

MPALA MEMOS

NEWS FROM MPALA

TOP STORY

CAMEL HEALTH

Springer Browne

I was anxious the first time I headed to the boma to meet the camels. The dromedary camel is characterized as the one humped tank that can go a week without drinking, the rising star of agriculture for arid and semi-arid lands, and the producer of milk that may help treat everything from diabetes to eczema. On arrival, a sea of long necks and faces turned and lazily chewed at me. I think I was more impressed than they were.

I accompanied Sharon Deem, a veterinary epidemiologist from the St. Louis Zoo Institute for Conservation Medicine, who initiated the current project on camel health in September 2011. We had the help of Laura Budd, the former Princeton in Africa Fellow, Sina Mahs,

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*Springer and herders prepare for a blood draw.
Photo by Sharon Deem.*

WATER CONSERVATION

GOT WATER?

CHECK OUT THE NEW NANJA WEIRS!



Margaret Kinnaird and Morgan Pecora-Saipe

Mike Littlewood, Mpala's Ranch Manager, saw the potential of the Nanja area as a water catchment when he observed water trickling onto the river road, some 3500 meters distant and 60 meters lower in elevation than the remnants of an old dam that once held water at Nanja. With the help of en-

Mike Littlewood surveying the full dam. Photo by Laura Budd.

gineers from Rural Focus in Nanyuki, Mike designed a system of five large weirs to collect rain, spring water, and run-off from the rock-faced catchment area. Two small holding compartments positioned downhill from the first and fourth weirs were included in the design to act as safety nets to prevent a significant loss of water in the event of a pipe breaking or leaks occurring. Construction began in August 2010 and the finishing touches are being completed this month.

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WELCOME TO SCOTT MILLER

Laura Budd and Morgan Pecora-Saipe

Mpala welcomes Scott Miller as the newest chair of the Mpala Research Trust board. Scott is the Deputy Under Secretary for Collections and Interdisciplinary Support at the Smithsonian Institution. His long career and wealth of experience in conservation and ecology will offer excellent guidance for the research center's future.

At the Smithsonian, Scott oversees the development and maintenance of the Smithsonian's huge collections, international relations, Smithsonian libraries and press, and the fellowship office among other things. In addition to being the Smithsonian's representative on the Mpala Research Trust board, he is also the Smithsonian's liaison with numerous other scientific organizations all over the world. In his previous positions at the Smithsonian he has overseen their science museums, research facilities and initiatives, and education programs. He helped revitalize the Conservation and Research Center at the National Zoological Park and established and still leads the Consortium for the Barcode of Life, which seeks to make biodiversity information more readily available.

Scott is particularly proud of his involvement with the Consortium for the Barcode of Life, the Biodiversity Heritage Library and the Encyclopedia of Life. These efforts unify information that has been gathered globally but in the past, has been unavailable to many – often in the very countries from which the information was collected. Now there is easy access to such information, enabling improved understanding of our biodiverse planet and the ability to use the information to take steps toward sustainable development.

Mpala has grown significantly since Scott's first visit in 1998 with his wife Tina and dog

Jack. At the time Scott was working for the International Centre for Insect Physiology and Ecology in Nairobi. Upon his move to the Smithsonian in 2000, he continued his involvement with Mpala. The research and infrastructure has expanded since then to support an increasing number of students and projects.

Scott's goal is to "continue to solidify Mpala as the leading institution providing opportunities to study the ecology of semi-arid ecosystems in Africa, including social and management perspectives." Scott also feels that "Mpala has great opportunities to contribute to the needs of Africa, especially the sustainable development needs of Kenya and surrounding countries in the Horn of Africa". We are lucky to have Scott working to strengthen Mpala's relationship with the Smithsonian and international and Kenyan organizations. A warm welcome to Scott!



Photo by the Smithsonian.

WHAT CAN BIRDS TELL US ABOUT CLIMATE CHANGE?

Margaret Kinnaird, Tim O'Brien, and Phillista Malaka

Our changing climate may be the greatest challenge to wildlife conservation of the 21st Century. For example, warming climates in the temperate zones of North America are causing birds to shift their distributions northward and, for some, up mountain slopes. The timing of seasonal events such as migration, molt, and reproduction are occurring earlier each year. Some birds are now finding themselves out of sync with peaks in important resources such as fruit and insects. These days, the early bird doesn't always get the worm.

