

MPALA MEMOS

NEWS FROM MPALA

TOP STORY

FIRE IN THE BELLY!



*A view of the final burn.
Photo by Truman Young.*

Truman Young, Duncan Kimuyu and Ryan Sensenig
The three main 'drivers' of savanna ecology are rain, herbivores, and fire. All have been extensively studied, as have many of their interactions. For example, it is well known that both wildlife and livestock are attracted to fresh grass growth after a fire. However, there are virtually no studies that have experimentally manipulated both fire and herbivores separately and in combination. Many questions remain unanswered. How does the presence or absence of some herbivores affect the response of others to fire? How do different guilds of herbivores affect fuel loads and resultant fire temperatures? How does post-burn herbivory influence temporal dynamics in vegetation cover and composition?

...continued on page 8

MPALA'S HISTORY

MPALA'S FIRST RESEARCHER REMEMBERS LIFE 25 YEARS AGO

Des Hobson

Twenty five years ago, in 1988, for five months, I had the privilege of making the first ecological survey of Mpala Ranch. George Small, the owner of Mpala, wanted an ecological survey of the ranch and sought the advice of Dr Hugh Lamprey, a renowned ecologist working for the World Wildlife Fund (WWF). For me, it was a stroke of luck, as I wrote to Hugh at about that time, seeking voluntary experience, and Hugh arranged for me to go to Mpala to conduct the first study of Mpala's biodiversity.

....continued on page 9



Camp on the Ewaso Narok. Photo by Des Hobson.

A DAZZLE OF GREVY'S ZEBRA

Derek Betts

It can be strongly argued that zebras have evolved their telltale stripe pattern as a defense against predation. In the eyes of a predator, a herd of zebra may appear not as a group of individuals, but rather as



Note how the stripes blur each individual's outline. Photo by Derek Betts.

one blurred mass of black and white, with outlines muddled to such an extent that one zebra is difficult to distinguish from another. However, where predator eyes find challenge, humans bear witness to a spectacle of African ecology that has become iconic the world over. As testament to this, a group of Grevy's zebra can be referred to as a dazzle, much like a group of rhinos can be called a crash, and giraffe make up a tower.

Of all of Africa's pinstriped equid species, perhaps the most impressive is the Grevy's zebra. In contrast to their more abundant relatives, the Plains zebra, Grevy's are in possession of a more robust frame, thinner and more densely concentrated stripes, and larger, rounder ears that pick up sound on a nearly 360° swivel. Numbering 15,000

...continued on page 6

A HABITAT FOR A HORNBILL

Katherine Mertes

Why do species occur where they do? How do we accurately predict their occurrence? These questions have inspired naturalists and scientists for many years. Accurate species occurrence information can be used to select protected areas, identify movement corridors, and develop successful management practices. The research I am conducting on Mpala investigates how environmental conditions and spatial scale influence occurrence patterns of Von der Decken's hornbills.

Humans and animals are known to select resources at different spatial scales. For example, when choosing a city in which to



A hornbill wearing the solar-powered backpack which tracks his GPS location. Photo by Katherine Mertes.

...continued on page 7

A VIEW OF MPALA'S PRIMARY SCHOOL

John Maina and Morgan Pecora-Saipe

As you drive up to Mpala's primary school, you will be welcomed by an educational and creative design by Mpala's teachers and students. The driveway is lined with large rocks painted with the names of Mpala's wildlife, plants and well-known places. English names adorn one side of the rocks, Kiswahili the other. The largest rock pays tribute to George Small, Mpala's owner and founder of the school. The display encircles the start of a weather station where the students can measure wind direction and strength with a wind sock; they are looking forward to adding a rain gauge!



Educational tours to Nairobi, supported by Connie Keller and Ingrid Graham, inspired Mpala's teachers to build the display. Students, teachers and parents worked during their free time to collect and paint the rocks. As students arrive to school each day, they are reminded of the importance of conservation.



