



# MPALA MEMOS

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# It's the Little Things: What We Can Learn From Small Mammals



Rhiannon Jakopak

**Before dawn**, our team loads field equipment into a Land Rover and drives towards northern Mpala. Although we occasionally scare up bat-eared foxes and white tailed mongooses on our dark drive, our ride is mostly quiet – some sleep, others sip on coffee. Before any of us are completely awake we arrive at the UHURU (Ungulate Herbivory Under Rainfall Uncertainty) experimental plots.

We have come to check the traps we set the night before. We check the traps early in the morning, before the hot Laikipia sun causes the animals to overheat. If we're lucky, our peanut butter and oatmeal bait will attract individuals from the 22 species found on the UHURU plots, including woodland thicket rat, northern pouched mouse, fringe-tailed gerbil, and the most charismatic of all microfauna: the rufous elephant shrew. We might catch between 1 and 100 animals in the 300 traps we set each night.



*One of our rare woodland thicket rat captures.*

We bring all of the captured critters to a central location, where we work as part of an assembly line to collect all of the necessary measurements and samples. Since the beginning of these trapping efforts in 2009, we have partnered with the National Museums of Kenya to study small mammals within UHURU. We have collected baseline information for each animal, including sex, age, reproductive condition, and weight. These data allow us to explore a variety of population dynamics over a long period of time. Each animal we capture then receives a tag in each ear. With these unique markers, we can identify animals again in subsequent recaptures. One of our most frequently captured animals – B1 550/ B1 549, a northern pouched mouse – was captured on 40 occasions between 2009 and 2011. This hungry little guy clearly knew where to find an easy meal!



*Members of the UHURU Small Mammals Project team in their natural habitat, from left: Alois Wambua, Gilbert Buseinei and Rhiannon Jakopak.*



*It's a good day when you see a rufous elephant shrew before the sun is even up.*

Along our assembly line, Dr. Jacob Goheen (University of Wyoming) and one of his Master's students, Alois Wambua (Karatina University and National Museums of Kenya), handle the animals to take measurements and deploy the ear tags. Gilbert Busienei (Mpala Research Centre) meticulously records data. Deborah Boro (University of New Mexico), also one of Dr. Goheen's Master's students, collects hair and blood samples, while I snip off the tip of the tail for tissue samples. Someone yells, "Poop!" and we jump to open a small plastic bag, hoping to catch the emerging pellet before it is contaminated. Each animal is in hand for only a few minutes, but all of these samples and measurements allow us to gain enough information to address novel and exciting ecological questions.

A few of the small mammal species we trap are frequently captured on many of our plots. However, the many rare species we hope to catch often only occur on a few plots. Why are few of the species common and widespread, while multiple species are rare and only occur in a few places? Two mechanisms are proposed to underlie this pattern. Under one hypothesis, each species' resource use and subsequent fitness implications are responsible. Generalists – thought to be those species which are common and widespread – should be able to eat a variety of foods and avoid many predators. The proposed specialists, or the rare and restricted species, would be limited in their diet and more vulnerable to predators. The second hypothesis suggests that the ability of a species to repopulate an area actually drives this pattern. The common and widespread species should immigrate to repopulate an area if a nearby region experiences local extinction, while the rare and restricted species would not be able to similarly repopulate.

Led by Dr. Goheen and Drs. Rob Pringle and Tyler Kartzinel (Princeton University), many researchers are working to test these competing hypotheses. Deborah uses nutritional data from the hair, blood, and fecal samples to identify the dietary requirements and preferences of each species, allowing her to classify species as "generalists" or "specialists." Alois determines the vulnerability of each species to predators by exploring how foraging is influenced by an animal's perception of risky and safe habitats. I am estimating rates of immigration for each species by determining the parentage of captured individuals. Many additional researchers and field assistants help us to genotype the tissue samples and the plant material in the fecal samples, and survey the available vegetation in each of the plots.

