

## **Ecological site R035XE516AZ Sedimentary Cliffs 6-10" 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.

Author(s)/participant(s)	Karlynn Huling
Contact for lead author	NRCS State Rangeland Management Specialist, Phoenix Az.
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Approved by	Steve Barker
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### **Indicators**

- 1. Number and extent of rills:** The soils on the site are variable. Till formation may be common in areas that have loam and sandy loam surface textures, moderate permeability, few surface rock fragments, rapid runoff, and very steep slopes. Rill formation is not likely in areas that have loamy sand surface textures, rapid to very rapid permeability, and a high cover of rock fragments, especially on the more gentle slopes.
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- 2. Presence of water flow patterns:** Soils on this site are variable. Water flow patterns may be common in areas that have moderate permeability, shallow depth, few surface rock fragments and very steep slopes. They are not likely in areas with rapid to very rapid

permeability, deeper soils, and a high cover of rock fragments, especially on the more gentle slopes.

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3. **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.
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** This site should have no more than 40% bare ground. Areas with a greater cover of rock fragments and/or rock outcrop will have less bare ground. Drought may cause an increase in bare ground.
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5. **Number of gullies and erosion associated with gullies:** None
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6. **Extent of wind scoured, blowouts and/or depositional areas:** Soils on this site are variable. Most areas will not have any significant signs of wind erosion. Areas with loamy sand surfaces may have a few minor blowouts and depositional areas.
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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous and fine woody litter will be transported in water flow pathways and by wind. Most coarse woody litter will remain under shrub canopies, but some will be transported in water flow pathways in the steepest areas.
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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 surface textures include loamy sands, sandy loam, fine sandy loam and loam. All surface horizons are very to extremely gravelly, channery, stony or bouldery. Most soils have a significant amount of rock fragments on the surface; the average is 20% gravels and 40% cobbles, channers, or stones. When well vegetated or covered with rock fragment armor, these soils have a low to high resistance to water erosion and a moderate to high resistance to wind erosion.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color**

**and thickness):** Soil surface structure may be subangular blocky (weak, fine), granular (moderate, fine), single grain, platy (weak, thin), or massive. Surface thickness range is 1-10 inches. Color is variable depending upon parent material.

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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 patchy distribution of mostly shrubs with some grass and a few forbs. Plant distribution is influenced by changes in soil (texture, depth, amount and size of rock fragments), hydrology (slope, position on the slope, amount of bedrock, cracking and weathering of the bedrock), and aspect across the site. Both plant cover values (canopy and basal) decrease during prolonged drought.
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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. These soils are not easily compacted due to the extensive cover of rock fragment armor and the high volume of rock fragments within the surface horizon of the profile.
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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: shrubs >

Sub-dominant: warm season colonizing grasses >

Other: Minor: half shrubs = cool season bunchgrasses = warm season bunchgrasses > cacti = perennial forbs = annual forbs = annual grasses >

Additional: Trace: Agave family.

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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 in all years except the most severe droughts. Severe winter droughts affect shrubs the most. Severe summer droughts affect grasses the most.
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14. **Average percent litter cover (%) and depth ( in):** Mostly woody litter with some herbaceous. 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):** 250-300 pounds per acre (dry weight) in dry years, 300-400 pounds per acre in median years, 400-450 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:** Access to and through this site may be extremely difficult. These conditions have preserved the native plant communities and biodiversity in most areas. More information is needed to determine which native or exotic species is capable of increaseing or dominating the site, especially in the more accessible areas.
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17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and ae capable of producing seeds, stolons, and rhizomes in most years except for the most severe drougts.
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