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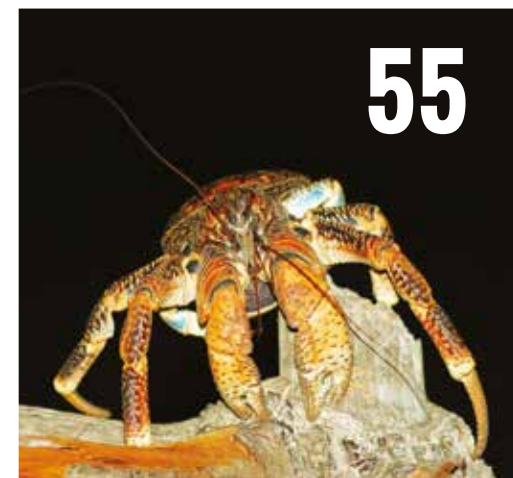
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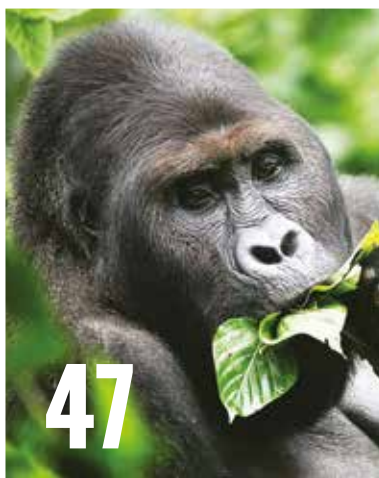
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# Striking a Balance between Development and Environmental Conservation



PHOTO BY: WAN XINRU

## THERE IS NEED FOR GOVERNMENTS AND CONSERVATIONISTS TO DISCUSS THIS POSSIBILITY AND DEVELOP 50 TO 100-YEAR PLANS TO MANAGE AFRICA'S LAND USE.

continent's ecological stability is under immense pressure.

The negative impact of rapid human population growth on the environment is evident as economic development priorities clash with the environmental conservation imperative. African governments are increasingly investing in large infrastructure projects as they strive to boost their economies and improve the material wellbeing of their people. Increasingly, development priorities are taking precedence over the need to protect Earth's flora and fauna.

The Government of Kenya, for instance, has placed emphasis on the so-called "Big Four Agenda" -- food security, manufacturing, housing and universal healthcare. While all these are essential for a growing population, environmental matters have not been prioritized. Mass deforestation and general environmental degradation continue unabated.

Many of the proposed development projects have a direct impact on the environment and if not carefully carried out will lead to considerable environmental damage, which will in due course harm the same people the ventures are designed to benefit. For example, despite the hue and cry from conservationists, the construction of the Standard Gauge Railway in Kenya is progressing through some of the country's protected areas with little regard for ecological health and species protection.

But can economic development be carried out in a manner that ensures

environmental integrity? Is it possible for development and environment conservation to find balance as human populations expand and the exploitation of natural resources intensify?

The Chinese Academy of Sciences seems to have found a feasible solution to this challenge. It has developed a new concept of "Minimum Nature Conservation Index (N%)", which refers to the minimum proportion of protected areas on Earth's surface required to ensure basic survival of mankind. The N% if used as a global benchmark for ecological security and as a global/national macro goal in land use planning can be a mechanism for establishing coordinated development that provides balance between nature conservation and economic development.

There is need for governments and conservationists to discuss this possibility and develop 50 to 100-year plans to manage Africa's land use. The continent is unique in its abundance of wildlife and pristine natural habitats that need to be protected and conserved for posterity. In this regard, the East African Wild Life Society will in 2019 hold its first international symposium that will bring together key stakeholders in environmental conservation to discuss economic development in relation to the environment. ●

**By Nancy Ogonje**  
*Ag Executive Director*

**D**espite conservation efforts, global ecological problems such as the rapid decline of biodiversity, climate change and ecological degradation have worsened over the past half a century. We are losing Earth's biota at an alarming rate.

