

## Ecological site DX035X04B314 Sandstone Upland 10-14" 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	Annual Production

### Indicators

- Number and extent of rills:** Rills may be common on steeper slopes due to high amount of rock outcrop directing runoff onto soils and low potential to support vegetative growth on shallow and very shallow soils.

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- Presence of water flow patterns:** Water flow patterns may be common on the steeper slopes due to high amount of rock outcrop directing runoff onto the soils and low potential for supporting vegetative growth on the shallow and very shallow soils. These patterns are short and discontinuous across larger soil areas, but may be longer and more continuous where soils lie adjacent to bedrock.

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- Number and height of erosional pedestals or terracettes:** Pedestals and terracettes may be common due to the high potential for wind erosion.

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- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 10-40%. Bare ground will be reduced by the amount of surface rock fragments and rock outcrop found on the site. This site has 1.0-1.6 inches of available water capacity, so the potential for production of plant cover is very low. Drought may cause an increase in bare ground.

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- Number of gullies and erosion associated with gullies:** None

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6. **Extent of wind scoured, blowouts and/or depositional areas:** There may be occasional areas with sandy surfaces that have small blowouts and minor depositional areas around rock outcrop and plant bases.
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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous and fine woody litter will be transported in water flow pathways and by wind. Coarse woody litter will remain under shrub and tree canopies. Litter movement may be greatest in areas that are adjacent to rock outcrop.
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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):** Soil surface textures range from gravelly fine sandy loam to loamy sand. Soil surface gravel ranges from 5-10%. Many areas have a large amount of rock fragments covering the soil surface. When well vegetated or covered with rock fragment armor, these soils have a high resistance to water erosion and a moderate resistance to wind erosion.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structures are moderate weak thin platy. Surface thickness of the A-horizon is 1 inch. Color of the A-horizon does not differ significantly from the subsurface soil horizons.
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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 patchy distribution of mostly shrubs and trees with some grasses and a few forbs. Biological crusts help stabilize the soils. The patches of plants are found where there are soil deposits or sandstone bedrock cracks that will secure roots and hold moisture. Canopy cover ranges from 5-15% (trees = shrubs = grasses). Basal cover ranges from 0-2% (grasses) for vascular plants and 10% for biological crust (cyanobacteria > lichen > moss). Canopy cover and basal cover potential is reduced by the amount of rock outcrop. Both plant cover values decrease during a prolonged drought.
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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. Most soils on the site are not easily compacted. The loamy soils could be compacted. Soils have a naturally platy surface structure.
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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: perennial bunchgrass > perennial colonizing grasses >> perennial forbs >> annual grasses > 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):** All plant functional groups are adapted to survival in all but the most severe droughts. Severe winter

drought affects trees and shrubs most. Severe summer drought affects grasses the most.

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14. **Average percent litter cover (%) and depth ( in):** Of the total litter amount, it would be expected that approximately 60-80% would be herbaceous litter and approximately 20-40% would be woody litter. Litter amounts increase during the first few years of drought, then decrease in later years.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 50-100 lbs/ac dry years; 100-400 lbs/ac median years; 400-500 lbs/ac wet years
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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, threadleaf snakeweed, and Cutler's jointfir are native to the site but have the potential to increase and dominate after heavy grazing. Cheatgrass and red brome are exotic annual grasses that have invaded many areas, with or without grazing impacts. These grasses can increase greatly during wet winters and springs.
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17. **Perennial plant reproductive capability:** All plants native to the 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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