

Ecological site R067AY144WY Saline Upland (SU)

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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, Nadine Bishop
Contact for lead author	
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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 the site.

2. **Presence of water flow patterns:** Typically, none. Water flow patterns are not expected on this site; if present they are 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 40 to 50 percent, with patches less than 2 feet (0.61 meter) across.

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/or depositional areas are not present on the site.

7. **Amount of litter movement (describe size and distance expected to travel):** Small size litter classes will generally move short (less than 6 inches or 15.2 cm) distances, some medium size-class litter will move very short distances. 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):** Soil stability class will be variable; under plant canopy soil stability class ratings will be 4 or greater. In interspaces, where salinity is higher, ratings will be 3 or lower. As bare ground increases and community moves toward plant community phase 3.1, soil stability ratings will average 3 across the site.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface layer ranges 1 to 8 inches (2.5-20.3 cm) thick. Soil colors range from dark grayish brown to light grayish brown (values of 4 to 6) when dry and very dark grayish brown to dark grayish brown (values of 3 to 4) when moist. Soil surface structure is granular or platy. These soils are strongly sodic, strongly saline and very strongly alkaline.

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 about 85 percent perennial grasses and grass-likes, 5 percent forbs, and 10 percent shrubs. The grass and grass-like component is made up of cool-season, rhizomatous grasses (35-50%); warm-season, mid-and short grasses (10-30%); cool-season, bunch grasses (5-20%); warm-season, tall, bunch grasses (5-15%); grass-likes (0-5%).

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. The soils will have a natural platy structure near the soil surface which could be mistaken for a compaction layer.

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, C3, rhizomatous grasses – 245-350 #/ac (35-50%), 1 species minimum

Sub-dominant: 2. Native, C4, mid- and short grasses – 70-210 (10-30%), 1 species minimum

3. Native, C3, bunch grasses – 35-140 #/ac (5-20%), 1 species minimum

4. Native, C4, tall, bunch grasses – 35-105 #/ac (5-15%), 1 species minimum

Other: Minor Groups:

5. Shrubs, vines, cacti – 35-70 #/ac (5-10%)

6. Native, Perennial and Annual Forbs – 0-35 #/ac (0-5%)

7. Grass-likes – 0-35 #/ac (0-5%)

Additional: 12a. Relative Dominance:

Community 1.1: Native, C3, rhizomatous grasses > Native, C4, mid- and short grasses > Native, C3, bunch grasses > Native, C4, tall, bunch grasses > Shrubs, Cacti, Vine > Native, Annual or Perennial Forbs = Grass-likes

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: 4

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little evidence of decadence or mortality. Bunch grasses have strong, healthy centers with less than 3 percent mortality and shrubs have some dead stems.
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14. **Average percent litter cover (%) and depth (in):** Average litter cover is 10 to 15 percent. Litter depth is expected to be 0.1 to 0.5 inches (0.25-1.25 cm).
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production ranges from 500 to 1,000 pounds per acres on an air dry basis. Average annual production is 700 pounds per acre under normal precipitation and weather conditions.
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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:** Annual bromes, scratchgrass, Russian thistle, kochia, broom snakeweed, Fendler's threeawn, 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.
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