For most, mention of Kenyan wildlife conjures images of zebras, lions, and elephants. The scientists studying the small mammals on the UHURU plots, though, are all about those microfauna. These hard-to-see critters provide a great system in which to ask a variety of ecological questions, and, to some of us, are inherently curious. Wherever you are – be it Mpala, home, or somewhere new – keep an eye out for the cryptic small mammals that operate in a world to which we are often blind. •



Rhiannon Jakopak

*Northern pouched mouse – the most vocal and, at least anecdotally, most aggressive of our study species.*



# Conservation Conversation: Dedan Ngatia



Anchal Padukone and Alexandra Adee

**Dedan Ngatia** is a familiar face at Mpala Research Centre. He can often be found around the NSF Lab, always smiling but with a sense of urgency about him (“I have to go follow some dogs soon!”). Now the Kenya Rangelands Wild Dog and Cheetah Project Manager, Dedan spent his first two years at Mpala working on the Small Carnivore Research and Parasite Study (SCRAPS) with Dr. Adam Ferguson, and on his own Masters project on domestic dog spatial ecology. He is also on the coordination team of the Laikipia Rabies Vaccination Campaign. We got a hold of him between his frequent trips to the field to find out what makes him tick.

**Anchal:** How did you first start working with the SCRAPS project, Dedan? What sparked your interest in studying wildlife diseases?

**Dedan:** I have always been interested in carnivores, but what really got me interested in this research program was that it involved studying parasites and diseases. I had been hoping to learn about how parasites are spread between animals, particularly in relation to carnivores.

Wildlife diseases are a major cause for the declining populations of different animals in the country. When I came to Laikipia, considering the high level of coexistence between people, livestock, and wildlife in the county, I realized there might be a big opportunity here to study how diseases are transmitted in this ecosystem.

**Anchal:** What did your role involve?

**Dedan:** I was mostly trapping small carnivores and processing them to get hair, blood and fecal samples. My other role was GPS-tracking small carnivores that we had collared at night. I also supervised other students who came in to help with the project.

**Anchal:** What have been some findings from the project?

**Dedan:** We are still analysing data from the project, but because we track small carnivores close to homesteads, we presume that there is interaction between people and small carnivores. For example, genets - like many small carnivores - are rarely seen, but we trapped them in close proximity to homesteads. There was a day when we found one of our collared genets fighting with a domestic dog very close to a boma. Another thing that's easy to tell from our observations and analysis so far is that the relative abundance of small carnivores is higher in conservancies as compared to community lands.



*Dedan in his previous life as an assistant scientist on the SCRAPS project, carrying a zorilla that the team found in one of their traps.*

Jennifer Exley



*Dedan prepares a canine friend for an appointment with the vet, during the 2015 Laikipia Rabies Vaccination Campaign.*

**Anchal:** Could you talk to us about how the knowledge generated from this research could be applied?

**Dedan:** We trapped small carnivores to understand their habitat, distribution, behaviours and their interactions with other wild and domestic animals. We ran the biggest study of small carnivores in the country. There is not enough data on small carnivores that people can use, and we are generating more data for use in disease control and in conserving these species.

**Anchal:** Let's talk about how you went from studying wild carnivores to domestic dogs.

**Dedan:** Initially, I was supposed to work on *Geneta maculata* - the blotched genet. Those instances of genets fighting and interacting with dogs, close to the bomas, brought some new ideas to me. I figured that there must be some disease transmission between wild carnivores and dogs.

We know that dogs can spread diseases to other animals, but we don't fully understand how that happens. There is lots of literature on domestic dogs and their role in transmitting diseases to wildlife, but mostly from Tanzania - they have been well studied around Serengeti National Park - and from other parts of the world (India, the US and so on). In Kenya, there has been very little work on this.

**Anchal:** What were your main research questions?

**Dedan:** The main purpose was to find out how dogs move around this ecosystem (for instance, how far they move from the homestead or into the conservancies), and whether these movement patterns are influenced by the dog's functional role (whether it is a guarding or a herding dog). I was also interested in finding out their parasite loads, and in seeing how dogs' parasite loads are related to their movement patterns. This project has been funded by the Rufford Foundation, the Meeker Family Fund, NACOSTI, and the National Science Foundation (USA).

For this study, I GPS-tracked 50 domestic dogs for over 16 months. I also collected lots of parasites from these guys: mainly ectoparasites (ticks, fleas), but also through blood and fecal samples.



*With his field team, Dedan attached data loggers to dogs' collars. The loggers would record location data every 15 minutes and were deployed for 30 days at a time.*

**Anchal:** And what have you found so far?

**Dedan:** The most interesting finding is that the dogs don't move as far as I thought they would. From my data, they don't seem to move into the conservancies very much. I'm not convinced, since I find lots of dogs inside Mpala as I drive around Mpala, and we don't have domestic dogs at Mpala.

