

MPALA MEMOS

NEWS FROM MPALA

TOP STORY

FIRE! FIRE! MOTO! MOTO!

Laura Budd and Sarada Eastham

The heat was intense and the smell of burned grass was overwhelming. Smoke plumes billowed in all directions and vehicles raced along the escarpment. Through the flames, we could make out silhouettes of people working furiously to beat back what appeared to be a massive, quickly advancing wildfire.

The blaze started—probably from a small ember that escaped from a herder’s fire—on the Mpala-Jessel boundary and strong winds quickly drove the flames southeast across Jessel Ranch. By lunchtime, when columns of smoke rising from the escarpment could be seen from the research centre, staff from all departments dropped their work and leapt into action. We raced to join.

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*Fighting the flames.
Photo by Matt Snider.*

MPALA HISTORY

TEDDY ROOSEVELT ON MPALA



Theodore Roosevelt with his safari crew in East Africa. Photo from Harvard College Library.

Digby Scott Vollrath

For more than a century, stories of President Theodore “Teddy” Roosevelt have captured the imaginations of adventurers, hunters and wildlife enthusiasts around the world. To many, Roosevelt holds a near-cult status, with some stories of his adventures transcending to folklore. His legacy is one of a man who was far more than a politician or president. To this day, he is held in high regard by conservationists and hunters due in large part to being an enthusiastic hunter while at the same time, a deeply committed and effective American conservationist.

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ELEPHANTS IN CRISIS

Margaret Kinnaird

Semi-automatic weapon fire and screams of elephants were the all-too-frequent sounds that colored my evenings in the late 1980s when I was conducting research in the forests of the lower Tana River in Kenya. By the time I departed in 1989, the shooting had ceased but so had the adrenalin-pumping encounters with elephants while on foot in the forest. There were no more elephants on the lower Tana River. Not one. They were all gone.



*An elephant peers cautiously from her hiding spot.
Photo by Margaret Kinnaird.*

During those frenzied years, Kenya's elephant population declined by more than 89% to less than 19,000 in 1990. The killings were driven by the global demand for ivory, primarily fuelled by Japan. In 1989, after mounting pressure over similar elephant losses across Africa, trade in ivory was banned through the Convention on the International Trade in Endangered Species (CITES). As the value of their teeth dropped, the turbulent era of elephant killing finally slowed.

I never imagined I'd witness it all again.

Laikipia, together with neighboring Samburu and Isiolo Counties, provides

refuge to Kenya's second largest elephant population, numbering around 7000 individuals. Poaching, although persistent, has occurred at manageable levels since 1990. Things changed in 2008 when CITES allowed a one-off sale of legal ivory stocks to Japan and China, once again opening a window of opportunity for sale of illegal ivory. By 2010 and 2011, elephant deaths due to poaching exceeded the sum of the previous decade, and by the end of 2011, over half of all elephant deaths were attributed to illegal killing. The statistics gathered during the first months of 2012 show a surge in poaching not witnessed since the 1980s.

Over the past 12 months, ivory prices to poachers have skyrocketed from \$60/kg (KES 5,000) to over \$200/kg (KES 18,000). Even a small elephant with only 5 kg of ivory is a handsome prize for a hunter in a society where the average yearly income is less than \$250 (KES 21,000), and the legal consequences of being caught are less than for stealing a goat.

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*One of the family herds on Mpala.
Photo by Laura Budd.*

PUTTING THE GRASS BACK

Jayne Belnap

Driving around Mpala and the surrounding communities, one can spot large patches of bare soil, especially during dry years. In some areas—notably on hillslopes in the red soils—the bare areas between shrubs and trees can be quite large. Because we can see higher grass cover in other, similar areas, including those receiving lower grazing pressure, we think that the barren slopes we see today once may have supported a more or less continuous cover of vegetation consisting of grasses, herbs, shrubs, and trees.

