USDA Natural Resources
Conservation Service

Ecological site R025XY020ID
LOAMY 7-10

Last updated: 4/25/2024
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.

Author(s)/participant(s)	
Contact for lead author	USDA/NRCS 9173 W. Barnes Drive, Suite C Boise, ID 83709 208-378-5722
Date	06/12/2007
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills rarely occur on this site. If rills are present, they are likely to occur on slopes approaching 20 percent and immediately following wildfire. Rills are most likely to occur on soils with silt loam surface textures.

---

2. **Presence of water flow patterns:** These can occur on the site usually when slopes are greater than 10 percent. They occur as short and disrupted flows. They are disrupted by rocks, cool season grasses and tall shrubs and are not extensive.

3. **Number and height of erosional pedestals or terracettes:** Pedestals and/or Terracettes are rare on this site. Where flow patterns and/or rills are present, few pedestals may be expected. Terracettes can occur as deposits behind rocks, large bunchgrasses and shrubs. Terracettes occur usually on slopes greater than 10 percent. They are not extensive.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** On sites in mid-seral status, bare ground may range from 30-50 percent. Moss is a common component of the site and reduces bare ground.

5. **Number of gullies and erosion associated with gullies:** None.

6. **Extent of wind scoured, blowouts and/or depositional areas:** Usually not present. Immediately following wildfire, some soil movement may occur on lighter textured soils. Where sagebrush has repopulated the site after a fire, remnants of past wind scour may be present.

7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter in the interspaces may move up to 3 feet following a significant run-off event. Coarse litter generally does not move.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Values should range from 4-6 .

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The surface horizon is typically 4 inches thick. Structure typically includes moderate medium platy and moderate medium granular. Soil organic matter (SOM) is 1 to 2 percent.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Bunchgrasses, especially deep-rooted perennial species, slow run-off and increase infiltration. Tall shrubs can catch snow in the interspaces.

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Not 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: Tall shrubs> shallow rooted grasses> cool season deep rooted perennial bunchgrasses> perennial forbs.

    Sub-dominant:

    Other:

    Additional:

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Wyoming big sagebrush will become decadent in the absence of normal fire frequency. Grass and forb mortality will occur as tall shrubs increase.

---

14. **Average percent litter cover (%) and depth (in):** Additional litter cover data is needed but is expected to be 5-20 percent to a depth of 0.1 inches. Under mature shrubs litter is <0.5 inches deep and is 90-100 percent ground cover.

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 550 pounds per acre (616 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 35-45 percent of the total production, forbs 5-15 percent and shrubs 40-50 percent.

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:** Plants include cheatgrass, Vulpia sp., annual mustards, Russian thistle and annual Kochia.

17. **Perennial plant reproductive capability:** All functional groups have the potential to reproduce in favorable years.