The Mpala teachers would like to thank the Board, Margaret, Tuni and Mike for their support during the education tour, and Dan and Nancy Rubenstein for sponsoring the Conservation Club. ■



The rocks collected by the students welcome visitors to the school and list important animals, plants and places of Mpala (Top). Below Mpala's students and teachers welcome visitors. Photos by Morgan Pecora-Saipe.

ANTHONY KING, PHD

Margaret Kinnaird

It was one of those intensely beautiful Laikipia days – strong dry season winds had cleared the clouds from Mt. Kenya, leaving it fully exposed, dusted with snow. I was sipping wine with friends, musing silently on the importance of that imposing, craggy mountain to Laikipia and its people when the tragic news came that Anthony had crashed on the mountain in a small aircraft. It has taken a while to come to grips with his death – not just for me personally but for Laikipia as a whole. Anthony's name, in many ways, was synonymous with Laikipia conservation. In his past role as Director of the Laikipia Wildlife Forum, he advocated passionately, yet wisely, for the region's extraordinary wildlife, the landscape, and the people who rely on it. So many of the conservation successes we proudly report today are the direct result of Anthony's dedication and persistence. Anthony was an extraordinary person and his legacy will live for generations to come. I miss his



*Photo by
Laikipia
Wildlife Forum.*

presence, his insightfulness, his calm energy. He enriched my life. I will treasure what I learned from Anthony and use those lessons as wisely as he would hope. Our thoughts go out to his amazing wife Delphine, his two sons Oscar and Lorian, his sister Juliet, and the entire King family. ■



Wildlife on Mpala. Photos by Morgan Pecora-Saipe.

Elyse DeFranco

Antony Eshwa, an important member of our Mpala family, passed away this February. A lover of all animals, and especially dogs, he attempted to befriend a stray and ultimately passed from complications related to rabies.

I cannot bring myself to write about Antony in the past tense, as I think we all continue to feel his presence as strongly as ever. His contagious smile; his unfaltering enthusiasm; his genuine concern for everyone around him; and his overall love of life- Antony continues to be an inspiration to everyone who his life touched in some way.

Head of a birding group in his home community of Naibor, he spent his days off encouraging others to develop the same respect and sense of wonder that he himself felt for the



Grace, Stacy and Antony.

Photo by Sarada Eastham.

natural world. I count myself as lucky to have spent so much time with him in the field, where he could teach me about the land that he grew up in, reveal his opinions of Kenyan politics, and share his sense of humor. One of my favorite memories of Antony is when I explained that we would need a ladder for our latest experiment, involving measuring thorns on the tops of trees. He looked at me, grinned, and proceeded to reach up and grab the branch unaided, hardly attempting to conceal a laugh- which is how I ended up calling him Twiga.

He leaves us all with a smile on our faces when we think of him, and most importantly, his spirit lives on in his two beautiful young daughters, Stacy and Sarada, as well as his incredible wife Grace. ■

MPALA-AT-A-GLANCE

New Contact Numbers

- You can now reach the Mpala Research Center office on the following numbers:
0202597401
0202597402

Farewells and Welcomes

- Mpala says farewell to Corinna Riginos and Siva Sundaressan. Corinna will be working for Teton Science Schools as the Ecology Research Director and Siva is continuing to work for Denver Zoo. Good luck to Corinna, Siva and Rohan in Jackson, WY!

- Derek Betts, the current Grevy's Zebra Project manager, will be leaving Mpala

at the end of the month to start his new position as assistant field coordinator with Projet Protection des Gorilles in Gabon. Goodbye to Derek and a warm welcome to his replacement, Michael Brown!

Courses & Student Groups

- The 9 Princeton and 3 Columbia students are coming to the end of their 3-month field course at Mpala. During their time here, they have traveled to Ol Pejeta, Nairobi National Park and Embu, and they hiked Mt. Kenya over their spring break.

