USDA Natural Resources
Conservation Service

Ecological site R035XC377AZ
Sandy Slopes 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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Approved by	Steve Barker
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** A few rills may form on steepest slopes.

2. **Presence of water flow patterns:** Somewhat common, probably cover no more than 15% of the area; mostly discontinuous, usually less than 8 feet in length. On steepest slopes water flow patterns may be continuous and as long as 12 feet in length.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and terracettes may be common, especially during a drought, due to high wind erosion hazard of the soils and steepness of soils.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground averages about 50%. Drought may cause an increase in bare ground.

5. **Number of gullies and erosion associated with gullies:** Uncommon, but occasional gullies will form in natural drainages on steeper slopes due to reduced plant cover and lack of rock fragments.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Some wind scoured areas and depositional areas may

occur, especially on edges of escarpments and during droughts, due to high wind erosion hazard of the soil. High wind erosion hazard occurs on soils with surface textures of loamy sand, fine sand and sand.

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7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous and fine woody litter will be transported primarily by wind and in water flow pathways. Coarse woody litter will remain under tree and 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):** Soil surface texture range from loamy sand to sand. Coarse rock fragments range from 0 to 15 percent and help protect the site. Soil on this site will often have a thin crust (biological or physical) providing some protection against erosion. Soil aggregate stability ratings should average 3 under plant canopies and 2 in the interspaces.

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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 single grain; loose, but some soil surfaces are weakly granular. Surface textures are loamy sand, loamy fine sand and fine sand with thickness ranging from 2-3 inches. Surface color is light brown (7.5YR 6/4) and subsurface is pink (7.5YR 7/4), however color can be variable with hues of 5YR to 7.5YR.

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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 is characterized by scattered plants with a light overstory of trees, generally with less than 15% canopy cover by trees. The plant community consists of about 50% grasses, 35% shrubs, 10% trees and succulents with about 5% forbs. Basal cover range from 5-15% (Grasses>Shrubs>forbs>trees).

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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: Cool season bunch grasses > warm season grasses > shrubs

    Sub-dominant: forbs >= trees > Opuntia and other succulents

    Other:

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

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14. **Average percent litter cover (%) and depth (in):** Litter is a mix of fine herbaceous litter and coarse woody litter. Litter cover and depth will be highest beneath shrubs and trees. Litter cover and depth is lowest in the plant interspaces.

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 500 to 600 lbs/ac in a year of average annual production.

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, rabbitbrush, yucca, Mormon tea, dune broom, and sandhill muhly occur naturally on this site, but can increase with disturbance. Plants that have the potential to invade this site are cheatgrass, ripgut brome and Russian thistle. Both juniper and pinyon pine have the potential to increase and invade a site with overstory canopies reaching up to 30% in the absence of fires and favorable climatic conditions for tree regeneration.

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 except during the most severe droughts.