

Ecological site R028AY029NV LIMESTONE HILL

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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	01/05/2016
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- Number and extent of rills:** Rills are none to rare. Rock fragments armor the surface.

- Presence of water flow patterns:** Water flow patterns are none to rare. A few may occur on steeper slopes after summer convection storms or rapid snowmelt. These are typically short (<1m) and meandering between rock fragments and vegetation.

- Number and height of erosional pedestals or terracettes:** Pedestals are none to rare and are typically confined to water flow paths. Terracettes are none to rare and typically occur on steeper slopes.

- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground to 5-15%. Surface rock fragments up to 85%.

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

- Extent of wind scoured, blowouts and/or depositional areas:** None. Rock fragments protect soil surface.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) expected to move short distances among rock fragments 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.
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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 fine subangular blocky. Soil surface colors are browns and soils are typified by an ochric epipedon. Surface textures are loams. Organic matter of the surface 2 to 3 inches is 1 to 3 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, associated litter and rock fragments break raindrop impact and allow for snow capture on the site. Deep-rooted perennial grasses increase infiltration and reduce runoff.
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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):** None
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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: evergreen tall shrubs (littleleaf mountain mahogany) >>
- Sub-dominant: associated shrubs > deep-rooted, cool-season, perennial grasses > deep-rooted cool season perennial forbs > > shallow-rooted, cool-season perennial grasses > annual forbs.
- Other: 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 individual shrubs common and standing dead shrub canopy material may be as much as 25% of total woody canopy; mature bunchgrasses commonly (<20%) have dead centers.
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14. **Average percent litter cover (%) and depth (in):** Between plant interspaces 25-35% and depth <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 \pm 700 lbs/ac. Favorable years \pm 900 lbs/ac and unfavorable years \pm 500 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 on this site include cheatgrass and annual mustards.
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17. **Perennial plant reproductive capability:** All functional groups should reproduce in above average and average growing season years. Reduced growth and reproduction occur during drought years.
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