Conservation - Community - Research

Mpala Memos

news from Mpala

Top Story

Severe Drought Affects All At Mpala

The dry Ewaso Nyiro riverbed.
Photo by Margaret Kinnaird

Amy Wolf

One glance across the savanna – brown grass, skinny cattle, dry riverbeds – is enough to know that Kenya needs rain. So far this year, Mpala has received only one fifth of its normal amount of rain, making this one of the driest years since rainfall measurements began. The two rivers that border Mpala, the Ewaso Nyiro and the Ewaso Narok, have both run dry for the first time in the long memory of Laikipia residents.

Most regions of Kenya, and many surrounding countries, are experiencing a major drought that is exacting a severe toll on people and wildlife alike. Crops are failing; cattle are starving. The United Nations World Food Programme estimates that 4 million people in Kenya alone are short of food, and the prices of staple foods are on the rise.

...continued on page 9

Research

Where Have All the Vultures Gone?

Darcy Ogada

Vultures are nature's clean-up crew. Though largely depicted as 'disgusting' birds, vultures play a starring role amongst a large cast of actors within the scavenger community. They help dispose of carcasses, thereby reducing the risk of disease transmission and recycling nutrients back into the environment. But vulture populations in Kenya are in trouble.

Raptor surveys conducted at Mpala Research Centre showed a steep and rapid decline in vultures between 2001 and 2003 (ongoing studies are trying to determine what has happened since 2003).

...continued on page 10

Poisoned White-backed Vultures.
Photo by Darcy Ogada

Laikipia Comes Together For Discovery Day At Mpala

Jennifer Bahmeier

Saturday, August 8th was buzzing with anticipation at Mpala Research Center. The hyenas had been calling early that morning, and the birds were up early as the sun rose on a beautiful Kenyan morning. Cooks were busy in the kitchen, the library was being readied for guests, and sign-in sheets were placed on the welcome table as researchers began to converge on the dining area. As Conservation Education Specialist at the Denver Zoo, I was focused on preparing the children's activity area. We all waited with excitement to see who would come to the first-ever Discovery Day at Mpala!

Jennifer Bahmeier reading to a group of enthusiastic children during Discovery Day. Photo by Heather Larkin

The idea behind Discovery Day was to invite members of the Laikipia community to Mpala to meet researchers and learn about the research that is being conducted here. Researchers and Mpala management had often heard the question, "What do you all do out there?" The Conservation Biology Department at Denver Zoo had been working with Mpala over the last year to plan and organize this event with the hope that we could help answer this question and encourage visitors to learn more.

Wilfred Odadi presenting his researcher to the Discovery Day audience. Photo by Heather Larkin

Discovery Day 2009 kicked off by mid morning. Visitors first had the opportunity to hear five-minute "speed talks" aimed at a popular audience and given by the students and professors who are carrying out research at Mpala. Visitors were also invited to go to the field with researchers and see what they do on a more hands-on level.

This day was planned as a family event, and we were ready for the kids with face-painting, games, books, crafts and an interactive computer game focused on Kenyan animals. The dining hall was transformed into an activity area where kids and adults alike could play and have fun together.

The talks concluded around 1pm, and after a hearty lunch, some visitors headed off for field visits while others lingered around the dining tables. As guests said their goodbyes they repeatedly commented: "We'll bring more people next year!", "We'll definitely come back!" and "Thank you!", and it was clear that the day was a success.

...continued on page 12

Predicting the Impacts of Drought and Extinction : the UHURU Project

Jake Goheen, Todd Palmer, Rob Pringle

As every Laikipian knows, the rains can be a fickle friend. We've seen two major droughts in the past decade. And worryingly, many experts predict that droughts will intensify in coming years, becoming longer and more frequent as a result of global climate change.

At the same time, wildlife numbers continue to fluctuate, in Laikipia and in other rangelands worldwide. Many wildlife populations in tropical Africa are declining; some are at the brink of extinction.

We want to understand how both of these processes—rainfall variability and wildlife disappearances—are going to affect East African landscapes. If we can do that, then we might be able to figure out strategies that will help to minimize the effects of drought and extinctions. And we might find that wildlife provides ecological benefits that have not previously been appreciated—which might give landowners and governments stronger incentive to manage and conserve native species.