We decided to see if we could get the grass to grow back in barren areas using a few simple restoration techniques. Luckily, soils in Kenya are amazingly fertile and thus getting native plants to establish does not require fertilizers. The main factor preventing establishment and growth of plants is water flowing down the slopes at high speeds, washing over the land and carrying away the seeds instead of soaking into the soil to promote plant growth. This means the simplest and most effective way to re-establish plants is to simply slow the water flow. Last year, we tried different cheap and simple methods of slowing water to see which would be most effective for getting plants to recolonize bare areas. These included 1) piling branches on the ground, 2) digging a trench, 3) putting branches behind the



David Kimiti next to a barrier made of piled branches. Photo by Jayne Belnap.



*Digging many trenches.
Photo by Jayne Belnap.*

trench and then, in the most labor-intensive effort, 4) putting plastic mesh sacks (e.g. charcoal bags) inside the branch piles to really stop the water. We found that while the charcoal sacks were the most effective, trenches alone were also very effective. Both the trenches and charcoal sacks had new vegetation cover in front of them, and the plants were also starting to colonize areas well upslope from our structures.

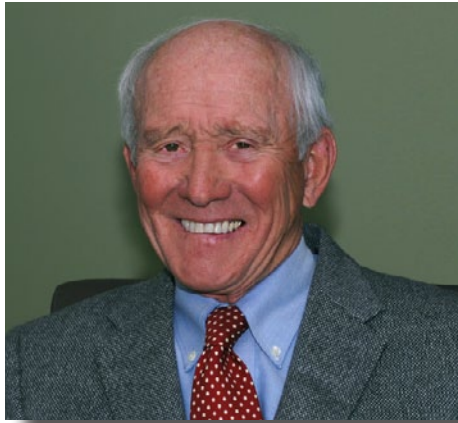
Given these results, we went to work like honey badgers this January. With 10 people and a tractor, we dug several kilometers of trenches in 12 days, covering around 1 square km of bare area. Then we did rain dances. Once we've had sufficient rains, we will be able to tell 1) whether the seed bank is sufficient in this area to restore the grasses or if we need to add seed and 2) whether the placement of the trenches is right. For instance, if we don't see any germination in downslope trenches, we will know that the upslope trenches are too close together and depriving downslope trenches of water. Once we have figured out the technique of creating self-sustaining patches that will spread into each other to create continuous cover, while still being able to support moderate grazing, we will be able work with local communities to figure out how best to apply this knowledge to their lands.■

ROBERT KING

Laura Budd

The Mpala Wildlife Foundation welcomes Robert King to its board. Bob brings a wealth of experience to the table, having years of business dealings across Africa as well as serving as the finance chair on the board of the African Wildlife Foundation for the past seven years, from which he says he has “gained perspective on the economics of conservation.”

Bob’s long career in the business world has focused on incorporating technology into education, a perfect fit with the education and outreach pillars of the Mpala mission. He has owned a number of businesses that pioneered computer-based learning and training, including online degree programs, and was involved with the development of closed-circuit TV. Bob is also proud of his involvement in rebuilding underperforming Chicago public schools through the Academy of Urban School Leadership (AUSL). Bob has been on the board of AUSL since its inception; the academy now runs



Bob King.

Photo provided by Deltak.

25 schools in Chicago and trains Masters students for teaching positions within the city.

So how does an American businessman find himself on the board of not one, but two African conservation organizations? Bob first visited the continent on a business training trip to South Africa. He spent every spare day during the training course taking short trips to see the wildlife, people, and explore the countryside. On that very first trip he fell in love with Africa. He later brought his wife Emmy and their three children on safaris. They too became mesmerized by the wildlife and landscapes. Over

the course of numerous trips Bob says “the need to help the people of Africa while at the same time protecting wild lands became apparent.”

Bob has been a guest of Mpala’s Ranch House several times. (The master bedroom is named after him—the “King Room”—because the old bed collapsed on him in the middle of the night. He and Emmy kindly offered to replace the bed!). He was impressed by the people he met at Mpala and their dedication. He witnessed the growth and development of the research center and its facilities over the past five years. As a new trustee, he hopes to learn as much as possible about Mpala and contribute however he can.

