USDA Natural Resources
Conservation Service

Ecological site BX012X02B026
Loamy Calcareous 10-14 Inch Precipitation Zone Lost River Mountains

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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.

2. **Presence of water flow patterns:** Water flow patterns are uncommon in the reference condition. When present, they usually occur on steeper slopes (greater than 15 percent) and are inconspicuous, disconnected, and very short in length.

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

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is between four to 14 percent. This refers to exposed mineral soil not covered by litter, rock, basal cover, plant cover, standing dead, lichen and/or moss.

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5. **Number of gullies and erosion associated with gullies:** Gullies are not present in the reference condition.

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6. **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 to 6 (both under canopy and bare). Abiotic 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 surface structure is granular with the A horizon ranging from 0 - 20cm thick, averaging 13 cm thick. Predominant A horizon colors are 10YR 3/3 and 10YR 4/3. Surface textures include loam, gravelly loam, and gravelly silt loam.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plants are evenly distributed across the ecological site and the shrubs and bunchgrasses present improved infiltration as well as protect against runoff.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Not present.

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: Little sagebrush = Bluebunch wheatgrass

    Sub-dominant: Big sagebrush = Other bunchgrasses

    Other: Spiny phlox = Pink pussytoes = Stemless mock goldenweed

    Additional:

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. Sagebrush species will become decadent in the absence of historical fire return intervals.

14. **Average percent litter cover (%) and depth (in):** Total ground litter cover varies but can range from nine to 29 percent, averaging 65 percent. Depth is usually shallow at less than 1/8 inch.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production ranges from 400 to 850 lbs/acre, averaging 600 lbs/per acre. Production varies based on effective precipitation and natural variability of soil properties for this ecological site. Total production is slightly higher for perennial grass species but tends to be slightly higher for shrubs than grasses.

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 species include cheatgrass, spotted knapweed, toadflax, and crested wheatgrass. Native species such as yellow rabbitbrush or significant populations of Sandberg bluegrass or rhizomatous wheatgrasses can indicate a departure from the reference state.

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17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in most years. Bluebunch wheatgrass may not reproduce during extended periods of drought.
