

## **GREAT BEARS AND GLACIERS: THE MONTANA PROJECT**

Meeting Place: Missoula, MT  
(Time & location determined later)

**July 14 – 28, 2010**

**4 semester system units (equivalent to 6 quarter system units)**

**Program Fee \$ 1195 plus \$150 Application Fee**

With its towering mountains, crystalline lakes, and abundant wildlife, Montana's Glacier National Park encompasses one of the most spectacular natural landscapes on earth. Known as the Crown of the Continent Ecosystem, this region serves as the headwaters of North America, giving rise to rivers that flow into the Pacific, Atlantic, and Arctic Oceans. Home to large, wide-ranging wildlife species, including grizzly bears, wolves, wolverines, elk, and lynx, the Crown of the Continent contains one of the most intact temperate ecosystems in the world.

Unfortunately, even this remote and wild region is affected by human caused climate change. Scientists predict that in twenty years Glacier National Park will no longer have any glaciers. Because of its high elevation, climate change in Glacier is advancing two to three times faster than the global average. What does this mean for the region's wildlife? Will grizzlies and other species be able adapt and survive? What are some possible solutions? These are some of the questions that this project will address as we explore the cascading effects of global climate change on Glacier National Park and the surrounding ecosystem.

### BACKGROUND INFORMATION

While climate change is undeniably causing landscape level changes to the Crown of the Continent Ecosystem, the social and environmental effects present a wide variety of opportunities for research and investigation. One area of questioning revolves around how climate change will affect wildlife species. Glacier National Park serves as a natural laboratory for climate change and wildlife studies. Current research projects initiated by the National Park Service and the US Geological Survey focus on wolverines, lynx and grizzly bears, as well as the glaciers themselves. Meeting and working with area scientists will provide our team members with the unique opportunity to explore field study techniques firsthand.

Beyond wildlife, this project also examines how climate changes are altering land use patterns and human communities in the region. How are local communities and government agencies addressing and responding to climate change? Has global warming changed the role of national parks? What are the economic considerations? This summer we will explore these issues through information exchanges with agency personnel, biologists, climate specialists, as well as residents and others affected by a changing and more unpredictable climate.

To consider these questions, this project will use Glacier National Park as our base, where we will conduct forays into the park and surrounding ecosystems to investigate the impacts of climate change on both wildlife and human communities. In doing so, our investigation will carry us into Glacier both on day hikes and a multi-day backpack. This backcountry experience will include daily seminars and discussions, as well as meetings with stakeholders and scientists in the region. Our preparation will include readings on climate science and policy, and the project itself will draw on a wide variety of perspectives and literature.

## PROJECT GOALS & ACTIVITIES

Using Glacier National Park as a case study, this project will acquaint students with the consequences of global climate change on the geophysical environment, wildlife species, and human communities. In addition to witnessing and documenting the effects of climate change, the project will assess onsite a variety of potential solutions including lifestyle choices, state and local initiatives, and federal policy options.

Through readings, seminars, discussions, and direct experience with place, students will gain an intellectual and experiential understanding of key ecological principles; and by examining the relationship between climate, wildlife, and humans, students will also gain a firsthand understanding of the ecology of the Crown of the Continent Ecosystem.

Together this summer we will examine the ways that people adapt to and mitigate the effects of global climate change. Part of this approach incorporates a study of how humans have shaped their environment in the past and how our present options are largely informed by our past actions. In addition to appreciating the relationship between nature and culture, students will also gain a basic understanding of field research in glaciology, wildlife biology, and environmental policy. Our approach of combining academic study and immersion in the Montana landscape aims to improve students' ability to apply their learning skills outside the classroom, and engage critical thinking in addressing complex issues.

Although the course is not taught in a classroom, there are definite academic expectations: participation in discussions and activities, readings, exams, projects and presentations. **Please note that prior field research experience is not required. All necessary skills will be taught on-site.** There will also undoubtedly be challenges posed by long days, possible inclement weather, changing logistics, and physically demanding conditions. As such, we will get the most out of our experiences together if we bring along flexibility, ample patience, a sense of humor, self-motivation, and perhaps most importantly, the desire to work as a team towards a common goal.

