

Ecological site EX049X01X202 Loamy Foothill Palmer Divide

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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 Murph
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 short and disconnected

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):** 3% or less bare ground, with bare patches generally less than 2-3 inches in diameter. Extended drought can cause bare ground to increase upwards to 5-15% with bare patches reaching upwards to 6-12 inches in diameter.

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

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

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7. **Amount of litter movement (describe size and distance expected to travel):** Minimal and short
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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 anticipated to be 5-6 in interspace at soil surface. Soil surface is stabilized by decomposing organic matter.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Average SOM is 2-4%. Soils are deep and well drained. Surface texture ranges from loam to fine sandy loam. A-horizon ranges from 4-10 inches in depth with brown to dark grayish brown color and a weak to medium sub-angular blocky parting to a moderate fine granular structure.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Cover from sod forming grasses, bunchgrasses, forbs and shrubs reduce bare ground. Raindrop impact is reduced as well as overland flow, providing increased time for infiltration to occur. Dense stands of blue grama can limit infiltration due to high root densities. Extended drought may reduce short/mid bunchgrass basal cover resulting in decreased infiltration and increased runoff following intense storms.
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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: cool season mid rhizomatous >
- Sub-dominant: cool season mid bunchgrass/grasslikes > warm season tallgrass > shrubs = warm season shortgrass > warm season mid bunchgrass = other forbs >= leguminous forbs
- Other:
- Additional:
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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 slightly more bunchgrass mortality during and following drought. Lack of disturbance will increase occurrence of decadence.
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14. **Average percent litter cover (%) and depth (in):** 35-50% litter cover at 0.25 inch depth. Litter cover during and following extended drought ranges from 15-25%.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): 1,100 lbs/ac low precipitation years; 1,700 lbs/ac average precipitation years; 2,200 lbs/ac above average precipitation years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 300-500 lbs/ac or more.

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. Annuals may temporarily occupy the site following extended fire or drought if a seed source is available.
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17. **Perennial plant reproductive capability:** The only limitations are weather-related, wildfire, natural disease and insects that may temporarily reduce reproductive capability.
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