USDA Natural Resources
Conservation Service

Ecological site R075XY051NE
Sandy Floodplain

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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	Suzanne Mayne-Kinney
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. Rills are not expected on this site.

2. **Presence of water flow patterns:** None. Water flow patterns are not expected on this site.

3. **Number and height of erosional pedestals or terracettes:** None. Erosional pedestals and terracettes are not expected on this site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 5 percent or less. Multi-year drought can cause the amount of bare ground to increase to 10 percent with bare patches reaching 6 inches (15 cm) in diameter. Bare ground is exposed mineral soil that is not covered by vegetation (basal and/or foliar canopy), litter, standing dead vegetation, gravel/rock, and visible biological crust (e.g., lichen, mosses, algae).

5. **Number of gullies and erosion associated with gullies:** None. Gullies are not expected on this site.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Wind scoured and/or depositional areas are not expected on this site.

7. **Amount of litter movement (describe size and distance expected to travel):** None. Plant litter is distributed evenly throughout the site and litter movement is not expected.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil stability ratings should typically be 4 to 6.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon is at least 8 inches (20 cm) thick. Soil color is grayish brown (10YR 5/2) when dry and dark grayish brown (10YR 4/2) or very dark grayish brown (10YR 3/2) when moist. Soil structure is weak coarse granular to weak fine granular. See Official Soils Descriptions for additional details. The major soil series correlated to this site include Cass and Inavale.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community composition of 70 to 90 percent grasses and grass-likes, 5 to 10 percent forbs, 5 to 10 percent shrubs, and 0 to 2 percent trees will optimize infiltration on the site. The grass and grass-like portion is composed of perennial, native, warm-season, tallgrass; perennial, native, warm-season

midgrass; perennial, native, warm-season shortgrass; native, perennial cool-season grass, and grass-likes. Infiltration can be adversely impacted by the invasion of Kentucky bluegrass, smooth brome, tall fescue, and trees when present above 10 percent (subdominant designation).

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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. No compaction layers are expected to occur 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: Dominant: Phase 1.1:
    1. Perennial, native, warm-season, tallgrass: sand bluestem, Indiangrass, switchgrass, prairie sandreed, composite dropseed

    Phase 1.2:
    1. Perennial, native, warm-season, midgrass: little bluestem, sideoats grama, sand lovegrass, sand dropseed; 2. Perennial, native, cool-season grass: western wheatgrass, Canada wildrye, Scribner's rosettegrass, prairie Junegrass;

    Phase 1.3:
    1. Perennial, native, cool-season grass: western wheatgrass, Canada wildrye, Scribner's rosettegrass; 2. Perennial, native, warm-season, midgrass: little bluestem, sideoats grama, sand dropseed;

    Sub-dominant: Phase 1.1:
    1. Perennial, native, warm-season, midgrass: little bluestem, sideoats grama, sand lovegrass, sand dropseed;

    Phase 1.2:
    1. Grass-likes: sedges; 2. Perennial, native, warm-season, tallgrass: sand bluestem, Indiangrass, switchgrass, prairie sandreed, composite dropseed

    Phase 1.3:
    1. Perennial, native, warm-season, shortgrass: blue grama, buffalograss, hairy grama.
    2.Grass-likes: sedges

Other: Phase 1.1:
1. Native forbs (perennial and annual): species vary from location to location
2. Shrubs: Shrub species will vary from location to location 3. Grass-likes: sedges and other grass-likes 4.Perennial, native, warm- season, shortgrass: blue grama, buffalograss

Minor - Phase 1.2:
1.Shrubs: Shrub species will vary from location to location; 2. Native forbs (perennial and annual): species vary from location to location; 3. Perennial, native, warm-season, shortgrass: blue grama, buffalograss

Minor - Phase 1.3:
1. Shrubs: Shrub species will vary from location to location; 2. Perennial, native, warm-season, tallgrass; 3. Native forbs; 4. Deciduous trees: plains cottonwood

Trace - Phase 1.1
1. Deciduous trees: plains cottonwood

Trace - Phase 1.2
1. Deciduous trees: plains cottonwood

Additional: Functional/Structural Groups:
The Reference Community (1.1) includes eight F/S Groups. These groups in order of abundance are perennial, native, warm-season, tallgrasses; perennial, native, warm-season, midgrasses; perennial, native, cool-season grasses; native forbs (perennial and annual); shrubs; grasslike; perennial, native, warm-season, short grasses; and deciduous trees. The Degraded Native Grass Community (1.2) includes eight F/S groups. These groups in order of abundance are perennial, native, warm-season, midgrass, perennial, native, cool- season grass; grass-likes; perennial, native, warm-season tallgrass; shrubs; native forbs; perennial, native, warm-season, shortgrass; deciduous trees. The At-Risk Native Grass Community (1.3) contains 8 F/S groups. These groups in order of abundance are perennial, native, cool-season grass; perennial, native, warm-season, midgrass; perennial, native, warm-season shortgrass; grass-likes; shrubs, perennial, native, warm-season, tallgrass; native forbs; deciduous trees.

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** A few (less than 3 percent) dead centers may occur in bunchgrasses. Shrubs may show some dead branches (less than 5 percent) as plants age. Plant mortality may increase following a multi-year drought, wildfire, and/or a combination of the two events to 10 to 15 percent.

14. **Average percent litter cover (%) and depth (in):** Plant litter is expected to be 50 to 70 percent at a depth of 0.25 (0.65 cm) and evenly distributed throughout the site.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Production is shown in air-dry values. The Representative Value (RV) = 3,500 pounds per acre. Low production years = 3,000 pounds per acre. High production years = 4,500 pounds per acre.

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:** No non-native invasive species are present. Kentucky bluegrass, smooth brome, Caucasian bluestem, tall fescue, eastern redcedar, honey locust, Siberian elm, leafy spurge, and sericea lespedeza are known invasives that have the potential to become dominant or co-dominant on the site. Consult the state noxious weed and state watch lists for potential invasive species on each ecological site. NOTE: Invasive plants (for the purposes of the IIRH protocol) are plant species that are typically not found on the ecological site or should only be in trace or minor categories under the natural disturbance regime and have the potential to become a dominant or codominant species on the site if their establishment and growth are not actively controlled by natural disturbances or management interventions. Species listed characterize degraded states AND have the potential to become a dominant or co-dominant species.

17. **Perennial plant reproductive capability:** All perennial species exhibit high vigor relative to climatic conditions. Perennial grasses should have vigorous rhizomes or tillers; vegetative and reproductive structures are not stunted. All perennial species should be capable of reproducing annually.