USDA Natural Resources
Conservation Service

Ecological site DX032X02W140
Saline Lowland Drained (SLDr) Wind River Basin Wet

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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:** None. Rills are not expected on this site.

2. **Presence of water flow patterns:** None, or barely visible. Evidence of water flow may be present after high overland flow events, but vegetation normally remains intact.

3. **Number and height of erosional pedestals or terracettes:** None. Erosional pedestals and terracettes are not expected on this site.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is typically 25 to 35 percent occurring in small areas throughout site

5. **Number of gullies and erosion associated with gullies:** Active gullies should not be present Evidence of pre-exiting gullies may be extensive due to the hydrologic disruption resulting in this site and should not be construed as active unless current headcutting or downcutting is evident.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None. Wind-scoured areas and areas of deposition from wind are not expected on this site in reference; however, as the site degrades, this becomes prominent.

7. **Amount of litter movement (describe size and distance expected to travel):** Litter of small and medium size classes will show no or minimal movement after average to high rainfall events. Litter does not travel far, typically being trapped in small bunches by the vegetative cover. Small woody debris may move up to 6 inches. Fine litter may move up to 12 inches. Numerous debris dams or vegetative barriers may be present.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Plant cover and litter is at 60 percent or greater of soil surface and maintains soil surface integrity. Soil aggregate stability ratings should typically be 2 to 5 normally. Surface organic matter adheres to the soil surface. Soil surface peds will typically retain structure indefinitely when dipped in distilled water. In the interspaces, ratings could be 0 to 3 if around 12 inches in diameter. Under canopy should be a rating of 2 to 4. Elevated salt content of these soils reduces the stability of these soils.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A-horizon should be 1 to 4 inches; light brownish gray (10YR7/2) loam, grayish brown (10YR 5/2) moist; moderate fine granular structure; weak thick platy structure in upper half inch; slightly hard, firm; slightly sticky and slightly plastic; strongly alkaline (pH 8.8); gradual smooth boundary (3 to 6 inches thick).

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Relative composition is approximately 70% grasses and grass-like plants, 10% forbs, 20% shrubs. (F/S Group Information Needed). Grass canopy and basal cover 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 is Moderate.

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 or soil surface crusting should be present.

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: Mid-stature Warm-season Bunchgrasses are greater than Shrubs. Groups are comprised of 2 and 3 species respectively, and account for 45% of the composition by production.

    Sub-dominant: Rhizomatous Wheatgrasses are greater than Short Stature Cool-season Bunchgrasses. Groups are comprised of 2 prominent species each, and account for 28% of the composition by production.

    Other: Mid-stature Cool-season Bunchgrasses are equal or greater than Tall-stature Cool-season bunchgrasses. Groups are comprised of 1 species each, and account for 22% of the composition by production.

    Additional: There are a total of 9 Functional/Structural Groups. (3 are trace). There are 9 dominant and sub-dominant species. Functional/Structural Groups not expected are Introduced annual grasses, perennial introduced and naturalized grasses and annual forbs.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very little evidence of decadence or mortality. Bunch grasses have strong, healthy centers and shrubs have few dead stems.

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14. **Average percent litter cover (%) and depth (in):** Plant litter cover is expected to be 25-40 percent and at a depth of 0.25-0.50 inch.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Reference (Community Phase 1.1) Annual production ranges from a low of 350 to a high of 800 pounds per acre (air dry basis). Normal Annual production is 525 pounds per acre in a year with normal precipitation and weather conditions.

    Community Phase 1.2 - Annual production ranges from 275 to 600 pounds per acre with the normal average production of 450 pounds per 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:** Greasewood, rubber rabbitbrush, and inland saltgrass are natives that can be aggressive on this ecological site. Cheatgrass, clasping pepperweed, mustards (Brassicas), bull thistle, Canada thistle, pennycress, annual forbs, and others as they become known.
    See:
    Wyoming Weed and Pest Council Website: https://wyoweed.org/

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17. **Perennial plant reproductive capability:** All perennial species exhibit moderate vigor relative to recent weather conditions. Perennial grasses should have vigorous rhizomes or tillers; vegetative and reproductive structures are slightly stunted in response to high salt content in soils. All perennial species should be capable of reproducing annually.
