

**Ecological site R010XA045ID**  
**Cinder South 12-16 PZ PUTR2/HECO26**

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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                                        | 06/22/2009                                                                                                     |
| 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:** water-flow patterns do not occur on this site.
3. **Number and height of erosional pedestals or terracettes:** pedestals do not occur on this site. Terracettes do not occur in the traditional sense (caused by water movement), but can develop due to dry raveling or foot/hoof action. They are not extensive.
4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** data is not available. On sites in mid-seral status bare ground may range from 15-30 percent. Most of the area absent of plants or litter is cinders.
5. **Number of gullies and erosion associated with gullies:** none.

6. **Extent of wind scoured, blowouts and/or depositional areas:** none due to gravelly.
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7. **Amount of litter movement (describe size and distance expected to travel):** fine and coarse litter generally does not move. Gravels on the surface and shrub cover help reduce fine litter movement.
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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):** values should range from 3 to 5 but needs to be tested.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** No data.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** infiltration is good regardless of plant cover due to cinder surface. Tall shrubs catch blowing snow in the interspaces.
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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):** is not present.
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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 deep-rooted perennial bunchgrasses
- Sub-dominant: tall shrubs
- Other: perennial forbs
- Additional: shallow rooted bunchgrasses
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** little decadence is expected in shrubs or grasses with normal fire cycle, but decadence can occur in the absence of fire greater than the normal fire frequency. Grass and forb mortality will occur as tall shrubs increase.
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14. **Average percent litter cover (%) and depth ( in):** additional litter cover data is needed but is expected to be 15-20 percent to a depth less than 0.1 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** is 900 pounds per acre (1008 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 35-45 percent of the total production, forbs 20-30 percent, shrubs 25-35 percent and trees 5 percent.

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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: includes bulbous bluegrass, rush skeletonweed, musk and scotch thistle, and diffuse and spotted knapweed. Cheatgrass can invade the site at the lower elevations.
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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in most years.
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