

Report and Photos from 2012 Field Course

Background and Objectives

Our course entailed an intensive, learn-by-doing experience in which junior and senior undergraduates gained expertise in a variety of field activities. Ecology and conservation are extremely coveted and thus extremely competitive fields for employment where practical experience is increasingly at a premium. Employees are sought who have some combination of practical skills and demonstrable communication and problem-solving abilities. The practical skills in telemetry, GIS, animal trapping and handling, and other skills taught in our course are at a premium as undergraduates apply for positions in federal and state agencies, national and international non-government organizations, and graduate school.

With our expanding programs in ecology and international exchange, the University of Wyoming is well-positioned to offer a one-of-a-kind, exciting field course in Kenya to our undergraduates with interests in the biological sciences and natural resources.

Mpala Research Centre (MRC) in Laikipia, Kenya (www.mpala.org) is a world-class field station in the Rift Valley of central Kenya. Despite lacking formal protection, Laikipia boasts the highest abundances of wildlife anywhere in Kenya, thus serving as a model for human-wildlife coexistence in rangelands worldwide. MRC itself houses a director, a ranch manager, a GIS specialist, and 60 full-time staff throughout the year. It is a unique place at which to conduct ecological research and expose students to the flora and fauna that typify African savannas. At MRC, we stayed at the Ewaso Ngiro Campsite (<http://www.mpala.org/Facilities.php>), a five minute drive from MRC.

The primary objectives of our course were for students to:

- 1) Gain knowledge and further appreciation for the ecology and conservation of savanna ecosystems worldwide.
- 2) Appreciate challenges and opportunities inherent to wildlife conservation in human-occupied landscapes through exposure to Turkana and white Kenyan cultures.
- 3) Use case studies in savannas to comprehend classic and contemporary issues in animal behavior, biogeography, conservation, ecology, and evolution.
- 4) Gain exposure to intellectual infrastructure (i.e., museums, wildlife-related government agencies, universities), wildlife management, and conservation biology in a developing country.
- 5) Become proficient in a variety of field techniques for sampling animals, including trapping of small and medium-sized mammals (rodents, elephant shrews, bats, mongooses, jackals); mist-netting songbirds; camera trapping of large mammals (large predators and ungulates); radio-telemetry; GIS and GPS methods.

We met all of our objectives and I was quite satisfied in how the course was carried out. We were not able to visit the National Museums of Kenya because my primary contact had an unanticipated emergency and was out of the country.

In my opinion, two of the greatest shortcomings of science education are that 1) students become adept at passively answering, rather than actively asking, questions; and 2) students often are left with the impression that “science” is simply the accumulation of facts, rather than a relatively specific way of generating knowledge. So, in addition to various field activities, students worked in groups of four, five, or six to initiate and complete independent projects over the course of their time at MRC. These projects truly were “independent”; the students themselves came up with the questions, designed the methods to test the questions, and then analyzed and presented their results. These projects entailed 1) understanding how mongooses and other small carnivores control populations of small mammals; 2) exploring how activity by wild dogs influences where antelopes spend time; 3) investigating how livestock production changed the ways in which plants defend themselves; and 4) seeing if climate change—as indexed by rainfall along a gradient at MRC—affected how insects pollinated understory plants. I think students benefitted immensely from this portion of the course.

I have served as a TA or co-instructor on similar field courses in 2004, 2005, and 2009; this was the first field course on which I was primary instructor, and I can honestly state that it has been the highlight of my teaching career thus far. Demonstrating to students how to handle elephant shrews, remove bats from

mistnets, set up camera traps, bait box traps for mongooses, and locate antelope via radio-telemetry truly is a thrill.

Our course was taught by Dr. Roy Turkington (UBC Botany) and myself, with Adam Ford (UBC Zoology) and Allison Louthan (UW Zoology/Physiology and ENR) serving as teaching assistants. Simply put, I could not have been more pleased with our teaching team, and I think the students would agree. In particular, because both Adam and Allison are in the midst of their graduate research at Mpala, we were able to give students a life experience that would have been difficult to pull off otherwise.

This particular course represents the first of what I hope will become a biannual offering through UW, and also one of two facets of a cross-institutional training partnership that Dr. Mordecai Ogada (Director of the Laikipia Wildlife Forum) and I are creating with the help of Courtney Carlson and others from ENR. The second facet of this program will begin in Fall 2012 with the arrival of three MSc students majoring in fields related to ecology and conservation. Dr. Ogada has identified each as a student of exceptional ability and promise in particular need of formal coursework offered at UW.