**Anchal:** What are your next steps? Will you continue to study domestic dogs in this area?

**Dedan:** Right now, I'm looking for more funds to continue this study. In the next phase, I hope to drive around Mpala, GPS-marking every point I see a dog and following its trail.

Also, I am starting a demographic study. I hope to establish the population of dogs in this area, sex ratios, the mortality rate and fecundity rate, because all this has never been done before. Next, I will be doing a study on the rabies burden in Laikipia, for which I'll get data from community members, county hospitals and local dispensaries on dog bite incidences and rabies-induced deaths. Using all this data we can tell the extent of rabies transmission in Laikipia.

Doing a dog demographic study would boost both my spatial ecology work and our Laikipia Rabies Vaccination Campaign efforts. We have had two campaigns, but we still don't know our vaccination coverage. We may have vaccinated 500 dogs in a community, which sounds like a lot, but there may have been 6000 dogs in that area.

We're also thinking of expanding our rabies education programme - remember, the lessons we planned with Nancy Rubenstein and taught in the Conservation Clubs last year? We're trying to introduce dramas and other activities into the programme. Last year, we came up with a drawing competition and had the kids draw pictures of how we could prevent the spread of the disease. We hope to help kids realize that rabies is fatal, but that it can be prevented. •



*Dedan poses with a puppy at a vaccination station during the 2016 LRVC. The campaign started small as an outreach component of his study on domestic dogs. In the past two years, the coordination team has formed numerous partnerships: with the Laikipia County Government, International Livestock Research Institute, Karatina University, and several other organizations. In 2016, campaign vets vaccinated around 4530 dogs and cats.*



# A Day in the Life of a Starling Biologist



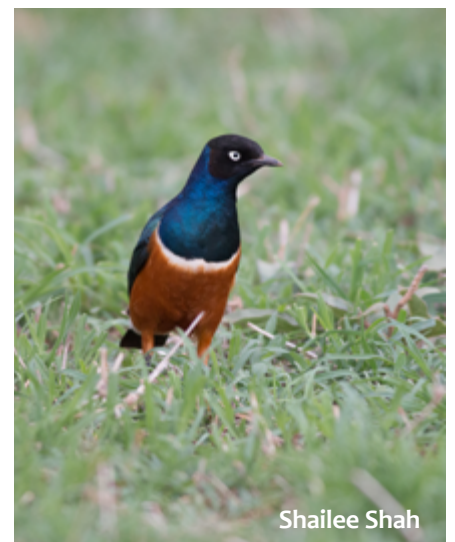
Shailee Shah



Andy Johnson

*Each of these superb starlings can be identified by the unique combination of colour rings on its legs.*

**I'm a first year PhD student** in Dr. Dustin Rubenstein's Lab at Columbia University. Various members of the Rubenstein lab have studied superb starlings – and other species – at Mpala, starting with Dustin himself as a PhD student in 2001. Superb starlings are gregarious birds that live in social groups, and the Starling Project has followed individuals from seven social groups over the past 16 years. Each bird is caught and fitted with a unique combination of colour rings on its legs, to facilitate identification, and their breeding activity monitored. I am lucky to have joined the lab these many years into the project, since there is already a rich dataset of over 500 birds that I can use to ask questions about group composition. Collecting this data requires daily forays into the field and a lot of patience from the full-time field assistants on the project. Currently the project has two awesome assistants – Wilson Nderitu and Godfrey Manyas – and they have been showing me the ropes since I arrived at Mpala three months ago. Now that the long rains have arrived in Laikipia, the birds are breeding, and a typical day for us looks something like the following.



Shailee Shah

*Superb starlings mostly feed on the ground - on insects, worms, seeds and fruit.*

In the morning, we check all the nests we know of to see if their contents – eggs or chicks – have survived the past 24 hours. The nests are usually a few meters above ground in thorny Acacia trees, and our sophisticated nest-checking method involves backing our car into the tree, and climbing on top to reach into the nest. For harder-to-reach nests, we use a ladder or climb the tree.

