

## Ecological site EX043B23A120 Limy Upland (LiU) Absaroka Lower 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	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### Indicators

- 1. Number and extent of rills:** Rare to non-existent, but will have an increase of occurrence on steeper slopes of 10-20%.

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- 2. Presence of water flow patterns:** Barely observable, but will see a limited extent of flow patterns occurring within the vegetation interspaces on steeper slopes (10-20%)

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- 3. Number and height of erosional pedestals or terracettes:** Essentially non-existent, or rare if occurring.

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- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 15 to 30% occurring in small patch-like areas throughout site. Interspaces between plant bases has a significant cover of lichen present, accounting for the decrease of bare ground with a decrease in plant cover compared to similar ecological sites.

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- 5. Number of gullies and erosion associated with gullies:** Active gullies should not be present. The presence of increased gully activity is a strong indication of a degraded state within this ecological site.

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- 6. Extent of wind scoured, blowouts and/or depositional areas:** Rare to non-existent.

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7. **Amount of litter movement (describe size and distance expected to travel):** Little to no plant litter movement occurring. Litter remains in place and is not moved by erosional forces.
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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, lichen and litter is at 70% or greater of soil surface and maintains soil surface integrity. Soil stability class is anticipated to be 3.0 or greater on average. Ranging from 1 in interspaces and up to 5 under plant canopy.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil data is limited for this site. A-horizons vary in depth from 1 to 8 inches with OM of 1-2%.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community consists of, on average, 75% grasses, 15% forbs, and 10% shrubs. This, with an evenly distributed canopy and litter, with deep healthy rooted native grasses enhancing infiltration, limits the runoff potential to little or no effect 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 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: Mid-stature cool-season bunchgrasses
- Sub-dominant: perennial shrubs = cool-season rhizomatous grasses
- Other: perennial forbs > short-stature bunchgrass and 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):** Minimal decadence noted, typically associated with shrub canopy. Through drought conditions will see some decadence with bluebunch wheatgrass.
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14. **Average percent litter cover (%) and depth ( in):** Litter ranges from 5 to 20% of total canopy with total litter including beneath the plant canopy can reach up to 50%. Herbaceous litter depth typically ranges from 3-10 mm, with woody litter varying between 4-6 cm.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Total normal or average production is estimated at 400 lbs/ac (448 kg/ha); and ranges from 250 to 600 lbs/ac (280-773 kg/ha).

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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: Sandberg bluegrass, threadleaf sedge, fringed sagewort, pricklypear cactus, broom snakeweed and rubber rabbitbrush are natives that will increase with pressure on this site. A variety of native and non-native annuals such as field cottonrose, mustard, and exotic species found on the noxious weed list including but not limited to: cheatgrass, spotted knapweed, and bull thistle will persist on this site.
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17. **Perennial plant reproductive capability:** All species are capable of reproducing.
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