Wildlife populations and their habitats are in decline while the human population is rising at an exponential rate, putting pressure on the environment. The world's population currently stands at 7.2 and is projected to rise to 9.7 billion by 2050, with a substantial part of that increase expected to occur in Africa. The

### **KENYA IN CAMPAIGN TO PROMOTE WILDEBEEST AND WHALE MIGRATION**

Kenya's tourism ministry has launched a campaign dubbed Twin Migration to promote awareness of the wildebeest migration in the Maasai Mara National Reserve and the humpback whale migration along the country's Indian Ocean coast. Tourism and Wildlife Cabinet Secretary, Najib Balala, launched the campaign on August 11 while watching the annual wildebeest migration. The coincident timing of these migrations was highlighted in Swara's 2017 report on Whale Watching in Watamu.



PHOTO BY: FEDERICO VERONESI

### **NEW STUDY SHOWS FEMALE ORPHANED ELEPHANTS HAVE A TOUGHER LIFE**

Young female orphan elephants have a tougher social life than those with mothers, according to a new study that adds to a growing body of evidence that poaching has far-reaching negative impacts on elephant populations. The research, part of a wider study by the charity Save The Elephants and Colorado State University into the social impact of adult mortality on orphaned female elephants, shows that orphans receive more aggression from other elephants -- whether overt hostility like pushing or more subtle forms such as displacements -- than non-orphans.

Orphans that leave their families and move into another family unit are likely to receive more aggression than those integrated in their natal groups. The study, conducted over five years and led by postdoctoral researcher Shifra Goldenberg, analyses the social interaction patterns of juvenile female elephants in Northern Kenya who have lost their mothers to either poaching or natural mortality.

