USDA Natural Resources
Conservation Service

Ecological site R035XB230AZ
Sandstone Upland 6-10" p.z. Very Shallow, 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	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Except on the steepest slopes, there are no rills associated with this site due to soil textures, rock cover and low precipitation.

2. **Presence of water flow patterns:** Generally, there are no water flow patterns associated with this site. In this lower precipitation site the soil textures are able to accept all the moisture that falls on them.

3. **Number and height of erosional pedestals or terracettes:** None

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** The bare ground for this particular site varies widely between 20-60% depending on the amount of rock present at the site.

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5. **Number of gullies and erosion associated with gullies:** None

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6. **Extent of wind scoured, blowouts and/or depositional areas:** There can be some deposition (1”-2”)around long lived perennial shrubs and grasses.

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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 open areas that are away from shrubs and trees and under shrubs and trees movement is less. Coarse woody litter tends to stay in place in all areas.

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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 textures are sand, gravelly fine sandy loam, fine sand, sand and loamy sand. The sandy textures at these sites are low to very low soil stability values due to the general lack of structure. Soil stability is 1-2 outside of canopy and 2-3 under canopy.Wind is the major erosion force at this site.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is generally sandy and is single grain; loose and soil organic material is minimal. The A horizon is 2" to 3" in depth and reddish yellow in color. The soil survey for the soil map unit that is being investigated should be referenced to access the unique qualities 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:** The canopy cover range is 15-50% (warm season grasses>evergreen shrubs>deciduous shrubs>cool season grasses>forbs>succulents> trees). Basal cover ranges from 18% to 21% (grasses>shrubs).

Both of these cover values will decrease during a prolonged drought. This type of plant community is moderately effective at capturing and storing precipitation. The available water capacity is low at 0 to1 inches. The average fetch between perennial plants varies from 5-15 inches and once again, this is dependent on the amount of rock cover that is present on the 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: Blackbrush

    Sub-dominant: Cool-season perennial grasses > other shrubs > warm-season perennial grasses

    Other: Minor (0-10%): forbs > annual grasses > succulents

    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 survive in all years except during the most severe droughts. Severe winter droughts affect shrubs, trees and cool season grasses the most. Severe summer droughts affect warm season grasses the most.

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14. **Average percent litter cover (%) and depth (in):** The litter cover will be varied with different conditions at the site (inter-spaces between plants as opposed to under canopy). Litter amounts increase in the first years of drought and decrease in the later years of a drought.

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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 200 to 225 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:** Broom snakeweed, Cutler's jointfir and wavy leaf oak are all native to the site but have the potential to increase on degraded sites. Russian thistle, cheatgrass, and red brome are non-native species that can invade.

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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.