- Professor Steve Sait led a student ecology course for two weeks in March. ■

A DAZZLE OF GREVY'S ZEBRA

...continued from page 2

individuals less than fifty years ago, Grevy's zebra populations underwent a rapid decline, bottoming out at somewhere between 1,500 – 2,000 individuals continent-wide. Currently, the species is almost exclusively found in Kenya, although small populations of Grevy's do subsist in Ethiopia. Grevy's population size is currently listed as stable, with an estimated 2,500 individuals occurring in the wild.

Since the beginning of 2010, the Grevy's zebra team has been conducting a project at Mpala that aims to study the movement and behavior of Grevy's throughout Laikipia County. Each month we conduct surveys of Grevy's zebra on Mpala Ranch and neighboring Ol Jogi Ranch. When Grevy's are seen, each individual is photographed. With an ironic tip of the hat to evolution, the same stripes that so effectively confuse predators in the wild enable us to use an organized and methodical strategy for identifying individuals. Much like human fingerprints, no two Grevy's zebra exhibit the same stripe pattern. Capitalizing on this, we use innovative computer software that analyzes the stripe pattern of each animal we photograph and assigns a unique ID to each zebra. We are then able to track the

total number of individuals observed, as well as monitor their movement over time.

Through the combination of observational data analyses and statistical modeling, we have determined that Mpala and Ol Jogi support roughly 400 individual Grevy's zebra, a substantial portion of the world population. And we know that some individuals – like Grandpa, a male identified in 2002 – have been using Mpala for at least 11 years. Prior to our study, Central Laikipia was not known for its outstanding Grevy's zebra population. Our research suggests that it is a Grevy's zebra hotspot, with an enormous amount of conservation importance. While the immediate goal of our work is to determine the accurate number of Grevy's zebra across Laikipia, we also are hoping to improve our understanding of other population parameters such as the number of foals a female gives birth to in her lifetime and survival rates among individuals. Dazzling indeed.

The zebra project at Mpala Research Centre is an ongoing project. As the scope and findings of our research continue to evolve, we encourage you to check future Mpala newsletters for updates. ■



[return to beginning of article](#)

Nature's own barcode: We use stripe patterns to identify individuals from digital photographs.

Image by Derek Betts.

FIRE IN THE BELLY!

...continued from page 1

After years of planning, a series of controlled burns were carried out in the Kenya Long-term Exclusion Experiment (KLEE) on 28 February-2 March 2013. We finally were able to put together the right combination of people, equipment, grass cover (fuel), and weather (although high winds only abated the day before the burns). It was a tense three days, but Ryan Sensenig brought all his considerable experience (and specialized fire gear) to bear, and was able to keep the fires firmly under his control.

There is one mystery in particular that we hope to solve with these burns. In two different sets of fire experiments previously carried out in Laikipia, it was observed that virtually all *Acacia drepanolobium* trees can survive a fire, but several years later many of the larger trees disappear. What causes this delayed die-off? Evidence suggests that elephants are responsible, but we still need a) good experimental evidence of which herbivores are involved, and b) the exact mechanism by which these trees are made susceptible. This and many other questions (and answers!) await.

The controlled burns were carefully choreographed. For several weeks before the burns, Duncan Kimuyu and the KLEE crew gathered baseline data and slashed fire breaks around each plot. Then all the equipment was manufactured, organized, cleaned, and prepared, mostly by Ryan Sensenig. This included two water tanks with pumps and hoses pulled by Land Rovers, and a big water bowser from Mpala Ranch (thanks to Michael Littlewood!), a dozen backpack water sprayers, a stack of fire 'swatters', and fire-resistant clothing, gloves, hoods and goggles that left nothing exposed. Truman Young painted hundreds of ceramic tiles with temperature-sensitive paints for monitoring the burns.

