

Ecological site R035XC331AZ Shallow 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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| Author(s)/participant(s) | Dan Carroll |
| Contact for lead author | |
| Date | 10/29/2010 |
| Approved by | Steve Barker |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

1. **Number and extent of rills:** None would be expected until steeper slopes in conjunction with bare soil are encountered.

2. **Presence of water flow patterns:** Water flow patterns are evident where steeper slopes concentrate runoff. Generally, the shrub and grass mix and gravel in the soil surface horizon armor it from an abundance of water flow patterns.

3. **Number and height of erosional pedestals or terracettes:** There should not be pedestals present, but terracettes can form occasionally.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is expected to be 50%
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5. **Number of gullies and erosion associated with gullies:** None are expected on this site.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None expected.
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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous litter is moved by wind and water and the distance can be several feet or more in open areas. Woody litter tends to stay in place. Long lived perennial plants retain litter under the canopy.
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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):** The soil surface is aided in it's resistance to erosion by gravel (avg. 20%) and biological crust (2% - 7%).
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface to 9" loamy fine sand that is single grain; loose. Notice: the soil survey for the area and map unit that is being observed should be referenced for accurate information regarding the unique characteristics of that soil.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Shallow slopes promote even plant distribution of a shrub/grassland mix and on steeper slopes the vegetation becomes more uneven. Plant community composition: Shrubs (10-20% canopy, 5-10% basal); Grasses (0-5% canopy, 0-2% basal); Forbs (0-3% canopy, 0-2% basal); Trees (0-1% canopy, 0-1% basal); Biological Crust (0-10%).

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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.
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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: Shrubs

Sub-dominant: Grasses > Forbs

Other: Trees

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** The mortality of most shrubs, grasses, forbs and trees is < 10% except during prolonged, severe drought conditions. Short term winter drought affects trees and shrubs the most and short term summer drought affects forbs and grasses. Expect cyclical higher mortality on shorter lived grasses, shrubs and forbs, such as sand dropseed, squirreltail, broom snakeweed and globemallow.
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14. **Average percent litter cover (%) and depth (in):** Most litter will accumulate below plant canopies or near plant bases.
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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 450 lbs./ac. in a year of average annual 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: Cheatgrass (*Bromus tectorum*) is commonly found in small amounts on the site (< 2 percent). During years of above average winter and spring moisture the composition of this may increase slightly. Severe disturbance may cause an increase in this or other invasive plants creating a potential for a shortened fire frequency on the site which could result in crossing a threshold to a state with increased introduced annual plants and fewer native shrubs.

17. **Perennial plant reproductive capability:** The only natural limitations to reproductive capability are weather related and natural disease or herbivory that reduces reproductive capability. All plants native to the site are adapted to the climate and are capable of producing seeds, stolons and rhizomes in all but the most severe droughts.
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