

## Ecological site R035XF607AZ Sandy Upland 13-17" 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:** None on shallow slopes. A few minor rills may be present on steeper slopes and likely to form below exposed bedrock. Rills will be short and 4-8' long in length. On this site there can be an increase of rills following intense storm events, but do not persist due to coarse textures, wind action and raindrop splash impact.
- Presence of water flow patterns:** A few water flow patterns may form due to the moderate hazard of water erosion for this site. These would be expected to be short and discontinuous due to the high potential for vegetative ground cover. These soils are well drained and have good permeability.
- Number and height of erosional pedestals or terracettes:** Pedestals and terracettes may be seen on rare occasions near water flow patterns. Sites with well developed biological soil crust may resemble pedestals, but are normal surface roughness. These crusts will have a rolling or pinnacled appearance (.5 to 2" height) with a dark soil surface.
- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is generally 20-40%. Biological soil crusts that are intact and functional shouldn't be counted as bare ground.
- Number of gullies and erosion associated with gullies:** None.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Some depositional areas may occur around long lived grasses, shrubs and trees but are stable due to canopy, biological soil crust and litter cover. An occasional blowout may occur around large junipers, especially during and after severe droughts.
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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous and fine woody litter (<1/4" diameter) will be transported by wind in open areas a considerable distance (3-6'). The distance of movement in the water flow pathways will be a less (2-3') because of the high permeability and excessively drained soil. Coarse woody litter (>1/4" dia.) will remain under shrub and tree canopies.
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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 are fine sand to loamy sand. Soil stability values are 1-2 with no canopy cover and 2-3 under canopy. There is little water erosion and light to moderate wind erosion with the reference plant community in place.
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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 typically single grain; loose (weak structure) and 3-8" deep. Surface horizons will typically have better developed horizons under plant canopies than the adjacent interspaces. Colors generally range from brown (7.5YR 5/4) to pale brown (10YR 6/3).
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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's plant community composition is dominated by shrubs (50-60%), grasses (25-35%), forbs (10-15%) and trees (0-2%). The average distance to the nearest perennial plant (fetch) is 3-4" and the range is from 1" to 10". Shrub canopies, scattered grasses and the present of a biological soil crust will limit splash impact and reduce runoff. This type of plant community will capture and hold all available moisture the climate can provide.
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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: Evergreen shrubs > cool season grasses
- Sub-dominant: Warm season grasses > deciduous shrubs > perennial forbs
- Other: Trees > annual forbs = cacti
- 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. During normal precipitation years, mortality will be very low in grasses and shrubs. Severe winter droughts affect trees and shrubs the

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 (depth range .1 - 2"), it would be expected that approximately 60-80% would be herbaceous fine litter (<1/4" diameter) and approximately 20-40% would be woody litter (>1/4" - 2" diameter). Litter amounts increase during the first few years of drought and 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):** Average annual production on this site is expected to be 750 to 850 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 snakeeed, prickly pear, locoweed, Wright's bird's beak and six weeks fescue are native species that have the potential to increase and dominate the site after disturbance. Cheatgrass and Russian thistle are exotic annuals that is becoming endemic to the site regardless of management or fire frequency.
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17. **Perennial plant reproductive capability:** All native plants are adapted to the climate and are capable of producing seeds, stolons and/or rhizomes except during the most severe droughts.
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