USDA Natural Resources
Conservation Service

Ecological site R028AY090NV
LOAMY BOTTOM 10-14 P.Z.

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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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Date	05/22/2015
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are not present. This site is nearly level and rills typically do not form.

2. **Presence of water flow patterns:** Water flow patterns are few and will typically occur after the site has been flooded during spring runoff or summer convection storms. Flow patterns are meandering and may be fairly long (up to 20 ft), but are less than 6 inches wide and are widely spaced (5-10 ft).

3. **Number and height of erosional pedestals or terracettes:** Pedestals are few and typically occur in flow paths. Terracettes are none to rare and would be small and stable.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground ± 10-20%.

5. **Number of gullies and erosion associated with gullies:** Gullies may be present but are rare. They would occur on the lowest part of the site where flows concentrate. There may be active erosion on the side walls, but the bottoms would be stabilized with perennial vegetation.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage of grasses and annual & perennial forbs) only expected to move during periods of flooding by adjacent streams. Persistent litter (large woody material) will remain in place except during large flooding events.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability values will range from 4 to 6, with higher numbers under canopy.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is moderate to weak subangular blocky. Soil surface colors are dark grayish browns and the soils have thick mollic epipedons. Surface textures are loams. Organic matter can range from 2 to 4 percent for much of the upper 20 inches.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Deep-rooted perennial grasses slow runoff and increase infiltration. Tall stature and relatively coarse foliage of basin wildrye and associated litter break raindrop impact and provide opportunity for snow catch and snow accumulation on site.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None – Subsurface subangular blocky structure is not to be interpreted as compaction.

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: Tall-statured, deep-rooted, cool season, perennial bunchgrasses >>

    Sub-dominant: rhizomatous grasses and grass-likes > tall shrubs > deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, annual and perennial forbs.

    Other:

    Additional: With an extended fire return interval or water table drawdown the shrub component will increase at the expense of the herbaceous component.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead branches within individual shrubs common; dead grass material may be as much as 25% of total canopy.

14. **Average percent litter cover (%) and depth (in):** Between plant interspaces (± 50%) and litter depth is ±½ inch.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season (through June) ± 4000 lbs/ac; Favorable years ±6000 lbs/ac and unfavorable years ±2500 lbs/ac.

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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 invaders include cheatgrass, Russian thistle, whitetop, saltcedar, and thistles.

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17. **Perennial plant reproductive capability:** All functional groups should reproduce in most years. Reduced growth and reproduction occur during extreme or extended drought periods.
