

Ecological site R035XC310AZ Limy Slopes 10-14" 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.

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Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- Number and extent of rills:** A few rills may form due to loamy surface textures, moderate permeability, very rapid runoff and steep slopes, but they are not likely in most areas due to extensive surface cover of rock fragment armor and large amounts of rock fragments in the profile.

- Presence of water flow patterns:** Water flow patterns may be common due to moderate permeability, relatively shallow depth, very rapid runoff, and steep slopes, but they are not likely in most areas due to extensive surface cover of rock fragment armor.

- Number and height of erosional pedestals or terracettes:** Some short pedestals and terracettes may form, but they will be limited by the amount of surface rock fragments.

- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Areas with a greater cover of rock fragments will have less bare ground. Drought may cause an increase in bare ground. This site has only 2 inches of available water capacity, so potential for production of plant cover is very low.

- 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):** Herbaceous, fine woody litter, and some coarse woody litter, will be transported in water flow pathways.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface textures are loam and fine sandy loam. All surface horizons contain a significant amount of rock fragments (gravels and/or cobbles). Many soils have a large cover of rock fragment armor (gravels and/or cobbles) on the surface. When well vegetated or covered with rock armor, soils have a high resistance to both water and wind erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is granular (moderate, fine) or subangular blocky (moderate, fine). Surface thickness ranges from 2-4 inches. Color is variable depending upon parent material.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This site is characterized by a relatively even distribution of mostly grasses and shrubs across the landscape. Canopy and basal cover are dominated by grasses. Both plant cover values (especially basal) decrease during a prolonged drought. This type of plant community is slightly to moderately effective at capturing and storing precipitation.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. These soils are not easily compacted due to extensive cover of rock fragment armor (in many areas) and the high volume of rock fragments in the surface horizons of the profile. Inclusion soils with very few rock fragments will be easily 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: none

Sub-dominant: shrubs > cool season bunchgrasses > warm season bunchgrasses > warm season colonizing grasses >

Other: Minor (3-10%): forbs >

Trace (<3%): cacti = Agave family

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** All plant functional groups are adapted to survival except during the most severe droughts. Severe winter droughts affect shrubs the most. Severe summer droughts affect grasses the most.

14. **Average percent litter cover (%) and depth (in):** Mostly herbaceous litter with some woody litter. Litter amounts increase during the first few years of drought, then decrease in later years.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 350-400 pounds per acre (dry weight) in dry years, 400-575 pounds per acre in median years, 575-700 pounds per acre in wet years.
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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:** Broom snakeweed, Wyoming big sagebrush, pricklypear Cactus (Opuntia), and cholla cactus (Cylindropuntia) are native to the site, but have the potential to increase and dominate the site after heavy grazing. Cheatgrass is an exotic annual grass that may invade and dominate the site after heavy grazing and/or fire. Russian thistle is an exotic annual forb that may invade from adjacent disturbed areas after heavy grazing and soil disturbance.
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17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and are capable of producing seeds, stolons and rhizomes except during the most severe droughts.
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