

Ecological site R028BY045NV LOAMY FAN 8-12 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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Approved by	P. Novak-Echenique
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- Number and extent of rills:** Rills are rare. A few rills can be expected in areas subjected to summer convection storms or rapid spring snowmelt.

- Presence of water flow patterns:** Water flow patterns are rare to common especially in areas recently subjected to summer convection storms or rapid snowmelt. Water flow patterns are typically short (<1 m) and disconnected. They are meandering and are interrupted by plants.

- Number and height of erosional pedestals or terracettes:** Pedestals are rare. Occurrence is usually limited to areas of water flow patterns. Frost heaving of shallow rooted plants should not be considered a "normal" condition.

- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground 40 to 50% depending on amount of surface rock fragments

- Number of gullies and erosion associated with gullies:** None

- 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 from grasses and annual & perennial forbs) expected to move distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events.
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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 stability values should be 4 to 6 on most soil textures found on this site.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically thin to thick platy. Soil surface colors are browns and soils are typified by a mollic epipedon. Organic matter of the surface 2 to 4 inches is typically 1.25 to 3 percent dropping off quickly below. Organic matter content can be more or less depending on micro-topography.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Deep-rooted perennial herbaceous bunchgrasses (basin wildrye) slow runoff and increase infiltration. Tall stature and relatively coarse foliage of basin wildrye and associated shrubs break raindrop impact and provide opportunity for snow catch and moisture accumulation on site.
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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):** Compacted layers are none. Platy or massive sub-surface horizons or subsoil argillic horizons are not to be interpreted as compacted soil layers.
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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: Reference State: Deep-rooted, cool season perennial bunchgrasses > Tall shrubs (big sagebrush)
- Sub-dominant: associated shrubs > rhizomatous grasses > shallow-rooted, cool season, perennial bunchgrasses = deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, perennial and annual forbs.
- Other: warm season perennial bunchgrasses
- Additional: With an extended fire return interval, the shrub component will increase at the expense of the herbaceous component.
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Dead branches within individual shrubs common and standing dead shrub canopy material may be as much as 25% of total woody canopy; mature bunchgrasses may have dead centers ($\pm 25\%$).
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14. **Average percent litter cover (%) and depth (in):** Reference Plant Community: Under canopy and between plant interspaces (20-35%) and litter depth is $\pm \frac{1}{2}$ inch.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): For normal or average growing season (through mid-June) \pm 800lbs/ac; Favorable years 1000 lbs/ac and unfavorable years 600 lbs/ac.

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 on this site include cheatgrass, halogeton, Russian thistle, annual mustards, knapweeds, tall whitetop, and bur buttercup.
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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years. Reduced growth or reproduction occurs during extended or extreme drought years.
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