ac. average precipitation years; 1,000 lbs./ac. high precipitation years. After extended drought, production will be reduced to 200 – 400 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:** Invasive plants should not occur in reference plant community.

---

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