

## Ecological site R053AE078MT Shallow Clay (Swc) (Legacy) RRU 53AE

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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.

Author(s)/participant(s)	Dr. John Lacey, Maxine Rasmussen, Jon Siddoway & Rick Bandy
Contact for lead author	
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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 should not be present in HCPC or in plant community A. In plant community B, rills would be visible, ½ inch deep or more, linear, rarely exceeding 1 foot in length. Distance between rills is irregular.

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2. **Presence of water flow patterns:** Water flow patterns should not be present in HCPC or in plant community A. In plant community B, water flow patterns would be visible as long (more than 1foot) and continuous across the landscape.

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3. **Number and height of erosional pedestals or terracettes:** Pedestals or terracettes would essentially be nonexistent in HCPC. If in plant community A, careful examination yield occasional pedestals and terracettes approximately ¼ inch above the soil surface. If in plant community B, pedestals and terracettes are frequent and ½ - ¾ inch above the soil surface.

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-10% of the soil surface could be bare in HCPC and in plant community A. If in plant community B, 10-20% of the soil surface can be exposed.

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5. **Number of gullies and erosion associated with gullies:** Active gullies should not be present. Existing gullies should be “healed” with a good vegetative cover in all State 1 reference plant communities.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind scoured, blowouts and/or depositional areas are not evident in any of the State 1 reference plant communities.
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7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is not expected with HCPC and plant community A., In plant community B, litter, both fine and coarse, movement is visible, into depressions or against natural obstacles.
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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 anticipated to be 5 or 6 in HCPC and in plant community A. Stability class would decrease to 4 in plant community B.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface layer is usually 0-4" deep and typically have clay, clay loam, and silty clay textures. Surface color ranges from light brownish gray to dark grayish brown. Soil organic matter ranges from 0.5 – 1%
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** In HCPC and Plant community A, 50-60% plant canopy and 65-90% basal cover with small gaps between plants should reduce raindrop impact and slow overland flow, providing increased time for infiltration to occur. Healthy, deep rooted native grasses enhance infiltration and reduce runoff. Infiltration rate is very slow. If in plant community B, 30-40% plant canopy and 65-80% basal cover with large gaps between plants, amplifies raindrop impact and increases overland flow. The site tends to be more xeric as runoff increases.
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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):** No compaction layer should be evident in any of the State 1 plant communities.  
Clay shale bedrock begins at 10 to 20 inches below the surface.
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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: Tall cool season bunch grasses > mid-stature, cool season rhizomatous grasses> short stature, warm season rhizomatous grasses> forbs > shrubs. Plant community A: Tall cool season bunch grasses = mid-stature, cool season rhizomatous grasses> short stature, warm season rhizomatous grasses> forbs > shrubs.
- Sub-dominant: Plant community B: Short warm season rhizomatous grasses = short cool season bunch grasses > mid-stature, cool season rhizomatous grasses > forbs > shrubs.
- Other:
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or**

**decadence):** Plant mortality and decadence very low in all state 1 reference plant communities. In periods of drought, shrubs would exhibit decadence in the state 1 reference communities.

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14. **Average percent litter cover (%) and depth ( in):** Litter cover is in contact with soil surface. Litter decreases in Plant community B to 30-40% and depth is immeasurable.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 600 - 1100 #/acre.
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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:** Blue grama, prairie junegrass, needleleaf sedge, plains prickly pear, broom snakeweed.
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17. **Perennial plant reproductive capability:** All species have a somewhat restricted ability to reproduce in HCPC and Plant community A. In Plant community B, plant seedlings will be weighed in favor of marginal and undesirable species. Replacement of desirable species will be very few.
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