USDA Natural Resources
Conservation Service

Ecological site R075XY068NE
Loamy 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. Rills are not expected on this site. Water will flow across the site during intense rainstorms, but water flow is sheet-like rather than concentrated into water flow patterns.

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

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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 percent or less. 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).

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

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

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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter will move after average to high rainfall events. Litter does not typically travel far (less than 12 inches or 30cm) and is trapped in small bunches by the extensive vegetative cover. Litter movement may be fairly extensive after high-intensity storms.

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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):**): A-horizon is typically 7 inches (18 cm) thick. Soil color is grayish brown (10YR 5/2) when dry and very dark grayish brown (10YR 3/2) when moist. Soil structure is weak, medium granular; slightly hard and very friable. See Official Soils Descriptions for additional details. The major soil series correlated to this site is Hobbs.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon is typically 7 inches (18 cm) thick. Soil color is grayish brown (10YR 5/2) when dry and very dark grayish brown (10YR 32) when moist. Soil structure is weak, medium granular; slightly hard and very friable. See Official Soils Descriptions for additional details. The major soil series correlated to this site is Hobbs.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plant community composition of 80 to 90 percent grasses and grass-likes, 2 to 5 percent forbs, and 0 to 5 percent shrubs will optimize infiltration on the site. The grass and grass-like portion is composed of perennial, native, warm-season, tall, mid-, and short grasses, perennial, native, cool-season grasses (3-10%), and grass-likes

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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: Phase 1.1 -
    1. Native, perennial, warm-season, tallgrass – 1400-2000 #/ac- 35-50%, (1 species min.): big bluestem, Indiangrass, switchgrass; 2. Native perennial, warm-season, mid-grasses– 1000-1400 #/ac - 25-35% (2species min.): little bluestem, sideoats grama, composite dropseed

    Phase 1.2 -
    1. Native, perennial, warm-season tallgrass: big bluestem, Indiangrass, switchgrass.

    Phase 1.3 -
    1. Native, perennial, warm-season tallgrass: big bluestem, Indiangrass, switchgrass.

    Sub-dominant: Phase 1.2 -
    1. Native, perennial, warm-season midgrass: little bluestem, sideoats grama, composite dropseed; 2. Native, perennial, warm-season shortgrass: blue Grama, buffalograss.

    Phase 1.3 -
    1. Native, perennial, warm-season midgrass: little bluestem, sideoats grama, composite dropseed; 2. Native, perennial, cool-season grasses: western wheatgrass, Canada wildrye, green needlegrass, needle and thread, Scribner’s rosettegrass, porcupine grass, prairie June grass.

    Other: Minor - Phase 1.1 -
    1. Native, perennial, cool season grasses– 125-400#/ac - 3-10%: western wheatgrass,

Canada wildrye, green needlegrass, needle and thread, Scribner's rosettegrass, porcupine grass, prairie June grass; 2. Native, perennial, warm-season, short grasses –125-400 #/ac - 3- 10%: blue grama, buffalograss; 3.Native forbs (perennial and annual) - 60-400 #/ac -2-10%: Species vary from location to location; 4Shrubs – 0-200 #/ac - 0-5%: leadplant, prairie rose, smooth sumac, western snowberry, other shrubs

Minor - Phase 1.2 -
1. Native, perennial, cool-season grasses: western wheatgrass, Canada wildrye, green needlegrass, needle and thread, Scribner's rosettegrass, porcupine grass, prairie June grass; 2. Grass-likes: sedges and other grass-likes; 3. Native forbs (perennial and annual): species present will vary from location to location. 4. Shrubs: leadplant, prairie rose, smooth sumac, western snowberry, other shrubs.

Minor - Phase 1.3 -
1. Native, perennial, warm-season shortgrass: blue Grama, buffalograss; 2. Grass-likes: sedges and other grass-likes; 3. Native forbs (perennial and annual): species present will vary from location to location;4. Shrubs: leadplant, prairie rose, smooth sumac, western snowberry, other shrubs.

Trace - Phase 1.1 -
1. Grass-likes - 40-80 #/ac -1-2%: Sedges and other grass-likes

Additional: The Reference Community (1.1) includes seven F/S Groups. These groups in order of abundance are native, perennial, warm-season tallgrass; native perennial, warm-season, midgrass; native, perennial, cool season grass; native, perennial, warm-season, shortgrass; native forbs (perennial and annual); shrubs; and grass-likes. The Degraded Native Grass Community (1.2) also includes seven F/S groups. These groups in order of abundance are native, perennial, warm-season, tallgrass; native perennial, warm-season, midgrass; native, perennial, warm-season shortgrass; native, perennial, cool season grass; grass-likes; forbs, and shrubs. The Excessive Litter Community (1.3) also includes seven F/S groups. These groups in order of abundance are native, perennial, warm-season, tallgrass; native perennial, warm-season, midgrass; native, perennial, cool season grass; native, perennial, warm-season shortgrass; grass-likes; forbs, and shrubs.

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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 to 10 to 15 percent following a multi-year drought, wildfire, prolonged flooding, or a combination of events.

14. **Average percent litter cover (%) and depth (in):** Plant litter cover is evenly distributed throughout the site and is expected to be 50 to 70 percent and at a depth of 0.25 to 0.5 inches (0.65 to 1.3 cm). Kentucky bluegrass excessive litter can negatively impact the functionality of this 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) = 4,000 pounds per acre. Low production years = 3,500 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. Silver bluestem, eastern redcedar, honey locust, common mullein, annual brome grasses are known invasives that have the potential to be 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:** 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.