Finally, we are interested in whether the impacts of keeping or losing wildlife species are different depending on how much rainfall an area receives. There are some indications that the consequences of losing elephants, zebras, and other wildlife species might be most severe in dry places, but this idea has never been properly tested.

Field Assistant Jackson Lima and Intern Stephen Nyaga prepare to trap rodents in UHURU. Photo by Jake Goheen

"...We might find that wildlife provides ecological benefits that have not previously been appreciated..."

To answer these questions, we have implemented a new, long-term exclusion experiment that spans the rainfall gradient from the North to the South of Mpala (approximately a 75% increase in precipitation). We call it UHURU: Ungulate Herbivory Under Rainfall Uncertainty.

Our plots are similar to other exclosure experiments at Mpala, but different. We wanted to mimic the pattern of extinction most often observed in the real world, in which the biggest species disappear first. We therefore built plots in which all species are allowed, others that exclude only elephants and giraffes, others that exclude everything bigger than dik-dik, still others that exclude

...continued on page 11

Using a variety of fences, different UHURU plots exclude different sizes of herbivores. Photo by Rob Pringle

Mpala Congratulates Levinson-STRI Fellows

Two young Kenyan scientists, Franklin Otiende and Lucy Ngatia, are the first deserving recipients of the new Levinson-STRI Fellowship. The fellowship was created in June, thanks to the generosity of Dr. Frank Levinson and the Smithsonian Tropical Research Institute. The Levinson-STRI Fellowship will broaden Mpala's educational outreach by supporting two promising Kenyan graduate students each year. Lucy and Franklin, both well-known faces around Mpala, will carry the title of Levinson-STRI Fellows for the 2010-2011 academic year.

Franklin Otiende
Photo by Allison Williams

Franklin Otiende, who first came to Mpala as a post-graduate intern, hails from Western Kenya. It was immediately clear that Franklin was a young scientist with a bright future. He is a keen observer and has an uncanny grasp of computers. Determined to continue his scientific career, Franklin began setting aside a small portion of his monthly stipend to cover a future M.Sc. program. With his Levinson-STRI fellowship, this will no longer be necessary.

Franklin is now enrolled in the M.Sc. program at the University of Nairobi, Dept. of Natural Resource Management and Range Sciences. For his thesis he is investigating the influence of British Army training activities on Mpala's wildlife. Although the British Army have been training in Kenya for more than 45 years, Franklin's research will be the first rigorous evaluation of these activities on wildlife.

Lucy Ngatia, now a Ph.D. candidate at the University of Florida, is also a veteran of Mpala. Originally from Nanyuki, Lucy was awarded a fellowship from the Smithsonian Women's Committee in 2005 to support her M.Sc. in Land Resource Management and Agricultural Technologies at the University of Nairobi. For her M.Sc. research, Lucy studied the effects of herbivory and cattle bomas on soil organic matter and phosphorus at Mpala. Lucy quickly showed herself to be a talented student with a deep passion for science and a strong desire to connect her science with management issues.

Lucy Ngatia
Photo courtesy of Ben Turner

> "The Levinson-STRI Fellowship will broaden Mpala's educational outreach..."

After completing her M.Sc., Lucy was accepted at the University of Florida as a Ph.D. student in Soil and Water Sciences. Now, thanks to her Levinson-STRI fellowship, Lucy will be able to fulfill her hopes of returning to Kenya and Mpala for her field research. Her research will focus on three key aspects of savanna ecology and management: nutrients, rainfall, and herbivory. She is particularly interested in how these factors affect carbon storage in savannas. Lucy will also be able to spend some time at STRI's main research center in Panama to work with her STRI mentor, Dr. Ben Turner.

Mpala congratulates both Lucy and Franklin and wishes them the best of luck in their studies! ▪

Staff Profile: Wilson Nderitu Watetu

Wilson Nderitu Watetu outside the Mpala labs. Photo by Allison Williams

Allison Williams

The Mpala Research Center is rich with talented and hard-working staff members. One such individual is Wilson Nderitu Watetu. Wilson has lived at Mpala since he was seven years old and has been working as a Research Assistant for almost a decade.

