

# Conservation Biology of Terrestrial Megafauna

Center for Global Education, George Mason University



*Photo by Ryan Valdez: Amboseli National Park*

Course Credits: BIOL \*\*\*/ EVPP \*\*\*/ NCLC \*\*\* (TBA)

Course Duration: December 27, 2009 – January 15, 2010

Faculty Director: Ryan Valdez: [Biography](#) ([rvaldez@gmu.edu](mailto:rvaldez@gmu.edu))

Field Guide: Guy Combes: [Biography](#)

## **COURSE DESCRIPTION:**

The course objective is to improve our understanding of the challenges facing conservation of large terrestrial herbivores and carnivores. We will examine strategies for their protection, current management techniques, and associated biological traits (k-selected species) relevant to their preservation. We will also receive in-depth knowledge of how complex managing such wildlife can be by focusing on various representative species found in Kenya. Our experiences and information gathering will come from:

- Close-up observations of megafauna and the impacts upon them, while on safari in various national parks, conservancies, game reserves, and research centers
- Discussions with key wildlife scientists, managers, park rangers, and ecotourism operators
- Group discussions of selected, peer-reviewed scientific literature

In addition, we will discuss the importance of ecosystem-level approaches to conservation, landscape ecology (geospatial aspects), trophic-level ecological recovery, and how understanding animal behavior is a vital component to species preservation.

Herbivores: Compared to small herbivores, large herbivores such as rhino and elephant, are more easily affected by habitat destruction and alteration, and thus are more prone to extinction. Such large-bodied mammals are at an increased disadvantage as their food requirements and wide-ranging movements become limited by human activity. In

addition, they are frequently targeted for poaching and hunting, are highly displaced by development, and tend to be in direct competition with commercial ranching and small-scale livestock operations. As Kenya is home to the northern range of the spectacular migration of wildebeest from Tanzania, this event is even now threatened by human-induced changes to the landscape, along with mediated interactions from reduced densities. The biological traits of large mammals (k-selected species: slower development, longer lived, s-shaped growth curve, good competitors) combined with a need for coexistence in a human-dominated landscape, require more complex conservation strategies.

Carnivores: Large carnivores, such as lions, leopards, and cheetah, are also threatened by habitat loss and changes in prey availability, but more frequently encounter human-wildlife conflicts. They occupy habitat desired for cattle and livestock grazing at various scales. Managing carnivores and the human-wildlife conflict is a complex process that involves an understanding of people's attitudes toward wildlife, economics of their impacts on land-use, and natural resource availabilities. It also involves responding to rain availability and land-owner relationships. Solutions exist through successfully being creative – toward coexistence in a human-dominated landscape.

East Africa is well known for its megafauna, but protection and study of these animals present challenges that range from matters ecological and biological through the politics of trans-boundary conservation and ecotourism.

### **COURSE INFORMATION:**

Participation: Students are required to participate in all group activities and complete all required assignments. Students are expected to become fully aware and accepting of the field conditions during this course.

Accommodations: Accommodations range from hotels to cottages to rustic tented camps. Most of these facilities will not have air conditioning (though comfortable during this season), and at times hot water and electricity will be limited. Tented camps often contain outdoor restroom facilities (out-houses) and outdoor showers. The hotels and cottages are very nice – and are the majority of the trip.

Transportation: Students must be able to endure long intervals of using ground transportation (safari vehicles). We will be driving between locations, on game drives, etc. – this is the only means of exploring these landscapes. Rarely, will students be allowed to hike or walk on trails, but there are many locations where we can stop, relax, get out of vehicles, and spend time outdoors watching the wildlife.