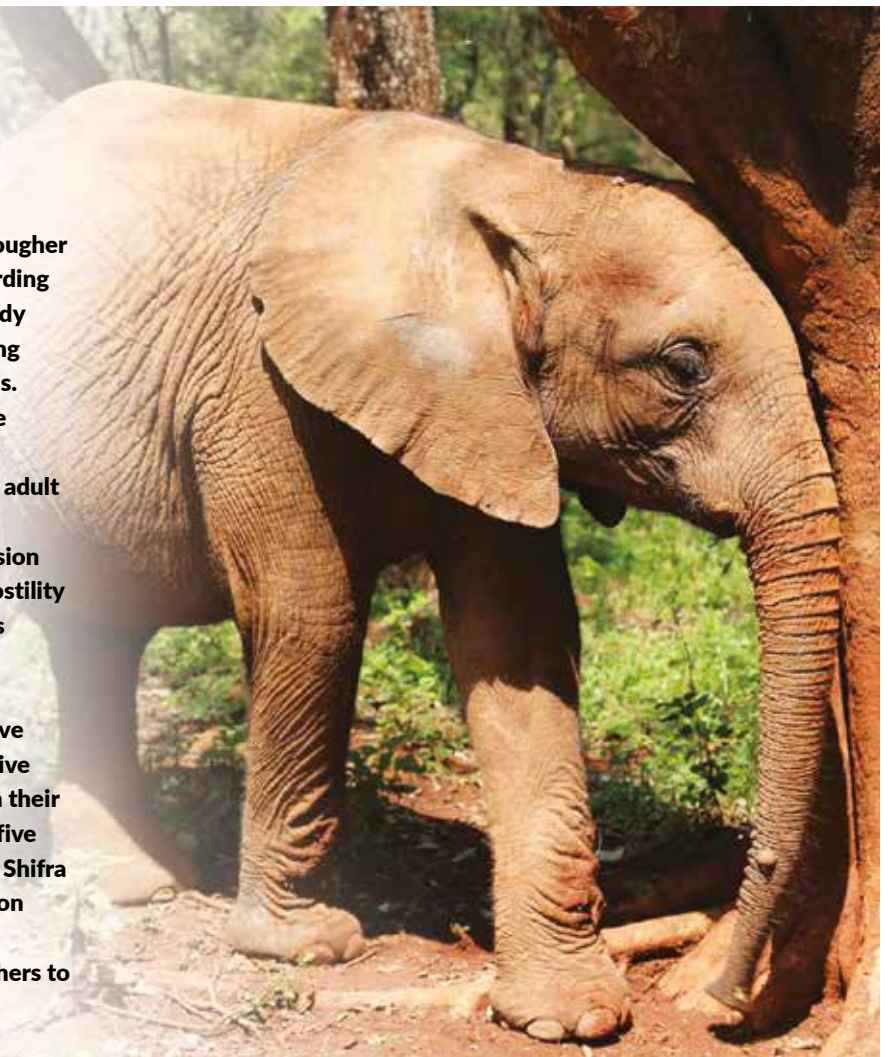


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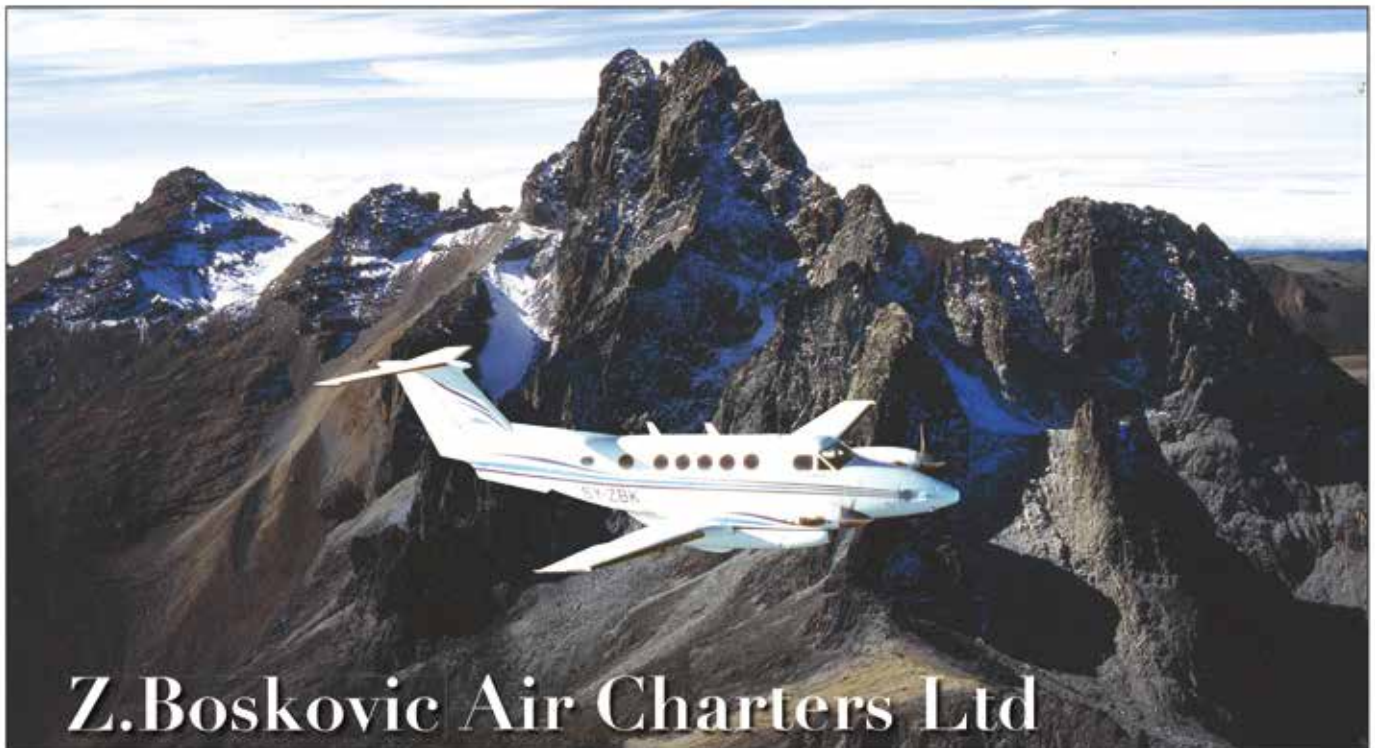
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## RISING AMOUNTS OF IVORY ENTERING CHINA FROM MYANMAR

Increased amounts of ivory are flowing into China from Myanmar, according to a new publication by Save the Elephants. The report entitled '*Myanmar's Growing Illegal Ivory Trade with China*' shows that one town in particular, Mong La -- a frontier town in the notorious Golden Triangle on the border of China -- has experienced a "prolific growth" in ivory trading. The number of new ivory items seen for sale in the town grew by 63 per cent in three years, and now accounts for over a third of the ivory seen in the country.

