

Ecological site EX044B01A136 Shallow Loamy (SwLo) 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:** Not present on slopes less than 20%. In extremely limited cases where slope exceeds 20% water flow patterns may exist however they are short and inconspicuous tending to be less than 1 foot 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 15-20 percent.
- Number of gullies and erosion associated with gullies:** None Present
- 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):** This site will express Site Stability measurements of 4-6 regardless of canopy presence or absence. Biotic crusts and 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 will have weak, fine and medium granular structure. The A horizon should be approximately 3 inches thick with wetted soil colors of Value 5 or less and Chroma of 4 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:** Infiltration is moderately rapid. The mixed fibrous rooting depth of dominant bunchgrasses combined with the taproots of forbs and shrubs in reference state allows for good infiltration. Plant cover (distribution and amount of canopy) currently adequate for site protection varies however in reference canopy percentage may be from 85-100% with even distribution of mid-statured bunchgrasses.
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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 Bunchgrasses (60-70%)
- Sub-dominant: Shortgrasses (5-15%) ≥ Rhizomatous grasses (5-10%) > Shrubs (1-10%) = Forbs (1-10%) ≥ Subshrubs (0-10%) >> 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 30-35%. 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 785. Low: 640 High 990 lbs per acre. Production varies based on effective precipitation and natural variability of soil properties for this ecological site.

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 but not limited to: Dandelion (*Taraxicum* spp), Cheatgrass (*Bromus techtorum*), Field brome (*Bromus arvensis*), Spotted knapweed (*Centaurea stoebe*), Yellow toadflax (*Linaria vulgaris*), Leafy Spurge (*Euphorbia esula*), and Ventenata (*Ventenata dubia*)

Native species with the ability to indicate degradation however species presence alone does not imply degradation: Sandberg bluegrass, blue grama, Big sagebrush, Black sagebrush, Broom snakeweed, Rubber rabbitbrush, Yellow rabbitbrush, Rocky Mountain juniper, Douglas fir, and Ponderosa pine

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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