USDA Natural Resources
Conservation Service

Ecological site R071XY052NE
Saline Subirrigated

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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. Pedestals and terracettes are not expected to occur 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 typically 5 percent or less. On sites with elevated levels of salinity, bare ground may be 15 percent with bare ground patches of less than 12 inches (30 cm). 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 depositional areas are not expected on this site.

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7. **Amount of litter movement (describe size and distance expected to travel):** None. Litter movement is not expected to occur 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):** Soil stability ratings will be 4 to 6, depending upon the level of salinity in the soil. Interspaces are quite small and there should be no difference between interspaces and under canopy.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The A-horizon averages 7 inches (17.8 cm) thick, very dark brown (10 YR 2/2) to very dark grayish brown (10YR 5.1) to black (10YR 2/1) when moist. Structure is weak very fine granular to moderate medium granular to weak thin platy. An E horizon may be present.

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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 85 to 90 percent perennial grasses and grass-likes, 5 to 10 percent forbs, and 0 to 5 percent shrubs will optimize infiltration on the site. Rhizomatous grasses (warm- and cool-season) dominate the site.

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 occur naturally on this site. Livestock use when the soil is saturated may result in hummocks due to the hoof action rather than erosion.

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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, (2 species minimum): switchgrass, alkali cordgrass, alkali sacaton.

    2. Native, perennial, cool-season grasses (2 species minimum): Canada wildrye, slender wheatgrass, western wheatgrass.

    Phase 1.2
    1. Grass-like (2 species minimum): sedges, spikerushes, rushes.

    2. Native, perennial, warm-season shortgrass (1 species minimum): saltgrass.

    3. Perennial, non-native grasses (1 species minimum): Kentucky bluegrass.

    Phase 1.3
    1. Native, perennial warm-season, tallgrass, (2 species minimum): switchgrass, alkali cordgrass, alkali sacaton.

    2. Native, perennial, cool-season grasses (2 species minimum): Canada wildrye, slender wheatgrass, western wheatgrass.

    3. Perennial, non-native grasses (1 species minimum): Kentucky bluegrass.

    Sub-dominant: Phase 1.1
    1. Grass-like (1 species minimum): sedges, spikerushes, rushes.

Phase 1.2
1. Native, perennial warm-season, tallgrass, (2 species minimum): switchgrass, alkali cordgrass, alkali sacaton.

2. Native, perennial, cool-season grasses (2 species minimum): Canada wildrye, slender wheatgrass, western wheatgrass.

Phase 1.3
1. Grass-like (2 species minimum): sedges, spikerushes, rushes.

Other: Minor - Phase 1.1
1. Native, perennial, warm-season shortgrass: saltgrass;

2. Native forb (annual and perennial): forbs present vary from location to location.

3. Shrub: shrubs present vary from location to location.

Minor - Phase 1.2
1. Native forb (annual and perennial): forbs present vary from location to location.

2. Shrub: shrubs present vary from location to location.

Minor - Phase 1.3
1. Native, perennial, warm-season shortgrass: saltgrass.

2. Native forb (annual and perennial): forbs present vary from location to location.

3. Shrub: shrubs present vary from location to location.

Additional: The Reference Community (1.1) includes six F/S Groups. These groups in order of expected abundance are native, perennial, warm-season tallgrass; native, perennial, cool-season grass; grass-like, native forb, and shrub.

The Degraded Native Grass Community (1.2) includes seven F/S Groups. These groups in order of expected abundance are grass-likes, native, perennial, warm-season shortgrass; perennial, non-native grasses; native, perennial, warm-season grass; native, perennial, cool-season grass; native forb, and shrub.

The Excessive Litter Community (1.3) also includes seven groups. These groups in order of expected abundance are native, perennial warm-season, tallgrass; native, perennial, cool-

season grass; grass-likes; native, perennial, warm-season, shortgrass, native forb; and shrub.

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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 (less than 5 percent) dead branches as plants age.

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14. **Average percent litter cover (%) and depth (in):** Plant litter cover is evenly distributed throughout the site and is expected to be 70 to 80 percent and at a depth of 0.25 to 0.5 inches (0.65 to 1.25 cm). Introduced or naturalized cool-season grass excessive litter can negatively impact the functionality of this site.

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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) = 3,000 pounds per acre. Low production years = 2,400 pounds per acre. High production years = 4,200 pounds per acre.

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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. Tall fescue, knapweed, Canada thistle, hoary cress, Russian knapweed, and 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:** 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.