

Ecological site R038XA103AZ Clay Loam Upland 12-16" 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:** Some rill formation may occur due to loam and clay loam surface soils, slow permeability, and medium runoff. Rills, if present, could be more common on steeper slopes and less common on the surfaces that are protected by rock fragment armor.

- Presence of water flow patterns:** Water flow patterns may be common due to the slow permeability and medium runoff.

- Number and height of erosional pedestals or terracettes:** Pedestals and terracettes may occur, but they should be very short.

- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** This site has an average available water capacity of 4 inches, so it has a moderate potential to produce plant cover. One area had 35% bare ground and 25% rock fragment cover. Areas with a lot of rock fragment armor will have less bare ground. Drought may cause an increase in bare ground.

- 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 and fine woody litter will be transported in water flow pathways. Coarse woody litter will remain under shrub and tree canopies.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil textures are generally clay loam or loam. Most surface soil horizons are gravelly or cobbly. The aggregate stability values can be fairly low due to the tendency for clayey soils to shrink/swell with changes in moisture. Aggregate stability values from one area averaging 6 under plant canopy (due to tobosa root mats) to only 1 in the interspaces. When well vegetated and/or protected by rock armor, these soils have a moderate to 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):** Surface structure is both granular (moderate, very fine to fine) and platy (moderate to strong, thin to medium). A few soils have a subangular blocky (weak to moderate, fine) surface structure. Surface thickness range is 1-4 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 fairly uniform distribution of mostly grasses with some shrubs and a few forbs. One area had 32% canopy cover (28% grass, 4% shrubs) and 16% basal cover (14% grass, 2% shrubs). Both canopy and basal cover values (especially canopy) decrease during a prolonged drought. This type of plant community is highly 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. Due to the loam and clay loam surface textures, all soils may be easily compacted at the very surface unless there are a lot of rock fragments in the surface horizons. Most of the soils have gravelly or cobbly surfaces. Some of the soils have a naturally platy surface structure.

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: warm season bunchgrasses >>

Sub-dominant: warm season colonizing grasses > cool season bunchgrasses > deciduous shrub > forbs evergreen (chaparral) shrubs > cool season colonizing grasses > cacti = Agave family = trees

Other:

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 survive in all years except during the most severe droughts. Severe winter drought affects trees and shrubs most. Severe summer drought affects grasses most.

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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, but decrease in the later years.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 750-850 lbs/ac dry years; 850-1025 median years; 1025-1100 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, Utah juniper, prickly pear cacti and cholla cacti are all native to the site but can have the potential to increase and dominate the area after heavy grazing. Prosopis (mesquite) is native to neighboring sites and can invade and dominate the site after heavy grazing.
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17. **Perennial plant reproductive capability:** All plants native to this site are adapted to the climate and are capable of producing seeds, stolons, and rhizomes in most years except the most severe droughts.
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