If there are eggs or chicks in a nest, we conduct focal watches to determine who the helpers and parents at the nest are. Helpers are starlings that forego breeding to help raise chicks of others in their social group. From 10-15 m away from the nest, hopefully under a shady Acacia or sitting in the car, we watch the nest, recording color rings of all starlings that come and go. If there are no nests that need watching – and this has very much been the case this year due to the drought – we look for new nests, checking every tree for an aggregation of sticks and grass fashioned into a roughly cylindrical nest. Superb starlings often re-use nests from previous breeding seasons, so we also make sure to check every nest that Wilson and Godfrey remember from previous years.



Shailee Shah

*A superb starling chick, held lovingly by Shailee. Chicks fledge, or develop wing feathers that are large enough for flying, in about three weeks.*

If we find newly-hatched chicks in a nest, or if we know that chicks in a certain nest are now old enough to be ringed, we re-visit the nest in the afternoon to take blood samples and outfit the chicks with rings. Otherwise, we try trapping adult birds that have not yet been ringed (typically new arrivals) or those that have lost some of their rings. Trapping superb starlings – especially re-trapping – is a true test of patience. Starlings are smart birds, and once trapped, are quite wary of the cage traps we use.



Shailee Shah

*Wilson and Godfrey climbing a tree to reach a superb starling nest.*

In addition to using the long-term dataset, I am interested in mapping the social networks and dominance hierarchies of these social groups, to get an idea of how the social environment affects group composition. Before the birds started breeding, in February-March, my days consisted of multiple 2-4 hour long observations. I would put out some food, usually papaya, and record the identity of birds foraging together, as well as any aggressive encounters. Often the starlings wouldn't show up – perhaps they were foraging elsewhere – but the papaya always attracted plenty of interesting activity. One memorable afternoon I had barbets, hornbills, a dik-dik, weavers, francolins and a squirrel vying for a bite of papaya! •



# Harnessing Data to Conserve “Kenya’s Other Carnivores”



Anchal Padukone

**From January 14-18 and March 21-26 this year**, Mpala Research Centre’s lecture hall was busier than usual.

Fifteen Kenyan students and professionals worked at their computers from morning to evening: gathering records of small carnivore species from a variety of sources, organizing this data into a standard format and learning the software they would use to predict the distribution of their species, based on the information they had collected.

These young professionals are participating in a collaborative research project, “Kenya’s other carnivores: Harnessing biodiversity data for effective development of national conservation strategies”. The project will lead to the development of a government-based conservation strategy for Kenya’s small (< 15 kg) mammalian carnivores.

To prepare them to contribute, researcher Dr. Adam Ferguson organized and led two workshops, funded through the Global Biodiversity Information Facility’s (GBIF) Biodiversity in Development programme. The January workshop focused on the fundamentals of biodiversity informatics, data digitization, and georeferencing specimen locality data. The March workshop, co-led by Mexican ecologist Dr. Andres Lira Noriega, aimed to train participants in ecological niche modelling and conservation biogeography.

Students and project partners are affiliated with the following institutions: Mpala Research Centre, National Museums of Kenya, Kenya Wildlife Service, Karatina University, Pwani University, Dedan Kimathi University, University of Kansas (USA) and Instituto de Ecología (Mexico).



Duncan Kimuyu



Duncan Kimuyu

*“A simple analogy to demonstrate the importance of good field collection: the information on a specimen tag is like a tattoo. If the tattoo artist does not clearly portray what was initially intended, then somebody will be disfigured in vain - a beautiful message turned into a hilarious cautionary tale. Similarly, when collecting specimens from the field, precise information on their identity and location is essential for their usefulness.*

*It was fascinating to learn about mobilizing, digitizing and georeferencing data. The “Biodiversity Informatics and Georeferencing” workshop was an eye-opener and probably a much needed kick to the pants for the folks with squiggly handwriting and an ambiguous sense of direction. Understanding different systems of collecting and accessioning data in museums has made our lives much easier.*

*It was impressive how the different lectures covered a wide range of topics within a short time and still incorporated practical assignments. Kudos to our main instructor, Dr. Adam W. Ferguson, assistant instructors and the Mpala family for a wonderful workshop!” - **Hannah Kageche (Participant, Karatina University)***

# Monitoring Livestock and Wildlife for Healthier Ecosystems



**From March 16 to 18**, Mpala hosted a three-day course on livestock and wildlife health, led by veterinarian Professor John Cooper and wildlife lawyer Mrs. Margaret Cooper. The course aimed to provide both theoretical foundations for understanding animal health and disease, and practical training in health monitoring. Lectures and discussions were held in the mornings. In the afternoons, participants practised a range of health monitoring techniques: from clinical examinations of livestock to minimally or non-invasive field techniques and post-mortem exams.