After graduating from Nanyuki High School in 2000, he immediately joined Dustin Rubenstein's Superb Starling Physiology and Behavior project (now based out of Columbia University). Wilson quickly stood out due to his unwavering enthusiasm and adept skills and was soon recognized as a very talented field assistant. "The Starling Project was very good for me; a perfect fit," says Wilson. "I had always wanted to study birds since I was younger." He explains his fondness of birds grew from days in his youth when he and his friends would catch birds in mist nets so they could see them up close and then let them go. Today, Wilson is still working for the Starling Project with responsibilities ranging from trapping, catching and handling the starlings to collecting numerous types of behavioral focal observations of marked individuals. When Dustin is not in Kenya, Wilson has been given the responsibility of running the program.

Wilson also stands out because of his thirst for knowledge. Between June of 2006 and June of 2008, he studied at the Kenya Wildlife Service Training Institute and received a diploma in wildlife management. The course was split between class work and practical field work. Wilson spent time studying all aspects of wildlife management including conservation, community programs and, of course, the natural history of ornithology which has been very useful in his work on Superb Starlings.

Along with his studies, Wilson spends much time working with the Northern Kenya Conservation Clubs. He instructs the activities and lessons covering ecology, adaptation, evolution and other environmental topics to large groups of students after school. Wilson learned about the Conservation Clubs when he first began working at Mpala and was instantly interested in helping out. "My mother always told me it's fun working with kids," laughs Wilson. Teaching runs in the family; Wilson's mother Joyce Watetu is the nursery school teacher at the Mpala school.

"Between June of 2006 and June of 2008, he studied at the Kenya Wildlife Service Training Institute..."

In his free time, Wilson can be found in the library reading about birds. Without a doubt, his readings have given him an edge and greatly supplement his incredible eye for Kenya's flora and fauna. Wilson also employs his teaching skills to help many of the researchers at Mpala learn Swahili. Meeting once or twice a week, he instructs the basics and teaches common phrases that are beneficial to know when working in the area.

Wilson is fondly spoken of by many researchers and staff members around the Centre. Mpala is lucky to have such a committed and knowledgeable person among its ranks. ▪

Guy and Marilyn Berner

Guy and Marilyn Berner
Photo by Laurel Harvey

Three hands shoot up to answer the teacher's question. Seated behind tidy desks, facing a large blackboard in a well-lit classroom, two girls and one boy are anxious to be the best students in Standard Five. Their attentiveness – and interest – is stimulated by a new teacher attempting fresh approaches to education.

Without the substantial gifts from Guy and Marilyn Berner – two committed friends of Mpala who are deeply concerned about education – this scene might be quite different. Over the past three years, the Berners have provided support for two new classrooms that house the Standard Four and Five students at the Mpala School. They have also provided funds for a school 'cafeteria' where students receive hot lunches. But even more important, they have ensured that the buildings are living learning centers through additional gifts that provide long-term support for teachers' salaries. The Mpala School now proudly boasts one of the best teacher to student ratios in the Laikipia District.

Marilyn and Guy first ventured to Kenya more than 40 years ago and have returned several times to introduce a growing family (they currently have four children, eleven grandchildren and fifteen great-grandchildren) to the wilds of Kenya. It was on one of their trips that their daughter, Laurel Harvey, first fell in love with Kenya's dramatic landscapes and wildlife. Her continued passion for Kenya has led her to play an active role as Princeton University's representative on the Mpala Wildlife Foundation and Chair of the Mpala Research Trust. In 2007, when Margaret Kinnaird assumed her position as Executive Director of the Mpala Research Centre and Conservancy and emphasized the need for improved education, the Berners felt confident that Mpala was an excellent venue for a substantial gift. Although Marilyn and Guy have never visited Mpala, they have confirmed their faith in Mpala and its mission through their generous gifts.

"Over the past three years, the Berners have provided support for two new classrooms that house the Standard Four and Five students at the Mpala School."

The Berners, who now live in Florida, assure us that education and wildlife (which, at their home, takes the form of a large, hungry alligator) remain priorities in their life. With continued support from generous donors such as Marilyn and Guy Berner, the Mpala School and its teachers will continue to provide the children of Mpala with the highest quality education possible. ▪

Events

During the first week of September, two elephant workshops were held at Mpala. The first was a workshop on Human-Elephant Conflict, led by Max Graham of Cambridge University and supported by the Darwin Initiative. The workshop was attended by 38 people and aimed to gather input from attendees on how to mitigate human-elephant conflict in Kenya. Immediately following this workshop was the National Elephant Strategic Planning workshop, held by the Kenya Wildlife Service. Sixty-one people attended, including representatives from Tanzania (whose delegation was led by the Director of the Tanzania Wildlife Division), Uganda, Sudan, Mozambique, Kenya and the United Kingdom. Workshop participants contributed to the new five-year Kenya National Elephant Strategy.

