

Ecological site R064XY025NE

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. Erosional pedestals or terracettes are not expected on this site. Alkali sacaton tends to have a hummocky growth form that may appear pedestalled.
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is typically less than 5 percent.
5. **Number of gullies and erosion associated with gullies:** None. Gullies should not be present
6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Wind scoured areas and depositional areas should not be present.

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter should fall in place. 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):** Soil stability ratings typically 5 to 6, normally 6. Surface organic matter adheres to the soil surface. Soil surface fragments will typically retain structure indefinitely when dipped in distilled water.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface horizon should be 2 to 18 inches (5 to 45.5 cm) thick. Soil colors are light brownish gray, gray and grayish brown (values of 5 to 6) when dry and dark gray, grayish brown, to very dark grayish brown (values of 3 to 5) when moist. Soil structure is typically medium granular.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Combination of shallow and deep rooted species (mid and tall rhizomatous and tufted perennial cool season grasses) with fine and coarse roots positively influences infiltration. Excessive amounts of foxtail barley and/or introduced cool-season grasses such as Kentucky bluegrass may have an adverse impact infiltration and runoff.
- Relative composition is approximately 80 percent grasses, 15 percent grass-like plants, and 5 percent forbs. The grass component is made up of C4, tall and mid bunchgrasses (20-45%), C3, rhizomatous grasses (10-20%), C3 bunch grasses (10-20%), C4, short grasses (10-20%), grass-likes (5-15%), and C4 tall, and mid rhizomatous grasses (0-15%).
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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.
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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, C4, tall and mid bunchgrass, 560-1260, 20-45% (1 species minimum): alkali sacaton, little bluestem.
- Phase 1.2
1. Native, perennial, C4, shortgrass, 510-680 #/ac, 30-40% (1 species minimum): saltgrass, blue grama.
- Sub-dominant: Phase 1.1
1. Native, perennial, C3, rhizomatous grass, 280-560, 10-20% (1 species minimum): western wheatgrass.
2. Native, perennial, C3 bunchgrass, 280-560, 10-20% (2 species minimum): plains bluegrass, foxtail barley, slender wheatgrass.
3. Native, perennial, C4, shortgrass, 280-560 #/ac, 10-20% (1 species minimum): blue grama, inland saltgrass.
4. Native grass-likes, 140-420 #/ac, 5-15% (4 species minimum): sedge, rush, spikerush.
- Phase 1.2
1. Native, perennial, C4, tall and mid bunchgrass, 255-340 #/ac, 15-20% (1 species minimum): alkali sacaton, little bluestem.

2. Native, perennial, C3, bunchgrass, 85-255 #/ac, 5-15% (1 species minimum): foxtail barley, plains bluegrass, slender wheatgrass, foxtail barley.

3. Native grass-likes, 85-255 #/ac, 5-15% (3 species minimum): sedge, rush, spikerush.

Other: Minor - Phase 1.1

1. Native, perennial, C4, rhizomatous, tall- and midgrass, 0-420 #/ac, 0-15%: alkali cordgrass, switchgrass, alkali muhly (scratchgrass), sand dropseed.

2. Native forbs, 56-140 #/ac, 2-5%: Forbs present vary from location to location.

Minor - Phase 1.2

1. Native, perennial, C4, rhizomatous, tall- and midgrass, 34-170 #/ac, 2-10%: switchgrass, sand dropseed, alkali cordgrass, scratchgrass.

2. Native forbs, 34-85 #/ac, 2-5%: forbs present vary from location to location.

3. Native, perennial, C3, rhizomatous grass, 17-85 #/ac, 1-5%: western wheatgrass.

4. Non-native, C3 grass, 0-85 #/ac, 0-5%: Kentucky bluegrass, cheatgrass, field brome.

Additional: The Alkali Sacaton Community or Reference Community (1.1) includes seven F/S groups. These groups, in order of abundance, include native, perennial, C4, tall and mid bunchgrass; native, perennial, C3, rhizomatous grass; native, perennial C3 bunchgrass; native, perennial, C4 shortgrass; native grass-likes, native, perennial, C4 rhizomatous, tall- and midgrass; and native forbs.

The Inland Saltgrass-Alkali Sacaton Community (1.2) includes eight F/S groups. These groups, in order of abundance, include native, perennial, C4, shortgrass; native, perennial, C4 bunchgrass; native, perennial, C3 bunchgrass = native grass-likes; native, perennial, C4, rhizomatous tall- and midgrass; native forbs; native, perennial, C3 rhizomatous grass; and non-native, C3 grass.

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Bunchgrasses have strong, healthy centers with few (less than 3 percent) dead centers. Shrubs may show some dead branches (less than 5 percent) 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 50 to 80 percent and at a depth of 0.25 to 0.50 inch (0.65 to 1.3 cm). Foxtail barley and/or Kentucky bluegrass 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):** Annual production is 2,800 pounds per acre in a year with normal precipitation and temperatures. Low and High production years should yield 2,100 and 3,500 pounds per acre respectively.
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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. Kentucky bluegrass, Russian olive, and saltcedar are known invasives that have the potential to become dominant or co-dominant on this site. Consult the state noxious weed and state watch lists for potential invasive species. Note: species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.

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17. **Perennial plant reproductive capability:** All perennial species exhibit high vigor relative to recent weather 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.
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