USDA Natural Resources
Conservation Service

# Ecological site R040XA114AZ
# Loamy Upland 10"-13" p.z.

Accessed: 05/07/2024

## 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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| Author(s)/participant(s) | Dave Womack, Dan Robinett, Tom Reis |
| Contact for lead author | NRCS Tucson Area Office |
| Date | 02/09/2005 |
| Approved by | S. Cassady |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:** none present on this site.

2. **Presence of water flow patterns:** Occupy approximately 10% of the area; discontinuous & long; ranging in length from 15-50 feet where gravel cover is less than 5%; flow appears to be strictly sheet flow where gravel cover is high.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are common on half shrubs and suffrutescent forgs, ranging in height form 1-2 inches; terracettes are infrequent, 40-80 feet apart with a 1-3 inch elevation difference from above to below the terracette. CCC rock spreader structures in theexclosure have created terracettes with a 2-4 inch elevation idfference from above to below the terracette.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 20-70%; on moist areas with higher slopes the gravel cover is higher and bare ground cover lower.

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):** Litter is trapped and stays in place where gravel and vegetative cover levels are high. Litter moves in flow paths where gravel and vegetative cover levels are low.

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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):** No slake test done. Expect ratings of 1-3 in bare ground areas and 4-5 under shrub canopies.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Thin platy compacted structure from rain drop impact, weak angular to subangular blocky structure from 1/8 to 4 inches; reference site has thickness to 2 inches.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Canopy cover estimated at 18% (3% trees & shrubs, 7% subshrubs & suffrutescent forbs, 6% succulents, 2% perennial grasses), basal cover 1% is irregular patches with approximately 50% cover occupy 5-10% of area.

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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):** No compaction layer present. Shallow argillic horizon on this site feels lika a compacted layer, but is not.

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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: Half shrubs & suffrutescent forbs > large shrubs > succulents > annual forbs & grasses > perennial grasses > crytogams.

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Basal cover reduced 50%, primarily for perennial grass plants; canopy cover reduced 50% on half shrubs and suffrutescent forbs; canopy cover reduced > 50% on large shrubs and trees.

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

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 228 lbs/ac unfavorable precipitation; 550 lbs/ac normal precipitation; 1100 lbs/ac favorable precipitation.

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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:** Euryops, Lehmann lovegrass, buffelgrass, fountaingrass, malta star-thistle, snakeweed & burroweed can increase to dominate with heavy livestock grazing. Introduced cool season annuals (red brome, filaree, Mediterranean grass).

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17. **Perennial plant reproductive capability:** Not affected. Good size class distribution of subshrubs.

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