

Ecological site R049XD202CO Loamy Foothill 11-14 PZ

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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):** 5% or less bare ground, with bare patches generally less than 3-6 inches in diameter. Extended drought can cause bare ground to increase upwards to 10-20% with bare patches reaching upwards to 7-15 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. 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 1-3%. Soils are deep and well drained. Surface texture ranges from clay loam, loam to stony loam. A-horizon ranges from 4 to 8 inches in depth with light brownish-gray to very dark grayish-brown, or light brown to dark brown color, and a fine to medium granular to a weak to medium subangular blocky structure.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Grass canopy from sod forming grasses and bunchgrass basal cover 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: None.
- Sub-dominant: cool season rhizomatous > warm season short bunchgrass > cool season mid bunchgrass/grasslikes > shrubs >
- Other: Minor: warm season mid bunchgrass> forbs > warm season tall bunchgrass >leguminous forbs = warm season mid weakly rhizomatous grass
- Trace: Trees > biological crusts
- 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):** 20-30% litter cover at 0.25 inch depth. Litter cover during and following extended drought ranges from 10-15%.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 450 pounds/acre low precipitation years; 1050 pounds/acre average precipitation years; 1600 pounds/acre above average precipitation years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 150 – 250 pounds/acre or more.
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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. Cheatgrass, Russian thistle, kochia, other non-native annuals may invade following extended drought or after fire assuming a seed source is available. Sleepygrass is a native perennial grass that can invade. Oneseed juniper and Pinyon pine may encroach from other sites.
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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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