

MPALA MEMOS

CLICK ON THE TITLES BELOW TO READ THE FULL ARTICLE!

RESEARCH

- FOLLOWING ROOSEVELT'S FOOTSTEPS - JACY HYDE
- THE LIVES OF LIZARDS: HOW HIPPO BEHAVIOR IMPACTS MONITOR LIZARD POPULATIONS- IAN WARRINGTON

NOTES FROM THE FIELD

- ELEPHANT ETIQUETTE- SANDY ODUOR
- HOW TO CAPTURE A KORI BUSTARD - KATHERINE MERTES

OUTREACH

- MPALA LIVE! - BRINGING THE SIGHTS AND SOUNDS OF MPALA'S WILDLIFE TO THE WORLD - VALERIE MAY
- CONSERVATION CLUBS CELEBRATE FIVE YEARS! - NANCY RUBENSTEIN

MPALA UPDATES

- MPALA -AT-A-GLANCE
- WEATHER CORNER

IF YOU WOULD LIKE TO SUPPORT RESEARCH AND OUTREACH AT MPALA - CHECK OUT OUR WEBSITE AND **DONATE HERE!**

FOLLOWING ROOSEVELT'S FOOTSTEPS



Jacy Hyde

The Roosevelt Resurvey Project will begin a large-scale mammalian survey in Laikipia and the surrounding areas in an attempt to replicate surveys originally performed in the area 100 years ago. In 1909, former US president Teddy Roosevelt and his son Kermit embarked on a Smithsonian research expedition to East Africa to survey wildlife communities. This expedition lasted over a year, employed over 250 local guides and porters, and spanned across what are now Kenya, the Democratic Republic of Congo, Uganda, and southern Sudan. These surveys

THESE SURVEYS RESULTED IN THE LARGEST COLLECTION OF EAST AFRICAN WILDLIFE SPECIMENS FROM ANY SINGLE SCIENTIFIC EXPEDITION ...

resulted in the largest collection of East African wildlife specimens from any single scientific expedition, totaling over 23,000 natural history specimens. Along with field notes and maps from the journey, these specimens are still stored at the Smithsonian National Museum of Natural History in Washington, DC.

Roosevelt's surveys provide an excellent baseline for documenting the abundance, distribution, genetic diversity, and the ecology of mammals 100 years ago. Since the landscape in east Africa has changed dramatically since the original surveys, this is an ideal opportunity to investigate how land-use change has affected wildlife populations, and to explore how continued change can be expected to affect wildlife in the future.

Smithsonian personnel are using Roosevelt's journals, maps, photographs, and other documents to reconstruct the route followed by the original expedition. Since weather



Rhianna Hohbein

Researchers Jacy Hyde and Ashley Hintz collect and study rodents as part of the Roosevelt Resurvey Project.

and elevational patterns can also cause changes in biodiversity, the chosen subset of field sites will include a variety of different human landuse types as well as underlying environmental gradients. This will allow us to determine the importance of human-caused disturbance in altering wildlife populations as opposed to other factors such as weather patterns, elevation, or the inherent characteristics of the species present.

The project will use both modern tools and historical sleuthing to answer questions about extinction risk and ecosystem change over the last 100 years.

...continued on page 3



...continued from page 2

Using information from genetic samples will allow us to compare effective population sizes for past and present focal species. Historic presence and absence data will reveal which species and populations have changed in the last century and allow for predictions about which will continue to change in the future.

By performing isotopic analysis, we can compare the diet and general ecology of animals, which will enable us to test hypotheses that investigate how the life history traits of a species - including body size, reproduction rates, and life span - correlate with extinction risk. Finally, comparisons of modern vs. historic collections across ecological gradients will test predictions on where and how whole communities are most likely to continue to change in the future.

