Ecological site R035XA111AZ
Limy 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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Date	03/13/2006
Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. These soils have slow to moderate permeability and a moderate runoff on steeper slopes, but soils (gravelly sandy loam and loam) have low erodibility by water.

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2. **Presence of water flow patterns:** A few water flow patterns may form, especially on steeper slopes, due to slow to moderate permeability and moderate runoff.

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3. **Number and height of erosional pedestals or terracettes:** A few very short pedestals or terracettes may form on steeper slopes, due to slow to moderate permeability and moderate runoff.

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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 ranges from 30-65% (average 45%). Areas with a higher cover of rock fragments have less bare ground. This site may have a high percentage of bare ground due to very low potential productivity. Available water capacity averages only 3 inches. Drought may cause an increase in bare ground.

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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:** None

7. **Amount of litter movement (describe size and distance expected to travel):** There will be some herbaceous litter movement following the water flow patterns on steeper slopes. Most woody little will stay in place under shrub and tree canopies.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil aggregate stability ratings from a few areas ranged from 3-6 (average 4) under plant canopy and from 3-4 (average 4) in the interspaces. Rock fragment cover on the surface ranges from 5-15%. Soil surface textures are mostly sandy loam or loam. Most surface horizons are gravelly. When well vegetated and/or protected by rock armor, the soils have a high resistance to both water and wind erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is mostly granular (weak, very fine and fine), with some platy (weak, medium). Surface thickness is mostly 2-3 inches. Color is variable depending upon parent material.

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 relatively uniform distribution of mostly grasses with some shrubs and a few forbs. There may be a few patches of trees in some higher elevation areas. Canopy cover ranges from 15-50% (10-35% grasses, 1-5% forbs, 5-15% shrubs, 0-10% trees). Basal plant cover ranges from 2-15% (2-10% grasses, 0-1% forbs, 0-3% shrubs, 0-1% trees). Both cover values decrease during a prolonged drought. This type of plant community structure is moderately effective at capturing and storing precipitation.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. The soils could be easily compacted due to the sandy loam and loam textures, but they are generally not susceptible due to the high amount of gravel in the surface horizons.

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: >40% of annual production: warm season bunchgrasses >>

    Sub-dominant: 11-40%: shrubs > warm season colonizing grasses > cool season bunchgrasses

    Other: Minor (3-10%): forbs >
    Trace (<3%): trees > cacti

    Additional:

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 droughts affect shrubs and trees the most. Severe summer droughts affect grasses the most.

14. **Average percent litter cover (%) and depth (in):** Mostly herbaceous litter with some 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):** 300-500 pounds per acre (dry weight) in dry years, 500-700 pounds per acre in median years, 700-1000 pounds per acre in 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:** Green rabbitbrush, broome snakeweed and Fendler threeawn are native to the site, but they have the potential to increase and dominate the area after heavy grazing. Oneseed and Utah juniper are native to the site, but have the potential to increase and dominate after heavy grazing and/or fire exclusion. Cheatgrass is an exotic plant that can invade the site, regardless of managment. It has the potential to dominate the site after heavy grazing and/or a fire. Russian thistle is an exotic plant that can invade after heavy grazing, especially in old farm fields or on rangelands adjacent to farmed or developed areas.

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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 in all but the most severe droughts.