What set this course apart was its focus on the relationship between a healthy environment and human and animal health. During practical sessions, the need to pay attention to environmental indicators and monitor water quality was reinforced. Another important component of the curriculum was safety and risk assessment. To put their skills in this domain to use, participants assessed Mpala Research Centre's laboratories and produced a list of guidelines and protocols that would prepare the labs to serve as a diagnostic centre for the community.

The 29 course participants were a motley group of livestock managers, ecologists, veterinarians, field assistants and other conservancy staff (including a few from Mpala). They came from all over Kenya and from overseas - we had a participant each from India and Nigeria. The course received positive feedback. In the future, we hope to offer more short courses and workshops that are open to the public, and provide more opportunities for Kenyan students and researchers.



**Top:** Kenya Wildlife Service vet Matthew Mutinda examines a blood smear prepared by a course participant under a microscope.

**Middle:** Professor John Cooper introduces equipment used for sample collection or health monitoring while in the field.

**Bottom:** Security officer Richard Mwenda looks through a field microscope.



**Participants examine bones and teeth to make inferences about organisms' health.**



# Update: Mpala Live!



Anchal Padukone, Valerie May and Victor Kasii

**Mpala Live!** brings the sights and sounds of Mpala's wildlife to the world, thanks to the live-streaming web camera installed at Mpala's Hippo Pool (a watering hole on a bend in the Ewaso Ng'iro river, home to a pod of hippos). But that is not where this project stops. In Founder and Executive Producer Valerie May's first *Mpala Memos* article about Mpala Live! in October 2013, she wrote about her dream of doing more than just giving viewers a chance to see East African wildlife from their living rooms. She saw the camera as a launchpad for a host of digital media efforts that told the story of conservation in Laikipia. It was meant to excite people from around the world about the research, conservation and outreach we do in this part of the world, and educate them about the animals and culture of the region.

Since its launch in June 2014, the project has come a long way. By December 2016, the live cams, which are also part of the Explore.org website, had received at least 11.5 million views. Exclusive of the live cams, the website had received 879,300 page views, and its comments thread had racked up a total of 66,313 comments - making it among the most popular on Explore.org.

The website ([www.mpalalive.org](http://www.mpalalive.org)) is divided into a number of sections, including:

1) **Field Guide**, a colourful and interactive guide to the animals of Laikipia's Ewaso ecosystem, with over 88 species and featuring beautiful sketches by artist Lavinia Grant. The guide contains information on animals' behaviour, social structure, diet, appearance and conservation status. In the future, the team hopes to add more species to the guide, including whole sections on insects and flora.

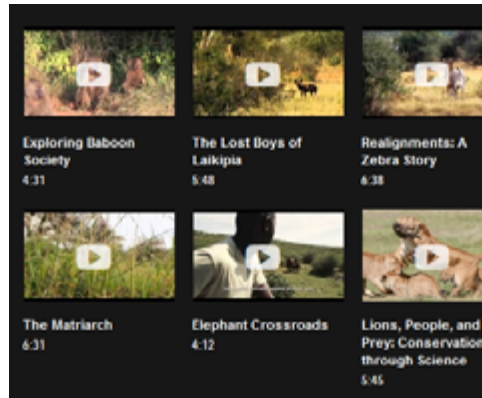
2) **Classroom**, which features downloadable lesson plans and experiential learning activities designed for the US and Kenyan school curriculum by a team of educators from the two countries. The lesson pages in this section make up 67.85% entrances to the website! Going forward, the Mpala Live! team has exciting plans for expanding this section to include more lessons that utilize the site's assets (for instance, the Field Guide and the live cams), including opportunities for citizen scientists to contribute to research at Mpala via the webcam, and a Virtual Classroom that would link schools in Laikipia with schools elsewhere in Kenya and around the world, and allow students from different parts of the country and the world to interact and work on projects with one another.



*The people behind your favourite Live Cams, minus Founder and Executive Producer, Valerie May. From left: George, our IT Guru who works with explore.org to keep the cameras up and running, and camera operators Anne, Everlyn and Fred, who track and broadcast wildlife visible on the cameras, post highlights on social media, and respond to comments and questions from viewers.*

*Mpala Live! is funded by The Annenberg Foundation and supported by Explore.org.*





Far left: An excerpt from the Mpala Live! online field guide.

