

Ecological site R067AY112WY Gravelly (Gr)

Last updated: 12/10/2024

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)	Dave Cook, Kristin Dickinson, George Gamblin, John Hartung, Andy Steinert, Nadine Bishop
Contact for lead author	
Date	11/23/2020
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. Rills are not expected on this site.
-

2. **Presence of water flow patterns:** Water flow patterns are not expected on more level terrain. Water flow patterns are present on steeper slopes (greater than 30 percent) increasing with steeper slopes. Debris dams will be present in association with the waterflow patterns.
-

3. **Number and height of erosional pedestals or terracettes:** Pedestalled plants and terracettes are not expected until slopes exceed 30 percent, becoming more evident as slopes increase.
-

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is typically 5 percent or less. This site can include a large amount of cobbles and gravel which are not considered to be bare ground.
-

5. **Number of gullies and erosion associated with gullies:** None. Gullies should not be present on this site.
-

6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Wind-scoured and depositional areas are not present on the site.
-

7. **Amount of litter movement (describe size and distance expected to travel):** On gentle slopes litter movement is not expected. As slopes increase fine litter may move short distances. When slopes exceed 30 percent, litter movement is expected and increases as slopes increase.
-

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability ratings are typically 3 to 4.
-

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface layer ranges from 2 to 7 inches (5-17.75 cm) thick. Exposed areas of gravel are inherent to the site.

Soil colors vary from gray, brown, grayish brown, to light brown (values of 5 to 6) when dry and very dark grayish brown, dark grayish brown, or dark brown (values of 3 to 4) when moist.

Soil surface structure is typically granular, and below the surface is typically single grain.

-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The functional/structural groups provide a combination of rooting depths and structure which positively influences infiltration. Combination of shallow and deep rooted species (mid & tall rhizomatous and tufted perennial cool season grasses) with fine and coarse roots positively influences infiltration.

The expected composition of the plant community is 75 to 85 percent perennial grasses and grass-likes, 15 to 20 percent forbs, and 0 to 5 percent shrubs. The grass and grass-like component is made up of warm-season tall and mid-grasses (20 to 40 percent); cool-season, bunch grasses (10 to 30 percent); cool-season, rhizomatous grasses (2 to 10 percent), warm-season short grasses (10 to 15 percent); and grass-likes (3 to 5 percent).

-
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. A compaction layer is not expected 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: 1. Native, C4, tall and mid-grasses – 160-320 #/ac (20-40%), 2 species minimum

Sub-dominant: 2. Native, C3, bunch grasses – 80-240 #/ac (10-30%), 2 species minimum

3. Native, Perennial and Annual Forbs – 80-160 #/ac (10-15%), 5 species minimum

4. Native, C4 short grasses - 80-120 #/ac (10-15%), 1 species minimum

Other: 5. Minor: Native, C3, rhizomatous grasses - 28-80 (2-10%)

6. Minor: Grass-likes – 24-40 #/ac (3-5%)

7. Minor: Shrubs, Vines, Cacti – 8-24 #/ac: (1-3%)

Additional: 12a. Relative Dominance:

Community 1.1: Native, C4, tall and mid-grasses > Native, C3 bunch grasses > Native, C4, short grasses = Native, Perennial and Annual Forbs > Native, C3, rhizomatous grasses > Grass-likes > Shrubs, vines, cacti.

12b. F/S Groups not expected for the site: Introduced annual grasses, perennial introduced

and naturalized grasses, trees.

12c. Number of F/S Groups: 7

12d. Species number in Dominant and Sub-dominant F/S Groups: 10

-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Some plant mortality and decadence is expected
-

14. **Average percent litter cover (%) and depth (in):** Plant litter cover is evenly distributed throughout the site and is expected to be 30 to 50 percent. Litter depth is approximately 0.25 inches (0.65 cm).
-

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production ranges from 550 to 1,100 pounds per acres (air dry basis). Average annual production is 800 pounds per acre under normal precipitation and weather 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:** Annual bromes, common mullein, broom snakeweed, fringed sagewort, pricklypear, burningbush, and Russian thistle, and others as they become known.

See:

Colorado Department of Agriculture Invasive Species Website:

<https://www.colorado.gov/pacific/agconservation/noxious-weed-species>

Wyoming Weed and Pest Council Website: <https://wyoweed.org/>

Nebraska Invasive Species website: <https://neinvasives.com/plants>.

-
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.
-