Outside the world of business and conservation, Bob enjoys spending time with his family. He and his wife Emmy have been married for 47 years, and they have three children and seven grandchildren. ■



Students of Mpala School’s Conservation Club learn about wildlife, food webs, and erosion at Ol Jogi.

Photo by Laura Budd

MPALA GIRLS EMPOWERMENT PROJECT: LAUNCHING INTO SUCCESS

Sarada Eastham

The excitement is palpable. Thirty-one girls from Daraja Academy scramble to one side of Mpala's school bus at the same time. "Are we there?" one student asks. "Yes! I see the hippos!"



*Allison Louthan in the field with Daraja students.
Photo by Laura Budd.*

Once out of the bus, the students step forward hesitantly to watch the hippos wiggle their ears, gurgle and splash. Suddenly, a large male throws his head from the water and begins the distinctive hippo laugh, with mouth open wide and teeth exposed to the gasping crowd. Some students clap, while others leap behind friends, hiding their faces behind hands. While Daraja Academy is one of Mpala's closest neighbors, and a few of the students originally hail from nearby Naibor, only a handful has had the opportunity to view hippos in their natural environment before.

January 2012 was the official launch of the Mpala Girls Empowerment Project. Building on Mpala's strong educational program through the Mpala Primary School and the long-standing conservation clubs that involve six nearby primary schools and reach hundreds of children and their families, the Mpala Girls Empowerment Project extends the current program to provide access for girls into the world of science, research and conservation.

Aside from supporting student visits to Mpala—where the girls are mentored by resident researchers and learn about their conservation work—the project hosts lectures at the nearby Daraja Academy campus. These lectures are open to all students, staff and volunteers at Daraja Academy, as well as neighbors and visitors to Laikipia County.

Dr. Margaret Kinnaird was the first speaker on February 3rd, when she spoke to an enthusiastic crowd of 150 about the unique role that women play in conservation and environmental leadership. As one student said, "It is important that we have the opportunity to learn from women leaders. When we hear that other women have been successful in their lives and careers, I know that it is possible for me to also do the same."



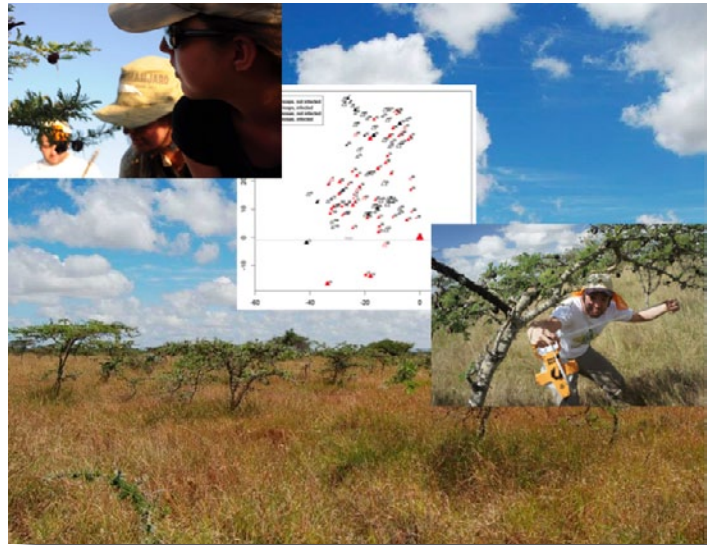
*Adam Ford teaches students how to track collared animals.
Photo by Sarada Eastham.*

The Mpala Girls Empowerment Project will continue to build on Mpala's community outreach program as it connects Mpala with young people from around Kenya. If you are interested in finding out more about this program, please contact Sarada Eastham at saradagrace@gmail.com.

INNOVATIONS IN FIELD WORK: BRINGING COMPUTER SCIENTISTS AND FIELD BIOLOGISTS TOGETHER

Laura Budd and Dan Rubenstein

In January, Ecology and Evolutionary Biology graduate students from Princeton University (PU) and the University of Nairobi joined University of Illinois Chicago (UIC) Computer Science and Bioinformatics students for an interdisciplinary field course. The goal of the course was to get biology students to incorporate new technologies and software into their field projects, and for computer scientists to consider the natural world in their work.



