

Ecological site EX043B18H038

Droughty Steep 15-19" PZ Cryic Beaverhead Mountains

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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	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

- 1. Number and extent of rills:** Rills will not exist under Reference State on slopes less than 25 percent. Sites with slopes greater than 25 percent rill may exist though will be short and inconspicuous often less than 5 feet
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- 2. Presence of water flow patterns:** Flow patterns will be rare though may be present on the steeper, southerly facing slopes when runoff has the potential to exceed infiltration. If present, water flow patterns will be short (less than 10 feet) and very infrequent across the landscape. If present, flow patterns will be inconspicuous and not interconnected.

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3. **Number and height of erosional pedestals or terracettes:** Pedestals and terracettes will not exist under Reference State.
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground will be less than 20 percent. Bare ground may occur in small patches in canopy gaps between plants though should not exceed 1 foot in size
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5. **Number of gullies and erosion associated with gullies:** Gullies will not be present.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind erosion will be extremely rare due to the limited bare ground and natural crusting of the soil. Post natural disturbances in reference state, wind erosion may occur, temporarily, as plants re-establish.
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7. **Amount of litter movement (describe size and distance expected to travel):** Minimal fine herbaceous litter movement is to be expected on steeper slopes. Distance traveled is short (less than 12 inches).
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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):** Soils of this site are stable and should have Ratings of 3-5 using the Soil Stability Methods. Typical A horizon is 4-6 inches thick
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil Structure at the surface is typically strong to medium fine granular. The A horizon should be 4-6 inches thick with color, when wet, typically ranging in Value of 4 or less and Chroma of 3 or less. Local geology may affect color in which it is important to reference the Official Series Description (OSD) for characteristic range.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Site is well drained. Evenly

distributed across the site, bunchgrasses improve infiltration while rhizomatous grass protects the surface from runoff forces. The Droughty Steep ecological site is well drained and has a moderate infiltration rate. An even distribution of mid-statured bunchgrasses with interspaced cool-season rhizomatous grasses, shortgrass, forbs, shrubs, and trees with varying rooting depths and densities ensures good infiltration.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Not present, some soils profiles may contain an abrupt transition to an argillic horizon which can be interpreted as compaction however the soil structure will typically subangular blocky whereas a compaction layer will tend to be structureless.
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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 midstatured bunchgrasses (bluebunch wheatgrass, Columbia needlegrass, green needlegrass)

Sub-dominant: shrubs > forbs > cool season shortgrasses > rhizomatous grasses >> trees

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality in herbaceous species is not evident. Species with bunch growth forms may have some natural mortality in centers.
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14. **Average percent litter cover (%) and depth (in):** Total litter cover ranges from 25 to 35 percent. Most litter is irregularly distributed on the soil surface and is typically 0.25 inches thick
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average production is 1100 pounds per acre (lb/ac) or

1233 kilograms per hectare (kg/ha)

Low production is 900lb/ac or 1009 kg/ha

High production is 1500 lbs/ac or 1681 kg/ha

Production values can vary due to site conditions and precipitation. These values represent the Relative Value (RV) ranges for this site...outliers within the Reference State do exist

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:** Note: this list may not be fully comprehensive as unknown populations of weeds may exist
dandelion (*Taraxicum* spp), cheatgrass (*Bromus tectorum*), field brome (*Bromus arvensis*), spotted knapweed (*Centaurea stoebe*), yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*), and Kentucky bluegrass (*Poa pratensis*)

Native species with the ability to indicate degradation however species presence alone does not imply degradation: Sandberg bluegrass (*Poa secunda*), big sagebrush (*Artemisia tridentata*), three-tip sagebrush (*Artemisia tripartita*), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), Rocky Mountain juniper (*Juniperus scopulorum*), Douglas fir (*Pseudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*)

17. **Perennial plant reproductive capability:** In the reference condition, all plants are vigorous enough for reproduction either by seed or rhizomes in order to balance natural mortality with species recruitment. Density of plants indicates that plants reproduce at levels sufficient to fill available resource.
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