

Ecological site EX044B01A020 Gravelly (Gr) LRU 01 Subset A

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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:** Rills will not be present in the reference state.

- 2. Presence of water flow patterns:** Water flow patterns are rare in the reference state. If present, they will occur on steeper slopes (10-15%) and will be inconspicuous, disconnected, and very short in length.

- 3. Number and height of erosional pedestals or terracettes:** No present

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is between 10 and 15 percent. This refers to exposed mineral soil not covered by litter, rocks, basal cover, plant cover, standing dead, lichen, and/or moss.

- 5. Number of gullies and erosion associated with gullies:** Not Present in Reference State

- 6. Extent of wind scoured, blowouts and/or depositional areas:** Not evident under normal conditions.

7. **Amount of litter movement (describe size and distance expected to travel):** Movement of fine herbaceous litter may occur within less than a foot from where it originated.
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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):** Due to the coarse nature of the soil associated with this ecological site, soil stability ratings will be low. Interspaces will often have ratings of 2 and under plant canopy and plant base value ratings will be 3-5.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Organic matter values are low for this site, ranging from 1–2 percent. The surface structure is weak to medium-fine granular. A horizon's coloration is variable; however, soil will have a wet Value of 4-6 or less and Chroma of 3 or less. Local geology may affect color, making it important to refer to the Official Series Description (OSD) for the characteristic range.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Infiltration is high. Evenly distributed across the site, bunchgrasses improve infiltration while rhizomatous grass protects the surface from runoff forces. The Gravelly ecological site is well drained and has a high infiltration rate, especially in the subsurface horizons. An even distribution of Mid-Staturred bunchgrasses (60–70%), rhizomatous grasses (5–10%), and a mix of short grasses (5–10%), forbs (1–10%), and shrubs (1–10%).
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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):** Not 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-statured, perennial bunchgrasses
- Sub-dominant: Rhizomatous grasses = perennial shortgrass ≥ Forbs ≥ Shrubs
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality in herbaceous species is not evident. Species with bunch growth forms may have some natural mortality in centers is 3% or less. Shrub and subshrub mortality does not exceed 5% for any given species.
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14. **Average percent litter cover (%) and depth (in):** Total litter cover ranges from 15 to 30 percent. Litter is irregularly distributed on the soil surface and is often not at a measurable depth.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average annual production is 875. Low: 625 High 1050. Production varies based on effective precipitation and natural variability of soil properties for this ecological site.

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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: Non-native invasive species on this ecological site include: dandelion (*Taraxicum* spp), cheatgrass (*Bromus tectorum*), field brome (*Bromus arvensis*), spotted knapweed (*Centaurea stoebe*), yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*)

Native species with the ability to indicate degradation but species presence alone does not imply degradation include: Sandberg bluegrass (*Poa secunda*), big sagebrush (*Artemisia tridentata*), spineless horsebrush (*Tetradymia canescens*), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), Rocky Mountain juniper (*Juniperus scopulorum*),

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17. **Perennial plant reproductive capability:** Reproductive capability is very high. The density of plants indicates that plants reproduce at a level sufficient to fill available resources. There is no restriction on seed or vegetative reproductive capacity. Plants are producing seed and/or reproductive tillers.
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