USDA Natural Resources Conservation Service

Ecological site R046XC597MT
Saline Lowland (SL) RRU 46-C 15-19 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

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

2. **Presence of water flow patterns:** Water flow patterns will not be present in the Reference State

3. **Number and height of erosional pedestals or terracettes:** Pedestals and terracettes will not be present in the Reference State

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is extremely limited due to high amounts of herbaceous growth and litter. Bare ground may be expressed in very small patches of up to 5 percent.

5. **Number of gullies and erosion associated with gullies:** Gullies will not be present in the Reference State

6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind scoured, blowouts, and/or depositional areas will not be present in the Reference State.

7. **Amount of litter movement (describe size and distance expected to travel):** No litter movement is expected in the Reference State.

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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):** This site is stable due to deep rooted nature of the bunchgrass dominated community. Stability ratings of 5 to 6 under both canopy and ratings of 3-5 in plant interspaces are expected. .

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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 subangular blocky to weak fine granular. A Horizon should be 4-8 inches thick with color, when wet, typically ranging in Value of 5 or less and Chroma of 4 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:** 90-95% plant canopy and 80-85% 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 moderate to very slow. If in plant community A, 90-95% plant canopy and 70-80% basal cover with small gaps between plants will still reduce raindrop impact and decrease overland flow.

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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: Tall, warm season bunch grasses = mid-stature, cool season bunch grasses> mid-stature cool season rhizomatous grasses > sedges and rushes > short, warm season rhizomatous grasses

    Sub-dominant: 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):** 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):** Litter cover is high and ranges from 50-65 percent. Litter depth is

highly variable from nearly immeasurable in plant interspaces to very thick (1 inch) under plants. Averages are 0.25 to 0.5 inches deep.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Total vegetative production averages 3000 lbs/ac, 4500 lbs/ac as a high, and 1750 lbs/ac as a low

    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., spotted knapweed, leafy spurge, crested wheatgrass, salsify, and halogeton

    Native species such as rocky mtn Juniper, ponderosa pine, pricklypear cactus, broom snakeweed, Sandberg's bluegrass, 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.
