

Ecological site R051XE260CO Chico Fan 8-12 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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| Author(s)/participant(s) | K. A. Diller, C. A. Villa |
| Contact for lead author | Kimberly Diller, Ecological Site Specialist NRCS Pueblo MLRA Soil Survey 200 S. Santa Fe Ave. Pueblo, CO 81003 (719) 543-8386, Ext 125 kimberly.diller@co.usda.gov |
| Date | 09/10/2013 |
| Approved by | Kirt Walstad |
| 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:** Flow paths 1-3 feet in length, disconnected, and varying from 4-10 inches in width.

3. **Number and height of erosional pedestals or terracettes:** Pedestals 0.5-0.75 inches in height, common and located primarily along edges of flow path. Occasional vegetative barriers or debris dams located at ends of flow paths.

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 ranging from 1-3 inches in diameter. Extended drought can cause bare ground to increase upwards to 10% with bare patches ranging from 4-6 inches in diameter. Most sites have high rock fragment component that acts as cover, within the range of 50%.

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

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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):** Typically 6-12 inches in length. Litter may move 2-3 feet during intense wind and rainfall events.
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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 2-3 in interspaces at soil surface.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface soils range from loam to cobbly loam. The A-horizon is light brownish gray that can extend to 9 inches thick. The structure is typically weak ranging from fine granular to fine sub-angular blocky.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Rhizomatous grass, bunchgrass, and shrub distribution act to capture and slow overland flow, providing increased time for infiltration to occur. Extended drought reduces shrub and grass production causing 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: Warm season bunchgrass > Shrubs
- Sub-dominant: Cool season rhizomatous grass > Cool Season bunchgrass >
- Other: Forbs
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Expect some natural mortality and decadence on bunchgrasses and shrubs. Extended drought will increase mortality. Lack of disturbance will increase decadence, particularly on bunchgrasses.
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14. **Average percent litter cover (%) and depth (in):** 10-20% litter cover at <= 0.25 inch depth. Litter cover during and following extended drought ranges from 5-10%.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 650 lbs/ac low precipitation years; 900 lbs/ac average precipitation years; 1,150 lbs/ac high precipitation

years. After extended drought, production will be significantly reduced 200-400 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: Rabbitbrush, pricklypear cactus, tarragon
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17. **Perennial plant reproductive capability:** The only limitations are weather related, natural disease, wildlife and insects that may temporarily reduce reproductive capability.
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