

Ecological site DX032X01B143 Saline Upland Clayey (SUC) 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

- 1. Number and extent of rills:** Rills should not be present.

- 2. Presence of water flow patterns:** Barely observable. Some minor evidence of water flow patterns may be found winding around perennial plant bases with little evidence of erosion and they are short (< 5 ft).

- 3. Number and height of erosional pedestals or terracettes:** Not evident on slopes less than 5%, Plant roots are covered and most litter remains in place around plant crowns. Erosional pedestals will be present with terracettes at debris dams on slopes greater than 5% (both pedestals and terracettes should be less <1 inch in height).

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** *Bare Ground* is between 45 and 70%, occurring in small openings throughout the site. Canopy gaps comprise up to 45% of the ground surface, and are primarily in the 1-2 foot category (>50% of total gaps). No canopy gaps >6 feet should be present.

- 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:** None

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7. **Amount of litter movement (describe size and distance expected to travel):** Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces. As site increases in slope greater than 9% expect movement increase.
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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):** Plant cover and litter average 30% or greater of the soil surface and maintains soil surface integrity. The soil stability class is found to average 3.2 ranging from 1 (interspaces) to 6 (under canopy).
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The soil surface structure is moderate granular (moderate fine subangular or angular blocky parting to granular) with a surface depth of 2 to 7 inches (5- 15 cm). The dry surface Colors are generally in the 10YR to 7.5YR range with a Hue of 6 and a Chroma of 3. 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 expected potential is low with composition consisting of 15% grasses, 10% forbs, and 75% shrubs (woody species). The grasses tend be "patchy" in nature finding depressions or concave landscape positions to occupy where the forbs are more evenly dispersed. Basal cover is typically less than 5% for this site and does very little to effect runoff on this site. Sparse plant canopy, the finer soil textures, and the high amount of bare ground contribute to slow to moderate infiltration rates. The amount of bare ground and slow infiltration rates result in a naturally higher runoff rate even in reference state.
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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 or soil surface crusting should be present.
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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: 1.1: Shrubs>>Mid-stature grasses>Forbs>Rhizomatous grasses
- Sub-dominant: 1.2: Shrubs>>Short-stature grasses>Forbs>Rhizomatous grasses=Mid-stature grasses
- Other: 1.3: Shrubs>>Short-stature grasses=Forbs>Mid-stature grasses=Rhizomatous grasses
- Additional: 12b. Functional/Structural Groups not expected: Annual Grasses
12c. Number of Functional/ Structural Groups: 3
12d. Number of Functional/Structural Species: 2
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very Low, but some plant mortality and decadence is expected. It is common to find dead matter accumulated in bunchgrasses such as Indian ricegrass, but live plant matter quantity should exceed standing dead except for in times of severe drought.
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14. **Average percent litter cover (%) and depth (in):** Litter cover ranges from 5 to 20% with an average of 10% litter cover between plants; reaching a high of 30 under plants. Herbaceous litter depth typically ranges from 3-10 mm, and woody litter ranges from 2-6 mm.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1.1 Average Annual Production is 200 lbs. (90 kg) ranging from 75 to 400 lbs. (34-181 kg) production.
1.2 Average Annual Production is 350 lbs. (158 kg) ranging from 125 to 500 lbs. (57-227 kg) production.
1.3 Average Annual Production is 175 lbs. (79 kg) ranging from 75 to 350 lbs. (34-158 kg) production.
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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:** Birdfoot sagebrush, greasewood, annual false wheatgrass, false buffalograss, Sandberg bluegrass, smooth woodyaster, and a variety of native annual forbs will invade the site as it degrades. Invasive species that are common include but are not limited to: Halogeton, Cheatgrass, Knapweeds and Thistles. For a current and more complete list consult the County and State Weed and Pest Noxious Weed List.
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17. **Perennial plant reproductive capability:** May be limited due to effective moisture and seed/soil contact. Western wheatgrass will commonly reproduce by underground rhizomes and not by seed production.
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