

Ecological site EX044B01B136 Shallow Loamy (SwLo) LRU 01 Subset B

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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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| Author(s)/participant(s) | Grant Petersen |
| Contact for lead author | grant.petersen@usda.gov |
| Date | 03/01/2020 |
| 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 percent) 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 (greater than 20 percent) and are inconspicuous, disconnected, and very short in length.

- Number and height of erosional pedestals or terracettes:** Pedestals 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 between 5 and 15 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 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.
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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 Loamy ecological site is well drained and has a moderately rapid infiltration rate. An even distribution of mid stature grasses (approximately 65 to 70 percent of site production) with cool season rhizomatous grasses accounting for 10 percent of site production along with a mix of shortgrasses (5-15 percent), forbs and shrubs (5-10 percent each). Trees and tall coniferous shrubs may be present as a trace on this site (less than 1 stem per acre)
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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 ≥ rhizomatous grasses ≥ shrubs = forbs >> 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 30-35 percent. Most litter is irregularly distributed on the soil surface and is typically less than 1/2 inch deep.
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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 1265 pounds per acre (lbs/ac) or 1418 kilograms per hectare (kg/ha)
Low: 940 lbs/acre or 1054 kg/ha
High 1510 lb/ac or 1692 kg/ha
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, ponderosa pine, Douglas fir, broom snakeweed, rabbitbrush spp., blue grama, Sandberg bluegrass, etc. when their populations are significant enough to affect ecological function, indicate site condition departure.

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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