USDA Natural Resources
Conservation Service

# Ecological site R038XB222AZ
# Volcanic Hills, Clayey 16-20

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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 | 07/01/2014 |
| Approved by | Byron Lambeth |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** A few natural rills are present and seem to follow fault lines and bedding planes in the volcanic parent materials.

2. **Presence of water flow patterns:** Water flow patterns occupy about 10% of the area. They are very short (2-5 ft.) in length and discontinuous where gravel/cobble covers are high (>35%). They are terminated by gravel/cobble cover and/or terracettes of perennial grasses, shrubs and cacti. They are longer (10-15ft.) where gravel/cobble cover is low (<20%).

3. **Number and height of erosional pedestals or terracettes:** Erosional pedestals are very uncommon. High cover values of gravel, cobble and stones result in surface stability. Terracettes are uncommon, cover less than 5% of the area and usually are formed by a combination of cobbles, perennial grasses, cacti and shrubs. They are from 30 to 60 feet apart and have elevation differences of 2 to 4 inches.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 1 to 10% (cover from 200 plot pace frequency transect)

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):** All litter is staying in place.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Slake test values 4, 5, and 6 evenly distributed across the area. Soil surface has high organic content both under plant canopies and in pockets of bare soil surrounded by cobbles.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is granular. The A horizon is 2-4 inches thick and is very dark colored (10YR 3/2) and very high in organic matter.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Cover of perennial grasses range from 20-50%, cover of shrubs and cacti range from 10-25%. Basal cover of perennial plants ranges from 5-8%. Covers of gravels, cobbles and stones range from 30 to 75%. Cover of all types of plants are well distributed across the area.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None

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: Perennial grasses> shrubs

    Sub-dominant: annual forbs and grasses >= perennial forbs > succulents > trees.

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Both shrubs and perennial mid-grasses show partial signs of decadence over several years of severe drought; however, nearly all plants have some live canopy remaining. Green sprangletop most affected by drought.

14. **Average percent litter cover (%) and depth ( in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** From ecological site description annual production is; 820 lbs/ac(drought), 1300 lbs/ac(average year), 2450 lbs/ac (wet year).

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:** turbinella oak, wait a bit mimosa, mesquite, juniper species, singleleaf pinyon, snakeweed, prickley pear, red brome, cheatgrass, wild oats.

17. **Perennial plant reproductive capability:** Not impaired.