

Ecological site R060AY043SD Shallow Porous Clay

Accessed: 05/07/2024

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)	Stan Boltz, Mitch Iverson, Thad Berrett, Cheryl Nielsen
Contact for lead author	stanley.boltz@sd.usda.gov, 605-352-1236
Date	07/14/2008
Approved by	Stan Boltz
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- Number and extent of rills:** Rills are common on this site, and are connected, beginning formation of small gullies. This occurs on areas where little to no vegetation is present (these areas are natural on this site to varying degrees).

- Presence of water flow patterns:** Usually not evident.

- Number and height of erosional pedestals or terracettes:** Pedestals are sometimes present, but not common. Vegetated areas adjacent to bare shale areas are sometimes elevated above shale.

- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Extremely variable. Bare soil under tree canopy does not count towards this bare ground value. This site naturally has relatively large areas of bare shale in association with areas covered by vegetation. Vegetated areas would typically range from 20 to about 40 percent bare ground, while the areas of bare shale can be 100 percent bare ground.

- Number of gullies and erosion associated with gullies:** Some relatively shallow V-shaped drainages may appear in areas with rolling topography. Very shallow gullies are more likely to form where smaller particle size topsoil is present above shale beds.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Relatively small blowouts can be present where smaller sized shale chips are dominant on the surface. These areas are typically less than 2 acres in size.
-
7. **Amount of litter movement (describe size and distance expected to travel):** Litter typically falls in place. Slight movement of smaller size class litter, typically where concentrated flow paths exist.
-
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** On vegetated areas, soil aggregate stability ratings should typically be 5 or greater. Surface organic matter adheres to the soil surface. Soil surface fragments will typically retain structure for 1 minute or longer when dipped in distilled water.
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** In vegetated areas where the A-horizon is present, it should be 2 to 6 inches thick with dark grayish brown colors when moist. Structure should typically be moderate fine granular in the A-horizon.
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Combination of shallow and deep rooted species (mid & tall rhizomatous and tufted perennial cool- and warm-season grasses) with fine and coarse roots positively influences 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: Mid warm-season bunchgrasses >
- Sub-dominant: Grass-likes > forbs > cool-season mid rhizomatous grasses = tall warm-season rhizomatous grasses >
- Other: Short/mid warm-season rhizomatous grasses = shrubs = trees
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little evidence of decadence or mortality. Bunch grasses have strong, healthy centers and shrubs are vigorous.
-
14. **Average percent litter cover (%) and depth (in):**
-
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Production ranges from 700-1,200 lbs./acre (air-dry weight). Reference value production is 1,000 lbs./acre

(air-dry weight).

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: State and local noxious weeds
-
17. **Perennial plant reproductive capability:** All species exhibit high vigor relative to climatic conditions. Do not rate based solely on seed production. Perennial grasses should have vigorous rhizomes or tillers.
-