

Evaluation Matrix for Rangeland Health

State: OK Office Ecological Site: **Shallow Prairie (Eastern)**

Site ID: **112XY086OK**

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Date: April 20, 2005

	Departure from Ecological Site Description/Ecological Reference Worksheet				
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills*	Active eroding rills are common. Headcutting on rills is active. Few, if any, of the sides are covered with vegetation. Rills merge to form conductive channels for water erosion.	There is a presence of rills. Headcutting on most rills is active, and few of the sides are covered with vegetation.	There is a presence of rills. Headcutting on some rills is active, and most of the sides are covered with vegetation.	There is a presence of rills. There is no active headcutting, but a portion of the sides are not covered with vegetation.	Ecological Reference Worksheet: Very few and only on steeper slopes and after intense rains
2. Water Flow Patterns *	Water eroded channels are numerous and extensive. Most channels have signs of headcutting and actively eroding bottom channels.	Water flow patterns are visible in the soil surface. Headcutting and/or deposition are common in the water flow channels.	Water flow patterns are visible in vegetation but not in soil. Water tends to flow in channels rather than evenly over the ground.	Some water flow patterns are found in the vegetation but not in the soil. The general flow of the water is distributed evenly over the landscape.	Ecological Reference Worksheet: Rare and stable and only after significant rain events but minimal evidence of past or current soil deposition or erosion.
3. Pedestals and/or Terracettes	Abundant active pedestalling (> 1inch) and terracettes common. Many rocks and plants are pedestalled; exposed plant roots are common.	Moderate active pedestalling (.5 – 1 inches); terracettes common. Some rocks and plants are pedestalled with occasional exposed roots.	Slight active pedestalling (<.5 inches); most pedestals are in flow paths and interspaces. Occasional terracettes present.	Some evidence of past pedestal formation, especially in water flow patterns and steeper slopes, but none active. No evidence of terracettes.	Ecological Reference Worksheet: Very rare and hardly visible. Terracettes rarely noticeable and typically only on the steeper portion of the site. Not many litter dams or terracettes exceed 12 inches apart.
4. Bare Ground	Much higher (>40%) than expected for the site. Bare areas are large and generally connected.	Moderate to much higher than expected for the site. Bare areas are large and occasionally connected.	Moderately higher (20-30%) than expected for the site. Bare areas are of moderate size with few being connected.	Slightly to moderately higher than expected for the site.	Ecological Reference Worksheet: Variable but could average about 10%.

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5. Gullies	Common with indications of active erosion and down cutting; vegetation is infrequent on slopes and/or bed. Nick points and headcuts are numerous and active.	Moderate in number to common with indications of active erosion; vegetation is intermittent on slopes and/or bed. Headcuts are active; down-cutting is not apparent.	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts may be present.	Uncommon, vegetation is stabilizing the bed and slopes; few signs of active headcuts nick points, or bed erosion.	Ecological Reference Worksheet: Some possible in drains but probably were limited to less than 1 foot overfalls and less than 2 – 3 feet wide.
6. Wind Scoured, Blowout and/or Depositional Areas	None	None	None	None	Ecological Reference Worksheet: None.
7. Litter Movement (wind or water)	Extreme; heavily concentrated around obstructions litter dams forming between obstructions. Most size classes of litter have been displaced. (>24")	Moderate to extreme; concentrated near obstructions, litter dams forming between obstructions. Moderate classes of litter (stems) have been displaced along with smaller classes.	Moderate movement of smaller size classes in scattered concentrations around obstructions, in water flows patterns and in depressions. (12-18")	Slightly to moderately more than expected for the site with only small size classes (leaves) of litter being displaced in water flow patterns.	Ecological Reference Worksheet: Less than 6 inches, and usually only after high intensity rainfall.
8. Soil Surface Resistance to Erosion	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent. Stability Scores <2	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Stability scores of 3's and 4's	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	Ecological Reference Worksheet: Stability scores 5's and 6's. Stability scores based on minimum 6 samples tested.
9. Soil Surface Loss or Degradation	Soil surface horizon nearly absent to absent (<25% of A horizon in place). Soil structure near surface is similar to, or more degraded, than that in subsurface horizons. No distinguishable difference in subsurface organic matter content.	Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss (50-75% of A Horizon still in Place) or degradation in plant interspaces with some degradation beneath plant canopies. Soil structure is degraded (more massive platy structure) and soil organic matter content is significantly reduced.	Some soil loss has occurred and/or soil structure shows signs of degradation (increased platy structure) especially in plant interspaces.	Ecological Reference Worksheet: 0 to 7 inches; reddish brown very gravelly silty clay loam, dark reddish strong medium granular structure. B; 6 to 28 inches; reddish brown silty clay loam, reddish brown moderate medium granular structure.

