

# Monitoring Human Use around Wildlife Movement Corridors in the Rocky Mountains, Alberta, Canada

*Melanie Percy*, Alberta Environment and Parks, Canadian, [Melanie.Percy@gov.ab.ca](mailto:Melanie.Percy@gov.ab.ca)

*John Paczkowski*, Alberta Environment and Parks, Canadian, [John.Paczkowski@gov.ab.ca](mailto:John.Paczkowski@gov.ab.ca)

---

## Introduction

The Canadian Rocky Mountains are home to a diversity of large, terrestrial mammals including carnivores (wolf (*Canis lupus*), cougar (*Felis concolor*), grizzly bear (*Ursus arctos*), black bear (*Ursus americanus*), lynx (*Lynx canadensis*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*) and wolverine (*Gulo gulo*)), and herbivores (elk (*Cervus elaphus*), deer (*Odocoileus* sp.), moose (*Alces alces*), bighorn sheep (*Ovis Canadensis*) and mountain goats (*Oreamnos americanus*)). As human use of the Rocky Mountain landscape increases in both space and intensity, the effects of natural topographic fragmentation are exacerbated by human infrastructure, compromising wildlife movement and habitat use. While formal protection of these landscapes may exclude industrial disturbance, impacts from recreation and related infrastructure (trails, campgrounds, picnic sites, day-use facilities) may still represent a significant challenge to wildlife, particularly more wary species.

Within the Canadian Rocky Mountains, Alberta's Bow Valley exemplifies the challenges associated with co-managing for protection and recreational use of the landscape. The Bow Valley study area, located approximately 80km west of Calgary, Alberta, is a multi-use, multi-jurisdictional land base. The rapidly growing town of Canmore is almost entirely surrounded by Provincial Wildland Park, and lies immediately east of Banff National Park and west of an industrial landscape of unprotected crown lands within the Municipal District of Bighorn. The valley is a busy year-round tourist destination as the mountainous environment provides a world class setting for mountain biking, Nordic skiing, hiking, rock climbing, mountaineering, and trail running. Despite formal protection of wildlife movement corridors, their effectiveness for wildlife has been questioned as visitor and resident use of the valley continues to grow.

In May 2015, the Town of Canmore and Alberta Environment and Parks, Parks Division, embarked on a two-year collaborative study to better understand both wildlife and human use of the valley, particularly within wildlife corridors. The study stemmed from a series of recommendations developed through a comprehensive stakeholder process known as the Canmore Human Use Management Review (HUMR). The overall goal of our study is to determine how wildlife and humans use the greater Canmore/Bow Valley landscape so both provincial and municipal land managers can develop effective strategies to increase the sustainability of the area for wildlife. As the study is ongoing until May 2017, we present preliminary results in this paper.

## Methods

A total of 77 remote wildlife cameras (Reconyx PC800 Hyperfire, Reconyx Rapidfire, and Reconyx Silent Image) were deployed throughout the Bow Valley surrounding the town of Canmore in May 2015. Cameras were distributed systematically at one camera per square kilometre and at higher densities in identified wildlife movement corridors (Figure 1). Approximately half of the cameras were set on wildlife trails and half were set on human-use trails in order to determine differences in use for the two trail types. Where cameras were deployed on human trails, they were set at knee height to avoid taking photos of people's faces. Cameras were serviced monthly by Alberta Parks staff and volunteers, which included battery and memory card replacement. Camera data was analyzed using Timelapse software (Version 2.0). Upon completion of data collection, occupancy models will be developed for each species using presence-absence data.

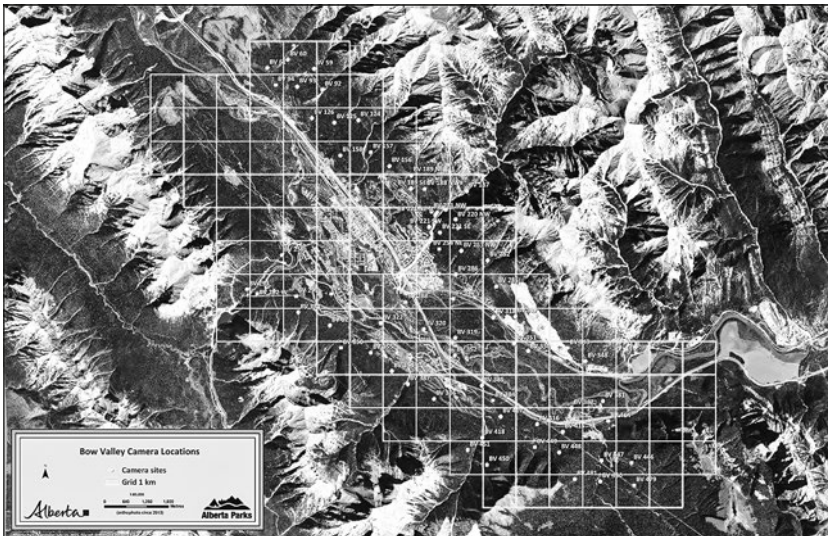


Figure 1. Location of the 77 remote wildlife cameras deployed on trails in and around Canmore, Alberta to monitor human and wildlife use of trails in the area

## Preliminary Results

In the first year of the study, human use constituted 94% of overall trail use, with >150,000 human-use events recorded. The main user types on trails were hikers (64%), followed by bikers (22%) and runners (12%). There were approximately 30,000 domestic dog events recorded, of which 61% were off-leash, despite a strict on-leash law. Dogs were most likely to be off-leash when accompanied by a biker (91% off-leash). There were >9,500 wildlife-use events recorded, with deer and elk being the most commonly photographed species. There were also several large carnivore events recorded, including 13 grizzly bear, 46 wolf, 167 cougar, and 273 black bear events.

All carnivore species used human trails more frequently than wildlife trails, while deer and elk used wildlife trails more frequently than human trails. Grizzly bear and wolf use of trails decreased drastically when there were >10,000 human users per year on a trail (translating to ~ 2 human users/daylight hour). Grizzly bears, wolves and cougars were found most frequently at higher elevation sites further from the town of Canmore. Coyotes, wolves and foxes used trails with high human use more frequently at night than during the day. Deer and elk do not appear to avoid trails with high human traffic, but results suggest deer may avoid trails with high numbers of off-leash dogs.

## **Discussion**

Preliminary results suggest that some species of wildlife may be adjusting their behavior to avoid people recreating in corridors and habitat patches around the Town of Canmore. Despite formal designation and protection of wildlife corridors, people continue to utilize these spaces which have been set aside for wildlife. Even in the presence of educational signage and messaging, recreationists continue to run their dogs off leash in areas where it is illegal. As recreation in the Bow Valley continues to grow in popularity with both residents and visitors, a variety of human-use management strategies will need to be implemented in order to ensure the sustainability of this landscape for wildlife. This will require bold and decisive management by both Alberta Parks and the Town of Canmore.