Are tropical birds responding similarly to increasing temperatures and changes in rainfall? We expect so, but long term information on changes in bird distributions, abundances or behaviors on a landscape level are hard to find— and none exist for Kenya. With colleagues from the National Museums of Kenya and the Kenya Wildlife Service, we set out to see if we could provide information that might help address the question.

Central Laikipia straddles a steep rainfall gradient where rainfall declines from 800 to 450 mm/yr from the equator northward over a stretch of around 60 km, a decline of 6 mm every kilometer. Because Laikipia's



A Lilac-breasted roller. Photo by Laura Budd.



*An Eastern-chanting goshawk.
Photo by Margaret Kinnaird.*

climatic gradient is a small-scale version of conditions that otherwise occur over broad geographic scales or over a long time frame, looking into how bird distributions, habitat selection, and population abundances shift across the rainfall gradient provides a more immediate way of answering what birds might do under changing climates.

Perched atop two vehicles, we counted birds every morning and late afternoon over 2 months at pre-established points in a variety of habitat types. Although counting birds may not sound like work to many, it requires deep concentration and razor-sharp attention. A small movement in a nearby tree may be the result of a stirring breeze or a skulking Rosy-patched Bush-shrike while a quick, easy-to-miss rattle might be the call of a Zitting Cisticola. And if concentrating too heavily on nearby bush and grassland, one can easily miss the Bateleur Eagle soaring above.

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COMMUNITY CONSERVATION DAY

Rebecca Haynes

On the bright, cool morning of Saturday, July 14th, a palpable sense of anticipation floated through the air. The first guests waited in the Il Motiok school grounds, expecting an enormous community attendance, as well as the arrival of hundreds of students from around Northern Kenya. These students represent Conservation Clubs, weekly after-school programs, at the primary schools of Mpala, Ewaso, Shiloh Naibor, Ngabolo, Kimanjo, Il Motiok, and Naiperere. Fostered by the guidance of Nancy Rubenstein, club coordinator Wilson Nderitu, and two student interns from Princeton University,



Students explain how vultures are killed by poisoned livestock carcasses. Photo by Dan Rubenstein.



Il Motiok's students welcome the day's visitors. Photo by Dan Rubenstein.

these youth address topics of environmental conservation, animal science, and ecology through games, art projects, and various other activities. The unification of their efforts into an annual event had sparked enthusiasm among the club members. Today, on Community Conservation Day, the students would give the public a glimpse of their weekly activities.

The volume of voices and laughter increased with each arrival of eager students, pouring out from the school bus in their school's own brightly-colored uniforms. By the time

all were seated, the sun blazed overhead. The Il Motiok School welcomed the audience of several hundred with a traditional Maasai dance in vibrant Maasai attire, marking the beginning of hours of festivities to come. Each Conservation Club recited a poem or narration on a topic of environmental conservation, followed by a demonstration of an activity or game on a similar theme.

For example, Naiperere Club invited a senior member of the community to discuss beekeeping; after doing so, he demonstrated the traditional technique of reaching a beehive high up in a tree by

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A community elder demonstrates how bee keepers climb up and down trees to reach traditional bee hives. Photo by Dan Rubenstein

COMPUTERS AT MPALA PRIMARY SCHOOL

Stefanie Siller

Computers may be an everyday part of our lives at the research center, but when we asked the students at the Mpala Primary School who among them had ever used a computer before, not a single hand moved. It was with excitement that fellow Conservation Club intern Rebecca Haynes and I thus began a basic course on the use of computers to the Mpala students in classes 4 and 5. Beginning with an introduction to different parts of the computers, students quickly and enthusiastically added to their vocabulary new words such as “mouse”, “keys”, “shift”, and “backspace”.

After only a few weeks, the students have already successfully completed their first major project: selecting a book of their choice, students worked together in small groups to create PowerPoints, complete with pictures, to illustrate some of the major facts that they learned, which they then presented to the rest of the class. We hoped that this assignment would not only give them some first hand experience with how PowerPoint - and computers - can be utilized in a classroom setting, but that it would also encourage them



Stefanie Siller and Rebecca Haynes introducing computer programs to Mpala students. Photo by Stefanie Siller.

to think creatively on their own (a skill not generally taught in the Kenyan classroom). The computer lessons were made possible through the donation of computers from The Graham Family Foundation.

Now, if asked who among them had ever used a computer before, 13 eager hands would show you just how much these students know.