Left: Short documentaries on everything from baboon social behaviour to wild dog dispersal in the Stories from the Bush section.

3) **Stories from the Bush** features live chats with scientists and conservationists, who answer questions posted by viewers around the world, and short videos describing the research and wildlife of Mpala (this includes *Lions, People, and Prey* - a Webby honoree!). A new online series of 2 minute videos, Mpala Minutes, will follow scientists into the field and break down the science, shedding insights on their findings and the applications of their research to conservation and community development.

4) **Live Cams/ Best of Mpala** contains the livestream, along with curated wildlife footage from the cams.

In addition to staying engaged with their international audience, the Mpala Live! team also works with local schools. In the works is a printable field guide for members of the Northern Kenya Conservation Clubs (NKCC) who visit MRC. It aims to connect pupils to their immediate environment at Mpala and contains facts about wildlife, detailed images and learning activities, such as crosswords and puzzles.

Lately, the Mpala Live! team also welcomed Victor Kasii, as a Digital Media and Education Producer. Victor will provide regular content for the website and for Mpala Live!'s numerous social media platforms to boost their online presence. He will expand the website's educational outreach program, and strengthen partnerships with Kenyan schools and other stakeholders to build out the Virtual Classroom. A media professional with experience in documentary filmmaking, digital art and online publishing, Victor is thrilled to use his skills to inspire a new generation of change agents and promote the mission to preserve the wild and secure a better future for the world's children. He realizes that his role, in connecting an otherwise marginalized rural community in Laikipia with the rest of the world using technology, is pivotal. •



Self portrait by Victor Kasii, the latest addition to the Mpala Live! production team.

# Mpala Welcomes Beatrice Wanjohi and Fardosa Hassan



We are lucky to announce two new additions to our Administration team! Join us in welcoming the indefatigable Beatrice Wanjohi and the ever-optimistic Fardosa Hassan.



**Beatrice Wanjohi** is our new Human Resources Administrator and has over 16 years of experience in administration and program management, and has worked primarily with organizations that focus on building local capacity for better living using locally available resources. She holds a Master's degree in Governance and a degree in Business Administration (Human Resource Management), and has led trainings on leadership and governance. She is passionate about youth development and mentorship, and has served as a mentor and advisor for the Young Africans Leadership Initiative (YALI), among other youth-oriented programmes.



**Fardosa Hassan**, our Administrative Assistant, comes from our neighbouring community of Lekiji. She helps researchers and students in processing affiliations, permits and passes that they need to conduct research effectively. She welcomes visitors to Mpala Research Centre, assists with bookings and logistics, and serves as a community liaison, organizing trips to community areas for student groups and researchers. Fardosa was a beneficiary of the Mpala Educational Fund. She studied education management and social science at university, majoring in secondary education. She enjoys teaching our after-school Northern Kenya Conservation Club kids about wildlife and conservation. Outside work, she likes to swim and make new friends.

## Congratulations to Our Daraja Academy Transition Programme Interns!

The **Daraja Transition Programme** seeks to develop self-reliance and career readiness in promising female high school graduates. After attending life skills workshops at Daraja Academy, the students intern at an organization. In April and May 2017, Mpala hosted Transition Programme interns Mercy Wambui and Christine Epule.

**Mercy** worked with the Mpala Live! project, updating website content and project records, and assisting with film production. She will be pursuing a Bachelor's degree in IT from the University of Eldoret.

**Christine** assisted with ecological research and vegetation monitoring, and was mentored by Mpala researcher Kimani Ndung'u. She will be pursuing a diploma in Wildlife Management from the Kenya Wildlife Service Training Institute.



Mercy and Christine graduated from the programme on May 5, 2017. We wish them all the best as they continue onto the next phases of their lives!



# Mpala At A Glance



## Northern Kenya Conservation Clubs (NKCC)

\* **Annual teacher training workshops (January 6/10, 2017 - MRC and Kimanjo):** Mpala Research Centre supports Conservation Clubs in 12 Laikipia primary and secondary schools. Led by NKCC Founder and educator Nancy Rubenstein, the workshops focused on the Clubs' philosophy of experiential learning and hands-on teaching. The 30 teachers who attended put together action-packed lessons with games, experiments and role-plays, and discussed the challenges and opportunities they expected to face in 2017.

