USDA Natural Resources
Conservation Service

Ecological site R046XC603MT
Saline Upland (SU) RRU 46-C 15-19 PZ

Last updated: 2/11/2025
Accessed: 05/21/2025

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	08/05/2020
Approved by	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills are not present in the reference condition.

2. **Presence of water flow patterns:** Water flow patterns are not present in the reference condition.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are not evident in the reference condition.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 35-40%. It consists of small, randomly scattered patches.

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5. **Number of gullies and erosion associated with gullies:** Gullies are not present in the reference condition.

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6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind scoured, or depositional areas are not evident in the reference condition.

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is not evident in the reference condition.

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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):** The average soil stability rating is 4-5 under plant canopies and 3-4 in canopy interspaces. The 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 weak fine granular. 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, it is important to reference the Official Series Description (OSD) for characteristic range. https://soilseries.sc.egov.usda.gov/osdname.aspx

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Infiltration of the Saline Upland ecological site is moderately slow to moderate but is well drained. Site has inherent slow infiltration due to clay content of soil. An even distribution of cool season shortgrasses (30%), warm season bunchgrasses (30%), rhizomatous grass (30%), forbs (5%), and shrubs (5%) is the most efficient community for infiltration and reduce runoff for this site.

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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: Dominant: mid-statured, warm season, perennial bunchgrasses (Primarily alkali sacaton) = cool season midstatured bunchgrasses (green needlegrass, bluebunch wheatgrass) = rhizomatous grasses (western wheatgrass, plains reedgrass) > cool season short bunchgrasses (Sandberg (alkali) bluegrass, bottlebrush squirreltail)

    Sub-dominant: Shrubs = 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):** Mortality in herbaceous species is not evident. Species with bunch growth forms may have some natural mortality in centers is 3% or less.

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14. **Average percent litter cover (%) and depth (in):** Total litter cover ranges from 55 to 65%. 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):** Average annual production is 750. Low: 625 High 900. Production varies based on effective precipitation and natural variability of soil properties for this ecological site.

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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: Potential invasive (including noxious) species (native and non-native). Invasive species on this ecological site include (but not limited to) annual brome spp, crested wheatgrass, pale alyssum, field pennycress (fanweed)

Native species such as broom snakeweed, alkali sacaton, inland saltgrass, greasewood, Sandberg (alkali) bluegrass, curlycup gumweed, blue grama, pricklypear cactus etc. when their populations are significant enough to affect ecological function, indicate site condition departure.

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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.