On the burn days, Ryan first put down a 'wet-line' along the firebreak around each burn. He and Duncan then used drip torches to light a cool-burning back-fire along the leeward side of the plot that crept slowly against with prevailing breeze. When this had burned a sufficiently large area to effectively solidify the firebreak, they lit the windward side of the plot, and let the fire roar through. 'Watchers' around the edge scoured the bush for any stray sparks (there was only one over the three days, quickly extinguished). Each burn lasted only 8-13 minutes, but those anxious minutes seemed like ages. After the burn, mop-up crews went through the entire plot, extinguishing even minor smolders. A follow-up team monitored each plot for another hour, just to be sure. It was hours (weeks!) of preparation, interspersed with brief interludes of high-intensity adrenalin.

Fire has long been a part of the Laikipia landscape. Traditional pastoralists burned regularly, perhaps going back hundreds of years. The early ranchers replicated these burns, but in the 1960s and 1970s burning fell into disfavor, with only a few holdouts. Ryan Sensenig worked collaboratively with several ranches in Laikipia to carry out fire experiments in 2004-5 (burns ranging in size from 1 – 81 hectares), which clearly demonstrated the value of fire in refreshing rank grassland. Perhaps controlled burning under the right biological, social and political circumstances is poised for a comeback in Laikipia. We hope that the KLEE burns will add to the necessary knowledge base.



[return to beginning of article](#)

Check out more photos by Truman Young on page 11.

MPALA'S FIRST RESEARCH REMEMBERS LIFE 25 YEARS AGO

...continued from page 1

I was 19 and had never been to Africa. Hugh packed me into his plane and flew me from Nairobi to Mpala, buzzing the farmhouse as we flew in to let the ranch manager John Wreford-Smith know of our arrival. John arrived on the airstrip in the farm Land Rover, and my adventure began.

John took me to where I was to live – an open-sided, grass-roofed hut on a bluff overlooking the Ewaso Narok river, on the northern boundary of Mpala. John assigned me two of his staff – Epur Loshakol, a Turkana, and Malelo, a Samburu, breezily explaining that he had chosen people from the two main ethnic groups, so that if anything happened to me they would have a reasonable chance of identifying the culprit. John added that he had also chosen them because they didn't speak a word of English, which would force me to learn Swahili. And then off John went, promising to return each Monday morning to dip the cattle and bring provisions, mail, and take my food order for the following week.

I had a camp-bed, table, chair, paraffin lamp, a Walkman, a compass, a flower book, and instructions for the ecological survey, as well as a loaned motorbike, something I had never ridden before. There was a pool in the Narok river for bathing and collecting drinking water, which I shared with cattle and occasionally a family of wart hogs that were oblivious to my presence. It hadn't rained for eight months, and the river wasn't flowing so the sanitation was questionable. Each evening at sunset I would sit with a beer on the little kopje next to my hut watching the wildlife. I shared the kopje with a cobra. It was all very different from the English village where I had grown up. Although daunting, it was a great opportunity, so I was determined to make it work.

I set to work by building a network of rock piles at one kilometre intervals, north-south, and east-west across the ranch, to mark the points where I would sample vegetation and wildlife. All of these I paced out on a compass bearing: there was no GPS in those days. It was challenging to maintain a straight line through Mpala's dense bush and watch out for wildlife at the same time.



Des and his team, Epur to his left, build a rock pile to mark a measurement point.

Photo by Des Hobson.

Not long after I started, I walked straight into a pride of eight thin lions lying in a lugga (dry river bed). I had no gun, but John had given me instructions on dealing with lions - shout and throw stones at them until they go away. If I ran, he told me, I would be eaten. Unfortunately, Epur did run, but straight into a thorn bush. The lions reluctantly moved off. They killed a buffalo that night.

