

# Evaluation Matrix for Rangeland Health

State: OK & KS Office \_\_\_\_\_

Ecological Site: Claypan Prairie

ID: 112XY010OK

Authors: Steve Glasgow

Date: April 18, 2005

	Departure from Ecological Site Description/Ecological Reference Worksheet				
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
<b>1. Rills*</b>	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.	<b>Ecological Reference Worksheet:</b> None.
<b>2. Water Flow Patterns *</b>	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.	<b>Ecological Reference Worksheet:</b> Some after significant rain events but minimal evidence of past or current soil deposition or erosion.
<b>3. Pedestals and/or Terracettes</b>	Abundant active pedestalling (> 1 inch) 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. No evidence of terracettes.	<b>Ecological Reference Worksheet:</b> There should be no evidence of pedestals. Terracettes absent or uncommon.
<b>4. Bare Ground</b>	Much higher (>20%) 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 (10-15%) than expected for the site. Bare areas are of moderate size and sporadically connected.	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected.	<b>Ecological Reference Worksheet:</b> Amount and size of bare areas < 5%. Bare areas very small and not connected.
<b>5. Gullies</b>	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.	Vegetation is stabilizing the bed and slopes; no signs of active headcuts nick points, or bed erosion.	<b>Ecological Reference Worksheet:</b> None, drainages are represented as natural stable channels; vegetation common and no signs of erosion.

Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
<p><b>6. Wind Scoured, Blowout and/or Depositional Areas</b></p> <p><b>7. Litter Movement (wind or water)</b></p>	<p>None</p> <p>Extreme; concentrated around obstructions. Most size classes of litter have been displaced. (&gt;24")</p>	<p>None</p> <p>Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.</p>	<p>None</p> <p>Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions. (12-18")</p>	<p>None</p> <p>Slightly to moderately more than expected for the site with only small size classes (leaf litter) of litter being displaced.)</p>	<p><b>Ecological Reference Worksheet:</b> None.</p> <p><b>Ecological Reference Worksheet:</b> Uniform distribution of litter. Litter movement &lt;6" and only during or after high intensity rainfall.</p>
<p><b>8. Soil Surface Resistance to Erosion</b></p>	<p>Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.</p> <p><b>Stability Score = 1 and 2's</b></p>	<p>Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.</p>	<p>Stability scores of <b>3's and 4's</b></p>	<p>Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.</p>	<p><b>Ecological Reference Worksheet:</b> Surface soil is stabilized (Stability class 5 – 6) by organic matter decomposition products and/or a biological crust. Stability scores based on minimum 6 samples tested</p>
<p><b>9. Soil Surface Loss or Degradation</b></p>	<p>Soil surface horizon nearly absent to absent (&lt;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.</p>	<p>Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.</p>	<p>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 blocky structure) and soil organic matter content is significantly reduced.</p>	<p>Some soil loss has occurred and/or soil structure shows signs of degradation especially in plant interspaces.</p>	<p><b>Ecological Reference Worksheet:</b> <b>A:</b> 0 to 15 inches; very dark grayish brown silt loam, weak medium granular structure, transitioning to a weak, subangular blocky structure. <b>B21tg:</b> very dark grayish brown clay</p>

Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
<p><b>10. Plant Community Composition &amp; Distribution Relative to Infiltration &amp; Runoff</b></p>	<p>Infiltration is severely decreased due to adverse changes in plant community composition (<b>Shrubs and/or annuals Dominate</b>) and/or distribution. Adverse plant cover changes have occurred.</p>	<p>Infiltration is greatly decreased due to adverse changes in plant community composition and/or distribution. Detrimental plant cover changes have occurred.</p>	<p>Infiltration is moderately reduced due to adverse changes in plant community composition (<b>shortgrass dominated</b>) and/or distribution (<b>increased plant interspaces</b>). Plant cover changes negatively affect infiltration.</p>	<p>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.</p>	<p><b>Ecological Reference Worksheet:</b> Plant community dominated by perennial Tall grasses and midgrasses. Infiltration and runoff are not affected by plant community changes. Any changes in infiltration and runoff can be attributed to other factors (e.g. compaction). <b>Ecological Reference Worksheet:</b> Naturally dense subsoil can be mistaken for a compaction layer, but none exists.</p>
<p><b>11. Compaction Layer (below soil surface)</b></p>	<p>Extensive; severely restricts water movement and root penetration.</p>	<p>Widespread; greatly restricts water movement and root penetration.</p>	<p>Moderately widespread, moderately restricts water movement and root penetration.</p>	<p>Rarely present or is thin and weakly restrictive to water movement and root penetration.</p>	<p><b>Ecological Reference Worksheet:</b> Naturally dense subsoil can be mistaken for a compaction layer, but none exists.</p>
<p><b>12. Functional/ Structural Groups (F/S Groups)</b> See <b>Functional/ Structural Groups Worksheet</b></p>	<p>Others now dominant (&gt;40%)</p>	<p>Number of F/S groups reduced AND/OR One dominant group and/or one or more sub-dominate group replaced by F/S groups not expected for the site AND/OR Number of species within F/S groups significantly reduced.</p>	<p>Subdominants &gt; Dominants &gt; Other</p>	<p>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.</p>	<p><b>Ecological Reference Worksheet:</b> This site is made up of a plant community described as the Historic Plant Community in the range or ecological site descriptions. <b>Dominants (&gt;40%):</b> tallgrasses, midgrasses <b>Subdominants (10-40%):</b> Shortgrasses, forbs. <b>Other (&lt;10%):</b> cool season grasses and grasslikes, Shrubs, annuals</p>

Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
<b>13. Plant Mortality/Decadence</b>	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.	<b>Ecological Reference Worksheet:</b> Some decadence with perennial grasses in the absence of fire and herbivory but usually <5%.
<b>14. Litter Amount</b>	Largely absent relative to site potential and weather.  <70% cover with <1/4" or more than 4" litter.	Greatly reduced relative to site potential and weather.	Moderately more or less relative to site potential and weather.  80-90% cover with ~1/2" or greater than 2" litter.	Slightly more or less relative to site potential and weather.	<b>Ecological Reference Worksheet:</b> There should be 95% cover and 1-2 inch of litter between plants.
<b>15. Annual Production</b>	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.	<b>Ecological Reference Worksheet:</b> Normal range is 2000 – 4500 pounds.
<b>16. Invasive Plants</b>	Dominate the site ( <b>Woody species &gt;30% canopy; Herbaceous &gt;40% composition by weight</b> )	Common throughout the site.	Scattered throughout the site ( <b>Woody species 5-10% canopy; Herbaceous 10-25% composition by weight</b> )	Occasional within the site. <b>Primary invasive might be cool season annuals, eastern redcedar and non-natives.</b>	<b>Ecological Reference Worksheet:</b> None.
<b>17. Reproductive Capability of Perennial Plants (native or seeded)</b>	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. (25-50% 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 (>75% as compared to what should be expected).	<b>Ecological Reference Worksheet:</b> Capability to produce seed or vegetative tillers is not reduced relative to recent climatic conditions.