\* **O1 Jogi Primary visits MRC (March 31):** Thirty-one students and 2 teachers from the O1 Jogi Primary School Conservation Club visited Mpala Research Centre. The goal of the visit was to give children the chance to see wildlife in their natural habitat and to witness ecological patterns and animal behaviour first-hand on a safari across riverine habitats, savannah bushland and rocky escarpments. They also met Mpala researchers and staff who work in conservation and learned about the work they do, from hippo research and invasive species control to the Mpala Live! outreach project.



Above: NKCC teachers try out a new game at the January workshops.

Below: NKCC teachers set up an experiment testing the effect of vegetation cover on soil erosion.



**Biocontrol Project at Shiloh Naibor Primary:** Students collect leaves of invasive cactus species (genus: *Opuntia*) in their communities, and use them to rear cochineal scale insects in a greenhouse at their school. They then introduce the insects, which feed on and damage the structure of *Opuntia*, into their communities.



O1 Jogi Primary students visit the Hippo Pool at Mpala, and learn about this fascinating animal's ecology.



# Northern Kenya Conservation Clubs (NKCC)



Everlyn Ndinda

**\* Mpala researchers teach disease ecology lessons in the Conservation Clubs (March-April):** Researchers Jenna Hulke and Kennedy Saitoti visited a number of local primary schools to spread awareness and knowledge of disease transmission, focusing primarily on the spread of malaria through mosquitos. With an explanation of mosquito ecology, the researchers conducted an activity with the children to show that not all mosquitos carry these diseases, and that it is possible to live within a community with a large mosquito population without contracting malaria, but that it is always important to stay aware.

## Educational Visits and Courses



*Kennedy Saitoti shows George Mason University students around the greenhouse where he works. This Study Abroad programme "Wildlife and Conservation in Kenya" visited Mpala on January 16.*



Deming Yang

*Kimani Ndung'u shows students from the Turkana Basin Institute Origins Field School the compound leaves of *Acacia brevispica*. TBI students completed the first half of their Ecology module at Mpala from January 19-29.*



*Left: Small carnivore biologist Adam Ferguson demonstrates ectoparasite, blood and fecal sample collection on a genet to TBI Field School students.*

Deming Yang

*Right: Princeton University and Columbia University students sample mosquito larvae near the Ewaso Ng'iro river, during a course on Vector Biology (March 23-April 12), taught by MRC Director Dino Martins.*







Students from Princeton and Columbia Universities participated in a Tropical Biology and Sustainability Field Semester at Mpala and other locations in Kenya from February 5 to May 2.

The second module in the semester, “Community-based Conservation”, was led by conservationist Paula Kahumbu and held in Amboseli. The course consisted of collaborative projects between Kenyan and US students, scientists, development professionals and engineers.

Top left: Princeton/ Columbia students visit a cultural boma at Imbirikani to learn about challenges and opportunities in the beadwork business. Middle left: “Community-based Conservation” participants from Mpala, Gearbox Kenya, Dedan Kimathi University and University of Nairobi set up camera traps to test the effectiveness of wildlife deterrents around farms.



Above: Mpala hosted a Princeton Anthropology course from March 19-24. Guided by a local archaeologist from the National Museums of Kenya (John Mwangi), students gathered data on stone tools at a recently discovered site behind MRC. They also visited field sites with resident researchers and a local pastoralist community.



Above right: Visitors from the IGAD Biodiversity Management Programme on field excursions led by veterinarian John Kimani and Termite Project manager Kimani Ndung’u.

From April 21-22, these 25 community leaders and members, government officials, NGO officers, and local authorities from Kenya and Somalia participated in a weekend of experiential learning at MRC. The purpose of this visit, facilitated by ICRAF, was to strengthen skills and knowledge of cross-border biodiversity conservation. Participants also learned about how science can inform sustainable natural resource use and solutions to human-wildlife conflict. The group attended informational presentations and field trips by Mpala researchers, including Duncan Kimuyu, Dedan Ngatia, Everlyn Ndinda and Wilson Nderitu.





