

ATTACHMENT 4: MONITORING AND ADAPTIVE MANAGEMENT EXAMPLES

As stated in the interagency technical reference titled [Utilization Studies and Residual Measurements](#), “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.”

1. Using the methods described in the Utilization Studies and Residual Measurements Technical Reference, consider key areas or Designated Monitoring Areas (DMAs) within pastures and/or allotments to conduct rangeland monitoring. Key areas should be a representative sample of the pasture or allotment in order to monitor and address livestock use and impacts within occupied habitat areas.
2. Collect utilization data within key areas when feasible. At a minimum, acquire 5 of 10 years of utilization data in applicable key areas/pastures. Utilization data will be evaluated to inform livestock use patterns, stocking levels and help to inform grazing decisions that can be implemented to adjust grazing management and address LHS and GUSG habitat objectives within the 10-year term permit.

Example 1 Winecup:

The below example is from the Winecup Gamble Complex Grazing Permit Renewal EA. This is only a portion of the adaptive management plan and the full example can be found on ePlanning in [Appendix 6](#).

Monitoring and Adaptive Management is essential to the success of this outcome-based grazing proposal. This section outlines the monitoring plan, including monitoring techniques and protocols to assess implementation and effectiveness, key thresholds and responses, and the adaptive management process for integrating the above-mentioned components. This monitoring plan does not include BLM-required monitoring for other initiatives, such as AIM, which is expected to occur in parallel to this effort, but is designed to answer the question: Is the grazing management achieving the desired objectives?

Implementation Monitoring

Implementation monitoring is done to ensure that the grazing plan is being implemented as planned or the needed adjustments made are accounted for. It informs short-term decision making within the adaptive management framework. Key questions that implementation monitoring seeks to address include:

- *Did you implement the grazing plan and strategies by Grazing Planning Group and Grazing Management Condition as designed – if not, what were the changes and why?*
- *Did the amount of forage exceed or run short of expectations, resulting in defoliation levels different than expected?*
- *Did precipitation vary from expectations at the planning phase?*

To answer these questions, the following data will be compiled and discussed on an annual basis: Table of agreed-to annual target GRI scores and RDM targets (when applicable) by use area:

- *Grazing plan with on/off dates and non-grazing periods by use area to determine if recovery periods were met and whether the timing of grazing differed from year to year.*
- *Actual precipitation report along with brief description of weather, fire, and other disturbance patterns that affected the landscape and operations.*
- *Table of actual GRI scores and RDM (when applicable) achieved and explanation of any variance from original planning including individual scores for frequency, intensity, opportunity, and precipitation.*
- *Annual actual BLM billing records.*
- *Permittee log of days feeding hay to mature cow herd.*
- *Record of fuel break maintenance activities and any other stewardship activities.*
- *Implementation records for each vegetation management treatment such as biological, chemical, mechanical, or fire treatments.*

Example 2 Edwards:

The below example is from the Edwards Creek, Carson and Porter Canyon Allotments Grazing Permit Renewal EA. This is only a small portion of the adaptive management monitoring plan and the full example can be found on ePlanning in [Appendix F](#).

The objective of this monitoring plan is to outline the protocols to be used for monitoring riparian-wetland and terrestrial resources in the Edwards-Porter Complex. These data will be used to determine whether objectives (associated with RAC standards) outlined in Section 2.1.3 are being met.

Special Status Species (SSS) Monitoring:

In addition to monitoring the general annual indicators, and short-term and long-term objectives listed above, additional indicators and objectives would be monitored for special status species which utilize or rely upon terrestrial habitat.

i. Utilization (Annual):

a. Methods used would include utilization of key herbaceous and woody species method and use pattern mapping to ensure maintenance of levels less than 35 percent to improve GRS habitat (ARMPA, 2015).

b. This would be accomplished by monitoring key species based on DRG and site potential on all key terrestrial monitoring areas within GRS PHMA/GHMA. Utilization measurements would occur prior to turnout and after removal from pastures to better estimate utilization levels from livestock.

ii. Pinyon Pine-Utah Juniper (PJ) Monitoring (Short-Term and Long-Term):

a. Methods used would include ocular cover estimates to qualitatively evaluate the effectiveness of PJ treatments within GRS PHMA/GHMA and determine appropriate re-

treatment, as necessary, to maintain less than 3 percent phase I (>0 to 50%) tree cover within a 0.6-mile radius of GRSG leks (ARMPA, 2015).

b. This would be accomplished by monitoring all leks within GRSG habitat in the allotments.

iii. Perennial Grass, Forb and Sagebrush Cover (Short-Term and Long-Term):

a. Methods used would include LPI transect monitoring to ensure cover maintenance of greater than 15 percent for key perennial grass and forb species, and greater than 10 to 25 percent sagebrush species, to improve GRSG PHMA/GHMA (based on ecological site potential) (ARMPA, 2015).

b. This would be accomplished by monitoring all key terrestrial monitoring areas within GRSG PHMA/GHMA.

iv. SSS Plant Monitoring: This would include data collected on the targeted SSS plant and non-target SSS plants of interest and also include habitat condition data collection. The data would be collected to ensure protection of SSS plant populations and habitat.

a. Methods used would include subplots within a larger microplot. Data collected would include demographic data and habitat condition following protocol specified in “Measuring and Monitoring Plant Populations <https://www.ntc.blm.gov/krc/uploads/265/technical%20reference.pdf> Long term photo plots would be establish and recorded. Detailed monitoring would include data collection within the microplot and photo plots in the first year to establish baseline data and habitat conditions. Ocular methods and photo plot recordation would be used on an annual basis with detailed monitoring occurring every five years unless extraordinary conditions or impacts warrant immediate detailed monitoring.

b. This would be accomplished by monitoring in all known and yet to be discovered SSS populations.