USDA Natural Resources
Conservation Service

Ecological site R029XY014NV
SHALLOW CALCAREOUS SLOPE 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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Date	07/12/2012
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. Rock fragments armor the soil surface.

2. **Presence of water flow patterns:** Waterflow patterns are none to rare (short and stable).

3. **Number and height of erosional pedestals or terracettes:** Pedestals are none to rare. Occurrence is usually limited to areas of waterflow patterns.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground ± 10-25% 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 (<5 m) 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 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 thick or thin platy. Soil surface colors are light browns or grays and soils are typified by an ochric epipedon. Organic matter of the surface 2 to 3 inches is typically <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) slow runoff and increase infiltration. 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 none. Massive sub-surface horizons or subsoil argillic horizons should 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: Low shrubs (black sagebrush) >deep-rooted, cool season, perennial bunchgrasses

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

    Other: shallow-rooted cool season perennial bunchgrasses and warm season perennial bunchgrasses, evergreen trees

    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 shrubs are common and standing dead shrub canopy material may be as much as 25% of total shrub canopy; mature bunchgrasses (<25%) may have dead centers.

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14. **Average percent litter cover (%) and depth (in):** Under canopy and within interspaces (20-30%) and litter depth is < ¼ 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 May) ± 200 lbs/ac. Favorable years ±350 lbs/ac and unfavorable years ±75 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 Russian thistle, annual mustards, and cheatgrass. Singleleaf pinyon and Utah juniper may increase 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. Reduced growth and reproduction occur during drought years.