Syllabus and Activities

For the most part, we adhered closely to the syllabus below.

<u>Date</u>	<u>Block</u>	<u>Activity</u>
<u>Wed 9 May</u>	<u>NA</u>	<u>UW and UBC students arrive 815pm KLM Royal Dutch Airlines #565, stay in NBI hostel</u>
<u>Thurs 10 May</u>	<u>AM</u>	<u>Departure to MRC river camp with Cynthia, meet Cyrus and Mohammad in Nanyuki</u>
	<u>PM</u>	<u>Introductions, orientation, safety, security</u>
<u>Friday 11 May</u>	<u>AM1</u>	<u>Morning drive</u>
	<u>AM2</u>	<u>Lecture and discussion on plant defense and landscape change in savanna ecosystems</u>
	<u>PM1</u>	<u>Swahili lesson (Cynthia) (Photo 26)</u>
	<u>PM2</u>	<u>Visit to UHURU, KLEE, and other large- scale experiments</u>
<u>Sat 12 May</u>	<u>AM</u>	<u>Lecture, discussion, and field activity on plant-herbivore interactions</u>
	<u>PM1</u>	<u>Lecture on telemetry and abundance estimation 1</u>
	<u>PM2</u>	<u>Half of class honing exercise; half of class plant ID/abundance exercise (Photo 16, 19)</u>
<u>Sunday 13 May</u>	<u>AM</u>	<u>Lecture, discussion, and field activity on predator-prey interactions</u>
	<u>PM</u>	<u>Half of class honing exercise; half of class plant ID/abundance exercise (Photo 16, 19)</u>
<u>Monday 14 May</u>	<u>AM</u>	<u>Lecture, discussion, and field activity on plant-pollinator interactions</u>

	<u>PM1</u>	<u>Swahili lesson (Hassan)</u>
	<u>PM2</u>	<u>Discussion about group projects</u>
<u>Tues</u> <u>15 May</u>	<u>AM1</u>	<u>Lecture on rhino conservation (Mulama),</u> <u>plus rhino viewing (Ngweno) (Photo 1)</u>
	<u>AM2</u>	<u>Lecture on wildlife-livestock interactions</u> <u>(Ngweno)</u>
	<u>PM</u>	<u>Telemetry exercise (Photos 16, 19)</u>
<u>Wed</u> <u>16 May</u>	<u>AM</u>	<u>Lecture on telemetry and abundance</u> <u>estimation 2 (Photos 16, 19)</u>
	<u>PM1</u>	<u>Half of class sets small mesomammal</u> <u>traps; half of class distance samples for</u> <u>dik-dik (Photos 6, 23)</u>
	<u>PM2</u>	<u>Bat netting and/or rabbit preparation</u>
<u>Thurs</u> <u>17 May</u>	<u>AM</u>	<u>Half of class checks traps; half of class</u> <u>distance samples for dik-dik (Photos 6,</u> <u>23)</u>
	<u>PM1</u>	<u>Half of class sets small mesomammal</u> <u>traps; half of class distance samples for</u> <u>dik-dik (Photos 6, 23)</u>
	<u>PM2</u>	<u>Bat netting and/or rabbit preparation</u>
<u>Friday</u> <u>18 May</u>	<u>AM1</u>	<u>Half of class checks traps; half of class</u> <u>distance samples for dik-dik (Photos 6,</u> <u>23)</u>
	<u>AM2</u>	<u>Analysis of telemetry data</u>
	<u>PM</u>	<u>Work on group projects (Photos 4, 18, 23)</u>
<u>Sat</u> <u>19 May</u>	<u>AM1</u>	<u>Bird walks and bird banding (Scopus)</u> <u>(Photo 7)</u>
	<u>AM2</u>	<u>Work on group projects (Photos 4, 18, 23)</u>
	<u>PM</u>	<u>Trip to Mt. Kenya Wildlife Orphanage</u> <u>(Photo 20)</u>
<u>Sunday</u> <u>20 May</u>	<u>AM</u>	<u>Work on group projects (Photos 4, 18, 23)</u>
	<u>PM1</u>	<u>Analysis of small mammal data</u>

