For the third time in three years, I was able to spend part of my summer in Amboseli National Park, Kenya. The Amboseli Baboon Research Project has been observing the same population of wild baboons for over 40 years, collecting behavioral, ecological, genetic, and hormone data noninvasively. The long-term nature of this project has allowed its graduate students to ask questions about how early-life environment may affect adult-stage characteristics. I am interested in looking specifically at the effects of early-life environment (e.g., drought, maternal loss) on body size. I hypothesize that experiencing challenges during early life disrupts typical growth, resulting in smaller adult body size.

To measure body size non-invasively, I have worked with researchers at George Washington University and machinists at the Duke Instrument Shop to design a parallel-laser device. This device projects two parallel beams onto a baboon. When mounted with a camera, the device creates a scale of known distance in a photograph of that subject. Parallel-laser photogrammetry has been used to measure body size of other primates as well as several other mammal species.

Over the last three years, I have made annual adjustments to the parallel-laser device. This is the first time I’ve used a device that uses two parallel beamsplitter prisms, which create a fixed 4-cm distance. I was looking forward to deploying this device in the field - past devices were either 4-cm distance but not fixed, thus requiring extra adjusting in the field, or 2-cm and fixed. The smaller the inter-laser distance, the greater the error in our body size measurement, so I was eager to create a 4-cm version that doesn’t require adjustments.

During my field season this year, I was able to confirm that the device was working properly, and I collected photogrammetry images of baboons. I was also able to train a field assistant in photogrammetry methods. She remains in Amboseli until December, helping me collect photogrammetry data. Needless to say, I have a lot of image measurements to make!

During my time in Kenya, I was also able to spend 3 long days at the University of Nairobi performing some laboratory work. Another part of my dissertation is asking whether baboons who experienced poor early-life showed increased inflammation as adults. To measure inflammation, I was measuring a compound called neopterin in baboon feces. Although I had performed all of the laboratory assays and validations at Duke using old Amboseli baboon fecal samples and fresh baboon fecal samples from the NC Zoo, export permits had prevented me from testing whether fecal neopterin concentrations actually increase when Amboseli baboons are sick or injured – this is called a biological validation. So, to perform a biological validation, I had to be in-country. During 3 days at the University of Nairobi, I measured fecal neopterin in over 250 baboon fecal samples. I discovered that the concentrations of neopterin in fresh Amboseli baboon feces are extremely low, and I did not see a signal of injury or illness on
neopterin concentration. As a result, I will be dropping this project. I am grateful for the opportunity to do this work and see these results this summer.

All in all it was a highly productive, busy summer of shifting between the field and the lab, and collecting data and training others! Like all summers in Amboseli, I also had some free time to soak up views of the milky way, hyena songs at camp, and diverse wildlife. Thank you for the opportunity to perform this work.

Photo captions. **Top**: Left, Hokey’s social group had a lot of infants who also happened to be especially habituated. I had to make sure not to get too close to them. Center, savannah selfie with me in the foreground, Anna our field assistant in the mid-ground trying out the photogrammetry equipment, and Kinyua a long-term field observer in the background. Right, Hokey’s social group often goes to this watering hole, which was created by a mining operation decades ago. **Middle**: Left, tourists travel from all around the world to see the Amboseli elephants. Center, Baboons are omnivores and will eat meat when they can. Kombo killed this baby Grant’s gazelle and several adult males fought over it for hours. Right, this female lion walked right in front of our vehicle on the way back from the field one day! **Bottom**: Left, a feather from a Kori bustard, one of the world’s largest flying birds. Right, a hyena near her den. They’re the loudest mammal we hear at night.