

## **Ecological site R053BY002ND Claypan**

Last updated: 3/31/2025  
Accessed: 05/20/2025

---

### **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)	USDA-NRCS North Dakota
Contact for lead author	NRCS State Rangeland Management Specialist
Date	10/31/2021
Approved by	Suzanne Mayne-Kinney
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### **Indicators**

1. **Number and extent of rills:** Rills are not expected on this site.
- 

2. **Presence of water flow patterns:** Water flow patterns are not visible.
- 

3. **Number and height of erosional pedestals or terracettes:** Neither pedestals nor terracettes are expected on this site.
-

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%. Bare ground patches should be small (less than 2 inches in diameter) and not connected. Animal activity (burrows and ant mounds) may occasionally result in isolated bare patches of up to 24 inches in diameter.
- 
5. **Number of gullies and erosion associated with gullies:** Active gullies are not expected on this site. If present, gully channel(s) are fully vegetated with no active erosion visible.
- 
6. **Extent of wind scoured, blowouts and/or depositional areas:** No wind-scoured or depositional areas expected on this site.
- 
7. **Amount of litter movement (describe size and distance expected to travel):** Plant litter movement not expected on this site.
- 
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Stability class anticipated to average 5 or greater.
- 
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure is medium or fine granular within the upper A-horizon. A- horizons for this ecological site range from 4 to 7 inches thick with mollic colors. Hue 10YR, value of 3 or less moist or 5 or less dry, and chroma 2 or less moist.
- 
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Mid- and short-statured bunchgrass are dominant and well distributed across the site. Mid- and short-statured rhizomatous grasses, forbs and grass-like are subdominant.
- 
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layers. Plant root growth expected to be limited by the naturally occurring pan 8 to 15 inches below

the surface.

---

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: Phase 1.1

Mid & short C3 bunch grasses (5)

Sub-dominant: Phase 1.1

Mid & short C3 rhizomatous grasses (1); Mid & short C4 bunch grasses (1); Forbs (8); Grass-likes (2)

Other: Minor - Phase 1.1

Shrub; Mid & short C4 rhizomatous grasses

Additional: Due to differences in phenology, root morphology, soil biology relationships, and nutrient cycling Kentucky bluegrass, smooth brome, and crested wheatgrass are included in a new Functional/structural group, mid- and short-statured early cool-season grasses (MSeC3), not expected for this site.

To see a full version 5 rangeland health worksheet with functional/structural group tables. Please use the following hyperlink:

[https://efotg.sc.egov.usda.gov/references/public/ND/53B\\_Claypan\\_Narrative\\_FINAL\\_R](https://efotg.sc.egov.usda.gov/references/public/ND/53B_Claypan_Narrative_FINAL_R)

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Rare to not occurring on this site.
- 

14. **Average percent litter cover (%) and depth ( in):** Plant litter cover is 50 to 70% with a depth of 0.25 to 0.5 inches. Litter is in contact with the soil surface.
- 

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual air-dry production is 1700 lbs./ac (reference value) with normal precipitation and temperatures. Low and high production years should yield 1200 lbs./ac to 2200 lbs./ac, respectively.

- 
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 species, Kentucky bluegrass, smooth brome grass, crested wheatgrass, quackgrass, Eastern red cedar/juniper, and Russian olive.
- 

17. **Perennial plant reproductive capability:** Noninvasive species in all functional/structural groups are vigorous and capable of reproducing annual under normal weather conditions.
-