The report by ivory trade specialists Lucy Vigne and the late Esmond Martin recounts how Chinese visitors smuggle worked ivory from Mong La back home with little concern about getting caught.

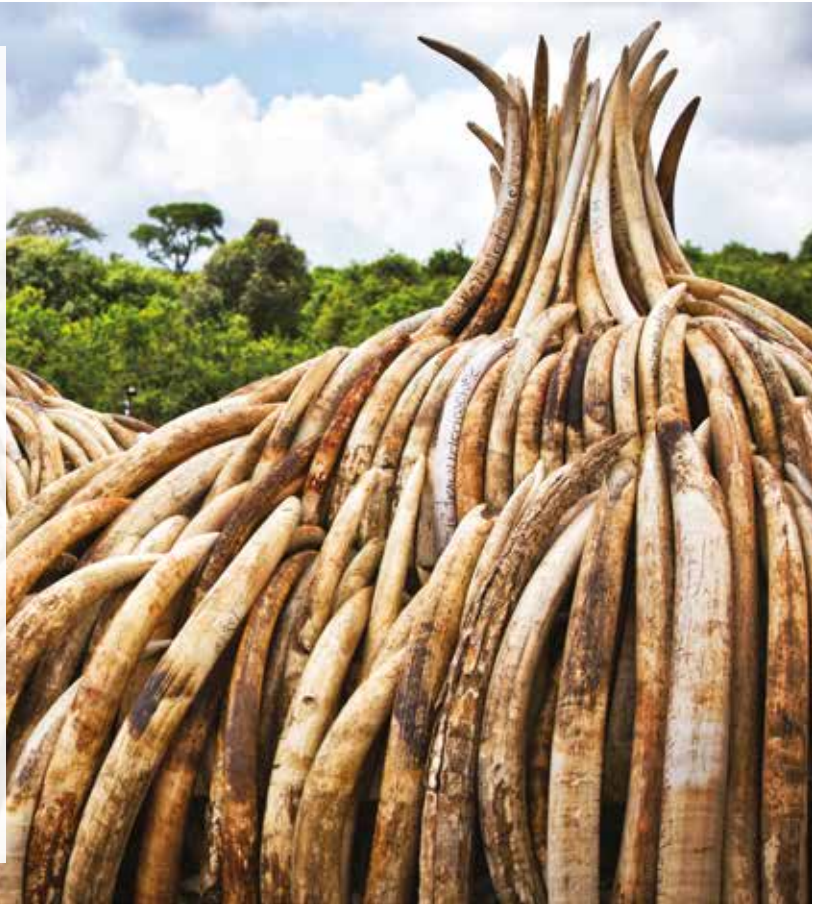


PHOTO BY: BEN CURTIS - AP

## LAKE TURKANA PARKS PUT ON THE LIST OF WORLD HERITAGE IN DANGER

The World Heritage Committee meeting in Manama, the capital of Bahrain, in June decided to inscribe Kenya's Lake Turkana National Parks on the List of World Heritage in Danger, notably because of the impact of a dam on the site. The Committee, which selects the sites to be listed as UNESCO World Heritage Sites, expressed concern about the disruptive effect of Ethiopia's Gibe III dam on the flow and ecosystem of Lake Turkana and the Kuraz Sugar Development Project, which poses further threat to the site.

The most saline of Africa's large lakes, Turkana is an outstanding laboratory for the study of plant and animal communities. The three National Parks serve as a stopover for migrant waterfowl and provide major breeding grounds for the Nile crocodile, hippopotamus and a variety of venomous snakes.



PHOTO BY: DORON / DORON

## NEW CHAMELEON SPECIES IN KENYA

On a field trip this year to Kereita Forest, Joash Nyamache from the herpetology section of the National Museums of Kenya collected a chameleon in the forest. Nyamache's keen eye immediately noticed that it was unlike any in the collection at the museum. Comparing it with the Jackson's chameleon – the closest resembling species – he noted the differences. Whereas Jackson's chameleon (also called Kikuyu three-horned chameleon and Jackson's horned chameleon and first described by Belgian-British zoologist Albert Boulenger in 1896) has a saw-tooth shaped dorsal ridge, the new find has a different dorsal ridge that is wave-like. The other difference is the crest on



the head – high on Jackson's but small on the new one. "This could be a new sub-species or even a new species," says an elated Nyamache. The new find is being analysed in the Czech Republic.

