

Ecological site R028BY093NV SHALLOW CLAY LOAM 12-14 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)	P.Novak-Echenique
Contact for lead author	State Rangeland Management Specialist
Date	09/24/2009
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** Rills are none to rare. A few may occur on steeper slopes after summer convection storms or rapid spring snowmelt.

- 2. Presence of water flow patterns:** Water flow patterns are none to rare. A few, short (<1 m) and disconnected, may occur on steeper slopes after summer convection storms or rapid spring snowmelt. These are meandering and interrupted by plants and exposed rock.

- 3. Number and height of erosional pedestals or terracettes:** Pedestals are none to rare. 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. Terracettes are none to rare, short and stable.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground \pm 10-20% depending on amount of surface rock fragments.
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5. **Number of gullies and erosion associated with gullies:** None
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None - rock fragments and vegetation protect the surface.
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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) 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 moderate, medium subangular blocky. Surface textures are typically silt loams. Soil surface colors are grayish browns and soils are typified by a mollic epipedon. Organic carbon of the surface 2 to 4 inches is typically less than 1 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., bluebunch wheatgrass, Thurber needlegrass])

slow runoff and increase infiltration. Shrub canopy and associated litter break raindrop impact and provide opportunity for snow catch and 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):** Compacted layers are none. Subsurface subangular blocky structure or argillic horizons are not to be interpreted as compacted.
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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: Low shrubs (black sagebrush) > deep-rooted, cool season, perennial bunchgrasses (bluebunch wheatgrass, Thurber needlegrass)

Sub-dominant: associated shrubs = shallow-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs = fibrous, shallow-rooted, cool season, perennial forbs = annual forbs

Other: evergreen trees, microbial crusts

Additional: With an extended fire return interval, the shrub and tree component increases at the expense of the herbaceous component. Singleleaf pinyon and Utah juniper may increase and eventually dominate this site.

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 20% of total woody canopy; some of the mature bunchgrasses (<10%) have dead centers.
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14. **Average percent litter cover (%) and depth (in):** Between plant interspaces (± 10 -20%) and litter depth is $\pm \frac{1}{4}$ 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) ± 600 lbs/ac. Favorable years ± 800 lbs/ac and unfavorable years ± 400 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 include cheatgrass, annual mustards, Russian thistle and thistles. Singleleaf pinyon and/or Utah juniper may increase and eventually dominate 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. Reduced growth and reproduction occur during extreme or extended drought periods.
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