In August, 63 Grant's gazelle were net-gun captured on Mpala, Segera and Jessel Ranches by a New Zealand-based capture team (Frontier Helicopters). The gazelles were captured as part of the Grant's Gazelle Project led by Vanessa Ezenwa of the University of Montana. During the capture, animals were each given color ear-tags and sampled for various parasites and infectious diseases.

New Faces

Lixin Wang, a postdoctoral fellow at Princeton University, and Stephen Good a Ph.D. student also at Princeton, spent several weeks setting up and testing a suite of meteorology and hydrology instruments on a portable tower on Mpala. In January, Lixin will be helping Princeton professor Kelly Caylor to instrument a permanent version of the tower, which measures water vapor, water vapor isotopes and carbon dioxide fluxes, or how ecosystems "breathe."

British Army Training Schedule

The British Army will be training on Mpala from November 11th-27th. ▪

A captured gazelle being carried from the helicopter.
Photo by Allison Williams

Mpala Memories Part II

The Reconnaissance, Report, and Establishment

Truman Young

In 1989, Alan Smith and I were sent by the Smithsonian Institution and Princeton University to check out Mpala as a possible research station (see Mpala Memories, part 1, from the July 2009 Mpala Memos). One of Alan's tasks was to solicit support from Kenyan institutions and explore local partnerships. The logical first stop was the National Museums of Kenya, the Smithsonian's equivalent in Kenya. Richard Leakey, then Director, was very interested in partnering with Mpala, and strongly suggested the Kenya Wildlife Service as a second institutional affiliate. But before any of this multi-partner relationship could be sorted out, Princeton and Smithsonian needed to decide whether they wanted to commit to a field station at Mpala.

A view of the black cotton ecosystem in 1989, before Mpala Research Centre was established.
Photo by Truman Young

When Alan and I visited Mpala in 1989, I fell in love with the property, even before I knew the full potential of the land. I know now that it is probably the premier physical location in Laikipia for a field station. It is topographically diverse, includes both of the main Laikipia soil types, includes the confluence of Laikipia's three major rivers, has rich biodiversity, is centrally located, and was both a working cattle ranch and home to a largely intact flora and fauna. Most importantly, it had an owner with vision and a manager willing to assist in carrying out that vision. Alan and I saw tremendous potential for pure and applied research, conservation, and education.

I wrote up our report, detailing all of this and emphasizing the unique opportunities for research on a working livestock ranch. First and foremost, although livestock and cattle share most of arid and semi-arid land in Africa, very little research had been done on their interactions. Second, in a private conservancy like Mpala, researchers would be able to do field work at night (during which half of ungulate activity - and most carnivore activity - occurs), work outside their cars, and do manipulative experiments. All of these activities are much harder, sometimes impossible, to do in national parks and preserves. Finally, the promise of strong institutional links suggested that Mpala would be a success as a research centre.

I was sent to both Princeton and Smithsonian to personally report on our visit and give a slide show (yes, back in the Dark Ages, we gave slide shows). Both visits went well. I do not know how important our report was in influencing Princeton and Smithsonian's decisions, but shortly thereafter (in the spring of 1990), they entered into serious negotiation for the establishment of the Centre.

The final agreement joined trustees Princeton University, Smithsonian Institution, Kenya Wildlife Service, and the National Museums of Kenya, and established the Mpala Research Trust. The vision was to establish a research centre on the southernmost parcel of land on Mpala, with the rest of Mpala Farm open to research and ranching. But on February 24, 1992, when official creation of the Centre was announced, the area was still just a beautiful piece of raw land.

The story of Mpala's beginnings will be continued in the next issue. ▪

Severe Drought Affects All At Mpala

Seen along the Ewaso Nyiro on Mpala, this very skinny eland suffers from lack of food due to the drought.
Photo by Heather Larkin

...continued from page 1

The price of wheat, for example, is now more than two and a half times the long-term average price.