FOOTPRINTS AT MPALA'S SCHOOL

Rebecca Haynes

Upon the request of the Mpala Academy's head teacher John Maina, African animal tracks were recently painted onto the school's veranda. Maina's idea was inspired by a similar display at the Ol Pejeta Conservancy Museum. Two Princeton University interns, Stefanie Siller and Rebecca Haynes, who spent the summer working with the Northern Kenyan Conservation Clubs under the leadership of Nancy Rubenstein, created life-size animal footprint stencils. Then, senior tracker Christopher Tenai provided guidance to accurately lay out the tracks. Painted in red, many animal footprints were represented, including the ostrich, lion, jackal, hyena,

baboon, aardvark, and elephant. The goal of this display is to benefit the Mpala students in their knowledge of animal science.



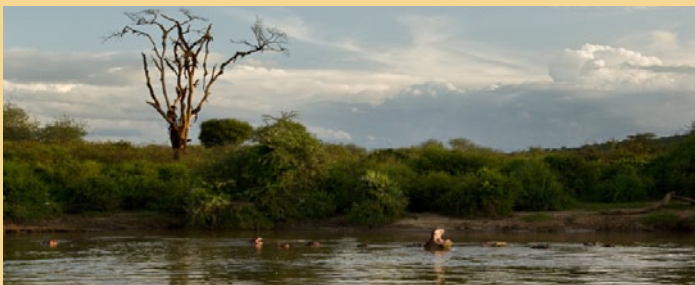
All took part in painting the footprints. Photo by Rebecca Haynes

MPALA-AT-A-GLANCE

- Mpala says goodbye and thank you to Laura Budd, outgoing Princeton in Africa Fellow, and welcomes incoming fellow, Morgan Pecora-Saipe. Laura is interning at the Wildlife Center of Virginia, a wildlife rehabilitation center, and applying to veterinary schools.

Courses & Student Groups

- In collaboration with UNESCO and the Shell Foundation, Earthwatch has facilitated two week-long workshops entitled 'Business Skills for World Heritage' for 30 participants at the Mpala Campsite.



Hippos hanging out in their favorite bend of the Ewaso Ng'iro River. Photo by Jen Guyton.

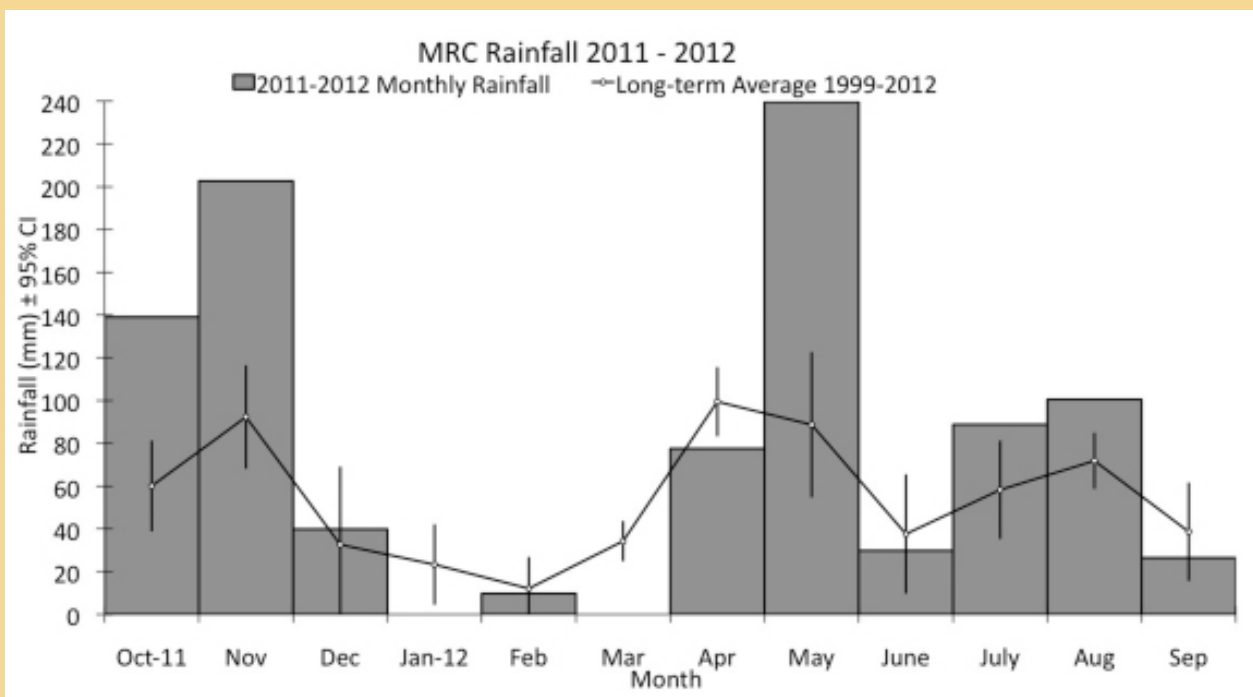
- Inaki Abella Guitierrez instructed two groups of Spanish students to study field research for one week each in September and October.

