USDA Natural Resources
Conservation Service

Ecological site R035XC311AZ
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	08/01/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, due to surface rock cover providing armoring for surface and well drained soils.

2. **Presence of water flow patterns:** Very few on level slopes and few on slopes. Water flow patterns are very short and not connected.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and terracettes are infrequent on perennial grasses and are less than 1 inch in height.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground should not exceed 35 percent.

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

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

7. **Amount of litter movement (describe size and distance expected to travel):** Most litter, especially woody litter will remain in place. Some fines and medium size litter will move in water flow paths.

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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 expected soil stability average should 4, with values of 2 to 5 across the site. When the site is well vegetated and covered with rock fragments, the soils have a high resistance to erosion.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface is about 2 to 5 inches thick with platy structure (weak – thick). Color can vary due to parent material. Use specific soil survey information for the soils you are evaluating.

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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 characterized by a uniform distribution of grasses (55-65%) and shrubs (35-45%) with a few forbs (1-5%). There may be a light overstory of scattered trees at higher elevations. Shrubs dominant the canopy, followed by grasses.

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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. The soil subsurface will have a argillic layer within 8 inches of the surface.

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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 > Cool season bunchgrasses >

    Sub-dominant: warm season colonizing grasses > warm season bunchgrass > forbs

    Other: Trees = 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 functional groups are adapted for survival except during the most severe droughts. Severe winter droughts affect shrubs and trees the most. Severe summer droughts affect grasses the most. Very shallow (<10") soils will show the most mortality in all functional groups

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** In a normal year the expected annual production is 400-500 lbs/ac.

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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, big sagebrush and pricklypear cactus are all native to the site but have the potential to increase and co-dominate the site. Juniper can also increase on the site at higher elevations. Red brome, cheatgrass, redstem filaree and Russian thistle are all non-native annuals that can invade and establish on the site, regardless of management or lack of disturbance.

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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 in all but the most severe droughts.