The results from this study will allow us to identify species and habitats at risk, to understand why some species are more vulnerable to extinction than others, and to predict why and where human pest species are likely to increase. Overall, the Roosevelt Resurvey will provide important information that will aid land managers in prioritizing both conservation and human welfare. ■

[return to title page](#)



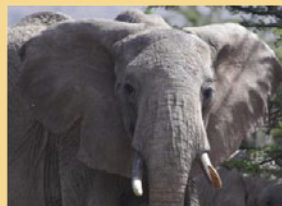
Jacy Hyde

Elephantulus rufencens

KENYA GLOBAL SEMINAR FILMS

This summer, Mpala hosted a five week Princeton course titled "Documentary Filmmaking in Kenya: The Art of Science Storytelling." 15 students created films based on research and programs at Mpala, including Grevy's Zebras, African Wild Dogs, and the Northern Kenya Conservation Clubs. The films were screened earlier this month at Princeton University, and are available for viewing below!

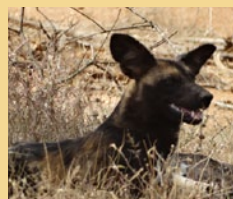
The Matriarch



Nature's Nurturers



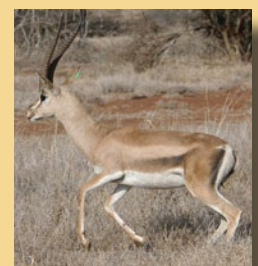
The Lost Boys of Laikipia



Realignments: A Zebra Story



Curse of the Gazelle King



PHOTOS BY ENOCK OCHIENG, STEFANIE SILLER

THE LIVES OF LIZARDS: HOW HIPPO BEHAVIOR IMPACTS MONITOR LIZARD POPULATIONS



Ian Warrington, Stefanie Siller



Researchers Springer Browne, Michael Brown, and Ian Warrington perform surgery on a monitor lizard.

‘Capturing a monitor lizard is way scarier than capturing a bear, hands down’.

As project manager of Doug McCauley’s hippo project at Mpala, Ian Warrington is studying how hippos are affecting their surrounding ecosystem. Hippos are distinct in that they feed on land during the night, but spend the majority of the day in water. When they defecate into the water, then, they are effectively moving large amounts of nutrients from a terrestrial ecosystem to an aquatic one. By bringing in these nutrients, hippos are able to change the chemistry of the water, which launches a chain reaction: different nutrient levels cause a higher primary production of algae, which increases the number and species of insects, in turn providing more food for and thus larger populations of fish. This is where monitor lizards come in – as aquatic animals, they need water to survive,

and spend nearly the entirety of their waking hours in the water hunting and foraging for fish. By looking at monitor lizards, Ian is able to investigate the impact that hippos are having upon their environment.

The hippo team is hoping to ascertain how monitor lizards react differently depending on the presence of hippos. They are answering this question in two ways: first, they are looking at isotopes in the monitor lizards’ blood. Stable isotopes help ecologists track nutrient sources through food webs. By drawing blood from lizards living both downstream and upstream of the Hippo Pools, the researchers can see if there is a difference in stable isotope signature of those getting nutrients from an aquatic source (the lizards upstream) versus a terrestrial source (the lizards downstream). In other words, they will learn where the lizards’ nutrients are coming from.

...continued on page 5

THE LIVES OF LIZARDS: HOW HIPPO BEHAVIOR IMPACTS MONITOR LIZARD POPULATIONS



...continued from page 4

The second method also involves capturing monitor lizards, but instead of drawing blood, Ian and his team implant a transmitter into the lizard's abdominal cavity in order to track its movement.

easier foraging, and thus requiring a smaller home range. Gathering this data isn't easy though; monitor lizards can grow up to five feet long, and retrieving a captured lizard from the metal traps is, according to Ian, 'terrifying'.



Ian Warrington

A captured monitor lizard.