Events

- Daraja Academy hosted the third talk in our Women in Conservation and Leadership Lecture Series on September 18th. Jen Guyton, project co-manager, and Everlyn Ndinda, research assistant, of the Hippopotamus and River Ecology Project presented a talk entitled "Multitasking in a Multifaceted World: How women can play multiple roles in their careers and life."

- On October 13th, Mpala researchers hosted 26 Daraja students for our fourth Mpala Mentorship Day. Student groups explored the southern UHURU plots, observed a family of elephants, tracked monitor lizards, and enjoyed a presentation by Lacey Hughey, project co-manager of the Hippopotamus and River Ecology Project.

MPALA WEATHER CORNER



CAMEL HEALTH

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who was performing nutrition research on the camels but who we frequently convinced to work with us, and seven highly knowledgeable and enthusiastic herders who work with the camels every day, led by Stephen Moso. Wrangling 170 camels, each weighing anywhere from 100 to 1500 pounds, requires a team approach.

Our days were not completely dominated by needles, syringes, and blood tubes. An electronic database and identification for the camel herd was established. We treated common diseases including mastitis, abscesses, eye problems, skin wounds, and parasites. Preliminary data from the 2011 and 2012 field seasons show that camels in the Laikipia Region have parasites and pathogens of human health (zoonotic) and wildlife health (conservation) concern and that challenge camel production. We are now working to secure long term funding to better understand and prevent these diseases and how we can best provide health care for the camels as they increase in numbers in this region of Kenya. However, the most gratifying work was helping the camel calves, which are pretty much as cute as you can imagine!

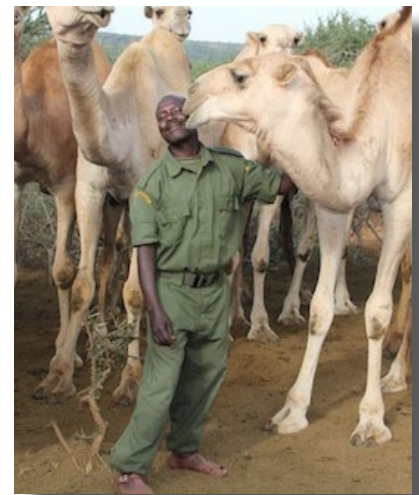


John, Sina and Laura prepare and label blood samples. Photo by Sharon Deem.



The camel health team. Photo by Sharon Deem.

There is a considerable amount of interest growing in the role camels will play in agriculture. Touted as a climate adaptive species, camels are the “new cow” in many regions due to the increasing drought conditions that cannot sustain cattle. But with their introduction into new areas comes questions about the diseases they may carry and transmit to both animals and humans. The Mpala Ranch and Research Centre provide a unique opportunity to study the camels and their interactions with wildlife and people. My long limbed friends are sure to be popular in the future, and I hope other researchers will enjoy meeting them as much as I did.



Moso gets some camel love. Photo by Sharon Deem.

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GOT WATER? CHECK OUT THE NEW NANJA WEIRS!

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At full capacity Nanja weirs hold 15 million liters of sparkling water, providing significant resilience in the face of increasing droughts and an important alternate water source from the mineral-heavy borehole water and bacteria-laden river water. At the moment the dam water is only roughly filtered with a gravel filter and although the water is clear, it is not fit for drinking without boiling and additional filtering. Future plans include a sand weir at the end of the pipeline to the research centre for added filtration. Once a sixth weir is built the area will be fenced off to prevent wildlife, livestock and people from contaminating the water.

The ranch house, village and gardens require approximately 30,000 liters of water per day, while the operations at the research centre use approximately 20,000 liters per day. Currently, these needs are provided by a deep borehole that requires hours of pumping by a diesel generator.

