USDA Natural Resources
Conservation Service

Ecological site R053BY008ND
Sandy

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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	10/31/2021
Approved by	Suzanne Mayne-Kinney
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are not expected on slopes less than 25%. Rills of less than 12 inches in length may be observable but rare on slopes greater than 25%.

2. **Presence of water flow patterns:** Water flow patterns are not visible on slopes less than 25%. Water flow patterns may be present but rare on slopes of greater than 25% but they are short, broken, irregular and discontinuous.

3. **Number and height of erosional pedestals or terracettes:** Neither pedestals nor

terracettes are expected.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 5% or less. Bare ground patches are less than 2 inches in diameter and not connected. Animal activity (burrows and ant mounds) may occasionally result in isolated bare patches of up to 24 inches in diameter. Bare ground expected to increase to 25 - 35% following multi-year drought. Temporary (1 to 2 growing seasons) increases in bare ground of 10 to 15% also expected following fire.

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5. **Number of gullies and erosion associated with gullies:** Active gullies are not expected on this site. If present, gully channel(s) are fully vegetated with no active erosion visible.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** No wind-scoured or depositional areas expected on this site.

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7. **Amount of litter movement (describe size and distance expected to travel):** Plant litter movement is not expected on this site.

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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):** Stability class averages 5 or greater.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Structure is granular or fine subangular blocky within the upper A- horizon. A-horizons for this ecological site range from 4 to 20 inches thick. 10YR Hue with colors value of 2 or 3 moist or 3 or 4 dry, and chroma of 2.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Mid- and short-statured bunch grasses and tall-statured rhizomatous grasses are do-dominants and well distributed across the site. Mid- and short-statured rhizomatous grasses and a diverse forb component are subdominant. Increases in short statured warm-season grasses and sedges following multi-

year droughts will reduce infiltration rates until plant community recovers.

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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 layers occur naturally 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: Phase 1.1
    Mid & short C3 bunch grasses (4); Tall C4 rhizomatous grasses (2)

    Phase 1. 2
    Mid & short C4 bunch grasses; Mid & short C3 bunch grasses; Forbs

    Sub-dominant: Phase 1.1
    Mid & short C4 bunch grasses (3); Mid & short C3 rhizomatous grasses (1); Forbs (9)

    Phase 1. 2
    Grass-likes; Tall C4 rhizomatous grasses;

    Other: Minor - Phase 1.1
    Grass-likes; Mid & short C4 rhizomatous grasses; Shrub

    Minor - Phase 1. 2
    Mid & short C3 rhizomatous grasses; Mid & short C4 rhizomatous grasses; Shrub

    Additional: Due to differences in phenology, root morphology, soil biology relationships, and nutrient cycling Kentucky bluegrass, smooth brome, and crested wheatgrass are included in a new Functional/structural group, mid- and short-statured early cool-season grasses (MSeC3), not expected for this site.

    To see a full version 5 rangeland health worksheet with functional/structural group tables. Please use the following hyperlink:

    https://efotg.sc.egov.usda.gov/references/public/ND/53B_Sandy_Narrative_FINAL_Ref

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Rare to not occurring on this site. Slight increase expected in dead or dying plants or plant parts may be visible after multi-year drought.

14. **Average percent litter cover (%) and depth (in):** Plant litter cover is 60 to 80% with a depth of 0.25 to 0.5 inches. Litter is in contact with soil surface. Litter cover decreases to 50 – 70% following multi-year drought or fire event.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual air-dry production is 2500 lbs./ac (reference value) with normal precipitation and temperatures. Low and high production years should yield 1600 lbs./ac to 3400 lbs./ac, respectively.

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:** State and local noxious species, Kentucky bluegrass, smooth bromegrass, crested wheatgrass, quackgrass, Eastern red cedar/juniper.

17. **Perennial plant reproductive capability:** Non-invasive species in all functional/structural groups are vigorous and capable of reproducing annually under normal weather conditions.