

Ecological site R071XY027NE Closed Upland Depression

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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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Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- Number and extent of rills:** None. Rills are not expected on this site.
- Presence of water flow patterns:** None. Water flow patterns are not expected on this site.
- Number and height of erosional pedestals or terracettes:** None. Pedestals and terracettes are not expected to occur on this site.
- 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 10 percent. Bare ground patches should be small, less than 2 inches (5 cm) in diameter and scattered across the site. After prolonged ponding, bare ground may approach 35 percent with patch sizes of 12 to 18 inches (30 to 45 cm). Bare ground is exposed mineral soil that is not by vegetation (basal and/or foliar canopy), litter, standing dead vegetation, gravel/rock, and visible biological crust (e.g., lichen, mosses, algae).
- Number of gullies and erosion associated with gullies:** None. Gullies are not expected on this site.
- 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):** Litter should fall in place. Slight amount of movement (less than 6 inches or 15 cm) of fine litter from water is possible, but not normal. Litter movement from wind is not expected.
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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 5 to 6, typically 6. Interspaces are quite small and there should be no difference between interspaces and under canopy. High root content and organic matter will be present in the soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon should be a minimum of 7 inches (18 cm) thick. Soil colors range from very dark gray (10YR 3/1) to dark gray (10YR 4/1) to gray (10YR 5/1) when dry and black ((10YR 2/1) to very dark gray (10YR 3/1) when moist. Soil structure is moderate medium granular in the upper A-horizon to weak coarse platy structure in lower A-horizon. A surface layer of partially decayed leaves and stems may be present. Soil is slightly hard and slightly to moderately acid. Redoximorphic features will be present. An E-horizon, which is pale due to significant leaching of mineral and/or organic content, will exist between the A- and B-horizons. The major soil series correlated to this site include Scott, and Fillmore.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** A mixture of sod-forming grasses, bunch grasses, grass-like, and forbs will optimize infiltration on the site.
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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. When dry, upper horizons can be hard and appear to be compacted, but no platy structure will be present. Heavy traffic (livestock or vehicular) when these soils are wet can produce a compaction layer.
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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, mid- and shortgrass (2 species minimum): western wheatgrass, slender wheatgrass, buffalograss.
 2. Native forbs (4 species minimum): wedgeleaf fogfruit, spotted evening primrose, plains coreopsis, western water clover, smartweed, dock
 3. Grass-like (2 species minimum): shortbeak sedge, bald spikerush.
- Phase 1.2
1. Native, perennial, shortgrass (1 species minimum): buffalograss.
 2. Native forbs (3 species minimum): golden tickseed.
 3. Native, perennial, cool-season grasses: western wheatgrass, slender wheatgrass., spotted evening primrose, curly dock.

Phase 1.3

1. Native, perennial, cool-season grasses (1 species minimum): western wheatgrass, slender wheatgrass.

Sub-dominant: Phase 1.2

1. Native, annual grass (1 species minimum): fall panic grass, scratchgrass.

Phase 1.3

1. Native forbs (3 species minimum): wedgeleaf fogfruit, spotted evening primrose, plains coreopsis, western water clover, smartweed, dock.

Other: Minor - Phase 1.1

1. Native, annual grass: fall panic grass, scratchgrass.

Minor - Phase 1.3

1. Native, annual grass: fall panic grass, scratchgrass.

Additional: The Reference Community (1.1) is made up of four F/S Groups. The dominance of these groups is dependent upon the depth and duration of ponding. The dominant groups in the outer area of the closed upland depression are native, perennial, mid-and shortgrasses, forbs, and grass-likes. The interiors of these depressions are dominated by forbs and grass-likes.

The Degraded Community (1.2) is dominated by native, perennial, shortgrasses, annual grasses and forbs.

The Excessive Litter Community (1.3) is dominated by native, perennial, cool-season, rhizomatous grasses.

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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.
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14. **Average percent litter cover (%) and depth (in):** Plant litter cover is evenly distributed throughout the site. Plant litter cover ranges from 80 to 100 percent at a depth of 0.5 to 1 inch (1.3 to 2.5 cm). Reed canarygrass litter may produce excessive amounts of litter in terms of thickness of litter.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Annual production varies significantly with the depth and duration of ponding. Production is shown in air-dry values. Representative Value for production is 3,900 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. Reed canarygrass, narrowleaf cattail, river bulrush, Kentucky bluegrass, and smooth brome 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.
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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.
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