Ecological site EX044B01A032
Loamy (Lo) 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.

Author(s)/participant(s)	G. Petersen
Contact for lead author	grant.petersen@usda.gov
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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.

2. **Presence of water flow patterns:** Water flow patterns are not present in the reference condition.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are not evident in the reference condition.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is low (5-10 percent). It consists of small, randomly scattered patches.

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):** Litter movement is not evident in the reference condition.

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 ratings of 4 to 6 under both canopy and interspaces. In areas of dense sagebrush, ratings may be lower. Abiotic crusts or root mats may be present. Typical A horizon is 6-8 inches thick.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil Structure at the surface is typically strong to medium fine granular. A Horizon should be 6-8 inches thick with color, when wet, typically ranging in Value of 3 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.

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. Infiltration of the Loamy ecological site is well drained but has a slow infiltration rate. An even distribution of Mid-Statured Bunchgrasses (75-80%), cool season rhizomatous grasses (5-10%) along with a mix of Shortgrasses (5-10%), forbs (1-10%), shrubs (1-10%), and Subshrubs (1-10%)

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** A compaction layer is not present in the reference condition. Soil profile may contain an abrupt transition to an Argillic horizon which can be misinterpreted as compaction, however, the soil structure will be fine to medium subangular blocky, where a compaction layer will be platy or structureless (massive).

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 (example list: Bluebunch, green needlegrass, basin wildrye)

    Sub-dominant: rhizomatous = short grasses ≥ shrubs = forbs > warm season grasses

    Other: Annual native forbs and grasses may be present in extremely limited amounts

    Additional:

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.

14. **Average percent litter cover (%) and depth (in):** Total litter cover ranges from 45 to 65%. Most litter is irregularly distributed on the soil surface and is often less than 0.5 inches deep.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average annual production is 1550. Low: 1325 High 1950. 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:** Potential invasive (including noxious) species (native and non-native). Invasive species on this ecological site include (but not limited to) dandelion, annual brome spp., spotted knapweed, yellow toadflax, leafy spurge, ventenata, crested wheatgrass, etc.

    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 (Psuedotsuga 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.