This transmitter emits a signal up to 300 meters away, thereby enabling the researchers to locate the lizard on a relatively micro scale. The information yielded by this study is necessary for verifying the work of the isotope research; in order for the isotope work to be reputable, the hippo team must show that lizards are actually maintaining territories either upstream or downstream of the hippos, and are not migrating between. Furthermore, the researchers want to show that because the higher nutrient levels in the hippo pools are increasing food source densities for monitor lizards, it is creating

Yet results so far have been encouraging. Based on initial observations, the lizards at the hippo pools do appear to hold a smaller home range than those upstream. The monitor lizards seem to be maintaining an area of about 500 meters in the stretch of river, which is promising for the isotope study. As Ian and his fellow researchers embark further on this completely unstudied field, they will continue to discover information about monitor lizards' movement and behavior that has never before been known. ■

[return to title page](#)

MPALA LIVE! - BRINGING THE SIGHTS AND SOUNDS OF MPALA'S WILDLIFE TO THE WORLD



Valerie May

The story of the Mpala Live! project starts with a serendipitous writing assignment half-way around the globe. Smithsonian Zoogoer asked me to write a story for them about conservation biology and the Smithsonian Conservation Biology Institute. Reporting that piece led to Laikipia and the Mpala Research Centre. You're all familiar with the unique efforts made here to promote the successful, sustainable coexistence of humans and wildlife—but that is not a story often read by the general public. Positive conservation stories are hard to come by and “Living with Wildlife” struck me as a story that could reach a wide and receptive audience via digital media.

In my previous life I headed up National Geographic magazine's website. In that role I launched a live “WildCam” franchise that included a phenomenally successful live cam at an African watering hole—Pete's Pond—in Botswana. A pool on a bend in the Ewaso Ng'iro boundary between Mpala and Ol Jogi where a resident pod of hippos reside seemed the perfect location for another Pete's Pond, but with a different mission—that is using the cam as a jumping off point for a variety of digital media efforts that bring to life the full story of conservation in Laikipia and excite folks—especially students—about what is happening here.

And again—serendipity. Executive Director Margaret Kinnaird knew about Pete's Pond and was an enthusiastic supporter of the larger vision for Mpala Live! Doug McCauley, the lead researcher for the Hippo Team, and assistant Lacey Hughey had already been thinking about putting a live streaming cam at the pool. With some collaborative brainstorming the complete Mpala Live!



The Mpala Live! webcam will focus on Mpala's 'hippo pool'.

proposal was born. Eighteen months later, Annenberg Foundation provided full funding support and work started August 1.

The live Web cam will focus 24/7/365 on a bend of the Ewaso Ng'iro River known as the 'hippo pool.' The cam will stream the sights and sounds from those waters, where a resident pod of about 26 hippos hunker at the surface while elephants, hyenas, zebra, giraffes, wild dogs and more drink at the shoreline. The live stream—augmented by audio and night vision--will broadcast on Explore.org—an arm of Annenberg—as well as the Mpala Live! website.

Our purpose is to excite and delight visitors with Mpala's wonders and channel their passion into real-time conservation biology. To that end a robust website including “Wild Cards” – which offer audio, video, imagery, and general information about each of some 90 plus species; an interactive map combining the regional history and geography; video webcasts; citizen science research; and a kids section devoted to students and classrooms.

...continued on page 7

MPALA LIVE! - BRINGING THE SIGHTS AND SOUNDS OF MPALA'S WILDLIFE TO THE WORLD



...continued from page 6

Live Lessons from the Bush

A series of webcasts by Mpala researchers and others aims to introduce viewers to the complexities of living with wildlife as well as the field research being conducted here. Online visitors will be able to interact with experts via live chat or comments board. The videos will be archived on the Mpala Live! website and an Mpala YouTube Channel.



A pod of hippos relaxes on the banks of the Ewaso Ng'iro River.

Citizen Science Application

This feature allows online visitors and students to contribute to wildlife research at Mpala. Citizen scientists can log-in and note species and behavior at the hippo pool and upload their comments to a time log, thus contributing to a 24/7 record of wildlife activity at the watering hole.

Kids Corner Network

Students and classrooms can deepen their experience with the natural environment and human culture via lesson plans and classroom activities tied to the live cam, Wild Cards, Live Lessons, etc. Teachers and parents will be able to share and annotate classroom materials. One section of the site is devoted to direct interaction among students—linking the Mpala primary school and other schools in Laikipia directly with a network of US and possibly British schools.



Students from the Mpala Primary school will share their own experiences with wildlife with students from across the globe.