PHOTOS BY: HERPETOLOGY SECTION OF THE NATIONAL MUSEUMS OF KENYA



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Motorcycle manufacturer Kibo Africa has decided to champion wildlife conservation as its corporate social responsibility, offering its K-150 motorcycles, which are specifically designed for the African terrain, at discounted prices to partner wildlife conservancies to facilitate their work. Wildlife conservancies benefit greatly from the bikes as they are ideal for carrying out day-to-day operations, such as patrols, in the conservancies. Kibo has a special discount offer of 50,000 Kenyan shillings (\$496) off on every bike purchased by conservancies in Kenya. The company intends to partner with many other conservancies so as to impact wildlife conservation efforts in Kenya.

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**FLIPFLOPI: KENYA'S FIRST EVER PROTOTYPE OF MARINE LITTER BOAT**

Amid the rising momentum to beat plastic pollution globally, Kenya has launched the world's first 100 per cent recycled marine plastic boat into the Indian Ocean. The project launched in September and is aptly named the FlipFlopi used thousands of repurposed flip-flops and ocean plastic collected on beach clean-ups along the Kenyan coast for the construction of the prototype. After completion of trials at sea, the Flipflopi prototype will embark on a ground-breaking 500km expedition from Kenya's Lamu island to Zanzibar in Tanzania. Departing early 2019, the team will be visiting schools, communities and government officials along the way - sharing messages on how to beat plastic pollution and contribute to conservation. The UN praised the innovative way in which the FlipFlopi creates awareness of the issues around single-use plastics.



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# ESMOND BRADLEY MARTIN

## 1941 - 2018

# DEATH ONE AFTERNOON

A tribute by Peter Bradley-Martin to his brother Esmond

**E**smond's first introduction to East Africa back in 1959, when he was 18 years old, was almost his epilogue. He was on safari in the Belgian Congo, when by chance he got an audience with King Charles Mutara III of Rwanda-Burundi, a very tall Tutsi educated in England.

Invited him to a banquet with the king that evening, Esmond declined, as he didn't have suitable dress for the occasion. That night back in camp, he heard on the wireless that everyone at the party, including the king, was dead, poisoned. That tragic event sparked the Hutu-Tutsi conflict.

My brother returned to East Africa roughly a decade later, after geography studies in the United States and England, to a dry country where today too many people are now competing for too little arable land and water, where wild animals vie with humans and die for the same territory. It wasn't always that way.

When he built a house and settled with his wife Chrysee on the outskirts of Nairobi, their 25 acres bordered Nairobi National Park, it was a rural, peaceful milieu. Fugitive lions and leopards from the park often ambled through the neighborhood. Delinquent baboons and monkeys made destructive forays to the residential properties, which was about the extent of crime in the neighborhood at the time. It was a paradise for wildlife and human inhabitants, where both lived in symbiosis, with downtown

Nairobi less than a 30-minute drive on roads with little traffic.

Over the years the community grew; another American, Peter Beard, took up temporary residence nearby and became a famous conceptual photographer of wildlife and friend. It was certainly an agreeable life for the expats society; what it might have lacked in sophisticated artistic culture, it made up for it with primal beauty and rich natural history.

The game parks were thick with animals, herds of wildebeests strung out far as the horizon; immense herds of zebra mingling with impala, gazelles and topi blanketed the plains, while towers of elegant giraffes ambled amid the acacia. Family sets of rhinos shuffled across the dusty landscape and herds of elephant were so numerous they could be found nearly everywhere. It was these two species that first fascinated him the most and which jumpstarted his career in conservation.

However, his first insight into smuggling began in 1970 while taking an interest in the dhow trade off the East African coast. His study of those ancient lateen-rigged sailing ships that plied the Indian Ocean trafficking in ivory and other illicit goods fascinated Esmond and culminated in the publication of a book co-authored with his wife Chrysee, *"Cargoes of the East"*.

