

Ecological site R055AY052ND Thin Loamy

Last updated: 5/08/2025

Accessed: 05/21/2025

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	12/01/2021
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 when slopes are less than 25%. On slopes greater than 25%, short (12 to 20 inches in length), discontinuous rills would be expected.
-
2. **Presence of water flow patterns:** Water flow patterns are not visible on slopes less than 25%. Water flow patterns may be observable on slopes greater than 25% but are relatively short (several feet or less in length) and not connected.
-

3. **Number and height of erosional pedestals or terracettes:** Neither pedestals nor terracettes are expected on slopes of less than 25%. Some pedestalling may be evident on slopes greater than 25% with occasional terracettes.
-

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 10% or less consisting of randomly scattered small patches no greater than 2 inches in diameter. Rocks could account for 5% of the ground cover. 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 when slopes are less than 25%. Slight movement may be visible following intense thunderstorm events particularly after extended periods of below normal precipitation. On slopes greater than 25%, short movement (less than 24 inches) of fine plant litter may be visible and litter debris dams are occasionally present.
-

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):** Use soil series description for depth, color, and structure of A-horizon.
-

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Mid- and short-statured cool-season bunch grasses are dominant. Mid- and short-statured warm-season bunch grasses

are subdominant. Both functional/structural groups are well distributed across the site.

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 occur naturally on this site.
-

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 (3)

Sub-dominant: Phase 1.1:

Mid & short C4 bunch grasses (3)

Other: Minor - Phase 1.1:

Mid & short C4 rhizomatous grasses; Forbs; Shrub; Tall C4 rhizomatous grasses; Grass-likes; Mid & short C3 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/55A_Thin_Loamy_Narrative_Final

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead or dying plants/plant parts occur rarely on this site. Some dead centers may be observed on warm-season bunchgrasses after one to several years of below normal precipitation.
-

14. **Average percent litter cover (%) and depth (in):** Plant litter cover is 60 to 80% with a

depth of 0.25 to 0.5 inches. Litter is in contact with soil surface.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual air-dry production is 2300 lbs./ac (reference value) with normal precipitation and temperatures. Low and high production years should yield 1500 to 3500 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, and Eastern red cedar/juniper.
-
17. **Perennial plant reproductive capability:** Noninvasive species in all functional/structural groups are vigorous and capable of reproducing annually under normal weather conditions.
-