

Ecological site EX044B01A031 Limy Droughty (LyDr) 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 are not present in the reference condition on slopes less than 20%. Slopes greater than 20% rills may exist but will be limited and less than 1 foot.

- 2. Presence of water flow patterns:** Water flow patterns are rare in the reference condition. If present, they are most likely to occur on steeper slopes (20%) and are inconspicuous, disconnected, and very short in length.

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

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Less than 25%

- 5. Number of gullies and erosion associated with gullies:** No gullies present.

- 6. Extent of wind scoured, blowouts and/or depositional areas:** None

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):** Soil Surface Stable with Stability Ratings of 4-6 (both under canopy and bare). Biotic crusts and or root mats may be present.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil Structure at the surface is typically medium fine granular to weak subangular blocky. A Horizon should be 2-4 inches thick with color, when wet, typically ranging in Value of 4 or less and Chroma of 3 or less. Local geology may affect color in which it is important to reference the Official Series Description (OSD) for 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:** Evenly distributed across the site, bunchgrasses improve infiltration while rhizomatous grass protects the surface from runoff forces. The Limy Droughty ecological site is well drained and has a high infiltration rate. An even distribution of mid stature grasses, ~70-75% of site production, cool season rhizomatous grasses 10% of site production along with a mix of shortgrass 5-15%, forbs 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, cool season, perennial bunchgrasses
- Sub-dominant: Shortgrasses ≥ rhizomatous grasses > shrubs = perennial forbs
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Little evidence of mortality on any species.
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14. **Average percent litter cover (%) and depth (in):** Litter cover varies from approximately 30 to 40%; comprised of primarily herbaceous litter. Most litter is irregularly distributed on the soil surface and is 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 850. Low: 600 High 950 lbs per acre. 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 however species presence alone does not imply degradation: 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*), Douglas fir (*Pseudotsuga menziesii*), Ponderosa pine (*Pinus ponderosa*)

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17. **Perennial plant reproductive capability:** In the reference condition, all plants are vigorous enough for reproduction either by seed or rhizomes in order to balance natural mortality with species recruitment. Density of plants indicates that plants reproduce at level sufficient to fill available resource.
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