The conditions at Mpala mirror those elsewhere in Kenya – there is not enough grass to feed the livestock, which means there is also not enough food to support Mpala's wildlife. According to a recent report from the Kenya Wildlife Service, at least 38 elephants had died as of July in Samburu and Laikipia as a result of the drought. Young elephants are especially at risk due to the long distances that herds must walk to find food and water. Other animals are affected as well: Mike Littlewood, the Mpala Ranch Manager, reports that buffalo and Grant's gazelle are especially hard hit, with many deaths of those species likely due to the drought. Emaciated animals are a common sight.

What causes a drought like this? Is it the result of global climate change? As anyone who has looked to the sky for a much-needed storm knows, rainfall in Laikipia is fickle at best. There is always some uncertainty about how much rain will come in a year, and when exactly that rain will arrive. There have always been droughts. However, there is some evidence that global climate change may make matters worse. Increasing temperature ("global warming") is the most commonly discussed effect of climate change, but rainfall is expected to change as well.

Trenton Franz, a researcher who worked at Mpala for his Master's degree, looked at the historical rainfall records in Laikipia and noticed some interesting patterns. First, average yearly rainfall hasn't changed since records began to be kept. However, the timing of the rains is different – more rain comes in single, heavy storms, and there are now more days, on average, between storms. It is likely that rainfall will only become more unpredictable in the future.

"The conditions at Mpala mirror those elsewhere in Kenya - there is not enough grass to feed the livestock, which means there is also not enough food to support Mpala's wildlife."

A single drought cannot be blamed on climate change, but more uncertainty about rainfall will make it that much harder for the Kenyan farmers, ranchers, and wildlife that rely on an already-erratic resource. Over the long term, growing awareness of the impact of climate change around the globe will hopefully lead to efforts to combat wasteful energy use. In the short term, though, everyone is hoping that relief comes to Mpala and the rest of Kenya soon with the rains that should return this month. ▪

Where Have All the Vultures Gone?

...continued from page 1

This decline was a staggering 77% over three years, primarily in the numbers of White-backed and Ruppell's Vultures, but also in Lappet-faced Vultures and Bateleurs. The numbers of other large raptors, mainly eagles, did not show any declines.

During this time, two aerial wildlife surveys showed that overall populations of wild herbivores changed little, while domestic herbivore populations, particularly of sheep and goats, increased dramatically. This suggests that food limitation was not the cause of the vulture declines.

Those keeping abreast of conservation issues in Kenya will know that the use of poisoned baits to kill predators that have attacked livestock has risen sharply in the last decade. Data from the Living with Lions Project, which works extensively in Laikipia, also attest to the rise in poisonings. Though the bait is meant to kill predators, vultures and other scavengers are unintentional victims when they feed on poisoned carcasses. Vultures are the most vulnerable as they eat predominantly by scavenging carcasses, they forage in large groups, and they often arrive at carcasses before mammalian scavengers. These adaptations mean hundreds of vultures can be killed at a single poisoned carcass. Add to this that vultures are long-lived and reproduce slowly, and you can get a sense of why vultures have disappeared so dramatically in the past decade in Laikipia.