Collecting ant-acacia data.

Photo provided by students of the course.

PU professors Dan Rubenstein and Iain Cousin and UIC professors Tanya Berger-Wolf and Jason Leigh designed the interdisciplinary course because they believe it is a necessary addition to the education of researchers. In particular, they wanted to harness the potential of incorporating computer science into ecological studies. Dan Rubenstein explained that “while computer science has been incorporated into molecular biology, ecology is still largely unfamiliar to computer scientists and vice versa.”

Last fall, students from all three universities met online to share the concepts and techniques used in their different disciplines and design joint projects. Projects included studying, insects, bomas and ways to help Mpala researchers.

On Mpala, the insect group examined how parasitic midges (tiny insects) influence the relationship between whistling thorn acacia and the ants that inhabit them. The biologists found that some ants were better than others at keeping parasites away while the computer scientists developed an application for mobile phones, iPads and similar devices that can be used in the

field to superimpose spatial data over live images of the field site.

The boma group gathered vegetation data to investigate the relationships between insects, mammals, and plants at old boma (livestock enclosures) sites. Soil and vegetation data were also used in a computer program to identify the actual edges of the original bomas embedded in the glades instead of the biologists making visual guesses. The biologists also used camera traps to determine whether or not the same herbivores fed at the center or edges of bomas. To help speed the painstaking process of checking thousands of camera trap photos, the computer science students worked on creating image recognition software that can automatically determine if there is an animal in a photo and if so, identify the species and label the photo accordingly.

Another group used video processing software to ask questions about how ants navigate in their environment.

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FRIENDS OF MPALA

I would like to thank everyone who has contributed to Mpala's annual fundraising drive, which reached its \$125,000 goal, and those who have made other financial gifts to Mpala this year. I deeply appreciate the support we receive each year from our friends. Without the generosity of our past and present supporters, Mpala would not be what it is today. I am pleased to recognize below those who have demonstrated their commitment to our mission through gifts large and small.

The Ndovu Society honors donors who have contributed more than \$1,000 this year. Ndovu, Swahili for elephants, are known for their stamina, dedication and leadership so they are an appropriate symbol for those individuals who help sustain our long-term activities.

I also thank those who have contributed annually to Mpala since 2007/2008 (*).

- Margaret Kinnaird, Executive Director

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MPALA-AT-A-GLANCE

Congratulations

- Congratulations to David Kimiti who will start a PhD with Jeff Herrick at New Mexico State University this fall. David did his Masters work on Mpala's elephants and has worked as a project manager for the rangeland health project at Mpala.

Courses & Student Groups

- Ten Princeton undergraduates spent the past three months studying on Mpala. The students took courses in rangeland ecology and restoration, ecohydrology, animal behavior, and alternative energy.

- In February, 45 McGill undergraduates spent a few days at Mpala as part of their study abroad program that travels across Kenya, Uganda, and Tanzania. They take a variety of courses covering ecology, history, and social sciences.

- In April, 12 University of Leeds Masters students came to Mpala for a two-week field course. Their independent projects included studies of elephant damage to trees and ant-acacia relationships.

