

## Ecological site EX043B23C176 Very Shallow (VS) Absaroka Subalpine Zone

Last updated: 10/05/2019  
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.

Author(s)/participant(s)	K. Clause, E. Bainter
Contact for lead author	karen.clause@wy.usda.gov or 307-367-2257
Date	03/16/2007
Approved by	E. Bainter
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### Indicators

- 1. Number and extent of rills:** Some rills to be expected on this site.  
\_\_\_\_\_
- 2. Presence of water flow patterns:** Barely observable.  
\_\_\_\_\_
- 3. Number and height of erosional pedestals or terracettes:** Slight pedestalling evident.  
\_\_\_\_\_
- 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 15-45%.  
\_\_\_\_\_
- 5. Number of gullies and erosion associated with gullies:** Active gullies, where present, should be rare.  
\_\_\_\_\_
- 6. Extent of wind scoured, blowouts and/or depositional areas:** Rare to nonexistent.  
\_\_\_\_\_
- 7. Amount of litter movement (describe size and distance expected to travel):** Herbaceous litter expected to move in moderate amounts. Large woody debris will show only slight movement down slope.

- 
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil Stability Index ratings range from 1 (interspaces) to 6 (under plant canopy), but average values should be 3.0 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 Organic Matter of 4-6% 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 65-80% grasses, 10% forbs, and 10-25% shrubs/trees. Sparse plant canopy (40-60%) and litter plus slow to moderate infiltration rates result in slight to moderate runoff. Basal cover is typically less than 10% and marginally affects runoff on this site. Surface rock outcrop of 10-30% provide stability to the site, but reduce infiltration. Runoff can be rapid on this site with a moderate to high erosion hazard associated with steep slopes on this site.
- 
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: Mid-size, cool season bunchgrasses
- Sub-dominant: perennial shrubs/trees=perennial forbs=cool season rhizomatous grasses
- Other: short, cool season bunchgrasses
- 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):** Litter ranges from 10-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-50% expected. Herbaceous litter depth typically ranges from 3-10 mm. Woody litter can be up to several inches (>6 cm).
- 
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** English: 600-1000 lb/ac (800 lb/ac average); Metric 672-1120 kg/ha (896 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: Bare ground greater than 60% is the most common indicator of a threshold being crossed. Rabbitbrush, Sandberg bluegrass, buckwheat, yarrow, and phlox are common increasers. Annual weeds such as cheatgrass and mustards are common invasive species on disturbed sites.

---

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