East Castle Creek Monitoring Plan

The following is a description of monitoring practices that would be implemented to measure progress toward meeting the Standards for Rangeland Health and RMP objectives. This monitoring plan was developed in accordance with the Idaho BLM Draft Monitoring Strategy for Rangelands (2007). Monitoring practices are divided into two categories: Implementation Monitoring is done more frequently to determine adherence to Annual Indicator Criteria, while Effectiveness Monitoring allows comparisons of resource conditions between years, to determine trends and whether significant progress is made toward meeting standards. Coordination with the permittee, local and state agencies and the interested public would occur during monitoring site (key area) establishment and data collection.

Technical Reference 1734-4, Sampling Vegetation Attributes, defines key areas as follows: "[k]ey areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. A Key Area should be a representative sample of a large stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, watershed area, etc., depending on the management objectives being addressed by the study."

Key areas on the East Castle Creek allotment will be selected by the Bruneau IDT, with input from grazing permittees and interested publics, using several criteria, including, but not limited to:

Known livestock and wildlife use patterns
Proximity to water or other range developments such as fences
Topographic position
Ecological site type
Vegetation type
Historic disturbance (i.e. past fire or vegetation treatments)

Implementation Monitoring (Short-Term)

- Upland Utilization Monitoring:
  Upland utilization and/or use pattern mapping will include browse and herbaceous removal methods. Herbaceous removal would be measured using Key Species or Height-Weight methods.

  Woody browse would be measured using the Extensive Browse Method. However, if browse approaches 50% using the Extensive Browse Method, the twig length method will be used to ascertain actual utilization. Utilization measurement methods are described in *Utilization Studies and Residual Measurements Interagency Technical Reference 1734-3* (USDI 1996).

  Upland utilization will be conducted annually during and at the end of the growing period or grazing period (whichever is later) in pastures 5B, 8B, 8BI, 8BIII, 10B, 12, 28, 28A, 29A and 29B, and on approximately a 3-year interval in all other pastures. Additionally, seasonal utilization will be conducted as needed during the grazing period when key species are actively growing.

When utilization estimates approach the established maximum levels, a statistical test will be applied. Standard deviation and confidence intervals will be calculated for utilization data at $p \leq 0.1$.

- Riparian Utilization Monitoring: Riparian utilization monitoring will consist of stubble height and woody browse measurements, in accordance with methods described in *Monitoring Stream Channels and Riparian Vegetation - Multiple Indicators* (Idaho BLM Technical Bulletin [TB] 07-01). Stubble height and woody browse would be monitored annually on Poison Creek and Sheep Creek, and on approximately a 3-year interval on all other streams on the allotment.

- Streambank Alteration: Streambank alteration would be measured in accordance with methods described in TB 07-01. Streambank alteration would be monitored annually on Poison Creek and Sheep Creek, and on approximately a 3-year interval on all other streams on the allotment.

- Special Status Plants Monitoring: Mulford's Milkvetch populations near the water haul site in Pasture 5B will be monitored for habitat disturbance (livestock trampling). A line-point or step-point method would be used to annually assess intensity of trampling within the Mulford's Milkvetch populations. A paired monitoring site, equidistant from the new water-haul location, will be compared to the Mulford's site to determine whether moving the water haul site effectively reduced trampling disturbance within the population. If trampling impacts are found to decrease over a three year period the sampling interval would shift to a five year interval.

- Water Quality Monitoring: *Escheria coli*/fecal coliform levels in Battle, Birch and Poison creeks will be monitored annually during the grazing season and other times of the year to determine whether State of Idaho Water Quality Standards for primary and/or secondary contact recreation are being met.

- Actual Use: Actual use records will be compiled from the actual use reports submitted by the grazing permittees, in accordance with permit terms and conditions.

Effectiveness Monitoring (Long-Term)

- Upland Trend Monitoring: Established nested-plot frequency transect (NPFT) studies and Photo Plots will continue to be read on established key study sites currently located within the allotments in accordance with TR 1734-4 *Sampling Vegetation Attributes Interagency Technical Reference* (BLM, 1996). The need for additional monitoring sites will be evaluated. Additional NPFT or Photo Plots may be established, including sites in Pastures 8B, 12 and 14 within the Little Jacks Creek Wilderness Study Area. In some cases, inappropriately situated sites may be removed, and replaced with sites in more representative areas.

  NPFT and Photo Plot monitoring may be augmented with other vegetation monitoring methods described in TR1734-4 and other references and manuals. Rangeland health

will be assessed prior to the next ten-year permit renewal process, and may be periodically assessed at other times, in accordance with BLM Technical Reference 1734-6, Interpreting Indicators of Rangeland Health (USDI, 2005).

- Riparian Trend and Condition Monitoring: Multiple Indicator Monitoring (MIM) will be periodically conducted at existing greenline sites identified in the 2008 East Castle Creek Grazing Permit Renewal EA. Additional riparian monitoring sites may be established as determined to be necessary by the BLM IDT, in accordance with established MIM (USDI 2007) procedures or other BLM accepted protocols. PFC assessments will be conducted prior to the next ten-year permit renewal process, and may be conducted periodically at other times on spring and stream riparian areas (USDI 1996, USDI 2003).

- Water Quality Monitoring: In addition to short-term *E. coli* monitoring, certain creeks on the allotment will be periodically monitored for other pollutants. Birch, Poison and West Fork Shoofly creeks will be monitored for sediment approximately a 5-year cycle. Birch, Battle, Poison, Rock, Sheep and West Fork Shoofly creeks will be monitored for temperature on a 3 to 5-year cycle.

- Special-Status Plants Monitoring: The CDC monitors special-status plant populations in the area. CDC monitoring of Mulford's milkvetch populations will continue on a three year cycle and data related to total plant numbers, habitat condition, and age class structure will continue to provide information pertinent to permit renewals.

Monitoring Data Review

Implementation monitoring data would be reviewed as it is collected during each grazing season to determine compliance with the Annual Indicator Criteria. If Annual Indicator Criteria are not met, the authorized officer will make the necessary grazing management modifications, such as redistributing livestock in a pasture or removing livestock from the pasture in which the criteria are not met. Specific management actions related to results of implementation monitoring can be found in Table 15 of the East Castle Creek EA (2008).

Effectiveness monitoring data would be formally reviewed prior to the expiration of the term grazing permits. However, if informal review of effectiveness monitoring data by the IDT reveals resource issues, a formal review may be completed sooner, to determine necessary modifications to grazing management practices in order to ensure progress towards meeting the Standards for Rangeland Health.