When this willowy, independent individual from New York first settled in Kenya in the 1970s rhino and elephant populations were not in such dire

danger of survival as today. In the Tsavo region alone there were approximately 35,000 elephant. Drought in the 1970's killed 6,000. But in the 1980s, at the height of poaching for ivory, only 6,200 remained in Tsavo. Much the same decline can be found in the rhino population. In 1970's there were 20,000 Black rhino, but today only 540 remain. Such shocking statistics moved Esmond to wage an undercover war against poachers and their foreign clients; a clandestine war that impelled him to investigate remote regions, notorious districts and major cities around the globe.

Esmond's intensely inquisitive nature, his love of statistics and his doctorate in geography facilitated this research in the illicit trade. During the early 1980s he travelled extensively through Africa and Asia, consulting with the world's leading experts on conservation, trade ministers and heads of state. In Africa he befriended such notables as George and Joy Adamson, Richard Leakey, Jane Goodall and Dian Fossey.

He conferred with international experts on rhinos, learning as much as he could before beginning his pursuit in earnest under the sponsorship of the World Wildlife Fund. During one of his trips to Yemen researching the illicit trade of rhino horn for handles for men's dagger called jambiya nearly cost him his life. At 3 o'clock in the morning his hotel phone rang and the caller told him he wouldn't leave the hotel alive.

To get out of the hotel, he disguised

himself as a woman wearing a balto, the black garment that covers from head to foot. That incident wasn't the only threat to his life while monitoring rhino horn traffic in Yemen. He ultimately decided, after finding he was flagged by the authorities, that the risks were too great to personally carry on fieldwork in that hazardous country. Instead he began promoting alternative materials as a substitute for rhino horn. Water buffalo horn proved the most successful and now nearly 100 percent of jambiya handles are made from that material. \* See Esmond's report co-authored with Lucy Vigne "Amid Conflict, Yemen's Demand for Rhino horn Daggers Continues" in the Jan-March 2018 issue of Swara.

The book "Run, Rhino Run" co-authored with his wife Chrysee, was the outcome of those years. Esmond was appointed Special Envoy for Rhino Conservation by the executive director of the United Nations Environment Programme, and awarded the Order of

the Golden Ark by Prince Bernhard of the Netherlands. His exhaustive efforts brought about legislation prohibiting rhino horn trade, thereby witnessing China, Taiwan and South Korea officially banning rhino products.

Esmond readily saw that one of the perils to conservation was the soaring human population in Kenya. When he first settled in Nairobi the population was 531,000. It now stands at 3.36 million. The national consensus was even more alarming; in 1970 the population stood at 11,25 million, in 2016 it rose to 47,25 million. That is a lot of people competing with wild animals for limited land and water. As the human population rapidly burgeoned, along with their goats, cattle, and tempting gardens, ivory poaching exploded and elephants suffered the consequences. He swapped hats and began identifying illegal ivory traders both national and international.

Occasionally disguised, he would pry the souks and back alleys of Khartoum

documenting ivory dealers and tracing their links with big cartels. It was very risky work and it nearly got him arrested, or worse, several times. He eventually had to keep out of Sudan altogether for fear of his life.

His undercover pursuits then found him traveling to Asia investigating the ivory trade in Hong Kong, Taiwan, Singapore, South Korea, China, India, Burma, Laos -- where he was beaten up for his efforts, and Nepal -- where he came down with a severe infection that laid him up for months. Through all the danger he confronted, his passionate dedication to his work never faltered, until he was brutally murdered one afternoon at his home by people who coveted his land.

Bled of blood. No breath left. His tenacious endeavour to save elephants and rhinos came to an end well before his time.

He was my brother. ●



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ESMOND BRADLEY MARTIN  
1941 - 2018

# A TRIBUTE BY DAN STILES

I write this with a heavy heart, as my friend and mentor Esmond Bradley Martin has left us under tragic circumstances. Esmond was a friend for 21 years before he also became a professional colleague and workmate for the final 19 years that we knew each other. And Esmond's wife Chryssee was an integral part of that friendship. I grieve as much for what Chryssee must be going through as I do for the loss of my good friend. Giving condolences does not seem enough.