Walker Darling

**Secretary Bird (*Sagittarius serpentarius*):** The only raptor with long legs, the secretary bird spends most of its time on the ground, taking to flight only when hard-pressed. Its most distinctive feature is its long black crest feathers, which resemble quill pens.



Marissa Dyck

**Red-Headed Rock Agama (*Agama agama*):** Among the most common lizards in Africa, these small, long-tailed reptiles live almost everywhere south of the Sahara. Subordinate males, females, and juveniles are typically a dull, olive brown, while a dominant male (pictured) is brightly colored.



Scott Carpenter

**Common Eland (*Tragelaphus oryx*):** Despite their bulky, cow-like build, elands possess surprising stamina and a high metabolism. Over the course of a day, a herd of elands can travel up to 55 km to find new browsing sites.



**Grevy's Zebra (*Equus grevyi*):** The largest living zebra species, Grevy's zebras are also distinguished by their thinner, more densely concentrated stripes and their more rounded ears. While plains zebras interact in fairly stable harems, Grevy's zebras form groups where the composition changes nearly every day.

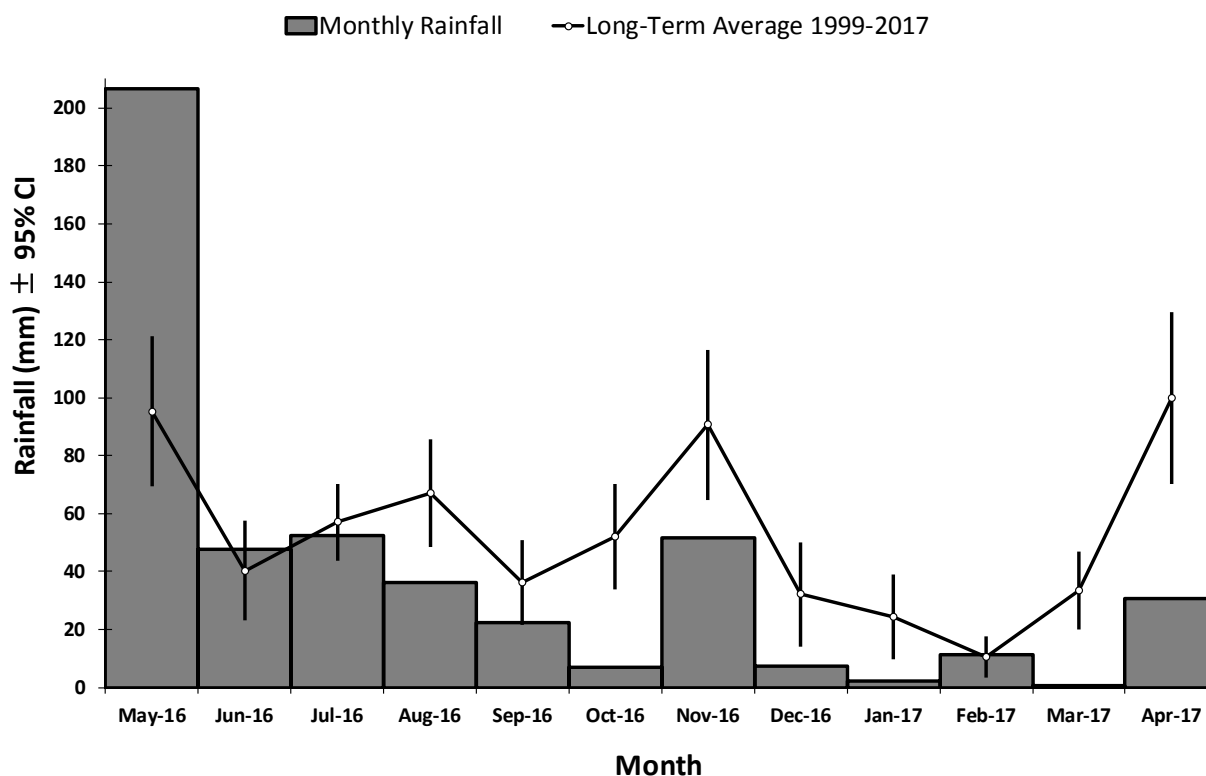
For more facts about wildlife at Mpala, check out the Mpala Live! Field Guide:  
[http://mpalalive.org/field\\_guide](http://mpalalive.org/field_guide)



# Mpala Weather Corner



## MRC RAINFALL MAY 2016 - APRIL 2017



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