USDA Natural Resources
Conservation Service

Ecological site R028AY059NV
MAHOGANY SAVANNA

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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	04/02/2014
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are none to rare. Rill development may increase after summer convection storms due to runoff from adjacent rock outcrops.

2. **Presence of water flow patterns:** Water flow patterns are none to rare with occurrence increasing as canopy cover increases.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are none to rare with small pedastals occurring only in water flow paths.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground ± 20%; surface rock fragments ±35%

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):** Fine litter (foliage from grasses and annual & perennial forbs) expected to move distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events. Mat of accumulating litter under mountain mahogany is very stable and shows no obvious movement.

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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 stability values should be 5 to 6 on most soil textures found on this site.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically subangular blocky. Soil surface colors are dark browns and soils are typified by a thick mollic epipedon. Surface textures are loams, silt loams, or loamy coarse sands. Some pedons have an O horizon above the mollic epipedon. Organic matter of the surface 2 to 4 inches is typically 2 to 4 percent, dropping off quickly below. Organic matter content can be more or less depending on micro-topography.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Perennial herbaceous plants (especially deep-rooted bunchgrasses [bluebunch wheatgrass, needlegrasses] slow runoff and increase infiltration. Curlleaf mountain mahogany and understory shrubs break raindrop impact and provide opportunity for snow catch and accumulation on 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):** Compacted layers are none. Sub-surface horizons with subangular blocky structure are not to be interpreted as compacted layers.

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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: Reference State: Curlleaf mountain mahogany

    Sub-dominant: understory shrubs > deep-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs > shallow-rooted, cool season, perennial grasses = fibrous, shallow-rooted, cool season, perennial forbs > annual forbs

    Other: evergreen trees

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Overstory shrubs have little mortality. Dead branches within understory shrubs are common and standing dead shrub canopy material may be as much as 35% of total shrub canopy; mature bunchgrasses (<25%) may have dead centers.

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14. **Average percent litter cover (%) and depth (in):** Herbaceous, or non-persistent, litter within curlleaf mountain mahogany canopy interspaces (± 30-40%) and litter depth is ± 1 inch. Leaf litter forms a mat 1 to 2 inches thick under the

drip line of mature mountain mahogany. Large, persistent, litter from trees (limbs, etc.) variable to 5%.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For understory vegetation to 4½ feet and normal or average growing season (through June) = ±900 lbs/ac; Favorable years: 1300 lbs/ac Unfavorable years: 600 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:** Potential invaders include cheatgrass. Singleleaf pinyon pine may increase on this site and eventually dominate it.

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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years. Reduced growth and reproduction occur during drought years.
