



**WILDLIFE CORRIDORS:
THE BANFF NATIONAL PARK PROJECT**

June 28 – July 13, 2017

**Meeting Place: Calgary, Alberta
5 quarter units/3.35 semester units**

FULL PROJECT DESCRIPTION

Thank you for your interest in our Banff Wildlife Corridors field study project. Our field work will take place in the wild mountains and glaciated valleys of world renowned Banff National Park. Located in the Canadian Rockies west of Calgary, it is a region known for its ecologically diverse wilderness and stunning beauty. It is also an area where conservation managers and park officials attempt to balance human development with wildlife protection. The specific focus of our field study will be on Banff's uniquely established wildlife corridors and their efficacy in the overall framework of the Park's conservation strategy. Typically narrow, funnel-shaped tracts of land through developed areas, wildlife corridors are protected routes that allow species to migrate safely between habitats. They are a vital component in any conservation strategy and have been used recently in Banff and the surrounding Park system as a method to mitigate the adverse effects of both climate change and human development. Working in consultation with Parks Canada, local land managers, and community members, we will examine on-site the intertwined scientific, cultural, and management dimensions of these corridors.

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I. Background Information

Banff National Park is Canada's oldest national park, established in 1885 in the Canadian Rocky Mountains. The park, located 68–110 miles west of Calgary in the province of Alberta, encompasses 2,564 sq miles of mountainous terrain, with numerous glaciers and ice fields, dense coniferous forest, and alpine landscapes.

Banff Park itself spans three ecoregions, including montane, subalpine, and alpine. Lodgepole pine forests dominate the montane region of Banff, with Englemann spruce, willow, aspen, Douglas fir and a few Douglas maple interspersed. As we will discover, the montane areas, which tend to be the preferred habitat for wildlife, have been subjected to significant human development over the years.

The park has more than 50 mammal species. Grizzly and black bears inhabit the forested regions. Cougar, lynx, wolverine, weasels, northern river otter and wolves are the primary predatory mammals. Elk, mule deer, and white-tailed deer are common in the valleys of the park, including around (and sometimes in) the Banff/Canmore townships, while moose tend to be more elusive, sticking primarily to wetland areas and near streams. In the alpine regions, mountain goats, bighorn sheep, marmots and pika are widespread. Other mammals such as beavers, porcupines, squirrels, chipmunks, and Columbian ground squirrels are the more commonly observed smaller mammals. Caribou are also present in the park, though much rarer. Recently, there have been widespread efforts by various environmental agencies and conservation groups to re-introduce Bison to the park.

II. Project Goals and Activities

Team members will have opportunities for direct, hands-on investigation of Banff National Park and Bow Valley Provincial Park, exploring the myriad species of flora and fauna and dramatic landscapes that make the area renowned as a world heritage site. Our first objective is to develop a broad understanding of the natural history of the region—its climate, geography, biodiversity, and human landscapes. Our second objective is to investigate and assess the various wildlife corridors throughout the park and their effectiveness as a tool of wildlife management. To do so, we will camp and hike through and around these corridors—primarily those located near the towns of Banff and Canmore.

As stated, the park has more than 50 mammal species. In broad terms, movement is essential for these species to sustain populations and maintain genetic variability. On a regional scale, wildlife often travel long distances to take advantage of seasonal changes in food and weather, find mates and denning sites, and expand home ranges. Local movement is also necessary to enable wildlife to access all of the available resources in their home range. Over time, wildlife movement has been severely limited by human activity, resulting in habitat intrusion and alteration; wildlife corridors have evolved as a strategy to mitigate these consequences. There are many factors involved in a successful corridor and the ideal corridor first depends on the species using it. For instance, larger, wary animals require wider, more secure corridors than species used to human presence. Along with width requirements, other factors that need to be assessed are: ease of travel, terrain, vegetation cover, topography, snow depth, physical barriers, and human activity.

Though we will routinely gather general data on the geographic context of the corridors (form and functionality), as well as all the various fauna that make use of the corridors, our primary focus will be on the large carnivores (bears, wolves, cougars, lynx). These animals have the greatest movement needs of all wildlife in the Rocky Mountain ecosystem. In theory, if their requirements are met, then so too will the needs of smaller, though equally important, species. Large carnivores are also shy and tend to avoid areas of high human use. Accommodating the movement needs of these predators helps to maintain natural predator/prey relationships. This lessens the chances of producing an environment where habituated or common prey species dominate the system (such as elk in the Banff and Canmore townships).

The fundamental structure of our project is fieldwork that will, among other things, focus on: wildlife identification, numerical assessment, movement, route taking, pathways, and obstacles. We will also closely examine floral composition and dynamics; hydrological systems; stress zones and points (bottlenecking/pinching); habitat fragmentation; and human interaction patterns. Ultimately, in terms of wildlife corridor assessment there are three key parameters or corridor attributes that will be the focus of our study: 1) width-length, 2) topography, and 3) hiding cover.

Our primary scientific methodology will be quantitative and qualitative analysis obtained during the field study portion of the course; but, we will also explore and discuss the political, legal, and social dimensions of

conservation in Banff National Park in general and wildlife corridors in particular. Based upon their experiences, students will have the unique opportunity to present (1) a general assessment of Banff national Park's wildlife corridors and (2) a preliminary conservation strategy to enhance the efficacy of the corridors.

The project will also be augmented by information exchanges with wildlife management experts and conservation community leaders as we explore the existing wildlife corridors and the complex management issues and controversies surrounding them. This project will also be part of a larger conservation context that involves numerous governmental and non-governmental agencies, including: Parks Canada; townships of Banff, Canmore, and Lake Louise; Bow Valley Wild Smart; Canmore Museum and Geoscience Center. The program and its efforts will also be part of Mount Royal University's Earth Science department's ongoing research and curriculum development in the Canadian Rockies.

