

## Appendix 2. Reference Sheet

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**Date:** 28 August 2002 **MLRA:** SD-42 **Ecological Site:** Gravelly RO42XB010NM 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 Slope <5-30%. Coarser textured, with shallow calcic or petrocalcic <20" (vs. Gravelly loam has finer textured subsurface, cannot have shallow petrocalcic, though can have calcic).

**Indicators.** For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years and natural disturbance regimes for **each** community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.

**1. Number and extent of rills:** Rills should not be present on slopes < 8-10% with high gravel cover >50%). A few, short rills may be present as surface gravel cover declines or slope increases.

**2. Presence of water flow patterns:** Waterflow patterns should be short (1-3 yards) and discontinuous on slopes <8-10%. They may increase in length to up to 5-10 yards on steeper slopes and on soils with a fine-textured surface horizon.

**3. Number and height of erosional pedestals or terracettes:** Pedestals less than 0.5 inches and terracettes (1-2 in.) in height may occur in water flow paths on slopes >8-10%.

**4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground):** Bare ground should never exceed 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.

**5. Number of gullies and erosion associated with gullies:** None. Stable, natural drainages with little to no active cutting are common on this site. There should not be any accelerated erosion.

**6. Extent of wind scoured, blowouts and/or depositional areas:** There should not be any wind scoured, blowouts and/or depositional area because surface should be stabilized by gravel and vegetation cover.

**7. Amount of litter movement (describe size and distance expected to travel):** Litter movement distance and size of material moved increase downslope, but movement is usually limited to on-site redistribution. Fine litter movement is minimal (< 5 feet) and there should be no coarse (woody) litter movement on slopes <8-10% following typical summer thunderstorms. On steeper slopes, fine litter may move up to 10-20 feet and woody litter may move up to 2-3 feet following typical summer thunderstorms. Greater litter movement may occur during extreme (10 year) storms.

**8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values):** 4-5 under plant canopies and 2-3 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 structure and SOM content (include type and strength of structure, and A-horizon color and thickness):** Soil series in this site should have a weak (non-calcareous) or very weak (calcareous), fine granular structure. The A horizon should be at least 1-4 inches thick depending on series and location relative to plant patches and interspaces. The color should be slightly darker than the layer below due to increased SOM near the surface.

**10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff:** 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. In areas with steeper slopes, runoff can be high when compared to some other ecological sites (e.g. sandy).

**11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** There should not be any compaction layers on this site.

**12. Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify) using symbols: >>, >, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and “others” on separate lines):**

**High CaCO<sub>3</sub> (>25%) in first 10-12”**

**Dominant:** Creosotebush, Long-lived C4 perennial grasses with growing points elevated [black grama, bush muhly]

**Sub-dominant:** C4 midgrasses [cane bluestem, plains bristlegrass, Arizona cottontop] (may be co-dominant at high precip/elevation)

**Other:** forbs, other shrubs/succulents, other grasses [threeawns, burrograss, slim tridens, pappusgrass]

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**13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

The C4 midgrasses can exhibit high mortality in drought periods relative to the other dominant perennials such as black grama and bush muhly, which should exhibit low mortality.

**14. Average percent litter cover:** 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. Expected annual production (this is TOTAL above-ground production, not just forage production):** The annual production on this site in years with unfavorable precipitation should be approximately 150 lbs/acre and 450 lbs/acre in years with favorable precipitation.

**16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”:** Whitethorn acacia can be a minor component of the reference plant communities, but is potentially invasive (see Version 4, page 38).

**17. Perennial plant reproductive capability:** All plants should have the ability to reproduce vegetatively or by seed during most years. During extreme drought, grass reproduction may be limited.

\*”Dry year” = growing conditions (weather) do not match plant community requirements; “wet year” = exceptionally good growing conditions.