

## Ecological site R064XY027NE Clayey Overflow

Last updated: 12/16/2024  
Accessed: 05/11/2025

### 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.

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| Date  | 12/12/2024   |
| Approved by                                 | Stan Boltz   |
| Approval date                               |  |
| Composition (Indicators 10 and 12) based on | Annual Production  |

### Indicators

- 1. Number and extent of rills:** None. Rills should not be present.

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- 2. Presence of water flow patterns:** Typically, none or barely visible. Evidence of water flow patterns may be present after high overland flow events or flooding from adjacent streams, but vegetation normally remains intact.

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- 3. Number and height of erosional pedestals or terracettes:** None. Pedestals or terracettes should not be present.

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- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is typically less than 5 percent.

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- 5. Number of gullies and erosion associated with gullies:** Typically, none. However, limited head cutting, and associated deposition, may form after high runoff or flooding events. Existing gullies should be stabilized with good vegetative cover.

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

should not be present.

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter should fall into place with little movement during average rainfall events. Litter movement may be fairly extensive after major runoff or flooding events. Small woody debris may move up to 6 inches (15 cm). Fine litter may move up to 12 inches (30 cm). Numerous debris dams or vegetative barriers may be present.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability ratings should typically be 5 to 6, normally 6. Surface organic matter adheres to the soil surface. Soil surface fragments will typically retain structure indefinitely when dipped in distilled water.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon should be 4 to 6 inches (10-15.25 cm). Soil colors are grayish brown (values of 5) dry and dark grayish brown (value of 4) when moist. Soils are formed in stratified alluvium on floodplains.
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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 and tall rhizomatous and tufted perennial cool season grasses), fine and coarse roots positively influences infiltration. Invasion of introduced cool-season grasses such as Kentucky bluegrass, annual brome, smooth brome, crested wheatgrass, and invasive woodies including juniper, salt cedar, and Russian olive may have an adverse impact infiltration and runoff.

Relative composition is approximately 85 percent grasses or grass-like plants, 10 percent forbs, 5 percent shrubs, and 1 percent trees. The grass and grass-like component is made up of C3 rhizomatous grasses (40-60%), C3 bunchgrasses (5-20%), C4 tallgrasses (5-15%), C4, mid - and shortgrasses (2-10%), and grass-likes (0-4%).

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None - when dry, B horizons can be hard and appear to be compacted, but no platy structure will be present.
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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

1. Native, perennial, C3, rhizomatous grass, 1000-1500 #/ac, 40-60% (1 species minimum): western wheatgrass, thickspike wheatgrass, green muhly.

Sub-dominant: Phase 1.1

1. Native, perennial, C3, bunchgrass, 125-500 #/ac, 5-20%, (1 species minimum): slender wheatgrass, green needlegrass, Canada wildrye, foxtail barley, prairie Junegrass, Sandberg bluegrass.

2. Native, perennial, C4, tallgrass, 125-375#/ac, 5-15% (3 species minimum): big bluestem, composite dropseed, prairie cordgrass, switchgrass.

Other: Minor - Phase 1.1

1. Native forbs, 125-250 #/ac, 5-10%: forbs present will vary from location to location.

2. Native, perennial, C4, mid- and shortgrass, 50-250 #/ac, 2-10%: blue grama, buffalograss, threeawn.

3. Shrubs, 25-125 #/ac, 1-5%: shrubs present will vary from location to location.
4. Native grass-likes, 0-100 #/ac, 0-4%: sedges, rushes.

Trace - Phase 1.1

1. Native trees, 0-25 #/ac, 0-1%: Trees present will vary from location to location.

Additional: The Rhizomatous Wheatgrass-Green Needlegrass/Scattered Shrubs/Scattered Trees Community or Reference Community (1.1) includes eight F/S groups. These groups, in order of abundance, are native, perennial, C3, rhizomatous grass; native, perennial, C3, bunchgrass; native, perennial, C4, tallgrass; native forbs; native, perennial, C4, mid- and shortgrass; shrubs; native grass-likes; and native trees.

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bunchgrasses have strong, healthy centers with few (less than 3 percent) dead centers. Shrubs may show some dead branches (less than 5 percent) as plants age.  

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14. **Average percent litter cover (%) and depth ( in):** Plant litter cover is evenly distributed throughout the site and is expected to be 50 to 70 percent and at a depth of 0.2 to 0.50 inch (0.65-1.3 cm). Kentucky bluegrass excessive litter can negatively impact the functionality of this site.  

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production is 2,500 pounds per acre in a year with normal precipitation and temperatures. Low and High production years should yield 1,400 and 3,000 pounds per acre respectively.  

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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:** No non-native invasive species are present. Annual bromes, Kentucky bluegrass, crested wheatgrass, smooth brome, eastern redcedar, Russian olive, and saltcedar are known invasives that have the potential to become dominant or co-dominant on this site. Consult the state noxious weed and state watch lists for potential invasive species. Note: species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.  

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17. **Perennial plant reproductive capability:** All perennial species exhibit high vigor relative to recent weather conditions. Perennial grasses should have vigorous rhizomes or tillers; vegetative and reproductive structures are not stunted. All perennial species should be capable of reproducing annually.  

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