USDA Natural Resources
Conservation Service

Ecological site R058CY096ND
Clayey Terrace

Last updated: 10/31/2018
Accessed: 04/10/2024

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)	Chris Tecklenburg Revision of this reference sheet derived from MLRA 58C Loamy Terrace on 11/06/2017. J. Printz, S. Boltz, R. Kilian, D. Froemke, M. Rasmusson original authors of MLRA 54 Loamy Terrace 5-12-2011.
Contact for lead author	Mark Hayek, USDA-NRCS, State Rangeland Management Specialist, Bismarck, ND. Mark.Hayek@nd.usda.gov
Date	11/06/2017
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills should not be present.

2. **Presence of water flow patterns:** Barely observable.

3. **Number and height of erosional pedestals or terracettes:** Essentially non-existent.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is less than 10%.

5. **Number of gullies and erosion associated with gullies:** Active gullies should not be present. Existing gullies should be “healed” with a good vegetative cover.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None.

7. **Amount of litter movement (describe size and distance expected to travel):** Little to no litter movement. Plant litter remains in place and is not moved by erosional forces.

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Plant cover and litter is at 90% or greater of soil surface and maintains soil surface integrity. Stability class anticipated to be 5 or greater.

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A1--0 to 1 inch; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; platy structure; soft, friable, sticky and plastic; neutral; abrupt smooth boundary.

   A2--1 to 5 inches; grayish brown (2.5Y 5/2) clay, very dark grayish brown (2.5Y 3/2) moist; weak medium and fine angular blocky structure; extremely hard, very firm, very sticky and very plastic; neutral; gradual wavy boundary.

   A3--5 to 10 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; moderate very fine angular blocky structure; extremely hard, very firm, very sticky and very plastic; slightly alkaline; gradual wavy boundary. (Combined A horizons 3 to 12 inches thick)

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** High grass canopy and basal cover and small gaps between plants should reduce raindrop impact and slow overland flow, providing increased time for infiltration to occur. Healthy, deep rooted native grasses enhance infiltration and reduce runoff.

---

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 or soil surface crusting should be evident.

---

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, cool-season rhizomatous grasses = mid, cool-season bunchgrasses >

    Sub-dominant: shrubs >

    Other: tall, rhizomatous warm-season grasses = forbs > short, warm-season grasses > grass-likes > trees

    Additional: Due to differing root structure and distribution, Kentucky bluegrass and smooth bromegrass do not fit into reference plant community F/S groups.

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or**

decadence): Very low.

---

14. **Average percent litter cover (%) and depth (in):** Litter cover is in contact with soil surface.

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Representative value = 2300 lbs/ac with a range of 1600 lbs/ac to 3010 lbs/ac (air dry weight) depending upon growing conditions

---

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, smooth bromegrass, Kentucky bluegrass, Russian Olive.

---

17. **Perennial plant reproductive capability:** All species are capable of reproducing.
