

## Ecological site R051XY279CO Foothill Sand 9-12 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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Date	12/15/2004
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### Indicators

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

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- 2. Presence of water flow patterns:** Typically none on gentle slopes. Expect flow paths on steeper slopes (>10%), following intense storms. Flow patterns are short and not connected. Debris obstructions present.

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- 3. Number and height of erosional pedestals or terracettes:** Pedestalled plants are common near or in flow paths and on windward positions where wind scouring is more likely to naturally occur.

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- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 30% or less bare ground, with bare patches ranging from 8-12 inches in diameter. Prolonged drought or wildfire events will cause bare ground to increase upwards to 25-40% with bare patches ranging from 12-20 inches in diameter.

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

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- 6. Extent of wind scoured, blowouts and/or depositional areas:** Wind scouring is inherent to this site. Soil movement can intensify with disturbances such as wildfire, repeated grazing, or extended drought.

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter will move on this site. Litter movement consists of re-distribution of fine litter in flow patterns and on leeward side of bunchgrasses/shrubs.
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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 3-4 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):** These soils have a high infiltration rate, low water holding capacity and moderately rapid to rapid permeability. Surface soil texture are usually a loamy sand. The A-horizon averages 0-13 inches in depth with a grayish brown or brown color. Structure ranges from a weak medium subangular blocky structure parting to weak 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:** The composition/distribution of bunchgrasses and shrub/tree tends to slow overland flow and moderate runoff. Diverse canopy structure reduces raindrop impact allowing for increased time for infiltration.
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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 bunchgrass >
- Sub-dominant: shrubs > trees > warm season bunchgrass >
- Other: forbs = cool season rhizomatous grass
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Minimal. Extreme drought will increase plant mortality. Decadence can occur on areas void of grazing disturbance.
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14. **Average percent litter cover (%) and depth ( in):** 20-30% litter cover at 0.25 inch depth. Litter depth will increase under shrubs and trees. Litter cover during and following drought can range from 10-15% and 5-10% following wildfire.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 800 lbs./ac. low precipitation years; 1100 lbs./ac. average precipitation years; 1,400 lbs./ac. high precipitation years. After extended drought, production will be reduced by 200 – 400 lbs./ac. 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: Juniper and rabbitbrush species.

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17. **Perennial plant reproductive capability:** The only limitations are weather-related, wildfire, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability.

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