USDA Natural Resources
Conservation Service

Ecological site EX043B23B158
Shallow Clayey (SwCy) Absaroka Upper Foothills

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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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Approved by	E. Bainter
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Due to the wide slope range associated with this site, the number and extent of rills will vary from none on sites with slopes of <9% to common on slopes of >25%.

2. **Presence of water flow patterns:** Due to the wide slope range associated with this site, water flow patterns will vary from barely observable on sites with slopes of <9% from broken and irregular in appearance to continuous on slopes >25%.

3. **Number and height of erosional pedestals or terracettes:** Not evident on slopes <9%. Erosional pedestals will be present with terracettes present at debris dams on slopes >9%.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground can range from 20 to 35%.

5. **Number of gullies and erosion associated with gullies:** Active gullies restricted to concentrated water flow patterns.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Minimal to nonexistent.

7. **Amount of litter movement (describe size and distance expected to travel):** Little to no plant litter movement occurs on slopes <9%. Litter movement does occur on slopes >25%.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Plant cover and litter is at 65% or greater of soil surface and maintains soil surface integrity. Stability class anticipated to be 5.0 or greater.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil data is limited for this site. Soil OM of 1 to 2% is expected.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community consists of 75% grasses, 15% forbs, and 10% shrubs. Plant canopy, very slow to moderately slow infiltration rates, the amount of bare ground, and steepness of slopes results in a naturally high runoff rate on slopes of >25%.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layer would be expected except for the naturally occurring rooting restriction (bedrock or decomposing shale) at 10 to 20 inches.

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: Mid-stature bunch grasses

    Sub-dominant: mid-stature rhizomatous grasses short stature grasses/grasslikes

    Other: shrubs forbs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Minimal decadence, typically associated with shrub component.

14. **Average percent litter cover (%) and depth (in):** Average litter cover is 25 to 35% and depth of 0.25 to 0.5 inches. Litter cover is in contact with soil surface.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** English: 800 -1200 lb/ac (1000 lb/ac average); Metric: 896-1344 kg/ha (1120 kg/ha average).

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:** As this site deteriorates species such as rhizomatous wheatgrasses, bluegrasses, and big sagebrush will increase. Annual forbs and grasses such as cheatgrass will invade.

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17. **Perennial plant reproductive capability:** All species are capable of reproducing, except in drought years.
