

## Ecological site R035XB215AZ Sandstone/Shale Upland 6-10" p.z.

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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	Foliar Cover

### Indicators

- Number and extent of rills:** Very few rills due to loamy surface textures, rock fragments on surface and moderate permeability. Some active rills on steeper slopes and areas adjacent to rock outcrops or exposed areas.

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- Presence of water flow patterns:** The occurrence of water flow patterns is occasional (<5% cover) on all slopes in the reference state, and are typically less than 3 feet long and stable. As slopes increase (>10%) water flow pattern occurrence (5-10% cover) and length (3-6ft) increases. An increase in water flow patterns is also expected after large disturbance events such as heavy precipitation.

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- Number and height of erosional pedestals or terracettes:** The occurrence of pedestalling or terracetting in the reference state is infrequent to slight; however some slight pedestalling may occur in waterflow patterns on steeper slopes. Some mounding of 1/2 to 1" may occur around large shrubs.

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- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 20 to 40% bare ground depending on rock fragments, biological crust and exposed bedrock cover. This site may have up to 25% rock fragments on surface.

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- Number of gullies and erosion associated with gullies:** None. however gullies can occur where runoff is

concentrated by exposed rock outcrops and steeper slopes.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** None.

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7. **Amount of litter movement (describe size and distance expected to travel):** Most herbaceous and fine woody litter will remain in place with some fine litter (<1/4") transported by wind and water movement in flow paths and rills. Most litter will remain under the shrub canopies and at bases of long lived herbaceous plants.

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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 3-4 throughout the site. Surface texture varies from channery/gravelly fine sandy loam to clay loams.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface horizon is 2-5 inches deep. Structure is weak medium platy and weak fine granular. Color is reddish brown (5YR4/3). The A horizon would be expected to be more strongly developed under plant canopies than in the interspaces.

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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 short and mid-grass distribution with moderate amounts of shrubs and a few forbs. Perennial bunch grasses and shrubs provide the majority of plant composition. These plants are found where there are shallow soil deposits or sandstone bedrock cracks that will secure roots and hold moisture on site.

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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.

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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: Warm season sod-forming grasses > Cool season bunch grass > evergreen shrubs

Sub-dominant: warm season bunch grasses > deciduous shrubs

Other: forbs > Succulents & Cacti

Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** In a normal year up to 10 to 15% of grasses and shrubs die off. During and after drought years there can be from 10 to 30% die off of shrubs and grasses. Severe winter droughts affect shrubs, trees and cool season grasses the most. Severe summer droughts affect the warm season grasses the most.

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14. **Average percent litter cover (%) and depth ( in):** Within plant interspaces litter ranges from 0 to 10% cover with no real depth, while under some shrub and tree canopies it ranges from 30 to 70% cover with depths from 1/8 to 1/2 inch thick.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 250 lbs/ac unfavorable precipitation, 350 lbs/ac normal precipitation, 550 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:** Plant species most likely to invade or increase are broom snakeweed, Mormon tea, Russian thistle and halogeton.

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17. **Perennial plant reproductive capability:** All plants native to this site are adapted to the climate and are capable of producing seeds, stolons and rhizomes except during the most severe droughts.

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