** Importance of Individual and Environmental Factors Driving Body Condition in Female Elk

Nicole Bealer*, University of Montana, Missoula
Mark Hebblewhite, Wildlife Biology Program, University of Montana, Missoula

*Indicates Presenter

**Indicates Student Presentation

Although ungulate body condition is often considered to be a product of the nutritional quality of forage on the landscape, body condition integrates both energetic costs and benefits and is influenced by more than forage resources. Individual factors such as reproductive effort represent significant energetic costs, and female body condition may be impacted by neonate survival. Our research evaluates how individual and environmental factors influence ingesta-free body fat (IFBF) in female elk (*Cervus canadensis*) to improve understanding and interpretation of body condition data. Seven years (2015-2021) of IFBF data were collected from monitored and recaptured female elk (n = 139) in the Ya Ha Tinda (YHT) population in Alberta, Canada. We are determining the best fitting linear mixed-effects model to explain IFBF as a function of both individual (age, previous reproductive outcome, pregnancy status) and environmental factors (migratory strategy, forage quality, predation risk, movement quantity, winter severity). Preliminary results indicate that age and prior reproductive success influence female body condition, with >3% estimated difference in IFBF between females whose calves survived for 90 days or more the previous summer (mean IFBF = 9.2%) and those whose calves did not (mean IFBF = 12.6%). Conclusions from this research will help scientists and managers interpret variation in ungulate body condition data and understand the important effects of juvenile survival on adult female body condition in the context of changing predator systems across North America.