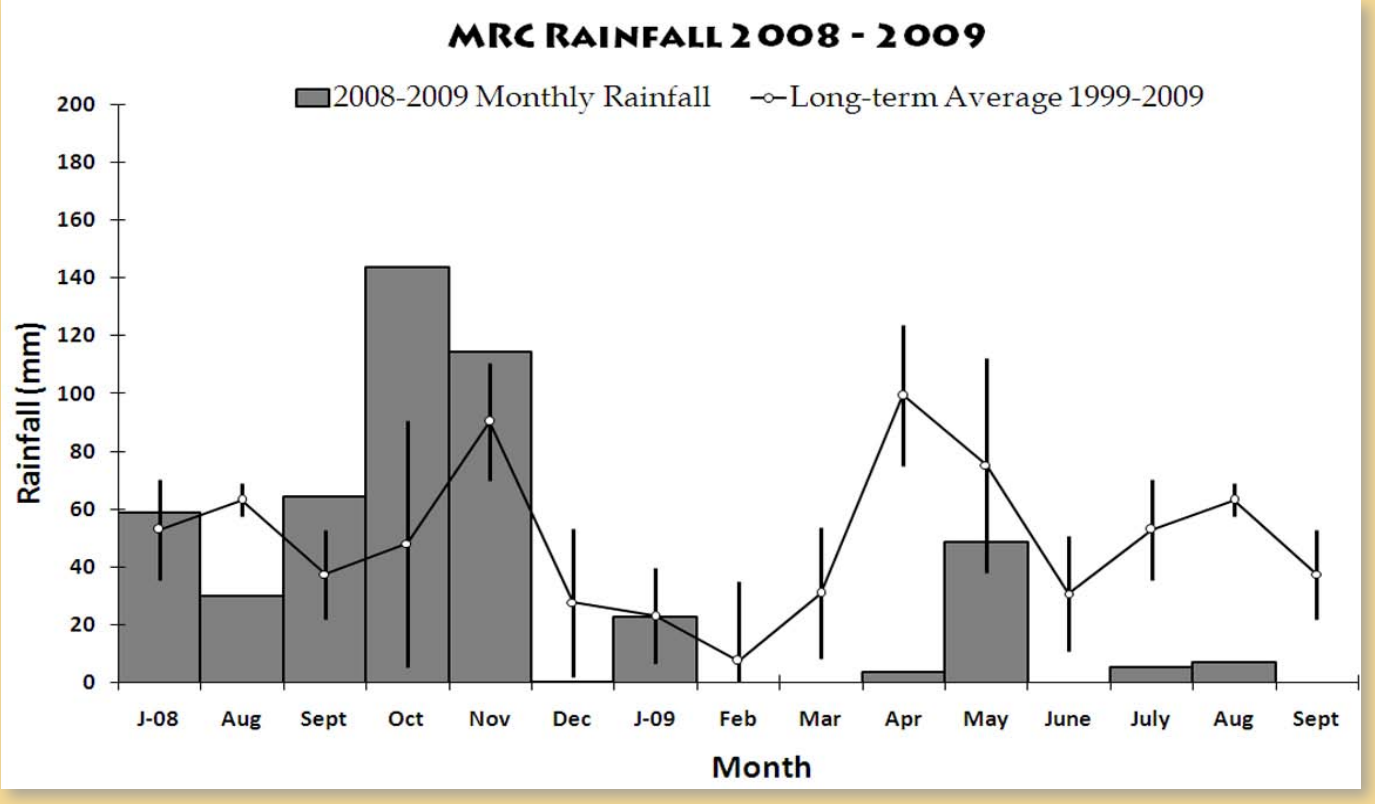
Through interviews conducted in 2008, we know Furadan is the poison of choice, not just in Laikipia but throughout the country. Furadan is a widely available agricultural pesticide, though its use as a cheap, effective poison is also well known. Recent international media attention about wildlife poisoning in Kenya prompted the US manufacturer, FMC Corporation, to withdraw Furadan for sale in Kenya. However, Furadan is still available and FMC no longer holds the patent for Furadan, so other manufacturers can make and distribute the pesticide under other names. There are ongoing debates in Kenya's parliament to have Furadan and all similar pesticides banned in Kenya, but the use of counterfeit products and other legal pesticides to poison wildlife is a problem that is, sadly, here to stay.

So where does this leave Kenya's vultures? In a precarious state to say the least. Currently five of eight vulture species in Kenya are threatened with extinction. Clearly, urgent conservation measures are needed if we are to secure a future for Kenya's vultures.

> "Though the bait is meant to kill predators, vultures and other scavengers are unintentional victims..."

Recently, I started a project at Mpala that is examining the effects of the vulture decline on other scavengers. I expect that the results of this research will highlight the important role that vultures play across the ecosystem and boost conservation measures to save vultures.

However, for research to improve the plight of vultures on the ground, it must go hand-in-hand with conservation education. The Raptor Working Group of Nature Kenya recently celebrated the inaugural International Vulture Awareness Day. Celebrations at the National Museum included children's puppet shows, storytelling and a national art competition, all with a theme about the importance of vultures. We expect this annual event to help raise the profile and knowledge about Kenyan's vultures. In the words of a 10-year-old boy from Nairobi, "Vultures are cool." ■



