USDA Natural Resources
Conservation Service

Ecological site R112XY101KS
Claypan Upland

Last updated: 11/05/2024
Accessed: 05/20/2025

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	07/15/2020
Approved by	Suzanne Mayne-Kinney
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. The potential for rills to occur on this site is extremely rare due to the the amount of cover and slope percentage (0-3%).

2. **Presence of water flow patterns:** Water flow patterns are rare due to slope percentage (0-3) and amount of ground cover. Small depressional areas can serve as holding areas that

increase the time for infiltration, and as a result reduce the ability for flow patterns to occur

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3. **Number and height of erosional pedestals or terracettes:** None, due to the slope percentage (0-3) and amount of cover. Pedestals and terracettes are indicators of soil being moved by water and/or wind.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Less than 5% of bare ground is found on this site. Bare ground is the remaining ground cover after accounting for ground surface covered by vegetation (basal and canopy (foliar) cover,), litter, standing dead vegetation, gravel/rock, and visible biological crust (e.g., lichen, mosses, algae).

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5. **Number of gullies and erosion associated with gullies:** None. There are no channels that are being cut into the soil by moving water. Gullies are not a natural feature of this landscape and site.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** The vegetative cover in the reference state is sufficient to limit wind-scoured or blowout areas. This site is not a depositional area for offsite wind erosion.

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7. **Amount of litter movement (describe size and distance expected to travel):** None. The inherent capacity for litter movement on a soil is a function of its slope and landscape position. This site is located on a summit landscape position with a slope range of 0-3 percent.

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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 soil characteristic of this site is resistant to erosion. No physical crusts apparent. Soil stability scores will range from 5-6.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A--0 to 23 cm (0 to 9 inches); very dark grayish brown (10YR 3/2) silt loam,

grayish brown (10YR 5/2) dry; weak medium granular structure; slightly hard, friable; few fine dark manganese concretions in the matrix; strongly acid; gradual smooth boundary. [10 to 30 cm (4 to 12 inches) thick]. This is from Parsons soil series.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** High grass canopy and small gaps between plants should reduce raindrop impact and slow overland flow (along with 0-3% slope), providing increased time for infiltration to occur. High root density of shortgrasses (blue grama, buffalograss) can limit infiltration

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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):** No compaction layer characteristic of this site. Compacted layers in rangelands are usually less than 6 inches below the soil surface. It is extremely important to keep in mind increased resistance to a soil probe or penetrometer can be simply due to lower soil moisture or high clay content on this site.

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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:

    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):** The number of dead or decadent to young or mature plants are at proportions expected for the site. Recruitment is occuring. There are a mixture of many age classes of plants relative to site potential and climatic conditions. Only plants native to the site are assessed for plant mortality. Plant mortality may vary considerably depending on natural disturbance events (fire, drought).

14. **Average percent litter cover (%) and depth (in):** If annual burning is practiced <25% litter and ¼" depth is expected. Burn frequency of 2-4 years expect 25-75% litter cover and ½-1" depth. >5 year burn frequency expect >75% litter cover with >1" depth.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 2000-4300 lbs/acre. Representative value is 3,150 lbs/forage/acre. Below normal precipitation during the growing season expect 2,000 lbs/forage/acre and above normal precipitation during the growing season expect 4,300 lbs/forage/acre. If utilization has occured, estimate the annual production removed or expected and include this amount when making the total site production estimate.

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:** Sericea lespedeza, caucasian bluestem, tall fescue, smooth brome, and Kentucky bluegrass. These species can and will invade rangelands without proactive control measures.

17. **Perennial plant reproductive capability:** The number and distribution of tillers or rhizomes is assessed relative to the expected production of the perennial warm season tall and midgrasses.