	<u>PM2</u>	<u>Swahili lesson (Hassan)</u>
<u>Monday</u> <u>21 May</u>	<u>AM</u>	<u>Work on group projects (Photos 4, 18, 23)</u>
	<u>PM</u>	<u>Work on group projects (Photos 4, 18, 23)</u>
<u>Tues</u> <u>22 May</u>	<u>AM</u>	<u>Day trip to Muthira Turkana manyatta (Lima) (Photo 8)</u>
	<u>PM</u>	<u>Day trip to Muthira Turkana manyatta (Lima) (Photo 8)</u>
<u>Weds</u> <u>23 May</u>	<u>NA</u>	<u>Aberdares National Park (Photos 2, 12)</u>
<u>Thurs 24</u> <u>May</u>	<u>NA</u>	<u>Aberdares National Park (Photos 2, 12)</u>
<u>Fri 25</u> <u>May</u>	<u>AM</u>	<u>Group projects presentation</u>
	<u>PM1</u>	<u>Swahili lesson (Cynthia) (Photo 26)</u>
	<u>PM2</u>	<u>Women's group visit (Eunice) (Photo 22)</u>
<u>Sat</u> <u>26 May</u>	<u>NA</u>	<u>Mpala Discovery Day (Photo 28)</u>
<u>Sun 27</u> <u>May</u>	<u>NA</u>	<u>Wrap-up and goat roast</u>
<u>Monday</u> <u>28 May</u>	<u>NA</u>	<u>Departure to Nairobi; nice dinner at Haandi (money permitting)</u>



1. UW students simultaneously feed and harass a black rhino named Baracka. Ol Pejeta Conservancy.



2. Speckled mousebirds are representative of a group of species that links songbirds to parrots. Aberdares National Park.



3. Lion cubs are cute as the dickens. Laikipia is unusual in that it is one of the few places in the world where lions are tolerated on private lands. We saw lions twice during the course. Ol Pejeta Conservancy.



4. Katti Riggs (UW Fisheries), Rebecca Seifert (UBC Zoology), Tristan Sebens (UBC Zoology), and Charl Stafleu (UBC Zoology) delight in identifying and pinning insect pollinators for their independent research project. Mpala Research Centre.



5. Hamerkops range throughout sub-Saharan Africa and build spherical nests 6-7' in diameter. Our class saw over 120 species of birds on the field course. Mpala Research Centre.



6. The other 1%. The 10 lb Guenther's dik-dik is the most common hoofed mammal on Mpala numbering 1-2 per acre. Unlike 99% of mammals, this species is monogamous and forms lifelong pair bonds. We conducted distance sampling (a form of abundance estimation) on dik-dik. Mpala Research Centre.



7. Sydney Jones (UW ENR and Zoology) releases a yellow-breasted apalis from a mist net. Mpala Research Centre.



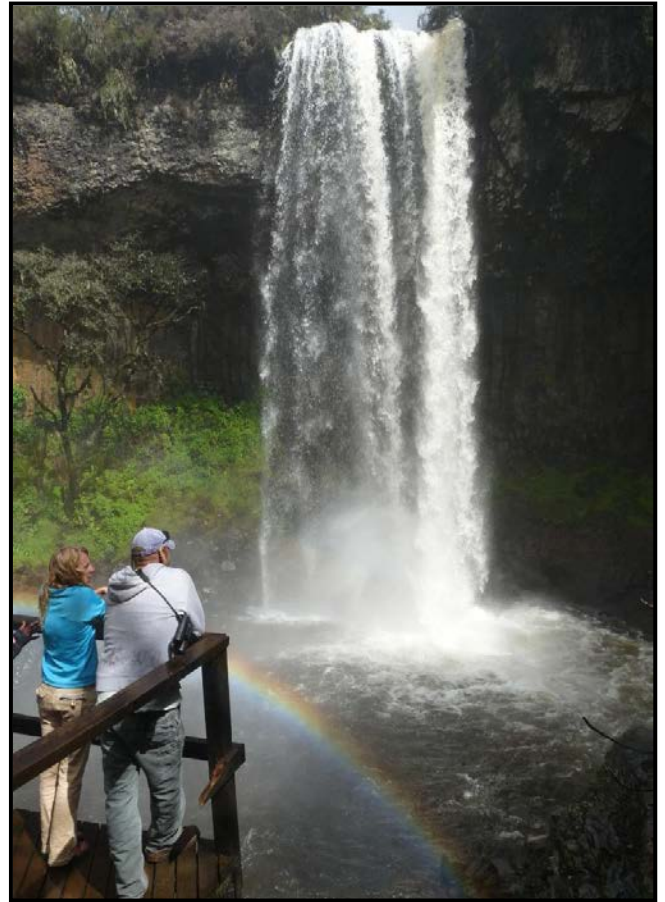
8. Turkana elders. The Turkana are nomads who reside in northwestern Kenya, particularly around Lake Turkana. Muthira manyatta.



