

Evaluation Matrix

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Date: 8/20/2008 **MLRA:** 42 **Ecological Site:** Gravelly (R042XD007NM) This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Composition (indicators 10 and 12) based on: X Annual Production, Cover Produced During Current Year Biomass

Indicator	Departure from Reference Sheet				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills*	Rill formation is severe and well defined throughout most of the site.	Rill formation is moderately active and well defined throughout most of the site.	Active rill formation is slight at infrequent intervals; mostly in exposed areas.	No recent formation of; old rills have blunted or muted features.	Rills should not be present except on steeper slopes (> 5%) with low gravel cover (<50%). A few short rills (<3') may be present on steeper slopes as surface gravel cover declines.
2. Water Flow Patterns *	Water flow patterns extensive and numerous; unstable with active erosion; almost always (>75%) connected.	Water flow patterns more numerous and extensive than expected; deposition and cut areas common; usually (50-75%) connected.	Number and length of water flow patterns moderately exceed what is expected for the site; erosion is minor with some instability and deposition; often connected (+- 50%).	Number and length of water flow patterns nearly match what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short; occasionally (<25%) connected.	Waterflow patterns should be short (1-3 yards) and discontinuous.
3. Pedestals and/or Terracettes	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestaled; exposed plant roots are common.	Moderate active pedestalling; terracettes common. Some rocks and plants are pedestaled with occasional exposed roots.	Slight active pedestalling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occasional terracettes present.	Active pedestalling or terracette formation is rare, some evidence of past formation, especially in water flow patterns on exposed slopes.	There can be very few pedestals and terracettes. If present, they should be very short (< ½") and pedestals should have no exposed roots.
4. Bare Ground	Much higher than expected for the site. Bare areas are large and almost always (>75%) connected.	Moderate to much higher than expected for the site. Bare areas are large and often (+-50%) connected.	Moderately higher 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 occasionally larger than expected and rarely connected.	Bare ground should never exceed 35-45% with the remainder protected by rocks (gravel, cobbles, etc...), litter and vegetation. Bare ground should be correspondingly lower on soils with high potential gravel cover and during normal to wet years. . Ground cover is based on first raindrop impact.

5. Gullies	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints 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; no signs of active headcuts, nickpoints, or bed erosion.	None. Stable, natural drainages with little to no active cutting are common on this site. There should not be any accelerated erosion.
6. Wind Scoured,	Extensive.	Common.	Occasionally present	Infrequent and few.	There should not be any wind scoured, blowouts and/or depositional area because surface should be stabilized by gravel and vegetation cover.
7. Litter Movement (wind or water)	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.	Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.	Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions.	Slightly to moderately more than expected for the site with only small size classes of litter being displaced.	The small (grass) litter movement should be less than 3-5' across bare patches. Very little large litter movement expected for this site.
8. Soil Surface Resistance to Erosion	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Significantly reduced in at least half of the plant canopy interspaces, or moderately reduced throughout the site.	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	5-6 under plant canopies and 4-5 in the interspaces. Values should be at the high end for finer textured soils. Soils with a surface (>0.5") layer of very coarse sand to fine gravel (1-5mm) have no potential for stabilization.
9. Soil Surface Loss (especially in plant interspaces)	Soil surface horizon absent. 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 (both interspaces and beneath plant canopies). Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss or degradation in plant interspaces (soil structure is degraded and soil organic matter content is significantly reduced); only some degradation beneath plant canopies..	Some soil loss has occurred and/or soil structure shows signs of degradation, especially in plant interspaces.	Ft. Bliss Soil Survey, Philder Soil Series: At least 2 inches thick; light brown (7.5YR 6/4), dark brown (7.5YR 3/4) moist; weak fine angular blocky and weak very fine granular structure
10. Plant Community Composition &	Infiltration is severely decreased due to adverse changes in plant community composition 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 and/or distribution. 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.	Grasses should be uniformly distributed and runoff from sites is generally low. The growth habit of dominant grass species (black grama and bush muhly) promotes water interception and infiltration relative to sites dominated by bunchgrasses or shrubs.

11. Compaction Layer (Extensive and severely restricts water movement and root penetration.	Widespread and greatly restricts water movement and root penetration.	Moderately wide-spread and moderately restricts water movement and root penetration.	Rarely present or if common is thin and weakly restrictive to water movement and root penetration.	There should not be any compaction layers on this site.
12. Functional / Structural Groups (F/S Group s)	Number of F/S groups greatly reduced AND/OR Relative dominance of F/S groups has been dramatically altered AND/OR Number of species within F/S groups dramatically reduced.	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 or by a F/S group that should always remain in other AND/OR Number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced AND/OR One or more sub-dominant F/S groups replaced by F/S groups not expected for the site AND/OR Number of species within F/S groups moderately reduced.	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.	Dominant: Long-lived stoloniferous grasses (blue + black grama) Sub-dominant: C4 bunchgrasses, shrubs and forbs (shrubs highly variable in space and forbs in time; both may have sufficiently low production to be classified as other in reference state. They should not dominate the site) Other: succulents, other grasses
13. Plant Mortality/Decadence Generic Descriptor	Dead and/or decadent plants are very common.	Dead plants and/or decadent plants are common.	Moderately more plant mortality and/or decadence than expected	Slightly more plant mortality and/or decadence than expected.	The C4 midgrasses can exhibit high mortality following multiyear drought relative to the other dominant perennials such as black grama.
14. Litter Amount	Largely absent or dominant relative to site potential and weather.	Greatly reduced or increased relative to site potential and weather.	Moderately more or less relative to site potential and weather.	Slightly more or less relative to site potential and weather.	Average cover is 25% but can be less (as low as 19%) during drought and/or on low production sites or more (as high as 30%) during exceptionally wet periods and/or on high production sites. Litter should be 1/4 to 3/4" deep
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.	Favorable years: 1200 lbs/acre Normal: 1000 lbs/acre Unfavorable years: 700 lbs/acre
16. Invasive Plants	Dominate the site.	Very Common throughout the site. But do not dominate.	Common throughout the site.	Scattered throughout the site.	Creosote can be a minor component of the reference plant communities, but is potentially invasive (see Version 4, page 38).
17. Reproductive Capability	Capability to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions	Capability to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions	Capability to produce seed or vegetative tillers is moderately reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is slightly reduced relative to recent climatic conditions.	Black grama reproduces by seed sporadically and reproduction by tiller and stolon should be common. The bunchgrasses should have high reproductive potential and rapidly recover from drought.

* Descriptions should be more specific than those listed in the General Example, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet. See page ___ for an Reference Sheet example.