I remember first seeing Esmond while attending University of Nairobi and British Institute in Eastern Africa talks and seminars. I was Lecturer in Archaeology at the University of Nairobi at the time. I did not know what to make of Esmond in the beginning.

He always arrived alone dressed in a smart suit and silk tie with matching breast pocket silk handkerchief, incongruously carrying a battered leather satchel. He stood out in a crowd by his height, extravagant dress and the unruly shock of white hair on his head. He would take a seat and lift out a large hard-backed notebook from the satchel for taking notes, which he did using an old-fashioned fountain pen. Esmond invariably asked knowledgeable questions and showed a deep interest in the subject under discussion, regardless of how trivial it might be.

I mean no disrespect to those giving talks or organizing seminars by using the term 'trivial', but the subjects always dealt with some obscure aspect of eastern African coastal history or archaeology that were far outside of the mainstream. My turn finally came after I had made a few research trips to Lamu District on the Kenya coast to study Boni and other hunter-gatherers.

I think my seminar was in late 1978. Afterwards Esmond came up and introduced himself and invited me



**Dan Stiles, Tom Milliken and Esmond Martin at the CITES 17th Conference of the Parties in Johannesburg in 2016.**

to dinner -- he wanted to know more about hunter-gatherer trade. That set off our long friendship and I was to visit the Martin mansion in Langata innumerable times over the following years. In 1982 I even stayed there for two weeks housesitting while they were away on one of their research trips.

Esmond is known today for his seminal work in wildlife trade, focusing on ivory and rhino horn. No other person on Earth had the breadth of knowledge and deep experience of investigating these iconic wildlife products as Esmond. But few know that his involvement in wildlife trade was almost accidental. A Geographer with a Ph.D. from the University of Liverpool, his first love was trade and history in the Arabian seas and western Indian Ocean, which formed the thesis of his doctorate, culminating in *Cargoes of the East* (1978) and several other books and

pamphlets on East African coastal towns such as Lamu, Malindi and Zanzibar.

Esmond is also a world authority on the dhow trade and he recorded an encyclopaedia of data on the types of dhows (there are dozens, from India to Zanzibar), the trade routes, the cargoes they carried, who was involved, the product uses, the prices and values and a myriad other facts and figures.

In the 1970s, wildlife products started increasing in volume in Esmond's dhow and port investigations. He and Chryssee began to look more deeply into what was going on here -- most of Esmond's early studies and publications were carried out as a partnership with Chryssee. They were the first to discover that half of the poached rhino horn ended up in the Yemen as dagger handles and the other half was not used as an aphrodisiac, but rather as a homeopathic aspirin to reduce fever in

the Far East. It drove the Martins mad whenever they read as late as last year journalists still reporting that rhino horn was used as an aphrodisiac – fake news!

During the 1980s and 1990s I was a spectator as Esmond focused more and more on wildlife, branching out to investigate trade in Japan, China, India and South East Asia. Our first joint publication was in 1994 in the pages of *Swara* (Vol. 17, No. 5) reporting on wildlife markets in South East Asia. I could see parallels with the wild trade products supplied to markets by twentieth century hunter-gatherers (a.k.a. poachers) in both Asia and Africa. The roots go back centuries. We warned about the threat that this trade posed in a region where quickly growing wealth made desired wildlife products more accessible to increasing numbers of people.

Esmond brought the empirical detail of the methods that he had employed in the dhow trade over to the open-air wildlife markets and shops that he intrepidly travelled to in his quest to gather every last fact possible to explain and understand the dynamics of pachyderm product trade. He opened this secret world up to the conservation community through his fearless dedication to tread where others would not.

I had to chuckle, however, whenever he recounted his ‘undercover’ investigations to me. Esmond was not a person who could go unnoticed undercover. After observing him work in Cairo in 1998, where we coincidentally collided, I saw that he obtained his information from brazen interrogations, with no thought as to the consequences that might befall him.

He accomplished his sterling work with consummate determination, an iron will and superhuman stamina. Even though in failing health at age 76, he had recently completed a taxing research trip to Myanmar which he told me about in the last of his periodic phone calls and was busy preparing the report with Lucy Vigne.

