

Ecological site R035XY235UT Semidesert Very Shallow Gravelly Loam (Utah Juniper)

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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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Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** Few occasional occurrences throughout site. Gravelly surface prohibits the formation of most rills. Rills that occur may be 8 feet in length. Sides of rills may be up to 2-3 inches high. Rills are most likely to form below exposed bedrock or water flow patterns where sufficient water accumulates to cause erosion.
- 2. Presence of water flow patterns:** Occasional occurrences throughout area on gentle slopes (<10 %). Occur in Interspaces between plants and well developed biological soil crusts. Are evidenced in some areas by exposed rock from which the soil has eroded. Evidence of flow will increase somewhat with slope.
- 3. Number and height of erosional pedestals or terracettes:** A few small pedestals form at base of plants that occur on the edge of rills. Interspaces between well developed biological soil crusts resemble pedestals and may be up to 2 inches high. Terracettes are few. Debris dams of small to medium sized litter (up to 2 inches in diameter) may form in water flow patterns, rills, and gullies. These debris dams may accumulate smaller litter (leaves, grass and forb stems).
- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 7 – 30 %. Most bare ground is associated with water flow patterns, rills, and gullies. Areas with well developed biological soil crusts should not be counted as bare ground. Poorly developed biological soil crusts that are interpreted as functioning as bare ground (therefore they would be susceptible to raindrop splash erosion) should be recorded as bare ground. Ground cover is based on first raindrop impact, and bare ground is the opposite of ground cover.

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5. **Number of gullies and erosion associated with gullies:** None to few. On steeper slopes and areas below adjacent to sites with concentrated water flow (such as exposed bedrock), gullies may increase. Length may often extend from the adjacent site until the gully reaches a stream or an area where water and sediment accumulate. Gullies may remove soil from the base of trees exposing roots.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None to very few. Trees break the wind and reduce the potential for wind erosion. Soil surface is gravelly and not likely to be influence by wind erosion.
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7. **Amount of litter movement (describe size and distance expected to travel):** On gentle slopes (< 10 %) most litter (juniper leaves) accumulates at the base of plants. Woody stems from trees are not usually moved unless present in water flow patterns or rills. On steeper slopes, woody stems may be washed from site.
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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):** This site should have a soil stability rating of 4 or 5 under plant canopies, and a rating of 3 to 4 in the interspaces using the soil stability kit test. The average should be a 4. Surface texture gravelly loam. Vegetation cover, litter, and surface rock reduce erosion.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface is 0 to 3 inches deep. Structure is weak fine platy parting to moderate fine and medium granular. Color is brown (7.5YR5/4). It is important if you are sampling to observe the A horizon under plant canopies as well as the interspaces. Use the specific information for the soil you are assessing found in the published soil survey to supplement this description.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Spatial distribution of perennial plants and intercept raindrops preventing splash erosion and provide areas of surface detention to store water allowing additional time for infiltration. Crowns of trees and accumulating litter at base of trees appear to create a micro-topography that may enhance development of water flow patterns below the drip line of the canopy. Significant increases in Pinyon-juniper canopy reduces understory vegetation and increases 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. Soil is shallow to bedrock.
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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: Dominance by average annual production, air dry weight: Shrubs > warm season perennial grasses = cool season perennial grasses > Trees (Juniper > Pinyon) > forbs. Functional/structural groups may appropriately contain non-native species if their ecological function is the same as the native species in the reference state (e.g. Crested wheatgrass, Russian wildrye, etc.)

Sub-dominant:

Other:

Additional: Following a recent disturbance such as drought or insects that removes the woody vegetation, forbs and perennial grasses (herbaceous species) may dominate the community. These conditions would reflect a functional community phase within the reference state.

Dominants—Utah Juniper, Pinyon Pine, Blackbrush, Indian ricegrass, Jame's galleta. Sub Dominants—shadscale saltbrush, Torrey's jointfir. Perennial and annual forbs can be expected to vary widely in their expression in the plant community based upon departures from average growing conditions.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Community is made up of young, mid, and old aged juniper and pinyon trees and shrubs. Several standing dead trees may be present on the site and approximately 20 % of the trees can show evidence of decadence. All age classes of perennial grasses should be present under average to above average growing conditions with age class expression likely subdued during below average years. In drought tree mortality may increase with the first sign being a yellowish to reddish leaf color.
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14. **Average percent litter cover (%) and depth (in):** Variability may occur due to weather.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 165-310 #/acre on an average year.
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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:** Few invasives capable of dominating this site. Cheatgrass may invade this site.
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17. **Perennial plant reproductive capability:** All perennial plants should have the ability to reproduce sexually or asexually in most years, except in drought years.
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