Research

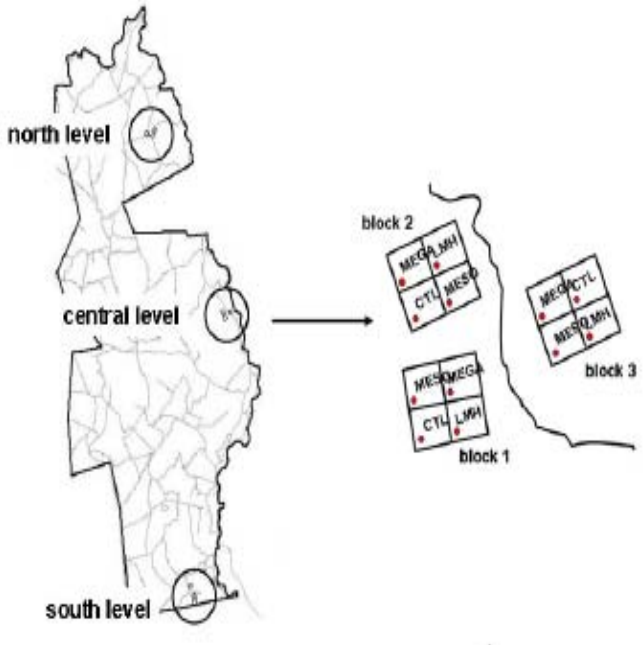
Predicting the Impacts of Drought and Extinction : the UHURU Project

...continued from page 3

everything bigger than a hare — all replicated 9 times across Mpala's rainfall gradient.

Although our primary interest is understanding the impacts of climate change and extinction so that we can assist in conservation efforts, we also expect to find out some more practical information. For example, how long does the vegetation in heavily overgrazed areas take to recover if protected from grazers? And you know those "nasty" plants that tend to crop up—like prickly pear cactus and spiky Sansevieria? Our experiments should tell us how those undesirable plants will fare under different rainfall regimes and wildlife scenarios.

It's too soon to say what we'll find out, but whatever it is, we look forward to sharing it with the community soon. In the meantime, we'd be more than happy hear your thoughts and ideas. Please email Jake at goheen@zoology.ubc.ca with any feedback. ▪



The UHURU plots on Mpala.

Laikipia Comes Together For Discovery Day

...continued from page 2

Researchers also had positive things to say, including that they enjoyed sharing their work as much as they enjoyed learning what others are working on.

Who came to Discovery Day 2009?

- 20 presenting researchers
- 33 visitors from around Laikipia
- 13 additional researchers
- 10 Mpala Research Assistants
- 26 children

I feel fortunate to have had the opportunity to meet so many members of the Laikipia community during Mpala's Discovery Day and to begin to grasp the level of passion and interest for the landscape and wildlife that Laikipians hold. I thank all of you who made this day successful, both visitors and researchers. I hope that we will be able make Discovery Day an annual event, so watch for more information in 2010!

Jennifer Bahmeier is a Conservation Education Specialist at the Denver Zoo, Denver Colorado, U.S.A. She and her colleague Amy Masching support the Denver Zoo's work in Kenya through education, community development and awareness projects. ■

Face painting, games, stories, and other activities kept the children entertained at Discovery Day. Photo by Ilya Fischhoff

Mpala Wildlife Foundation & Mpala Research Trust

Founder:
George Small (1921-2002)

Mpala Wildlife Foundation Trustees:
Donald Graham, Chairman
Giles Davies
Howard Ende
Jeffrey Gonya
Laurel Harvey
Dennis Keller
Ira Rubinoff
John Wreford-Smith
William S. Eisenhart, Jr. Trustee Emeritus

Executive Director:
Margaret Kinnaird, PhD
mkinnaird@mpala.org

Mpala Conservancy Manager:
Michael Littlewood

Mpala Research Centre Trustees:
Kenya Wildlife Service
National Museums of Kenya
Princeton University
Smithsonian Institution
Mpala Wildlife Foundation

Mpala Mobile Clinic Coordinator:
Shannon Wreford-Smith
shanni@wananchi.com

Newsletter Editing and Design
Corinna Riginos
Allison Williams
Amy Wolf

Contact Information
(USA)
Tel: (410) 244-7507

Mpala Wildlife Foundation
PO Box 137
Riderwood, MD 21139-0137
USA

(Kenya)
Tel: 254-62-32758

Mpala Research Trust
P.O. Box 555, Nanyuki
Kenya

www.mpala.org