

Ecological site R013XY022ID Subalpine Loamy 16-22 PZ ARTRS2/ELTR7-BRMA4

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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 | Kendra Moseley |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

1. **Number and extent of rills:** rills rarely occur on this site. If rills are present they are most likely to occur immediately following wildfire on lighter textured soils. Gravelly surfaces reduce rill formation.

2. **Presence of water flow patterns:** water-flow patterns rarely occur on this site. They are most likely to occur on slopes greater than 15 percent with high intensity storms. When they occur they are short, disrupted by cool season perennial grasses and tall shrubs and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** both are rare on this site. In areas where flow patterns and /or rills are present, a few pedestals may be expected.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** data not available. On sites in mid-seral status, bare ground may range from 10-20 percent.

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

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6. **Extent of wind scoured, blowouts and/or depositional areas:** usually does not occur.
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7. **Amount of litter movement (describe size and distance expected to travel):** fine litter in the interspaces may move up to 2 feet following a significant run-off event. Coarse litter generally does not move.
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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 4 to 6 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):** structure ranges from weak very fine and fine granular to weak fine subangular blocky. Soil organic matter (SOM) ranges from 3 to 5 percent. Surface color is usually very dark brown to very dark grayish brown. The A or A1 horizon is typically 2 to 5 inches thick.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** bunchgrasses, especially deep-rooted perennials, slow run-off and increase infiltration. Shrubs accumulate 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):** 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 grasses
- Sub-dominant: perennial forbs
- Other: tall shrubs
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** mountain big sagebrush will become decadent in the absence of fire and ungulate grazing. Grass and forb mortality will occur as tall shrubs increase.
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14. **Average percent litter cover (%) and depth (in):** annual litter cover in the interspaces will be 5-10 percent to a depth of <0.2. Under the mature shrubs litter is greater than 0.5 inches. Fine litter can accumulate on the terracettes
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production): is 1400 lbs. per acre in a year with normal precipitation and temperatures. Perennial grasses produce 60-70 percent of the total, forbs 10-20 percent, and shrubs 10-20 percent.

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 Kentucky bluegrass, Canada thistle, knapweed, and leafy spurge.
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17. **Perennial plant reproductive capability:** all functional groups have the potential to reproduce in most years.
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