Welcomes

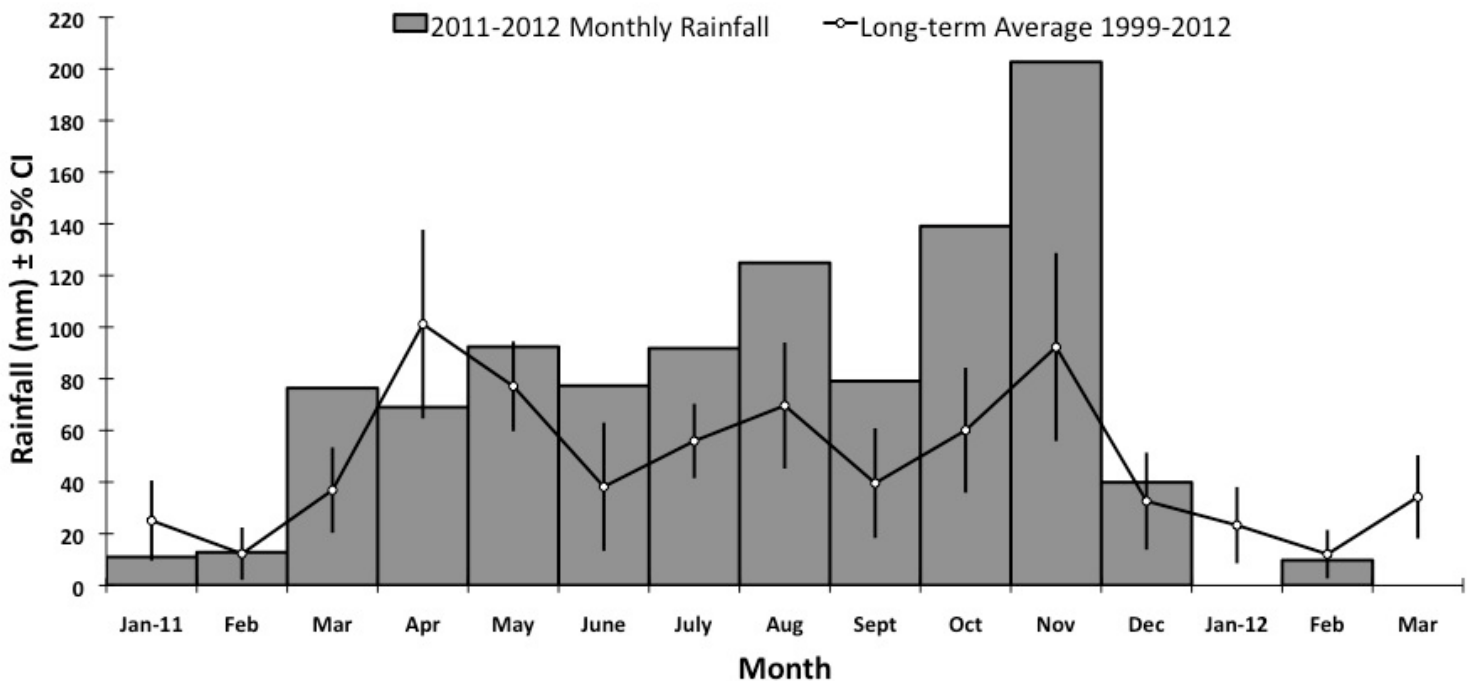
- Mpala has a new women's beading co-op called Alakara. The members are all women on Mpala's staff, and they work together to create their products, which are for sale at the research center. Please take a look at their display case when you're here.

Upcoming Events

- Discovery Day is coming back! Everyone is invited to Mpala Research Centre on Saturday, May 26th to join our researchers and learn about their work at Mpala. The day will start at 9:00 am and conclude around 1:30 pm.

MPALA WEATHER CORNER

MRC RAINFALL 2010 - 2012



FIRE! FIRE! MOTO! MOTO!

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At the top of the escarpment, Mpala staff were met by staff from Jessel, Segera, and Ol Jogi ranches. Long lines of people worked together to put out the flames with everything from professional fire-fighting equipment to small trees used as make-shift beaters. As everyone moved in rhythm at the front line of the fire, a small, startled animal leapt out. A baby bush duiker, lost and in search of her mom, was quickly swept out of harm's way and handed over to us.

Sitting in a vehicle away from the smoke, we watched as everyone worked to keep up with the pace of the flames and tried to calm our new charge who was alternately kicking, bleating and nuzzling her face into the armpits of whoever was holding her. Before long, water supplies arrived and extinguished the fire. Due to everyone's incredible team work, the fire was out before sunset. Exhausted, everyone paused to take in nearly 1500 acres of charred landscape before returning to well-deserved meals and cold drinks.