This ambitious program has found tremendous support from many of Mpala's regular contributors. To name just a few—the Cornell Ornithology Lab and the hippo team are shaping the citizen science project; Princeton University and its Conservation Clubs project are doing the same for the education section of the site. Local artist Lavinia Grant has been commissioned to provide line drawings of animals for the Wild Cards. Meanwhile, website development is underway with a projected launch date of Jan/Feb 2014.

First out of the gate, however, is the live cam featured on Explore.org. We hope to have that up before the end of the year. We are currently in the process of upgrading the Internet to include a dedicated 10 MB stream for the cam. So, stay tuned! ■

[return to title page](#)

IF YOU WOULD LIKE TO CONTRIBUTE TO THIS PROJECT WITH IDEAS, IMAGERY, OR VIDEO—PLEASE FEEL FREE TO CONTACT ME AT VALERIEMAY1326@YAHOO.COM.

CONSERVATION CLUBS CELEBRATE FIVE YEARS!



Nancy Rubenstein

The Northern Kenya Conservation Clubs (NKCC) are celebrating their 5th anniversary this year! What started out in 2008 as after-school programs in four schools has grown to eleven at Mpala and the surrounding communities.

The goal of the conservation clubs is to raise children's awareness of the natural world around them and their role in preserving it. The lessons involve 'experiential learning', something that is very different from the usual style of learning seen in Kenyan schools. Conservation club members go outside to explore and observe, play games that teach concepts, and write poetry about the topics they're learning.



Stefanie Siller

'Which Animal Am I' encourages students to combine critical thinking with their knowledge of wildlife to complete the game.

Every July, NKCC students take part in Community Conservation Day. Over 300 students, community members, and researchers travel far and wide to gather at one school, where each club makes a presentation about connections they made

At the first environmental fair, Shiloh Naibor displayed a diorama on The Water Cycle.



Stefanie Siller

during the year to a particular conservation topic. They share what they have learned, they learn from others, and they educate the community. This year, we added another component to the day - an environmental fair! Each club displayed dioramas, posters, or experiments illustrating a particular conservation concept, and club members had the opportunity to share their work and discuss environmental issues with other students from across the district.

...continued on page 9



Stefanie Siller

Students from across the district mix and mingle while observing each club's display at this year's Community Conservation Day.

CONSERVATION CLUBS CELEBRATE FIVE YEARS!



...continued from page 8

Over the past five years, the Conservation Clubs have become an integral part of the local schools and communities and they have also inspired researchers and students in Kenya and across the globe. Every summer, for instance, two Princeton Environmental Institute student interns accompany me to model experiential learning techniques with the clubs and to prepare the students for Community Conservation Day.

From a few dozen students to hundreds, the Conservation Clubs have grown from a small group of dedicated students and teachers to an entire network of conservationists devoted to protecting the environment, learning and teaching each other from across the globe. Whether they leave Laikipia, or stay in their home communities, I have great hope that these students will bring what they have learned with them to transform their environment and become effective stewards of the land. ■



Nancy Rubenstein

Students at Il Motiak Primary School work to eradicate soil erosion at their school.

Conservation Club activities are also beginning to connect with research projects being carried out at Mpala. All the clubs learned about the importance of vultures and their plight, and they'll be learning about Grevy's zebras and lions, two interconnected and endangered species, this coming year. Mpala Live!, one of the newest projects at Mpala that focuses on a webcam streaming 24/7/365 from a bend in the Ewaso Ng'iro River, will allow students to learn about hippos and how they influence rivers and savannas, connect the schools with students in the United States, and encourage active participation in conservation efforts.

[return to title page](#)

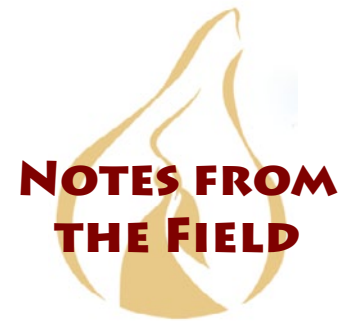
SUPPORTING CLUBS, STUDENTS AND TEACHERS

Members of the NKCC receive a curriculum guide, a supply of materials to carry out the activities in the curriculum guide, and a small library of relevant books. In addition to providing materials, we aim to produce effective educators who will use these materials to their fullest. Last November, we held a two-day workshop for local teachers, including those involved in the NKCCs, to provide mentorship on how to promote experiential learning; we hope to hold another workshop this coming January as we continue to help our clubs grow and improve.

