USDA Natural Resources
Conservation Service

Ecological site R040XA117AZ
Sandy Loam Upland, Deep 10"-13" p.z.

Accessed: 05/20/2025

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)	Dan Robinett
Contact for lead author	NRCS Tucson Plant Materials Center
Date	07/03/2003
Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

2. **Presence of water flow patterns:** 40-50 feet apart, continuous from 50-100 feet in length with 4-5% slope.

3. **Number and height of erosional pedestals or terracettes:** Pedestals on most subshrubs and bush muhly are common. None on other grasses or gravels. Terracettes are not present.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 40-45%; gravel 5%, cryptogams 5-7%, liter & herbaceous basal 40%

---

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):** Herbaceous litter transported 3-5 feet in water flow paths. Woody litter does not move. Herbaceous litter on interfluves does not move.

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** 60% are 4-6 ratings, 40% are 1-3 ratings

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Weak subangular blocky; brown SL 2-3 inches thick, light brown SL 3-60 inches thick

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** 10-15% canopy of trees, 5% canopy of subshrubs and bush muhly, and 5-10% canopy of cacti & large shrubs after 4 years of drought.

---

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: bush muhly = trees > succulents > annuals > large shrubs > subshrubs > crytogams > other perennial grasses > perennial forbs (after 4 years of severe drought)

Sub-dominant:

Other:

Additional:

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** 50-75% mortality on bush muhly, burroweed, triangle goldeneye & desert zinnia; 20% mortality on Opuntia species

---

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):** 145 lbs/ac unfavorable precipitation; 720 lbs/ac normal precipitation; 1290 lbs/ac favorable precipitation

---

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:** red brome, malta starthistle, bufflegrass, fountaingrass, Sahara mustard

---

17. **Perennial plant reproductive capability:** Not impaired for shrubs, drought impaired for perennial grasses and forbs.
