# **PREGNANCY RATES, METABOLITES AND METABOLIC HORMONES IN BIGHORN SHEEP DURING AND AFTER THE BREEDING SEASON

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Wildlife managers routinely draw blood and harvest serum when bighorn sheep (*Ovis canadensis*) and other ungulates are captured for management and research purposes. Serum samples are routinely submitted to state livestock labs that perform a panel of assays to access exposure to a variety of important pathogens that cause disease, providing managers important insights. Wildlife managers would also benefit from similar procedures that could provide assessments of reproduction, nutrition, and physiological status. The objectives

of this preliminary study were to evaluate pregnancy rates, energy-related metabolites and hormones among herds of Montana and Wyoming bighorn sheep during and after the breeding season in order to assess the general 'health' of herds. Metabolites and metabolic hormones are frequently used in domestic animals to evaluate nutrition, reproduction and energy balance, and potentially may provide the same insights in wildlife for managers. A total of 240 bighorn ewes were sampled from 13 herds between December 2014 and March 2015.  Samples were assayed for progesterone (P4) and pregnancy specific protein B (PSPBs) to assess reproductive cycling and pregnancy. Assays were also performed for non-esterified fatty acid, insulin, triiodothyronine and thyroxine which are metabolites and metabolic hormones that indicate nutritional and energy states of animals. We will be presenting the results of this preliminary study and discussing the relationship between pregnancy rates, energy-related metabolites and hormones and how they might be used to inform wildlife management.