NKCC is also fortunate to be able to support student scholarships through funding provided by Princeton Grand Challenges and the Graham Family Foundation. Currently, eight former club students are receiving scholarships to complete their secondary education. In addition, nine club teachers are receiving funding to continue their education. Furthermore, the clubs are receiving small grants to carry out projects including beekeeping, soil erosion, and tree planting. By supporting clubs, students, and teachers, we hope to see all three thrive and support the growth of one another.

-Nancy Rubenstein

ELEPHANT ETIQUETTE



**NOTES FROM
THE FIELD**

Sandy Oduor

Eating spaghetti using a fork may not be an easy experience, especially for one who has never done it before. As you twirl your fork over and over again, stubborn strands of pasta continue to dangle off the ends or fall back onto the plate. This is the same predicament that baby elephants go through, especially during the weaning period. After relying entirely on their mother's milk, young calves are suddenly introduced to an entirely new food, and must learn to use their trunk as a utensil for the first time.

ELEPHANT FUN FACT:

DID YOU KNOW THAT ELEPHANTS ARE AMONG THE MOST EXUBERANTLY EXPRESSIVE OF CREATURES? ELEPHANTS HAVE BEEN OBSERVED ON SEVERAL OCCASIONS TO EXPRESS JOY, ANGER, GRIEF, COMPASSION AND LOVE.

I recently witnessed a calf struggling to learn how to graze using its trunk. Every time it tried to grasp a bunch of grass, pieces would dangle and fall off the end of his trunk. After two unsuccessful trials, the baby elephant approached his mother and touched her trunk gingerly, a clear sign of communication. All of a sudden, I saw the mother cutting off grass using her toe nails! She started collecting

piles of already chopped off grass, while the young elephant stood beside his mother waiting patiently.

Soon after, the baby elephant started rolling the piled up grass with the help of his mother, and was finally able to eat! I was so amazed at how elephants care for their young ones. ■

[return to title page](#)

ELEPHANT PROFILE:

Grayson



AGE (APPROX.): 14 YEAR OLD FEMALE

CALVES: 1

ABOUT HER: MEMBER OF THE AG FAMILY GROUP. WHEN SHE WAS YOUNG, GRAYSON'S IMPRESSIVE SIZE AND AGGRESSIVE NATURE RESULTED IN THE LOSS OF HER RIGHT TUSK - AN EASY IDENTIFICATION TOOL. SINCE BECOMING A MOTHER, HOWEVER, SHE HAS BECOME VERY DOCILE, MAKING HER ONE OF MPALA'S 'GENTLE GIANTS'.

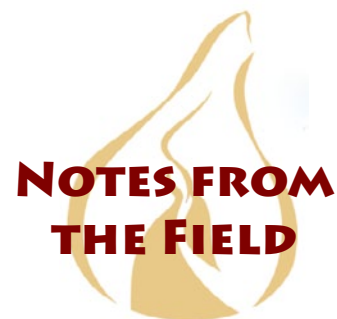
FAVORITE HAUNTS: BY THE MPALA RESEARCH CENTRE, AROUND THE BOREHOLE AREA, AND NEAR RIVER CAMP.

IDENTIFYING FEATURES: MISSING RIGHT TUSK, SHORT LEFT TUSK, 2 SMALL NOTCHES ON HER LEFT EAR, 3 SMALL NOTCHES ON HER RIGHT EAR.

ASSOCIATIONS: USUALLY IN THE COMPANY OF A 20 YEAR OLD MATRIARCH (GWEN), ANOTHER 15 YEAR OLD FEMALE (GYPSY), AND SEVERAL CALVES, INCLUDING TWO CALVES THAT ARE LESS THAN 2 YEARS OLD (ONE OF WHICH IS GRAYSON'S CALF).