Once fully in place, Nanja Weir water – delivered by gravity alone – will be the dominant source of water for the ranch complex and the research centre, leaving the borehole as a backup for times of intense drought. Use and evaporation will lower the water capacity of Nanja over time but calculations show that, during a normal year, we should have around 150 days worth of water, enough to cover all our needs during the dry season months. Mike's facilitation of Nanja Weirs represents a vast improvement in water management on Mpala and lowers our ecological footprint while putting us many steps closer to self-sustainability.

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An aerial view of three of the five compartments of Nanja Weirs. Photo by Margaret Kinnaird.

WHAT CAN BIRDS TELL US ABOUT CLIMATE CHANGE?

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Our results show that there are indeed changes in bird communities along Laikipia's rainfall gradient and that changes go in opposite directions depending on habitat. For example, numbers of species and population sizes increase with declining rainfall in grassland habitats but decrease in whistling thorn acacia and bushland habitats. Carnivorous, omnivorous and fruit-eating birds likewise increase in diversity and abundance in grasslands but show opposite trends in acacia and bushland habitats. Rare species also followed a gradient with the lowest percent in the wettest site and highest percent of rare species in the driest site.

Although total rainfall in Laikipia has not changed over the past decades, the pattern of rainfall has altered dramatically. We are experiencing less frequent but more severe storms, causing longer droughts followed by flooding. Given that Laikipia is already a severely water-stressed region, we believe that these changes will gradually create a more arid climate.

What does this mean for the birds? Based on our surveys, we can expect an increasing diversity of birds typical of open grasslands and more arid habitats. In the whistling thorn acacia areas, we expect that diversity will decline as drier conditions do not favor this community. We already have a few hints of changing bird communities, including the southward shift in distribution and abundance of vulturine guinea fowl and sighting of arid zone hornbills on Mpala. Stay tuned!

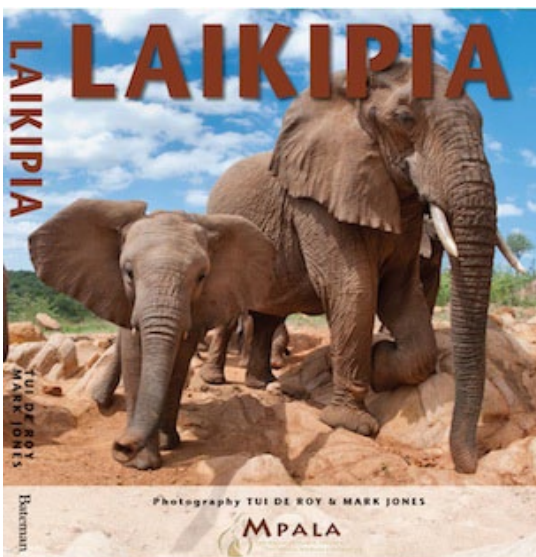
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*A strutting Kori bustard.
Photo by Margaret Kinnaird.*

NEW ARRIVAL

LAIKIPIA, A GLIMPSE OF MPALA



Mpala's stunning landscape and wildlife are presented in *LAIKIPIA*, a beautiful coffee table book commissioned by Laikipia Wildlife Forum. Tui De Roy and Mark Jones visited Mpala to photograph the unique landscape and to explore the area with researchers. One incredible series captures the elusive night creatures--an aardvark, a blotched genet, and a white-tailed mongoose. The book celebrates Laikipia and the conservation efforts of Mpala. Mpala has a cover unique to us--it was taken with a hidden camera and remote shutter triggered from the director's front porch!

COMMUNITY CONSERVATION DAY

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climbing a leather rope. Students interacted with the audience during the guessing game “What animal am I?”, prompting curiosity and laughter in the crowd. Other students demonstrated amusing games such as “Sprinters and Marathoners,” “Seed Dispersal,” and “The Food Web.” The audience enjoyed the trilingual entertainment, with each performance executed in Kiswahili, English, and Maasai. After presentations, student winners of the logo drawing contest for the new clubs at Shiloh Naibor and Ngabolo, and for the Denver Zoo’s Wildlife Essay Contest, received prizes.



Students construct a ‘food web’ and fall down to demonstrate failures in the web. Photo by Dan Rubenstein.



Kimanjo Mixed Secondary students recite a poem. Photo by Dan Rubenstein.

Proudly wearing their school’s unique Club badges, as well as the motto “Conservation is key to survival,” students revealed their year-long commitment to their Conservation Clubs. These students proved their dedication to spreading awareness of the need for environmental conservation for the livelihood of the people, contributing to the growing spirit of conservation in Northern Kenya.

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