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10. Plant Community Composition & Distribution Relative to Infiltration & Runoff	Infiltration is severely decreased due to adverse changes in plant community composition (Shrubs and/or annuals Dominate) and/or distribution. Adverse plant cover changes have occurred.	Infiltration is greatly decreased due to adverse changes in plant community composition and/or distribution. Detrimental plant cover changes have occurred.	Infiltration is moderately reduced due to adverse changes in plant community composition (Increased shortgrasses) and/or distribution (increased plant interspaces). Plant cover changes negatively affect infiltration.	Infiltration is slightly to moderately affected by minor changes in plant community composition and/or distribution. Plant cover changes have only a minor effect on infiltration.	Ecological Reference Worksheet: Midgrass-tallgrass community. Shortgrasses will occur on areas of shallower soils. Soils are moderately rapid permeability, but slope can result in high runoff.
11. Compaction Layer (below soil surface)	Extensive; severely restricts water movement and root penetration.	Widespread; greatly restricts water movement and root penetration.	Moderately widespread, moderately restricts water movement and root penetration.	Rarely present or is thin and weakly restrictive to water movement and root penetration.	Ecological Reference Worksheet: Usually no compaction layer. Calcareous, clayey soil layers may be mistaken for a compaction layer.
12. Functional/ Structural Groups (F/S Groups) See Functional/ Structural Groups Worksheet	Others now dominant (>40%)	Number of F/S groups reduced AND/OR One dominant group and/or one or more sub-dominant group replaced by F/S groups not expected for the site AND/OR Number of species within F/S groups significantly reduced.	Subdominants > Dominants > Other	Number of F/S groups slightly reduced AND/OR Relative dominance of F/S groups has been modified from that expected for the site AND/OR number of species within F/S slightly reduced.	Ecological Reference Worksheet: This site is made up of a plant community described as the Historic Plant Community in the range or ecological site descriptions. Dominants (>40%): Midgrasses, bunchgrasses (little bluestem) tall grasses Subdominants (10-40%): Shortgrasses, forbs. Other (<10%): Shrubs, cool season grasses/grasslikes, annuals

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13. Plant Mortality/Decadence	Dead and/or decadent plants are common (>10%).	Dead plants and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present (5-10%).	Slight plant mortality and/or decadence.	Ecological Reference Worksheet: There can be some plant loss due to droughty nature of the site, especially after severe drought, but should be less than 5%.
14. Litter Amount	Largely absent relative to site potential and weather. <50% coverage Too much litter = 3” Minimal depth <1/2”	Greatly reduced relative to site potential and weather.	Moderately more or less relative to site potential and weather. 60-70% coverage Too much litter = 2” Minimal depth – 1/2 “	Slightly more or less relative to site potential and weather.	Ecological Reference Worksheet: Litter should be >80% coverage with accumulations ~1 inch.
15. Annual Production	Less than 20% of potential production for the site based on recent weather.	20-40% of potential production for the site based on recent weather.	40-60% of potential production for the site based on recent weather.	60-80% of potential production for the site based on recent weather.	Ecological Reference Worksheet: 1800 – 3200 #/acre
16. Invasive Plants	Dominate the site (Woody species >30% canopy; Herbaceous >40% composition by weight)	Common throughout the site.	Scattered throughout the site (Woody species 5-10% canopy; Herbaceous 10-25% composition by weight)	Occasional within the site. Primary invasive is eastern redcedar or non-natives	Ecological Reference Worksheet: None. .
17. Reproductive Capability of Perennial Plants (native or seeded)	Capability to produce seed or vegetative tillers is severely reduced. (<25% as compared to what should be expected).	Capability to produce seed or vegetative tillers is greatly reduced as compared to what should be expected.	Capability to produce seed or vegetative tillers is moderately reduced (50-75% as compared to what should be expected).	Capability to produce seed or vegetative tillers is slightly reduced as compared to what should be expected.	Ecological Reference Worksheet: All plants capable of reproducing at least every 2 – 3 years.