

Ecological site R067BY022CO Choppy Sands

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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.

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Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** None

- 2. Presence of water flow patterns:** Typically none. If present, water patterns are broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers.

- 3. Number and height of erosional pedestals or terracettes:** Pedestalled plants caused by wind erosion would be minor in protected areas such as swales. Expect some pedestals on windward side of sharp peaks and narrow ridges where wind scouring would naturally occur.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5% or less bare ground, with bare patches ranging from 5-10 inches in diameter. Prolonged drought or wildfire events will cause bare ground to increase upwards to 10-15% with bare patches ranging from 15-20 inches in diameter.

- 5. Number of gullies and erosion associated with gullies:** None

- 6. Extent of wind scoured, blowouts and/or depositional areas:** Minor wind scouring may occur on sharp peaks or

narrow ridges. Wind erosion/small blowouts may be more obvious with disturbances such as fire or extended drought.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter should be uniformly distributed with little movement. On steep slopes or knolls, litter may move from a few inches to 1-3 feet depending on intensity of wind/rainfall event.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Stability class rating anticipated to be 2-3 in the interspaces at soil surface.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM ranges from 1-3%. A-horizon ranges from 0-4 inches. Soils are deep, grayish-brown, weak fine granular or single grain loose structure.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Diverse grass, forb, shrub canopy and root structure reduces raindrop impact and slows overland flow providing increased time for infiltration to occur. Extended drought and/or wildfire may reduce canopy cover and litter amounts resulting in decreased infiltration and increased runoff on slopes of 15-40%.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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: warm season tall bunchgrass >

Sub-dominant: warm season tall rhizomatous > shrubs = cool season bunchgrasses/grasslikes = warm season mid bunchgrass >

Other: warm season short bunchgrass = leguminous forbs > warm season forbs = cool season forbs

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Typically minimal. Expect slight short/mid bunchgrass and shrub mortality/decadence during and following drought.

14. **Average percent litter cover (%) and depth (in):** Litter cover during and following drought can range from 15-25% and 2-5% following wildfire.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): 750 lbs./ac. low precip years, 1600 lbs./ac. average precip years, 2000 lbs./ac. high precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 350 – 700 lbs./ac. or more.

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: Invasive plants should not occur in reference plant community. Following fire or extended drought, cheatgrass and Russian thistle may invade assuming a seed source is available.
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17. **Perennial plant reproductive capability:** The only limitations are weather-related, wildfire, natural disease, and insects that may temporarily reduce reproductive capability.
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