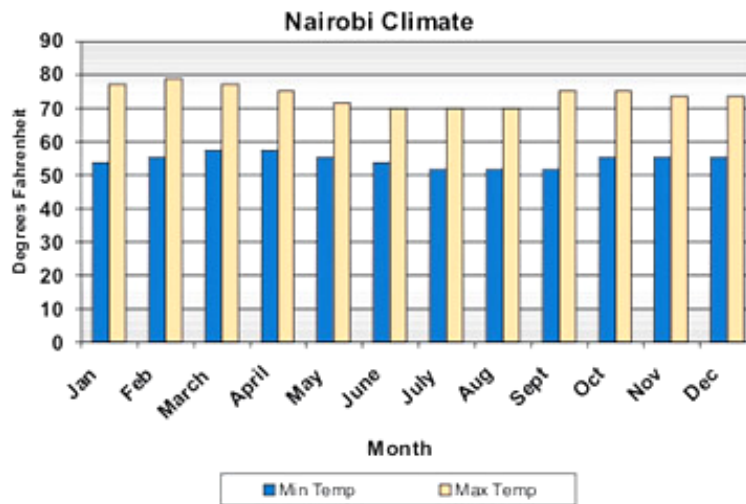
**\*\*\* Any student with significant discomfort while being driven in a vehicle, in any way, should not attend this course.**

**\*\*\* Students with objections to any of the accommodations listed should not enroll in this course.**

Immunizations: Students are to be aware of all required immunizations and medications recommended by GMU's Student Health Services <http://shs.gmu.edu/immunizations/>

and the Center for Disease Control <http://wwwn.cdc.gov/travel/content/vaccinations.aspx>. Malaria medication is common – and highly recommended, but it is up to the student to choose this. We will be in elevations above and below the malaria line. It is best to be on medication during the entire trip. Keep in mind that malaria medication can be costly, and it is not advisable to obtain this medication in Kenya. Please seek a prescription from a medical professional in the United States. Malaria medication cycles should begin a day prior to your departure, and is normally required several days after returning.

Climate: The temperature in Kenya during this course is usually between 65° F and 85° F. These are quite comfortable temperatures, where nights might be slightly chilly (ideal in a tented camp) and days are warm but without humidity.



Luggage and equipment: Students are highly encouraged to pack lightly. One check-in bag and a back pack are best. Do not pack expensive items in check-in luggage. Always keep important documents (i.e. passport), cameras and electronic equipment with you in your carry on bag (back pack). A back pack is also ideal for daily activities during the course, for carrying snacks, beverage, and equipment of any kind. A pair of binoculars is highly recommended – this is an essential tool for wildlife viewing. A camera is also recommended, however, the instructor and guide will have high-end cameras should any students desire copies of our photos – they will be made available to all students.

## **COURSE ASSIGNMENTS:**

**Required Readings:** The instructor will choose no more than 10 peer-reviewed, science journal papers to be discussed in detail over the duration of the course. Students will be given all papers in electronic form prior to travel and are each to lead one discussion on a paper as assigned by the instructor. Journal readings will supplement a required text book, although a book list will be provided for background information.

### **Assignments:**

- **Journals** – Each student will be responsible for keeping a personal daily journal of relevant activities and observations during travel in Kenya. All students have the flexibility to be creative with their own personal journals (web-based, video,

scrap book, artwork, essay, etc.). Creativity is highly encouraged. Journals are due February 10, 2010.

- **Research Paper** – Student research papers are a minimum of 3,500 words. This is generally a double-spaced 12-page paper, due in February 31, 2010. The topic of the paper will be agreed upon by the instructor and the student. The subject matter should be of personal interest to the student. A list of paper topics will be provided as a guideline, but does not limit students from selecting subjects not present on the list. All papers are required to focus on the subject matter of this course – but a personally-tailored research paper is best.
- Information obtained by science staff, research students, ecotourism operators, park rangers, and wildlife managers are expected to be part of both journals and final papers.
- **Course Participation** - Participation will be taken seriously. Engage in all activities, attend all paper discussions, ask important questions when we encounter conservation professionals of all varieties.

#### **Pre-departure class meetings:**

The class will meet twice prior to departure (dates TBA). The first meeting will introduce the course objectives and take students through a slide presentation of all the destinations. We will also discuss specifics of the trip itinerary, packing suggestions, assigned readings, and our departure schedule. The second meeting will be a brief follow-up, preparation reminder, and Q&A session.

#### **Grading:**

Lead one discussion from a science journal article:	<b>50 points</b>
Term research Paper:	<b>100 points</b>
Trip Journal	<b>50 points</b>
General course participation:	<b>50 points</b>
Post trip exam:	<b><u>50 points</u></b>
Total:	<b>300 points</b>