## ACADEMIC CREDIT

Students will receive 4 semester units (6 quarter units) awarded through California State University Monterey Bay Extended Education. While students usually encounter no difficulties in transferring credit to their home campus, applicants should check with their advisors prior to enrolling. Our staff will be happy to explain the program in further detail to the applicant's advisor, if necessary. The Montana field studies program gives credit in one course: ENVS 370, Environmental Wildlands Studies (4 semester system units)

Team members wishing academic credit will be evaluated on their field journals, exams, the quality of their fieldwork, 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.

## TEAM LOGISTICS

The project starts and ends in Missoula, Montana. Missoula is easily reached by interstate and is served by frequent air and bus transportation. After spending a day at the National Bison Range and nearby wildlife refuges where we examine effects of climate change on grassland species, we travel to Glacier National Park. From base camps we will go on daily fieldstudy explorations. For much of the program we will undertake both short and long day hikes from base camps. We also will be backpacking for several days through a selected study site. Physical conditioning, adequate equipment, and preparation are imperative for team members.

Supplies will be purchased during the project. When team members arrive in Missoula, we will break into cook groups and do most of our shopping for the project. There will also be time during the project to purchase supplies in small towns with limited selections. Any special foods that you would like for the latter part of the project should be bought on the first day of the project in Missoula. Plan on bringing \$150-200 for food and miscellaneous expenditures. For those of on a budget, costs can be reduced by careful meal planning and restrictions on free-time expenditures. Also, each participant's share of campsite/park entrance and permit fees will total approximately \$100. Transportation and fuel costs are projected to be \$60 per person.

Later this spring, once you have enrolled, you will receive further program information, including a detailed equipment list, a reading list, and travel suggestions. We will determine a plan for sharing tents and stoves when you arrive. Summer weather in Montana can be extremely variable. Be prepared for anything from 90 degree days to cold nights and an occasional snow squalls. Rain gear is required and should be of higher quality than the easily torn vinyl type. Two water bottles per person are essential as are well broken-in boots. Pre-program hiking/backpacking is highly recommended. Bring a water purifier if you have one. You may consider purchasing one for this project as they are a worthwhile investment for future trips. A field notebook (preferably waterproof) and binoculars are needed. Wildlife is often viewed at long distances.

Missoula is accessible by car, plane, or bus. Team transportation will be by instructor and participant carpooling with costs shared equally. The team will need 4-5 participant cars and vehicle availability will be taken into consideration as applications are reviewed. Expect to drive 400 miles during the project, and plan on bringing \$60 for your share of carpool gas costs.

## PROJECT COSTS

Program Fee:	\$1195 plus \$150 Application Fee. Program fee due May 15, 2010 Enrollment on a space-available basis after the fee due date until the program is full.
Estimated On-site Expenses:	\$160 per person share of transportation and fuel, camping, field activities/permits
Food in Glacier:	\$200
Personal Spending Money:	\$100 (this varies according to taste - but don't be caught short)

Students should inquire at the financial aid office of their home campus regarding the use of their loans or grants for this course. CSU Monterey Bay Extended Education/ Wildlands Studies are 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.



Wildlands Studies

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### PRE-PROGRAM PLANNING

Detailed information regarding gear/food, meeting plans, and academic preparations will be sent to all team members in a subsequent logistics letter about 8-10 weeks before the project initiates. Between now and August stay in good shape and get ready for an exciting wildlife project.

### PROJECT LEADER

Greg Gordon has taught university and field study programs since 1992, focusing on U.S. conservation policy and wilderness education. He has also worked for the U.S. Park Service in Alaska, Utah and Washington backcountry ecosystems. Greg leads three projects for Wildlands Studies: two in Montana and one in Central America.