

# APPENDIX K

## Monitoring Methods

The following is a description of the monitoring methodology that may be implemented on the Gypsum Valleys Allotment for assessing the impacts of livestock grazing on the health of the rangelands and for determining progress towards meeting the Rangeland Health Standards.

### Trend Studies

Long-term trend studies within the Gypsum Valleys Allotment are composed of transects along a baseline where nested frequency of plant species are measured in quadrats. This method is highly objective and repeatable, and unlike plant canopy cover measurements, does not fluctuate within a growing season as plants grow (Elzinga, 1998) or year to year as plant canopy cover fluctuates due to climatic conditions. The following indicators will be monitored with this method: frequency of occurrence of plant species, ground cover and litter by category, bare ground and biological soils crusts. Trend studies are read at a minimum of 5 year intervals and the data are analyzed at the 80% confidence level.

### Utilization Studies

Utilization data and residual measurements are important in evaluating the effects of grazing and browsing on rangeland. Utilization measures the percentage of annual herbage production that has been removed. It is generally the percentage of available forage (weight or numbers of plants, twigs, etc.) that has been consumed or destroyed. Utilization is expressed in terms of current year's production removed. Residual measurements and utilization data can be used: (1) to identify use patterns; (2) to help establish cause-and-effect interpretations of range trend data, and (3) to aid in adjusting stocking rates when combined with other monitoring data.

### Use Pattern Mapping

Rangelands include various combinations of range sites and vegetation types on which utilization is seldom uniform. Utilization patterns (use zones) may result from a number of factors that either alone or in combination cause foraging animals to concentrate in specific areas or to spread out over large areas.

### Vegetation Composition

Composition is the proportion of various plant species in relation to the total of a given area. It may be expressed in terms of relative cover, relative density, relative weight, etc. Composition is used to describe ecological sites and to evaluate rangeland conditions.

### Forage Production

Forage production is the total herbaceous and woody palatable plant biomass available to herbivores.

### Riparian Proper Functioning Conditions Assessments

Proper functioning condition (PFC) is a qualitative method for assessing the condition of riparian wetlands. This assessment is a consistent approach for considering hydrology, vegetation, and erosion/deposition (soils) attributes and processes to assess the condition of riparian wetland areas.