USDA Natural Resources
Conservation Service

Ecological site EX044B01Y080
Riparian Meadow (RM) LRU 01 Subset Y

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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 will not be present

2. **Presence of water flow patterns:** Water flow patterns as a result of flooding may be present and are part of the natural dynamics of the system. These flow patterns tend to stabilize quickly as a result of healthy deep root plants present.

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 0 due to high amounts of plant production and litter amounts.

5. **Number of gullies and erosion associated with gullies:** Active gullies are not present in the reference condition however historic, healed gullies may be present in response to old flooding events.

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

7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is not associated with this site; however, under exceptional flooding conditions, all size classes of litter may move hundreds of feet to areas of small debris dams.

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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):** Soil Surface Stable with Stability Ratings of 5-6 (both under canopy and interspaces). Root mats may be present.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A horizon is 8-11 inches thick and sometimes under an organic root mat (Oe horizon). Colors can be variable due to mixed origins of alluvium however are considered dark with Munsell Color Values typically 3 or less with Chromas of 2 or less. This suggests high organic matter content. Several soils common on this site will have thin organic layers up to 3 inches above mineral A horizon. Structure of the A horizon is medium granular however in areas that receive more frequent water inundation the granular structure may part to a weak platy structure as a result of eluviation. 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:** The high amounts of fine to coarse fibrous roots from the grasses and sedges combined with the deep coarse roots of the shrubs creates areas of moderate to rapid infiltration. Runoff is naturally very low and considered poorly drained. Site often absorbs runoff from neighboring sites. Organic horizons offer buffering capacity. Evenly distributed across the site, shrubs, bunchgrasses, and deep-rooted sedges improve infiltration while rhizomatous grass and shrubs protect the surface from runoff forces. An even distribution of shrubs (5-10 percent), tall sedges and bunchgrasses (55-65 percent), cool season increases sedges & grasses (20-25 percent), forbs (1-10 percent), and trees (0-1 percent) create efficient infiltration and reduce runoff.

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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):** Site will not have a compaction layer. Areas that receive frequent inundation may express a platy E horizon or have weak platy structure in the A horizon. These characteristics may be mistaken for compaction. Compaction layers on this site are often associated with site hummocking and often exhibit massive (sometimes known called structureless) subsoil.

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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, cool season, perennial bunchgrasses & sedges

    Sub-dominant: Shrubs = perennial, increaser bunchgrasses/grasslikes > forbs >> trees

    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.

14. **Average percent litter cover (%) and depth (in):** Total litter cover ranges from 65 to 75 percent. Most litter is irregularly distributed on the soil surface, which may be up to 1 inch thick.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Average annual production is 4700 pounds per acres (lbs/ac) or 5268 kilograms per hectare (kg/ha)
Low: 4500 lbs/ac or 5044 kg/ha
High 5150 lbs/ac or 5772 kg/ha

    Production varies based on effective precipitation and natural variability of soil properties for this ecological site.

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). Non-native species common on this site include (but not limited to): Kentucky bluegrass, Canada bluegrass, smooth brome, creeping meadow foxtail, houndstongue, leafy spurge, Canada thistle, whitetop, sulphur cinquefoil, purple loosestrife, Russian olive, salt cedar (Tamarisk), and paleyellow iris

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. Density of plants indicates that plants reproduce at level sufficient to fill available resource.