HOW TO CAPTURE A KORI BUSTARD



Katherine Mertes

Understanding how animals respond to different environmental conditions is an important step in learning why a species occurs where it does. Preference for certain conditions, and aversion toward others, can explain a species' global range – and, on a more local scale, why a species might be found only in a few specific places within its range. In order to explore such environmental preferences and distribution dynamics for East African birds, we are attaching GPS ('Global Positioning Systems') tags to multiple species. Most recently, we captured and tagged a Kori bustard, one of the largest flying birds in Africa.



Katherine Mertes



Margaret Kinnaird

Capturing a Kori begins with conducting surveys across Mpala to identify areas where the species can consistently be found – and where Safaricom signal is strong enough to support the GSM ('Global System for Mobile Communications') capabilities of the sophisticated tags obtained through collaborators at the University of Konstanz, Germany. After establishing suitable areas, the capture process works like this: spot a Kori during the relatively cooler morning and evening periods, as the species is particularly sensitive to heat stress. Determine the direction the Kori is headed, then rush

ahead of it to hang a monofilament net 3 meters tall and 50 meters long, oriented perpendicular to the sun (to reduce visibility), while keeping one pair of eyes on the bird to detect any sudden changes in direction. Once the net is securely – and, hopefully, invisibly – strung from acacias, circle back and use the vehicle to carefully, steadily, slowly herd the bird into the net. If all goes smoothly, the Kori unwittingly walks into the net, becoming entangled just long enough for us to emerge from the vehicle, secure the bird in a loose yet firm grip, and place a dark hood over its head to induce calm during handling.

In mid-October all did go smoothly for our field team, and we successfully attached a GSM/GPS tag to an adult male Kori bustard. Over the next year, precise GPS locations collected every 5-20 minutes will enable us to learn which environmental conditions these birds prefer, and just how far they will travel to track these preferred conditions. When analyzed with movement data from other tagged species at Mpala – such as red-billed and Von der Decken's hornbills – we hope to be several steps closer to solving fundamental questions of species distribution dynamics. ■

[return to title page](#)

Courses & Student Groups

- From August 10th to 15th, Michigan University held a 26 person field course at Mpala.
- 31 individuals from the Pedometric 2013 Conference visited Mpala on August 30th for a workshop on Digital Soil Mapping and Pedometric Analysis
- Karatina University held a one-day field workshop on October 17th on vegetation surveys and estimating wildlife densities.
- Earth Watch hosted two workshops for 29 visitors on Business Skills for World Heritage at Mpala in October.

Events

- On September 7, Alakara gave their first presentation of I-Care re-usable sanitary towels to the women of Lekiji. They are working to educate young women and distribute I-Care products in order to combat high absenteeism in schools.

- The Mpala Girls Empowerment Project hosted a lecture on September 11 as part of the Women in Leadership Outreach Lecture Series. Elleni Stephanou and Michael Brown wowed the young women of The Daraja Academy of Kenya with their presentation on working with Grevy's zebra, attaining a career in conservation, and working towards professional goals.



Stefanie Siller

Daraja students inspect a zebra skull.



Stefanie Siller

Alakara Women's Group presents I-Care products to the Lekiji community.

- The Mpala Primary School took a field trip to Ol Pejeta on October 18th! 26 students and 7 teachers traveled to the park where they spent the day learning about conservation and wildlife.

