USDA Natural Resources
Conservation Service

Ecological site R078CY014OK
Rolling Sands

Last updated: 9/15/2023
Accessed: 05/10/2025

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)	Colin Walden (Edited original version by Mark Moseley & Jack Eckroat 2004)
Contact for lead author	colin.walden@ok.usda.gov
Date	08/01/2013
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** There should be no rills due to the rapidly permeable soils

2. **Presence of water flow patterns:** No water flow patterns should be present

3. **Number and height of erosional pedestals or terracettes:** Rare occurence of pedestals <1inch on areas of steeper slopes

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Some variability from year to year with precipitation patterns. No more than 15%

5. **Number of gullies and erosion associated with gullies:** No evidence of gullies

6. **Extent of wind scoured, blowouts and/or depositional areas:** No evidence of wind scouring

7. **Amount of litter movement (describe size and distance expected to travel):** Very little litter movement due to rapidly

permeable soils

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil Stability scores of 5 and 6 for canopy and interspaces

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** 0 to 16 inches; brown (7.5YR 5/4) crushed loamy fine sand, brown (7.5YR 4/4) crushed moist; weak medium subangular blocky structure parting to structureless, single grained; loose, very friable, non sticky, non plastic

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Very little runoff due to rapidly permeable soils regardless of functional group proportions

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction Layer

---

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: Warm-Season Midgrasses & Tallgrasses codominant

    Sub-dominant: Perennial Forbs>Shrubs>Cool-Season Grasses>Annuals

    Other:

    Additional: Some of the soil series associated with the Rolling Sands Ecological Site sustain populations of plants that would refer to a different ecological site. Refer to 078CY017 or 080AY018 based on the dominant overstory of shrub or other woody species.

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Some mortality from year to year < 10%

---

14. **Average percent litter cover (%) and depth (in):** Litter cover should average 75% at a depth of 1/2 inch

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1500 - 4500 lb/ac

---

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: Potential invases: Eastern Redcedar, Brome, Sericea Lespedeza(uncommon).

---

17. **Perennial plant reproductive capability:** All plants should be capable of reproducing every 2-3 years

---