

## Ecological site DX032X01B154 Shale (Sh) Big Horn Basin Rim

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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

- Number and extent of rills:** Rills will be continuous and prominent on this site but are stable and will have more inter-rills with few deep rills on the landscape. Rills should be most prevalent on slopes greater than 20% .
- Presence of water flow patterns:** Water flow paths will be obvious, regular and continuous with debris dams occurring only on lesser slopes.
- Number and height of erosional pedestals or terracettes:** Erosional pedestals present with terracettes present at debris dams. Infrequent and less than 1 inch in height; most commonly associated with perennial bunchgrasses.
- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground can range from 40-65%.
- Number of gullies and erosion associated with gullies:** Active gullies should not be present. Active gullies may be present on steeper slopes (>20%).
- Extent of wind scoured, blowouts and/or depositional areas:** Minimal to nonexistent.

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7. **Amount of litter movement (describe size and distance expected to travel):** Plant litter movement is expected.
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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 3 (under plant canopy), but average values should be 3.0 or greater. Salts influence the stability of this soil.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Refer to soil series description and map unit for specific information. The soil surface structure is platy to vesicular, with a prismatic subsurface structure. Depth will vary from 1 to 10 inches (2-25 cm). The dry surface colors generally are in the 10YR to 7.5YR range with a hue of 5 and a chroma of 2. Organic matter in the surface ranges from 0.5 to 1.0 %.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The plant community consists of 50-75% shrubs, 5% forbs and 20-45% grasses. Evenly distributed plant canopy (35-55%) and litter help slow runoff. Lack of cover and tendency to crust, runoff is common. Basal cover is typically less than 5% and does very little to affect runoff. Raindrop impact and runoff are common on this site.
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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 but soil surface is typically crusted and hard to very hard when dry.
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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: perennial shrubs >>
- Sub-dominant: Cool season, mid-stature grasses >
- Other: Forbs = Short-stature grasses/grass-likes
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Some plant mortality and decadence (10 to 15%) is expected on this site. Perennial bunchgrass shows higher mortality with drought stress, dwarf shrubs (saltbush) will show minimal mortality.
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14. **Average percent litter cover (%) and depth ( in):** Litter ranges from 5-10% of total canopy measurement with total litter (including beneath the plant canopy) from 5-20% expected. Herbaceous litter depth typically ranges from 1 - 3 mm. Woody litter can be 2-5 mm. Litter cover is in contact with soil surface with little evidence of biological activity.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

**production):** English: 80 - 300 lbs/ac (175 lbs/ac average); Metric: 90 - 336 kg/ha (196 kg/ha average).

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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: Pursh Seepweed, birdfoot sagebrush, flatspine stickseed, and woodyaster are native species that increase with stress; invasive species such as, but not limited to: halogeton, cheatgrass (downy brome), and Russian thistle are also found on this site. Other common noxious weeds can be found on the Noxious Weed List for Wyoming and specific counties.
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17. **Perennial plant reproductive capability:** All species have a limited capability of reproducing.
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