USDA Natural Resources
Conservation Service

Ecological site R040XA110AZ
Limy Slopes 10"-13" 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	04/29/2003
Approved by	S. Cassady
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

2. **Presence of water flow patterns:** Paths are 15 feet apart and sinuous due to terracettes on shrubs and grasses. They are well armored with gravels and cobbles.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are uncommon on grasses and gravels. Terracettes are common on long-lived shrubs and perennial grasses like bush muhly and black grama. They cover 10-15% of the area.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground on this site is 10-15% (with 75% gravel and cobble cover).

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):** Herbaceous litter moves only in water flow paths 10-15 feet and is deposited in terracettes at curves in flow paths. Woody litter remains in place under shrub 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):** No slake test done. Expect ratings of 4-6 under shrub and grass canopies, and 1-3 in openings. High gravel/cobble cover provides good 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 brown gravelly sandy loam 6-8 inches thick over lighter colored, very gravelly, calcareous subsoils. There has been some historic loss of soil surface.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Large shrubs (whitethorn #1, mesquite #2, creosote #3 and palo verde) have a 20% canopy cover, shrublike grasses (bush muhly #1, glack grama #2) have a 15% canopy cover, sug-shrubs including desert zinnia, burroweed, snakeweed and paper flower have a %5 canopy cover and succulents like prickley pear, agave and barrel cactus have a 2-3% canopy.

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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):** Soil surface (1/2 inch) has a platy structure due to overland water flow and some raindrop impact. There is no subsurface soil compaction.

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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: large shrubs > shrub-like grasses > sub-shrubs > other perennial grasses > annual forbs and grasses > succulents > perennial forbs > cryptogams

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Severe drought last 4 years resulted in 100% mortality on short perennial grasses (tridens and threeawns), 50% mortality on bush muhly, 75% mortality on sub-shrubs and 10-15% mortality on large shrubs.

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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):** 137 lbs per acre in year with below average rainfall (2002 about 7 inches and 2003 to date 3 inches)500

lbs/ac normal precipitation, 935 lbs/ac favorable 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:** Whitethorn acacia, mesquite, burroweed, snakeweed

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17. **Perennial plant reproductive capability:** Impaired by severe drought.