For us, in many ways, the fire was just the beginning. It was clear that the duiker—christened “Moto” (fire in Swahili)—was too small to survive on her own. We rose to the task and immediately began to research bush duiker hand rearing.



*Moto tries some Acacia brevispica.
Photo by Laura Budd.*



*Sarada and Moto explore outside.
Photo by Laura Budd.*

The first several days were an extreme test in patience as we tried to keep Moto alive. While quick to explore her new surroundings, getting her to accept any milk was a challenge. As human-turned-duiker parents, we first attempted feeding her powdered milk, then shifted to a powdered milk and egg concoction, then to sugar water, and even dehydration salts. Nothing seemed to work. Finally, with a little advice from local experts and a wildlife vet, we hit on camel milk. It was a terrific success.

Moto is now greedily drinking, always bonking the backs of our knees as a signal for more milk. When she's not suckling, she hides in the densest patches of prickly acacias where she likes to spend her days eating flowers and watching visitors come and go. At 5.5 kgs and growing, we're now confident that Moto will continue to thrive and perhaps return to the wild when she's older.

Though the fire is out, Moto offers a continued reminder of how the Mpala community, and our neighbors, came together to defend our homes, work, and our wildlife. ■

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TEDDY ROOSEVELT ON MPALA

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One of Roosevelt's greatest feats outside the Oval Office was his Smithsonian-sponsored African expedition into the wilds of the newly created British colony of East Africa, followed by a march down the Nile to Cairo. Starting in 1909, Roosevelt spent more than a year traversing the savannas of what are now Kenya, Tanzania, Sudan and Egypt, collecting mammals, birds, reptiles, amphibians, and plants. Many of the specimens he collected became the Roosevelt Collection, a special exhibit in the National Museum of Natural History in Washington, DC. The Roosevelt Collection remains the largest and most comprehensive research collection of East African flora and fauna ever made.

Roosevelt wrote detailed accounts of his safari in his book, *African Game Trails*. In 2000, my father brought his own battered and much-loved edition with him on the first of our many stays at the Mpala Research Centre. While reading to me, he became fixed on a theory that Roosevelt's journey had taken him to what is now Mpala. Regardless of how exciting the tale, we were never able to lock down any evidence to prove his theory.

More than a decade later as an intern at the Smithsonian, I explored the archives for hints about the route taken by Roosevelt. Through a combination of sources, including personal diaries kept by Roosevelt during the journey, it became apparent that his legendary expedition had indeed crossed Mpala Conservancy. The real breakthrough came when I discovered in the archives the original map used by Roosevelt on his safari. A series of red dots marked by hand indicated the expedition's camps and collection points. One of the dots pinpoints a site in the heart of Mpala Conservancy, a stone's throw from the Mpala Research

Centre. I had found unequivocal proof that Teddy Roosevelt really had hunted, collected and camped on Mpala.

It would be hard to overstate the importance of this discovery. The vast collections and meticulous notes and maps kept during the safari will enable researchers to examine specimens collected on Mpala as well as the wider Ewaso Ecosystem. Using techniques available to scientists today, including DNA and isotope analyses, these 100 year old specimens may provide novel insights into the ecosystem as it was over a century ago.

There is little doubt that the flora and fauna of Mpala has undergone colossal changes since the expedition. Roosevelt's safari pre-dated by one year the beginning of European settlement on the Laikipia plateau. Settlers brought new agricultural methods that altered the landscape. Rhinos, once plentiful, are today almost gone while elephants, exceedingly rare during Roosevelt's expedition, are increasing in number. Grevy's zebra, not found on Mpala in Roosevelt's time, are now commonly seen here.

With the discovery of the link between the 1909 safari and its treasure trove of archival data, Mpala researchers have a unique opportunity to compare current and historical data. Theodore Roosevelt, in cooperation with the Smithsonian Institution, laid the groundwork for significant, future research on species assemblages, ecosystem transformation and even climate change. It is astounding that a safari that took place so long ago has the potential to add such depth to our understanding of Mpala. ■

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ELEPHANTS IN CRISIS

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Another reason is the burgeoning Chinese middle class, which has the financial capacity to flaunt its new wealth with ivory status symbols. Finally, growing numbers of Chinese workers and immigrants in Africa, and the ease with which they can attain illegal ivory, compounds the problem. The vast majority of ivory confiscated in African airports has been in the hands of Chinese nationals.



