

## Ecological site EX044B01A135 Shallow Limy Droughty (SwLyDr) 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

- Number and extent of rills:** Rills will primarily be absent on gentle slopes however on the steepest of slopes of this site (greater than 30%) small, short rills (less than 2-3 feet) may be evident after high precipitation events.
- 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 (15-25%) and are inconspicuous, disconnected, and very short in length.
- Number and height of erosional pedestals or terracettes:** Pedestals and terracettes are not evident in the reference condition.
- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is less than 20 percent.
- Number of gullies and erosion associated with gullies:** Gullies are not present in the reference condition.
- Extent of wind scoured, blowouts and/or depositional areas:** Wind scoured, or depositional areas are not evident in the reference condition.

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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, mat forming plants, 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):** Structure trends to weak, fine granular. The A horizon is approximately 3 inches thick with wet Munsell colors Value 5 or less, Chroma 3 or less. Dry colors tend to be quite light prior to wetting. Official Series Description (OSD) for characteristic range. <https://soilseries.sc.egov.usda.gov/osdname.aspx>
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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 Shallow Limy Droughty ecological site is well drained and has a high infiltration rate. An even distribution of mid stature grasses, (60-70% of site production), cool season shortgrass (5-15%) with a mix of rhizomatous grasses (5-10%), forbs (1-10%), shrubs (5-10%), subshrubs (0-10%), and tall shrubs/trees (0-Trace)
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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: perennial shortgrasses/grasslikes ≥ shrubs = rhizomatous grasses ≥ forbs > subshrubs >> Tall shrubs/Trees
- 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.
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14. **Average percent litter cover (%) and depth ( in):** Total litter cover ranges from 20 to 30%. 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 700. Low: 400 High 900 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:** Potential invasive (including noxious) species (native and non-native). Invasive species on this ecological site include (but not limited to) annual brome spp., spotted knapweed, yellow toadflax, leafy spurge, ventenata, crested wheatgrass, etc.

Native species such as Rocky Mountain juniper, limber pine, broom snakeweed, rabbitbrush spp., blue grama, Sandberg's bluegrass, etc. when their populations are significant enough to affect ecological function, indicate site condition departure.

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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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