Rangeland Health—Reference Sheet TECHNICAL GUIDE Section II USDA-NRCS-MT Rev. June 2014

Author(s)/participant(s): T. DeCock / R. Kilian

Contact for lead author: Tammy DeCock **Reference site used? Yes/No**

Date: Rev. June 2014 **MLRA:** 58AE and 60BE **Ecological Site:** Shallow Clay 10-14" p.z. This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site. **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 for **each** community within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.
1. Number and extent of rills: None.
2. Presence of water flow patterns: None on slopes less than 25%. On slopes 25-40% water flow patterns may be 2-3 feet long and 4 inches wide.
3. Number and height of erosional pedestals or terracettes: No pedestals on slopes < 20% On slopes > 20% pedestals up to 0.5 inch high are common. No to minor terracettes.
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground): Bare ground is < 40%. Bare ground will occur as small areas less than 4 inches in diameter.
5. Number of gullies and erosion associated with gullies: Active gullies should not be present. Existing gullies should be "healed" with a good vegetative cover.
6. Extent of wind scoured, blowouts and/or depositional areas: None.
7. Amount of litter movement (describe size and distance expected to travel): Plant litter remains in place and is not moved by erosional forces on slopes less than 25%. Herbaceous litter may move up to 4 inches on slopes > 25%.
8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different): Surface Soil Aggregate Stability under plant canopy should typically be 5 or greater. Surface Soil Aggregate Stability not under plant canopy should typically be 5 or greater.
9. Soil surface Loss or Degradation (consider thickness of the surface horizon, soil organic matter and structure): Use soil survey series description.
10. Effect of plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: High grass canopy and basal cover and small gaps between plants should reduce raindrop impact and slow overland flow, providing increased time for infiltration to occur. A combination of shallow and deep-rooted species has a positive effect on infiltration.
11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be evident.
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to): Dominant: Cool season, mid-stature, rhizomatous grasses = Cool season, mid-stature, bunch grasses **Sub-dominant:** Warm season, mid-stature, bunch grasses > forbs = Cool season, short-stature bunch grasses and sedges **Minor components:** Warm season, short-stature rhizomatous grasses and sedges = Warm season, mid-stature, rhizomatous grasses *(Blue grama should be grouped with warm season, short-stature, rhizomatous grasses due to its growth form).*
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very low.
14. Average percent litter cover (20 to 50%). Litter cover is in contact with soil surface.
15. Expected annual production (this is TOTAL above-ground production, not just forage production): 1000 to 1100 #/acre (13 to 14 inch precip. Zone) 450 to 900 #/acre (10 to 12 inch precip. Zone).
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": Sulphur cinquefoil, common tansy, oxeye daisy, Leafy spurge, knapweeds, whitetop, Dalmatian toadflax, yellow toadflax, St. Johnswort, perennial pepperweed. Kentucky bluegrass and smooth brome can be invasive on the eastern border of Montana for these MLRAs.
17. Perennial plant reproductive capability: All species are capable of reproducing.