USDA Natural Resources
Conservation Service

Ecological site R030XC038NV
SHALLOW GRAVELLY SLOPE 9-11 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	Sarah Quistberg
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** A few rills can be expected, particularly on steeper slopes in areas subjected to summer convection storms or rapid spring snowmelt.

2. **Presence of water flow patterns:** Water flow patterns may commonly occur in areas subjected to summer convection storms. Flow patterns are short and stable. High amount of surface rock fragments limit development of extensive flow patterns.

3. **Number and height of erosional pedestals or terracettes:** None

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

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

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 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 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 3 to 6 on most soil textures found on this site. (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 weak thin platy parting to moderately fine subangular blocky. Soil surface colors are browns and soils are typified by an ochric epipedon. Organic matter of the surface 2 to 3 inches is 1 to 1.5 percent.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Shrub canopy, perennial bunchgrasses and associated litter break raindrop impact, slow runoff and increase infiltration.

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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. Massive or subangular block structure is 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: Evergreen shrubs (blackbrush, ephedra)

    Sub-dominant: associated deciduous shrubs > deep-rooted perennial cool-season bunchgrasses>warm season perennial grasses>deep-rooted, cool season, perennial forbs>fibrous, shallow-rooted, cool season, annual and perennial forbs

    Other: evergreen trees, succulents

    Additional:

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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 30% of total woody canopy; mature bunchgrasses commonly (<20%) have dead centers.

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14. **Average percent litter cover (%) and depth (in):** Between interspaces and under canopy 25-35% and depth 0.25 inches.

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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 (February thru April [May]) ± 500 lbs/ac; Favorable 700 lbs/ac and unfavorable 300 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, red brome and red-stem filaree.

17. **Perennial plant reproductive capability:** All functional groups should reproduce in average and above average growing season years