

## Ecological site R046XS119MT Thin Breaks (TB) RRU 46-S 13-19 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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Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

### Indicators

- Number and extent of rills:** Rills may be frequent in reference especially on slopes exceeding 25%. Rills will be less than 5 feet long

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- Presence of water flow patterns:** Will be evident on this site with the steeper slopes, and with areas of bare ground, there may be areas which show accumulations of litter due to water movement, even after minor storm events.

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- Number and height of erosional pedestals or terracettes:** Water erosion on the steeper slopes may have plants that could have pedestals and terracettes which could be 0.5 inch in height at the top of the slope and 1.0 inch or more towards the bottom of the slope.

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- Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground will be approximately 40% on this site.

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- Number of gullies and erosion associated with gullies:** Current gully erosion may be evident on this site from the recent past, but there may be evidence of gullies which have "healed" from past storm events.

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- Extent of wind scoured, blowouts and/or depositional areas:** Appearance or evidence of these erosional features on

the landscape would be rare on this site.

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement will be minimal on the gradual slopes, however on the steeper slopes there will be evidence of litter movement (i.e. debris dams) which may travel greater than 10 feet on steeper slopes.
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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):** Resistance to erosion will be less than other ecological sites due to more bare ground. Areas within the site that are covered may have soil stability values of 4 to 5; areas of bare soil on this site may have values less than 3 if not under plant canopy.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is blocky; A horizon depth is 1 – 2”.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Dominance of taller, deep rooted bunchgrasses will maximize infiltration and minimize runoff on most of the site, but areas with bare soil will have a higher potential for runoff and poorer infiltration rates. Larger areas with exposed rock will increase runoff on this site and cause more erosion below these sites.
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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):** A compaction layer is not present in the reference condition. Soil profile may contain an abrupt transition to an Argillic horizon which can be misinterpreted as compaction, however, the soil structure will be fine to medium subangular blocky, where a compaction layer will be platy or structureless (massive).
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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, taller grasses (bluebunch wheatgrass, Indian ricegrass)

Sub-dominant: shrubs > cool season mid-grasses (needle and thread) = cool season rhizomatous grasses (thickspike wheatgrass) = warm season rhizomatous grass (prairie sandreed) = warm season bunchgrass (plains muhly) > cool season short grasses (Sandberg bluegrass) = perennial forbs.

Other:

Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Will be low for all functional groups in a given year. Prolonged droughts which last more than 3 years may show increases in mortality and decadence for all plant groups.
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14. **Average percent litter cover (%) and depth ( in):** Total litter cover ranges from 30-60%. Most litter is irregularly

distributed on the soil surface and is not at a measurable depth.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 585- 1210 #/acre. This would be the expected production for the reference state during adequate moisture years. 871 pounds would be the expected production in a 17 inch precipitation zone.
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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:** Dense clubmoss, blue grama, Rocky Mountain juniper, red threeawn, field brome, a variety of annual or biennial weedy forbs, fringed sagewort, green sagewort, curlycup gumweed, broom snakeweed, big sagebrush, plains prickly pear, yucca, and cheatgrass.
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17. **Perennial plant reproductive capability:** During adequate moisture years bunchgrasses will generally produce seeds, however the cool season rhizomatous grasses may not necessarily produce seed even with adequate moisture.
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