

****Testing New Technology for Wildlife-Livestock Conflict Mitigation: An Evaluation of AI Enabled Camera Traps**

Taylor Bayne*, Montana State University, Bozeman

Jared Beaver, Montana State University, Bozeman

Jeffrey Mosley, Montana State University, Bozeman

Lance McNew, Montana State University - Wildlife Habitat Ecology Lab, Bozeman

*Indicates Presenter

**Indicates Student Presentation

Wildlife-livestock conflicts, including depredation, disease transmission, and resource competition, challenge the economic sustainability of ranches and farms that provide important wildlife habitat. It is therefore important to explore and develop ways to mitigate wildlife-livestock conflicts. Camera trap technology that uses artificial intelligence (AI) has the potential to provide real-time information on the presence, distribution, and spatiotemporal interactions between livestock and wildlife while limiting the amount of useless images resulting from false positive triggers. Our objectives are to evaluate the performance of an edge AI-enabled (“smart”) camera trap and assess applications for wildlife monitoring and wildlife-livestock conflict mitigation. We will assess the performance of the AI-enabled passive infrared (PIR) sensor of the smart camera and its ability to reduce false positive images by comparing it with two traditional game cameras. The maximum detection distance and the probability of detection for all three cameras were tested in a controlled environment in January 2022. Cameras will be deployed for a field test in March 2022. In an additional field test in spring 2023, we will assess the smart camera’s ability to remotely classify wildlife images by species and remotely notify ranchers and wildlife managers of wildlife presence via cellular data connection. Timely and accurate information of wildlife presence would allow for the strategic application of conflict mitigation measures and help sustain critical wildlife habitat on working lands throughout Montana and the western United States.