In terms of field study activities, a typical day will consist of:

- (1) Group discussion of previous day's activities/discoveries;
- (2) Fieldwork/practicum in select location(s) in and around Banff/Canmore;
- (3) Instructor and/or invited guest presentation on relevant material related to day's theme(s);
- (4) Presentation/Discussion of day's discoveries/observations;
- (5) Study time to work on field journal/reading assignments.

Summary of field study techniques/skills that we will acquire and utilize:

- Map reading, basic map making, orienteering, GPS, topography
- Transect Analysis
- Corridor analysis (width/slope/area/connectivity; bio-mimicry; vegetative density/cover/hiding zones; anthropogenic intrusive elements (structural; activities; noise; light; etc.)
- Plant community identification
- Animal identification, and numerical assessment (footprint and scat identification; animal pathways)
- Scientific method application and data analysis
- Sketching and wildlife photography basics
- Wilderness ethics and etiquette
- Proper Hiking and Backpacking techniques, and wilderness survival basics

Note: All field methods and data collection techniques will be taught on-site. No prior research experience is required, but we expect participants to have an abundant sense of curiosity and to arrive excited and prepared for a rewarding and challenging field study experience. As part of our scientific education, students will keep a separate field notebook, and transcribe the daily data and activities into that notebook. This works well as it also allows you to reflect on the activities and better synthesize your conclusion. By the end of the project, each of us will have gained firsthand knowledge of Banff's remarkable environments, threatened wildlife populations, and controversial management challenges.

III. Academic Credit

Students will receive 5 quarter credits/3.35 semester credits from Western Washington University. Our staff will be happy to explain the program in further detail to the applicant's advisor, if necessary. The Banff field studies program gives credit in one course: ESCI 497T, Environmental Wildlands Studies: 5 quarter credits/3.35 semester credits.

Students will be evaluated on their field journals, the quality of their fieldwork, exams, and participation in seminars/discussions.

Team members are expected to conduct themselves in a mature and responsible manner. Wildlands Studies reserves the right to require any student to withdraw from the program if their conduct is detrimental to or incompatible with the interests, safety, or welfare of any course participants. We ask all students to read the Student Program Manual before joining the project on-site.

IV. Team Logistics

We will first meet in Calgary and then establish a base camp in our Banff National Park study areas. From this base we will go on daily field study explorations. For much of the program we will undertake both short and long day hikes from base camp. We will be backpacking for several days through selected study sites at the latter part of our project. Therefore, physical conditioning, adequate equipment, and preparation are imperative.

Most food supplies will be purchased before the project start date by the lead instructor. Students will have time during the project to purchase additional supplies in the nearby towns of Canmore and Banff.

Summer weather in the Canadian Rockies can be extremely variable, with day time temperatures in the high 80s or rain with temperatures in the 50s. Nights may range from 40-50° F, and it's possible to have an occasional snow squall. Be prepared for field work in each condition.

All reasonable efforts will be made to follow the activities outlined above. However, please understand that on our project in Banff, travel arrangements can remain tentative until the traveling actually takes place. Weather conditions and road closures may affect our plans. Wildlands Studies has put together an innovative, unique program in Banff, and team members need to be flexible, patient, and prepared to adapt to unexpected situations. Being flexible also allows us to take advantage of unique opportunities that inadvertently arise during our journeys, often producing some of the program's most memorable moments.

V. Accommodations

Camping and/or backpacking.

VI. Official Documents/Visa

You will need a current passport that does not expire until after the end of the program. For U.S. citizens, you will be traveling temporarily to Canada as a TOURIST, not as a student. Since we are not holding our course on a university campus, we do not officially affiliate with any Canadian university. You do not need a visa to visit Canada as a tourist for a visit of less than 180 days. For students who are not U.S. citizens, please contact your country's Consulate Office to determine if you need a visa to enter Canada.

VII. Language

This program is taught in English.

VIII. Pre-Program Mailings

Detailed information regarding travel/flight information, equipment/gear requirements, food costs, meeting plans, group expenses payment, medical recommendations, and academic preparations will be sent to all team members in a logistics letter emailed about 8-10 weeks before the project initiates. Stay in good shape and get ready for an exciting wildlife project.

IX. Project Leader

M. TROY BURNETT: Ph.D. in Geography, UC Los Angeles, 2005. Troy is an Assistant Professor of Geography at Mount Royal University in Calgary, Alberta. He has taught numerous courses on environmental geography. His research interests involve natural resource conflicts, conservation and the role of wildlife corridors in mitigating the impacts of climate change and human habitat alteration. Troy has lived and worked in the Canadian Rockies since 2005 and taught our Banff Project since 2013.

X. Project Costs

Program Fee:	\$1900 plus \$150 Application Fee. Program fee due May 1, 2017. Enrollment on a space-available basis after the fee due date until the program is full.
Estimated On-site Expenses:	\$750 per person This includes transportation and fuel, camping, field activities/permits, majority of food.
Additional Food in Banff:	\$100 (more if students purchasing own food)
Personal Spending Money:	\$100 (this varies according to taste - but don't be caught short)
Estimated Airfare:	\$500

Students should inquire at the financial aid office of their home campus regarding the use of their loans or grants for this course. Wildlands Studies is not responsible for non-refundable airline or other tickets or payments or any similar penalties that may be incurred as a result of any course cancellation or changes.

XI. Contact Information

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