USDA Natural Resources
Conservation Service

Ecological site R043AB040MT
Loamy Steep (Lostp) LRU 43A-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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Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Slopes range from 15% to 55%. Rills are rare in the Taller Bunchgrass State on slopes between 15%-35%, but on slopes >35%, plant cover, basal area and litter are generally reduced and narrow rills <5 feet long may be present.

2. **Presence of water flow patterns:** Water flow patterns are generally not evident in the reference state. Following occasional (5 – 30 % probability), heavy thunderstorms and winter thaw events, few short, sinuous, discontinuous flow patterns may be apparent. On the steeper slopes (>35%) water flow patterns may become more evident and there may be areas which show accumulations of litter due to water movement.

3. **Number and height of erosional pedestals or terracettes:** None to very slight. Occasionally pedestals up to 0.5 inches may be encountered. As slopes increase pedestals may become more evident.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground should not exceed 15% - bare areas tend to be inconspicuous and not connected.

5. **Number of gullies and erosion associated with gullies:** Gullies should not occur in the Taller Bunchgrass State. If there is evidence of past erosion that has created gullies, these areas should be stabilized and have no active erosion.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Appearance or evidence of these erosional features or the landscape would not be present on this site.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter will be evident across this site representing organic debris from the vegetation of the functional/structural groups and will not move. A severe convection storm or a significant thaw event could cause litter to move short distances, especially on slopes greater than 6%.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Resistance to erosion will be high with soil stability values of 5 or 6; areas of bare soil on this site may have values between 3 and 5 if not under plant canopy.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure is granular at the soil surface. Organic matter is about 4%. The surface horizon is 4 to 8 inches thick. Mollic epipedon present.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The reference plant community (1.1) is dominated by rough fescue which will maximize infiltration and minimize runoff throughout the site. With the increase of Idaho fescue in Plant community (1.2) infiltration may slightly decrease and runoff may slightly increase but overall this plant community will have only minor affects on infiltration and runoff.

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 would not be expected on this ecological site. A platy soil surface structure would indicate a departure from the reference state.

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: Plant community 1.1 - Taller cool season bunchgrasses (rough fescue) >> mid-stature cool season bunchgrasses (Idaho fescue) > cool season rhizomatous grasses (western wheatgrass), shortgrasses (prairie junegrass) and grasslikes (sedges) = perennial forbs = shrubs. Plant community 1.2 – rough fescue and Idaho fescue share dominance – the other functional/structural groups will remain the same in descending order.

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Plant mortality for all functional groups will be low, but there will be some natural mortality of functional

groups over time. Prolonged droughts and/or excessive rest may show increases in mortality and decadence for all plant groups.

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14. **Average percent litter cover (%) and depth (in):** Note: the majority of the litter in the plant community in the Taller Bunchgrass State will be non-persistent.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1300 #/acre – 2100 #/acre for the reference community (1.1) with a RV of 1700 #/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:** Cheatgrass, knapweed spp., leafy spurge, sulphur cinquefoil, dalmatian toadflax, houndstongue, whitetop, Canada thistle, Japanese brome, broom snakeweed, fringed sagewort, salsify and dandelion.

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17. **Perennial plant reproductive capability:** All native plants are capable of reproducing sexually and/or vegetatively.
