

research lab profiles

WildCo: Wildlife Coexistence Lab



Wild animals hold a special place in human cultures around the world. Iconic species, such as caribou, moose, wolf, and grizzly bear, are woven into the cultural identity of many Canadians, including Indigenous peoples. And many other “charismatic megafauna” – like lions, tigers, and elephants, inspire international awe and intrigue. Beyond such cultural values, wild mammals generate significant economic revenues for governments and local communities from activities such as tourism and hunting. And they play critical roles in functioning ecosystems through processes such as predation, herbivory, seed dispersal, and nutrient transfer. Yet many wildlife remain undervalued in traditional approaches to resource management and economic development. Growing human demands for food, fibre, and energy have led to widespread declines in many wildlife species. For instance, the 2018 Living Planet Index documents an average decline in abundance of 60% since 1970 across more than 16,000 populations of 4,000 vertebrate species. Closer to home, more than 1,800 wildlife species have been classified as at risk by the Government of British Columbia’s Conservation Data Centre. In the modern era of the Anthropocene, we face a crossroads in the challenge of sharing the planet with wildlife.

The Wildlife Coexistence Lab (WildCo for short) in the department of Forest Resources Management strives to conduct science to support wildlife conservation and management on a crowded planet. Navigating trade-offs between wildlife conservation and human activities – such as resource extraction, urban expansion, and wildland recreation – requires an understanding of the ways animal populations respond to changing environments, and to the management actions designed to sustain them. Research in the WildCo lab is focused on human-wildlife coexistence across multiple species and spatial scales, with a particular emphasis on large-bodied terrestrial mammals. The research is grounded in ecological principles and quantitative rigour, while incorporating interdisciplinary perspectives that are a critical part of conservation science. Coexistence is defined broadly, from balancing industrial development with habitat protection in remote landscapes, to mitigating conflicts with backyard bears and other animals active at the urban-wildland interface. The lab seeks to develop innovative methods to inform evidence-based decision making, including the use of remote camera networks to monitor animal distribution and abundance, and the application of advanced statistical

models to assess wildlife community responses to the cumulative effects of interacting stressors.

WildCo is led by **Dr Cole Burton**  @cole_burton, who joined UBC in 2017 and holds the Canada Research Chair in Terrestrial Mammal Conservation. Cole has pursued a lifelong passion for studying wildlife through diverse positions in academia, government, industry and non-profits. He aims to work collaboratively with wildlife managers, conservation practitioners, and policy makers, and has been involved in a range of wildlife research around the world – from western Canada to West Africa. Cole completed an MSc in zoology at UBC and a PhD in environmental science, policy and management at the University of California, Berkeley. He teaches wildlife ecology and management in the Faculty of Forestry’s undergraduate program, and is developing a graduate course in advanced topics in wildlife science.

WildCo is home to a motivated group of wildlife scientists pursuing research projects across the planet. Several members of the lab are conducting research related to the challenge of conserving woodland caribou in western Canada – this threatened species is affected by industrial land use, climate change, and the complex dynamics of interacting predators and prey. **Dr Joanna Burgar** (Post-Doctoral Researcher,  @joburgar) is using camera trap data and Bayesian statistical models to generate new estimates of population density for caribou and other large mammals in northern Alberta’s oil sands region. She is using these estimates to improve understanding of how different anthropogenic and natural disturbances affect mammal communities within the changing boreal forests. **Erin Tattersall** (MSc Student,  @erin_tatt) is also researching large mammals in Alberta’s northern boreal forests, using camera traps to assess the effects of habitat restoration on caribou and other interacting species. **Caroline Seip** (MSc Student,  @Caroline_Seip) is working with the Government of Alberta to understand how management activities focused on caribou recovery affect the broader mammalian community in west-central Alberta.

Other key WildCo research themes include the conservation of endangered species, mitigation of human-carnivore conflict, and effects of land use decisions on wildlife communities. **Jacqui Sunderland-Groves** (Research Scientist,  @JLSGroves) researches great ape ecology, conservation, and reintroduction, with a particular focus on critically endangered orangutans in Indonesia (see article on page 14). **Cheng Chen** (PhD Student,  @CHEN_Cheng_) is synthesizing a global dataset of camera trap surveys to test for general patterns in the effects of human disturbances – the human “footprint” – on the structure and function of mammal communities. **Cindy Hurtado** (PhD Student,  @CindyM_Hurtado) is testing different types of habitat suitability models for pumas and other carnivores, with a goal of improving the design of wildlife corridors within the fragmented forests of Ecuador and Peru. **Francis Aurich** (MSc Student, @FrancisAurich) also conducts research in Peru, seeking to determine whether threatened Andean bears are negatively impacted by cattle grazing in protected areas. Cattle husbandry is likewise a theme investigated by **Aisha Uduman** (MSc Student,  @aisha_uduman),



whose research addresses the ecological and social dimensions of leopard-livestock conflict in Sri Lanka. She is combining surveys of attitudes and practices in livestock-rearing communities with GIS and remote camera data to identify drivers of observed conflict. In British Columbia, **Joanna Klees van Bommel** (MSc Student,  @JoannaKvB) is mapping interactions between people and black bears on southern Vancouver Island, using camera traps and reports by local residents. Her research aims to identify hotspots of conflict that could be targeted by managers to reduce negative outcomes for both bears and residents. And **Alexia Constantinou** (MSc Student, co-advised by Dr Suzanne Simard) is using camera and live traps to understand how large and small mammals respond to different forest harvesting strategies at 3 sites spanning a climate gradient from the southern to northern interior of BC. These graduate student projects are being supported and complemented by a number of undergraduate students involved in WildCo research.

You can follow us on twitter (#WildCo) or find us at wildlife.forestry.ubc.ca. Cole Burton can be reached at cole.burton@ubc.ca.