KWS veterinarian, Dr. Matthew Mutinda attends to a wounded elephant. Photo by Laura Budd.

Mpala has joined hands with Save the Elephants, Northern Rangeland Trust, Space for Giants, private ranches, and a host of other stakeholders to support the Kenyan Wildlife Service to keep anti-poaching activities informed and focused. Supported with seed funds from the Princeton Grand Challenge Program and led by Enock Ochieng, Mpala's Elephant Project helps collect and collate data under MIKE (Monitoring Illegal Killing of Elephants), a program developed by CITES and administered in Kenya by KWS. MIKE tracks trends in poaching, highlights areas of greatest threat and helps us understand

whether the recent rise in poaching will push the population once more into a spiralling decline. Our goal is to reverse the current trend in poaching and return Laikipia to its justifiable position as an elephant safe haven.

If you'd like to help us help our elephants in crisis, please donate at www.crowdrise.com/MpalaElephants. Through Crowdrise's current fundraising challenge we have the chance to win up to an additional \$25,000 if you help support our elephants. ■

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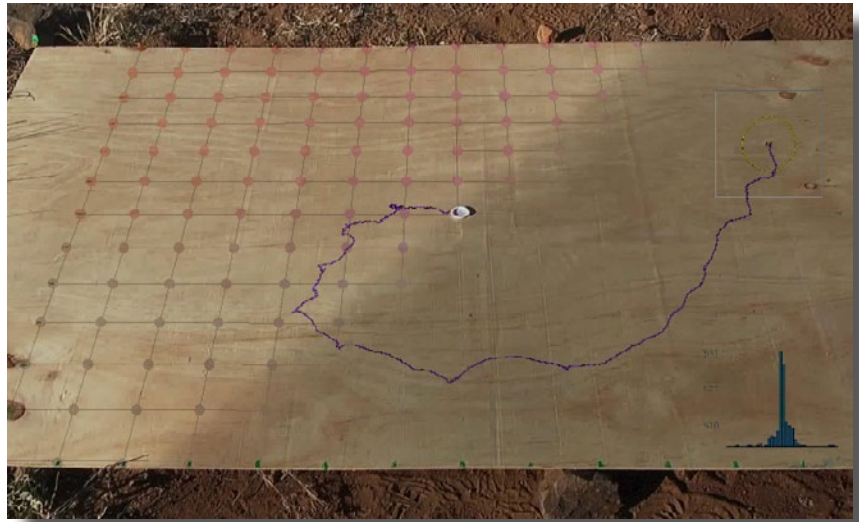
Elephants at a dam near MuKenya. Photo by Laura Budd.

INNOVATIONS IN FIELD WORK: BRINGING COMPUTER SCIENTISTS AND FIELD BIOLOGISTS TOGETHER

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The software allowed students to track individual ants and measure such things as velocity, directions and the angle of turns, and how much an ant weaved back and forth over the course of its route. They found that when ants are put in test arenas those removed from trails were disoriented showing that they were on “autopilot” or “using cruise control” when on the trails but that ants off trail searching for food seemed to use environmental cues to navigate when not on their pre-existing trail networks.

The fourth group used advanced filming technology to create a 3D movie of Mpala Research Centre and build a narrative of the students’ experience. Those who have never visited Mpala will soon be able to



*Recording of one ant’s path.
Photo provided by students of the course.*

log on to our website and take a virtual tour of the Centre and Conservancy. The professors hope to offer the course every other year thus bringing new insights in biology and technological tools to the greater Mpala scientific community.

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MPALA WILDLIFE FOUNDATION & MPALA RESEARCH TRUST

Founder: George Small (1921-2002)	Mpala Conservancy Manager: Michael Littlewood	Contact Information (USA) Tel: (410) 244-7507
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