

Ecological site R035XC333AZ Sandstone Upland 10-14" p.z. Warm

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

Indicators

- 1. Number and extent of rills:** Not expected due to coarse textured soils, variable rock cover and low slopes. On steepest slopes very few rills may occur and will be less than 10 feet in length, especially where adjacent to exposed bedrock.
- 2. Presence of water flow patterns:** Generally none expected on most slopes, but a few short (3-5 feet) water flow patterns may occur on steeper slopes.
- 3. Number and height of erosional pedestals or terracettes:** Very few pedestals around long-lived plants along established water flow patterns on steeper slopes. Some soil mounding or deposition is common around shrubs and is common and should not be confused with erosional pedestals.
- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 15-45%. The amount of bare ground can vary widely depending on the amount of rock fragments, bedrock, and biological crust present on the site.
- 5. Number of gullies and erosion associated with gullies:** None, there should be no active gullies on this site.

6. **Extent of wind scoured, blowouts and/or depositional areas:** There can be some deposition (1"-2") around long lived shrubs and perennial shrubs.
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter is transported by wind and water in plant interspaces. Woody litter should not move from beneath shrubs and trees.
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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 an average soil stability rating of 3, with a rating of 3 to 4 under plant canopies and a rating of 2 to 3 in interspaces. Surface textures range from sand to gravelly loamy fine sand to sandy loam.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The soil surface typically ranges from 4 to 12" thick. Structure is mostly single grain, loose to weak medium platy. Color ranges from light red (2.5YR 6/6) to strong brown (7.5YR 5/6).
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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 dominance of shrubs, grasses and forbs in descending order. Soils on site have rapid to very rapid permeability. High shrub canopy with scattered bunch grasses reduce raindrop impact allowing for optimum infiltration. Prolong droughts reduces perennial grass cover which can cause a decreased infiltration, especially during intense storm events.
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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 expected due to coarse textured soils.
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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: Evergreen shrubs (blackbrush, Ephedra) >>
- Sub-dominant: Warm seasoning grasses > Cool season grasses > other shrubs > perennial forbs > annual forbs
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** In years with normal to above normal precipitation there should be only slight mortality or decadence in shrubs or grasses. Only in severe prolong droughts will there be a significant mortality in shrubs and perennial bunch grasses. It should be noted that in periods of water stress blackbrush will drop its leaves.
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14. **Average percent litter cover (%) and depth (in):** The amount of litter cover will vary with different climatic conditions on the site. Litter distribution and depth will differ in plant interspaces and under canopies. Litter depth will be higher, up to 1/4", under canopies. Litter amounts will increase in the first years of drought and decrease in the later years of a

drought.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average annual production on this site is expected to be 350 to 400 lbs/ac in a year of average annual production.
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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, Ephedra species, wavyleaf oak are all native to the site, but have the potential to increase on degraded sites. Russian thistle, cheatgrass, and other introduced annuals have the potential to invade the site.
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17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and capable of producing seeds, stolons and/or rhizomes except during the most severe droughts.
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