9. A grueling hike up Mukenya kopje. We exercised regularly to preserve our sanity. Mpala Research Centre.



10. An auger buzzard, a bird of prey common to Laikipia. Mpala Research Centre.



12. Chania Falls, Aberdares National Park.



11. Daniel Greenwood (UW Zoology) and his warafiki wampiya vidogo (new little buddies). Mpala Research Centre.



13. We set camera traps on different areas of Mpala to “capture” rare and elusive mammals. From left: beisa oryx, spotted hyena with dik-dik, leopard. Mpala Research Centre.



14. Leopard. On the second night of our course, we called in a leopard to within 20' of our trucks with a wounded rabbit recording. Leopards are the most common large carnivore on Mpala, but are very difficult to spot. We had one living in our campsite as evidenced by footprints. Mpala Research Centre.



15. Elephant calf and cow. We saw elephants nearly every day, sometimes in herds of up to 50. Mpala Research Centre.



16. Impala. Another common ungulate (hoofed mammal) in Laikipia. Using GPS telemetry, UW students participated in a research project to understand how impala have responded to increasing numbers of predators on Mpala.



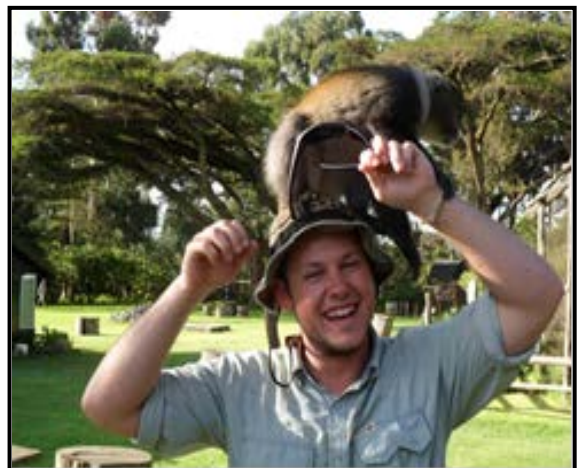
17. Little bee-eater. Mpala Research Centre.



18. Intrepid explorers Clint Atkinson (UW Wildlife) and Ronnie Harned (UW Wildlife) measure acacia for their independent research project. Mpala Research Centre.



19. Courtney Shillenn (UW ENR), Cynthia Kiarie (Moi U Wildlife), Katti Riggs (UW Fisheries), and Sydney Jones (UW ENR and Zoology) in dogged pursuit of a radio-collared impala. Mpala Research Centre.



20. A tenuous meeting between two primates. Jake Hourt (UW Wildlife; bottom), steals a pair of sunglasses from a blue monkey (top). Mt. Kenya Wildlife Orphanage.



21. A red-fronted tinkerbird that was nesting in our campsite. Mpala Research Centre.



22. While the instructor claps awkwardly, Katti Riggs (UW Fisheries) and Sean Ryder (UW Wildlife) cut a rug, thereby facilitating cultural exchange with the Mpala Women's Group. Mpala Research Centre.



23. Andrew Lervick (UW Zoology) posing with his white whale, the rufous elephant shrew, during work for his independent research. Elephant shrews are not shrews (nor elephants) but are distantly related to aardvarks. Mpala Research Centre.



24. Ronnie Harned (UW Wildlife), Sean Ryder (UW Wildlife), and Jake Hourt (UW Wildlife) intent on photographing the elusive river hippopotamus.



25. Grevy's zebra, a la Ansel Adams. Grevy's zebra are among the rarest wild horses in the world, with a global population of fewer than 7000 individuals. Laikipia is their last remaining stronghold. Mpala Research Centre.



26. Cynthia Kiarie (Moi U Wildlife) instructs Courtney Shillenn (UW ENR), Sean Ryder (UW Wildlife), and an unidentified UBC student how to count and tell time in Kiswahili. Mpala Research Centre.



27. Elephants, a la Ansel Adams. Mpala Research Centre.



28. UW, Moi U, and UBC students listen to lectures with local researchers and staff on Mpala Discovery Day. Mpala Research Centre.



29. Students in the UW Field Course in Ecology and Conservation of African Savannas. (L-R). Jake Hourt (Wildlife), Clint Atkinson (Wildlife), Garrett Point (Wildlife), Sean Ryder (Wildlife), Katti Riggs (Fisheries), Jake Goheen (Instructor), Sydney Jones (ENR and Zoology), Andrew Lervick (Zoology), Ronnie Harned (Wildlife), Daniel Greenwood (Zoology) (Courtney Shillenn ENR not pictured).

These photos were taken by UW, UBC, and Moi U students 9-29 May 2012.