I collected data along transects radiating from the rock piles to create a vegetation

...continued on page 10

MPALA'S FIRST RESEARCH REMEMBERS LIFE 25 YEARS AGO

...continued from page 9

map of the ranch, a preliminary plant checklist, and a herbarium collection for the ranch and the National Museums of Kenya. I noted the important tree species, their distribution, and their Turkana names. From each of the rock cairns I took photographs, facing North, South, East and West. I also set up a soil erosion study, a rain gauge network, and compiled a mammal list.

Although basic, life at my hut was comfortable, at least until it rained. The drought was broken by one of the wettest years on record. The grass roof of my hut would keep the rain out for ten minutes, giving me enough time to cover my bed and clothes with polythene. The water ran in one side of the hut and out the other. There were a few nights when I slept under polythene to stay dry.

I had only been at the hut for a couple of nights when a leopard walked through it, past my camp bed where I was sound asleep, and then sat on the kopje a few metres away. Epur and Malelo's hut was 100m away, and they saw it, but they weren't about to come and frighten it away. In the morning, its footprints were clear to see. Before I went to sleep, I would shine my torch from my bed at night and see animals' eyes watching me from the bush.

I occasionally bought milk and chickens from the local community. A live chicken stored longer, but strapping a live chicken to my motorbike with strips of inner tube always seemed a little unfair. For meat, I lived mainly on bush-meat provided by John, which was invariably guinea fowl or a hunk of meat from a lion kill. Once he brought me a lot of buffalo meat from a lion kill. I poisoned myself from my attempt to turn the surplus into biltong. I had no refrigeration.

Towards the end of my stay, I moved to Clifford's farmhouse, where the current ranch manager now resides, to finish writing up my notes. Although nothing more than bare concrete, Clifford's did have a roof, and a rain-water tank. I lived on the veranda.

I was shown great kindness by everyone. One evening my motorbike broke down far from home, and I was put up for the night in a cattle boma. The askari (guard) bicycled to the farmhouse to get help while I was given somewhere to rest, and fed with a liquid supper from a gourd. I assume this was milk and cow's blood, but I decided not to ask.

George Small was pleased with my work. In a letter five years later, when he was seeking Smithsonian funding for me to return to Mpala he wrote: "you did an excellent job on Mpala, and it would be good to have you there again." But it was not until earlier this year that I had the privilege to return to Mpala. I spent several days on the ranch, being shown, once again, enormous kindness from the Wreford-Smiths, who now live a few kilometres away. I visited the Research Centre, which didn't exist twenty-five years ago. Unsurprisingly, the ranch is much busier than it was. Then, the only vehicle on the public road to Rumuruti was the vet on his motorbike. There were no settled communities at all on the other side of the Ewaso Ngiro. Eco-tourism near Mpala didn't exist.

Twenty five years ago there was a vast, even-aged, Euphorbia forest across much of the northern part of the ranch. Elephants, which had arrived on Mpala within the previous decade, were just beginning to flatten the Euphorbia. Today, this Euphorbia forest is starting to regenerate. There are fewer fever

...continued on page 11

MPALA'S FIRST RESEARCH REMEMBERS LIFE 25 YEARS AGO

...continued from page 10

trees (*Acacia xanthophloea*) along the rivers and more grass today – perhaps a reflection of recent good rains - and it is somewhat less wooded than it was, particularly the *Acacia mellifera* woodland near Mukanya. There was no invasive *Opuntia* (prickly pear cactus).

My memories of Mpala have stayed with me, and I was incredibly fortunate to be the first scientist to volunteer on the ranch twenty five years ago. I hope to be able to return again soon!

[return to beginning of article](#)

Communication has also changed. In the 80s, Mpala had no phone, and John would tune into the Laikipia radio network each morning to confirm all was well. Once, John had to make a phone call, but the black cotton soil road to Nanyuki (now tarred) was impassable due to rains and the nearest accessible phone was at Nakuru, a six hour round trip. John invited me to accompany him, getting his Range Rover stuck on the way. I hadn't left Mpala for three and a half months.



