

Ecological site R069XY006CO Loamy Plains

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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	Rachel E. Murph, State Rangeland Management Spec.
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

2. **Presence of water flow patterns:** Typically none, if present water flow patterns are short and not connected.

3. **Number and height of erosional pedestals or terracettes:** None

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 10 percent or less bare ground, with bare patches generally less than 2-3 inches in diameter. Extended drought can cause bare ground to increase to 15-25 percent with bare patches ranging from to 12-18 inches in diameter.

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** Litter should be uniformly distributed with little movement. On steep slopes or knolls, litter may move from a few inches to 1-2 feet depending on intensity of storm.
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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):** Stability class rating is anticipated to be 5-6 under canopy, and 4-6 in interspaces at soil surface. Soil surface is stabilized by decomposing organic matter. Biological crusts (lichens, algae, cyanobacteria, mosses) may be present on or just below soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM is 1-2 percent. Soils are typically deep to moderately deep, light brownish-gray, weak thin platy to weak granular structure, approximately 0-4 inches in depth.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Raindrop impact is reduced by the diverse grass, forb, shrub functional/structural groups and root structure. This slows overland flow and provides increased time for infiltration to occur. Extended drought, wildfire or both may reduce basal density, canopy cover, and litter amounts (primarily from tall, warm-season bunch and rhizomatous grasses), resulting in decreased infiltration and increased runoff on steep slopes following intense rainfall events.
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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: Warm-season short bunchgrass
- Sub-dominant: Warm-season mid-grass > cool-season mid-grass
- Other: Warm-season forbs > leguminous forbs > cool-season forbs = annual forbs > shrubs > annual native grasses = sedges
- Additional: Additional: Warm-season Shortgrass (D): Blue grama, buffalograss, ring muhly, tumblegrass
Warm-season Mid-grass (S): Galleta, sand dropseed, sideoats grama, purple threeawn
Cool-season Mid-grass (S): Western wheatgrass, green needlegrass, squirreltail
Warm-season Forbs (M): Dotted blazing star, gaillardia, prairie coneflower, etc.
Annual Forbs (M): Sunflower, Texas croton, wooly plantain
Legumes (M): American vetch, locoweed, slimflower scurfpea, purple prairie clover
sub-shrubs: Winterfat, snakeweed, prairie sage (aka fringed sage)
Shrubs (M): Fourwing saltbush, cholla, rabbitbrush, pale desert-thorn, pricklypear, yucca
Cool season Forbs (T): Scarlet globemallow, penstemon, groundsel
Annual grasses (T): Little barley, sixweeks fescue
Sedges (T): Sun sedge
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Typically minimal. Expect short and mid- bunchgrass mortality and decadence during and following drought.
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14. **Average percent litter cover (%) and depth (in):** Litter cover during and following extended drought ranges from 10-20 percent.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 500 lbs/ac low precipitation years; 1,100 lbs/ac average precipitation years; 1500 lbs/ac above average precipitation years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 200 – 350 lbs/ac.
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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:** Invasive plants should not occur in reference plant community. Russian thistle, kochia, Cheatgrass, and other non-native annuals may invade following extended drought if a seed source is available.
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17. **Perennial plant reproductive capability:** The only limitations are weather related, wildfire, and natural disease that may temporarily reduce reproductive capability.
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