USDA Natural Resources
Conservation Service

# Ecological site R030XC034NV
# SHALLOW GRAVELLY LOAM 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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|---|---|
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| Date | 06/28/2011 |
| Approved by | Sarah Quistberg |
| 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 rills (<1/10 m or 30 ft) will occur, especially following summer convective storms due to very shallow skeletal soils and steep slopes.

2. **Presence of water flow patterns:** A few (<1/10 m or 30 ft) water flow patterns may occur in interspaces between shrubs, rarely connected. These should be limited to times following intense summer storms on steeper slopes or to natural drainages within the ecological site.

3. **Number and height of erosional pedestals or terracettes:** Few to none. Should only occur when associated with rills or water flow patterns on steeper slopes or natural drainages. Height < 0.5 inch.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground <10%. Soil is mostly covered by gravels, vegetation and some lichens/mosses. When patches of bare ground (3 ft. diameter) occur, they should be associated with rodent burrow activity.

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 (<10 ft) during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during intense summer storms.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability values range from 1 to 3 in the interspaces and 4 to 6 under canopy.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon thickness is 2 inches. Surface structure is typically moderate, medium subangular blocky. Soil surface colors are brown and soils are typified by an ochric epipedon. Organic matter of the surface horizon is typically less than 1 percent dropping off quickly below. Organic matter content can be more or less depending on micro-topography.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Deep-rooted bunchgrasses and shrub canopy break raindrop impact, slow runoff, increase infiltration and provide some opportunity for snow catch on this 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. Subsoil calcic horizons are not to be interpreted as compacted.

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: non-sprouting evergreen shrubs

    Sub-dominant: deep-rooted, cool-season, perennial bunchgrasses = deciduous shrubs > shallow-rooted cool-season perennial bunchgrasses > deep-rooted, cool-season perennial forbs <> annual forbs <> succulents

    Other: Other: warm-season, perennial grasses, biological soil crust

    Additional:

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; some of the mature bunchgrasses (<20%) have dead centers, especially with multi-year droughts.

14. **Average percent litter cover (%) and depth ( in):** Litter cover is concentrated under shrubs and grasses and totals 25-35%. Litter depth is <0.25 inches.

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) is ± 500 lbs/ac, ranging from 350 in poor growth years to 700 lbs/ac in optimal growth years.

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:** Red brome and cheatgrass can invade and persist on this site. Utah juniper will increase.

17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years. Less reproduction, although, rarely none, will occur in below-average precipitation years.