USDA Natural Resources
Conservation Service

Ecological site R035XF603AZ
Clay Loam Upland 13-17" p.z.

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Date	04/10/2007
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None. Rills would not form due to gentle slopes (0-4%) and heavy vegetative cover.Runoff is medium.

2. **Presence of water flow patterns:** None. Water patterns do not form due to gentle slopes (0-4%) and heavy vegetative cover. Runoff is medium.

3. **Number and height of erosional pedestals or terracettes:** Some pedestals and terracette may form in areas where wind erosion potential is high, but would not form in most areas due to clay loamy and loamy soil surface textures.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 20-40%. Available water capacity ranges from 9-11 inches, so this site has the potential to produce a high amount of plant cover.

5. **Number of gullies and erosion associated with gullies:** None

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

7. **Amount of litter movement (describe size and distance expected to travel):** Herbaceous and fine woody litter will be transported in water flow pathways. Coarse woody litter will remain under shrub and tree canopie.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface texture is usually clay loam bu may be a gravelly loam. Most soils have a moderate to very high shrink-swell property in the subsurface horizons. The presence of cracks could lead to low aggregate stability on the surface. When well vegetated these soils have a moderate to high resistance to both water and wind erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface structure is platy (moderate, thick) or granular (weak, fine). The thickness of the A-horizon is 3 inches. If is dark reddish brown in contrast to the horizon below it, which is reddish brown.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** This site is characterized by a relatively uniform distribution of mosly grasses and shrubs, with a few patches of trees in some areas. Canopy cover averages 25-50% (grasses > shrubs > forbs = trees). Basal cover averages 5-9% (grasses > shrubs > forbs > trees). Both cover values decrease during a prolonged drought. This type of plant community is only slightly effective at capturing and storing precipitation.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. aturally there would be no compaction layer, but these soils are easily compacted when wet and disturbed. Most of the soils may be easily compacted when wet due to the clay loam and clay textures, lack of rock ragments and occasional moisture from flooding. Most soils have a aturally granular surface structure.

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant: colonizing grasses >>

    Sub-dominant: shrubs > bunchgrasses > forbs > annual grasses

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** All plant functional groups are adapted to survival except during the most severe droughts. Severe winter drought affects shrubs and trees most. Severe summer drought affects grasses the most.

14. **Average percent litter cover (%) and depth (in):** Of the litter amount, it would be expected that approximately 70-90% would be herbaceous litter and approximately 10-30% would be woody litter. Litter amount increase durng the first few

years of drought, then decrease in later years.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 400-650 lbs/ac dry years; 650-750 lbs/ac median years; 750-900 lbs/ac wet years.

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Wyoming big sagebrush is native to the site and has the potenial to increase and dominate after heavy grazing and fire suppression. Broom snakeweed is native that has the potential to increase and dominate after a sagebrush fire and heavy grazing. Utah juniper is a native that may increase after heavy grazing and fire suppression. Cheatgrass is an exotic annual that is becoming endemic to the site regardless of management or fire frequency. It may become dominant after a sagebrush fire, even with conservative or no grazing.

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17. **Perennial plant reproductive capability:** All plants native to the site are adapted to the climate and are capable of producing seeds, stolons and rhizomes except during the most severe drought.