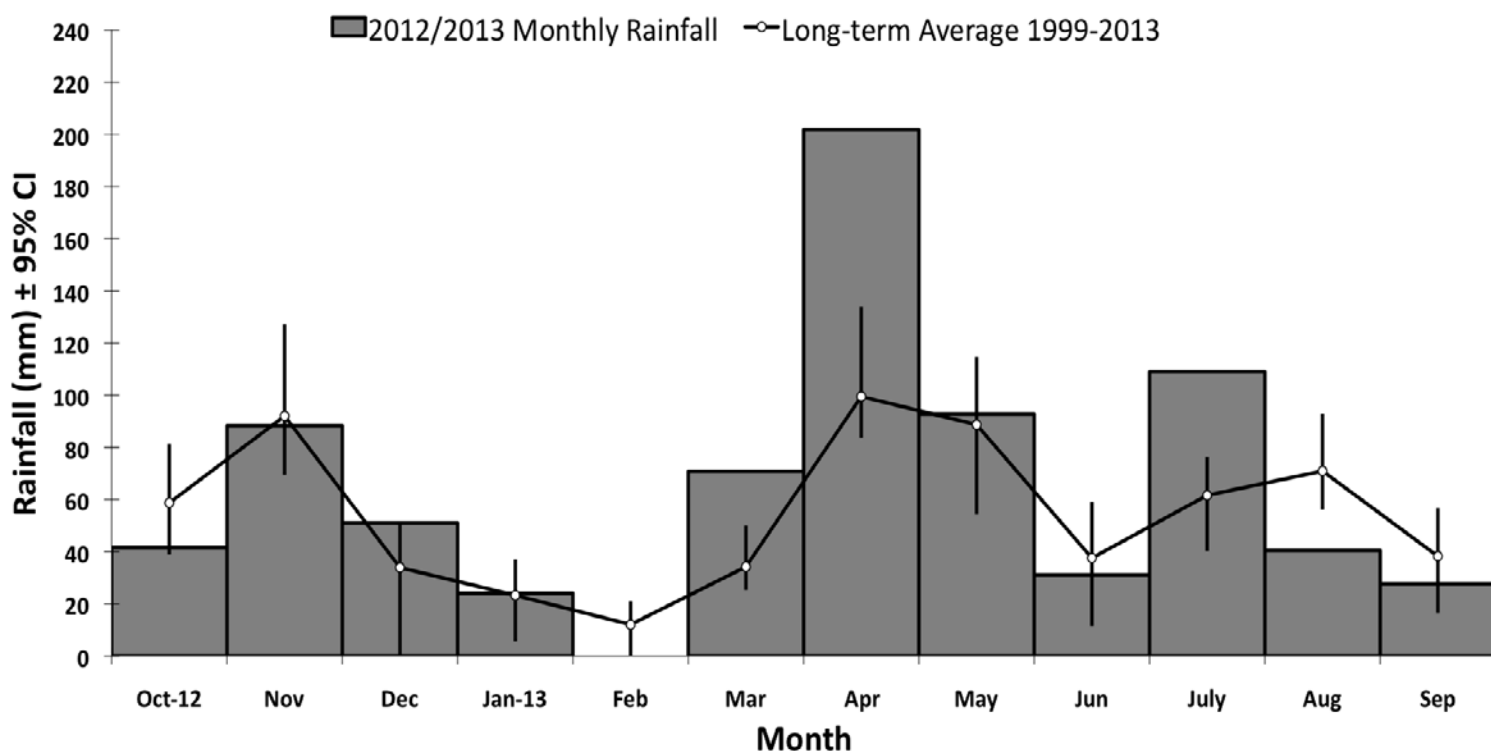


John Maina

Mpala students visit the Information Center to learn more about the animals on Ol Pejeta.



MRC RAINFALL 2012-2013



MPALA WILDLIFE FOUNDATION & MPALA RESEARCH TRUST

Founder:

George Small (1921-2002)

Mpala Conservancy Manager:

Michael Littlewood

Contact Information

(USA)

Kay Berney

kberney@mpala.org

Mpala Wildlife Foundation Trustees:

Donald Graham, Chairman

Giles Davies

Howard Ende

Jeffrey Gonya

Laurel Harvey

Dennis Keller

Ira Rubinoff

Paul Rudy

John Wreford-Smith

William S. Eisenhart, Jr. Trustee Emeritus

Mpala Research Centre Trustees:

Kenya Wildlife Service

National Museums of Kenya

Princeton University

University of Michigan

Smithsonian Institution

Mpala Wildlife Foundation

Daniel Rubenstein

Mpala Wildlife Foundation

PO Box 137

Riderwood, MD 21139-0137

USA

(Kenya)

Tel: 254-62-32758

Executive Director:

Margaret Kinnaird, PhD

mkinnaird@mpala.org

Mpala Mobile Clinic Coordinator:

Shannon Wreford-Smith

shanni@wananchi.com

Mpala Research Trust

P.O. Box 555, Nanyuki

Kenya

www.mpala.org

Newsletter Editing and Design

Stefanie Siller