USDA Natural Resources
Conservation Service

Ecological site R103XY001MN
Loamy Wet Prairies

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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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Approval date	
Composition (Indicators 10 and 12) based on	Foliar Cover

Indicators

1. **Number and extent of rills:** Rills are none to very rare. Even in farmed settings these landforms are very flat and linear and do not provide significant runoff.

2. **Presence of water flow patterns:** Water flow patterns are none to rare. Even in farmed settings these landforms are very flat and linear and do not provide significant runoff.

3. **Number and height of erosional pedestals or terracettes:** Wind pedestals and terracettes are none.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground is not noticeable amidst the thick grass cover. After a spring fire bare ground increases for a short time. Bare Ground is generally close to 0% depending mostly upon the time elapsed since the last fire.

5. **Number of gullies and erosion associated with gullies:** Typically there are none. Intensive grazing may be the only way win which a gully would form. Even then, these sites are on very stable landforms and water does not move over land fast enough to produce gullies and erosion.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None.

7. **Amount of litter movement (describe size and distance expected to travel):** None.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface resistance to erosion is good. Soil stability values should be 3 to 6 on most soil textures found on this site.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface structure is typically granular. Soil surface colors are black to very dark brown and soils are typified by a mollic epipedon. Organic matter of the surface 5 to 8 inches is typically more than 3 percent dropping off slowly below. Mollic colored A horizons can range from 10 to more than 20 inches thick.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The plant community composition is relatively uniform. Changes in plant community composition are expected around areas of longer soil saturation but vegetation remains thick and dominated by graminoids (sedges instead of grasses). These areas may also have a higher abundance of shrub due to less intense fires cause by wetness. Infiltration remains throughout.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** Compacted layers are none.

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: Deep-rooted, warm season, perennial grasses> perennial forbs > short shrubs (lead plant and prairie rose).

    Sub-dominant: Cool season annual forbs.

    Other:

    Additional: After prescribed fires, the functional/structural dominance of perennial forbs increases and shrubs decrease. With lengthening duration of fire return shrubs increase and small trees begin to appear.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** No or little plant mortality is apparent. Most of the perennial plants are long-lived. After a fire dead shrubs may persist for a time.

14. **Average percent litter cover (%) and depth (in):** Litter cover ranges from 15-75%. After prescribed fires, litter cover and depth decreases dramatically. Because annual production is relatively high, it takes only one growing season for litter to reach pre-fire levels.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** For normal or average growing season (end of July beginning of August) ± 3300 lbs/ac; Favorable years ± 4000 lbs/ac and unfavorable years ± 2500 lbs/ac.

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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 invaders include reed canary grass, smooth brome, Kentucky bluegrass, yellow parsnip, and sweet clovers. Other invaders include a variety of shrub and tree species, such as dogwoods, willows, green ash, box elder, quaking aspen, and eastern cottonwood.

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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years. Only limitations to reproductive capability are weather related, natural disease, insect infestations, or combinations of all of the disturbances.
