



## Al Martin HCTF Conservation Fellowships Recipient 2021



### Carl-Evan Jefferies

Carl-Evan Jefferies is a Masters's of Science student in the Natural Resources and Environmental Studies (NRES) program at the University of Northern British Columbia studying under the supervision of Dr. Heather Bryan. He is a professional forester with the Association of British Columbia Forest Professionals and holds a Bachelor of Science in Forest Resource Management.

His proposed research "Towards a better understanding of moose declines in BC: Effects of climate and anthropogenic landscape change on moose body condition and physiology" explores environmental and individual characteristics associated with stress and nutritional condition in moose.

Carl will combine health-related data collected from moose at capture, GPS location data obtained from collars, spatial datasets, and field data sampling to identify individual and environmental predictors of body condition and cortisol. To further understand cow moose physiology and nutritional condition during winter, he will also analyze fecal and urine samples collected by back-tracking movements in the snow. Snow urine, fecal triiodothyronine metabolites (FTM), and fecal glucocorticoid metabolites (FGM) will then be used to analyze the physiological response to specific habitat characteristics and individual condition. Further analyses of the variation in body condition measurements and physiological bioindicators related to nutrition may provide insight into the factors underlying poor nutritional condition and apparent starvation.

This study will help differentiate among multiple possible explanations for poor nutrition and stress in moose. A better understanding of the environmental and individual determinants of moose physiology will help identify habitat management strategies (e.g., priority habitats for protection) that promote moose health. This research will contribute to the development of a long-term health program, fulfilling research gaps identified by the provincial moose research study.

Carl has broad interests in wildlife health, conservation, and ecology. He hopes to contribute to the management and conservation of wildlife populations throughout BC by balancing ecological conservation and the values and priorities of stakeholders, particularly First Nations and citizen groups.