*The Euphorbia woodland of Mpala.
Photo by Des Hobson.*

TOP STORY

FIRE IN THE BELLY! ADDITIONAL PHOTOS



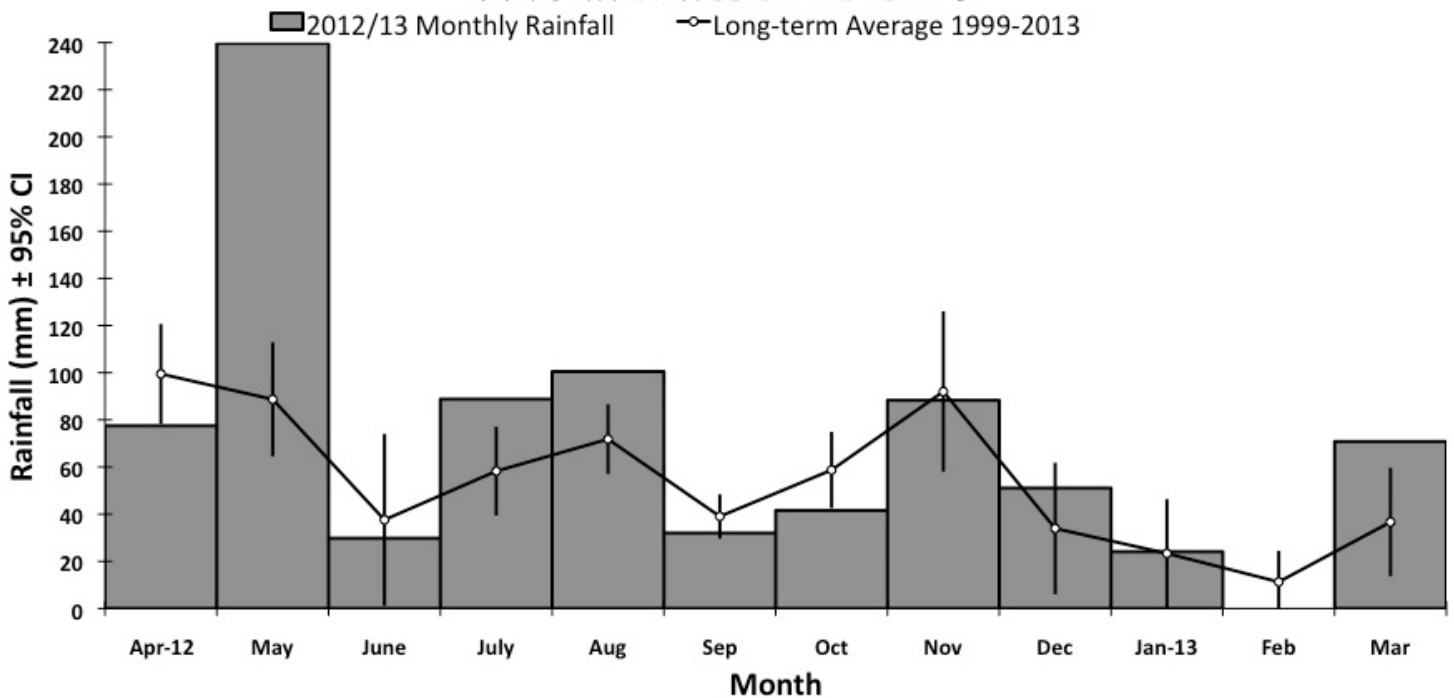
Left: The burn crew controlling the back burn. Right: Ants are frozen in their tracks after the fire. Below: The team poses together following the burns. Photos by Truman Young.



[return to beginning of article](#)

MPALA RESEARCH CENTRE RAINFALL

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

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

mobileclinicsafrica@gmail.com

Newsletter Editing and Design

Morgan Pecora-Saipe

Mpala Research Trust

P.O. Box 555, Nanyuki

Kenya

www.mpala.org