

Ecological site R029XY081NV SHALLOW CALCAREOUS HILL 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.

Author(s)/participant(s)	GK BRACKLEY
Contact for lead author	State Rangeland Management Specialist
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Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** Rills are few to common. Occurrence of rills more frequent on steeper slopes and as canopy cover increases.

- 2. Presence of water flow patterns:** Water flow patterns are few to common with occurrence increasing as canopy cover increases.

- 3. Number and height of erosional pedestals or terracettes:** Pedestals are rare to few. Occurrence is usually limited to areas of water flow patterns. Frost heaving of shallow rooted plants should not be considered an indicator of soil erosion.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground \pm 45%; surface rock fragments \pm 35%; tree canopy to 15%; shrub canopy \pm 15%; foliar cover for perennial herbaceous plants \pm 10%. Needle litter forms a mat 2 to 4 inches thick under the drip line of mature trees.

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

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

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) is expected to move the distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during catastrophic events. Mat of accumulating needle litter under mature trees is very stable and shows no obvious movement.
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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 3 to 4 on most soil textures found on this site. Areas of this site occurring on soils that have a physical crust will probably have stability values less than 3. (To be field tested.)
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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 or massive. Soil surface colors are light and soils are typified by an ochric epipedon. Organic carbon of the surface 2 to 3 inches is typically 1 to 1.5 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:** Perennial herbaceous plants (especially deep-rooted bunchgrasses [i.e., Indian ricegrass]) slow runoff and increase infiltration. Trees and understory shrubs break raindrop impact and provide opportunity for snow catch and 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 not typical. Platy or massive sub-surface horizons, subsoil argillic horizons or hardpans shallow to the surface are not to be interpreted as compacted 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 Plant Community: Utah juniper >> understory shrubs (black sagebrush & cliffrose) = deep-rooted, cool season, perennial bunchgrasses Indian ricegrass & desert needlegrass)
- Sub-dominant: deep-rooted, cool season, perennial forbs = shallow-rooted, cool season, perennial grasses = fibrous, shallow-rooted, cool season, perennial forbs = annual forbs.
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Overstory trees have little mortality. Dead branches within understory shrubs are common and standing dead shrub canopy material may be as much as 35% of total shrub canopy; mature bunchgrasses (<25%) may have dead centers.
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14. **Average percent litter cover (%) and depth (in):** Herbaceous, or non-persistent, litter within tree canopy interspaces

(± 5%) and litter depth is ± ¼ inch. Needle litter forms a mat 2 to 4 inches thick under the drip line of mature trees. Large, persistent, litter from trees (limbs, etc.) variable to 5%.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For understory vegetation to 4½ feet and normal or average growing season (through May) = ± 325 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:** Galleta (aggressive increaser plant following wildfire) and Douglas rabbitbrush are increasers on this site. Snakeweed, Russian thistle, annual mustards, and Cheatgrass are invaders on this site.
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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years.
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