Esmond had a profound influence on my life. As head of the Editorial



**Dan Stiles and Esmond Martin in 2004 in Langata.**

Committee of *Swara* he urged me to join the East African Wild Life Society and the Committee, which I did in 1984, and as editor of *Kenya Past and Present*, the journal of the National Museums of Kenya, he brought me on board as assistant editor. I ended up not only editing dozens of manuscripts for the two periodicals but also publishing dozens of my own. He brought me into the Lamu Society, where I became its head, and in 1999 came the most important of his invitations. He asked me to join him in a survey of the ivory markets of Africa.

This last turned out to be a massive undertaking that took the better part of a year to complete, with countless hours spent with Esmond and Chrysee at their home putting the publication together for a *Save the Elephants* monograph. This ivory survey provided the baseline data used to assess future trends in the ivory markets of Africa. The report proved so useful that *Save the Elephants*, along with other donors, sponsored four more regional ivory surveys (South & South East Asia, East

Asia, Europe and North America) that we carried out together. I ended up completing several other wildlife trade investigations on my own for *TRAFFIC*, *IUCN*, *NRDC*, *Vulcan* and others.

This was something that never would have happened without Esmond Bradley Martin. He was my mentor and friend, very much like a big brother. He introduced me to so many fascinating people in his home or on walks to visit his neighbours – Iain Douglas-Hamilton, Daphne Sheldrick, Mike Norton-Griffiths, Cynthia Moss, Peter Beard, Ted Goss, Jonathan Scott, Ian Parker, the list goes on. And then there are the pachyderm intimates that I came to know and respect through Esmond – Holly Dublin, Tom Milliken, Diane Skinner and Lucy Vigne, an unbelievably dedicated, hardworking bunch of elephant and rhino devotees.

We all deeply mourn the passing of this extraordinary man who achieved so much in his time on our planet. My world will certainly be a lonelier place without him. I will greatly miss those phone calls. ●

# Consumptive Use of Wildlife: A Means to Reap Economic Value of Animals?



**Peter Low** was born and raised on family farm in Eldama Ravine. Educated to primary and secondary levels in Kenya and tertiary level in the USA. Currently farming on the northern shores of Lake Naivasha.

**BELOW: A family of Lions.**

It is unfortunate that Dr. Paula Kahumba, CEO of *WildlifeDirect*, and indeed the emotive and seemingly well-funded “conservation” lobby, generally, adopt such negative and unreasoned positions on consumptive utilisation of wildlife. (*Daily Nation article on August 22, 2018 under the headline ‘Game hunting plan will cause poaching crisis, experts warn’*).

Unless such “conservationists” are able to adopt a more reasoned approach they may well perpetrate the declining wildlife populations they portend.

Tourism and Wildlife Cabinet Secretary, Najib Balala, recognising the wider commercial aspects of wildlife conservation, recently appointed a task force to assess and advise on modalities for implementing wildlife utilisation in Kenya. In accordance with the dictates of good governance, these modalities should be based upon two important considerations. These are: optimum land use; and the realisation of the full potential economic value of wildlife and its products. For “conservationists” and wildlife experts to

interpret sustainable consumptive utilisation of wildlife resources merely as a ‘game hunting plan which will cause a poaching crisis’, and which ‘will decimate wildlife populations in the parks’ is incredibly blinkered, entirely negative and very unprofessional.

These experts should recognise that exploitive use of resources requires management and appropriate rigorous regulation, which when properly implemented and applied, in accordance with the provisions of the Wildlife Act will guarantee sustainability and species’ survival.

Instead of emotively pedalling in public fora such defeatist attitudes that consumptive use of wildlife simply means the hunting and poaching of wildlife to extinction, these experts should be suggesting the management and regulation necessary to ensure sustainable survival of wildlife populations occurring on land in communal and private ownership, as well as within national parks.

Resources require careful management and protection. There can be no doubt that wildlife anti-poaching operations commensurate with the



full economic potential of the resource must be a major cost consideration.

The conservation of diverse wildlife populations within closed ecosystems for easy and comfortable viewing purposes is just one aspect of the economic potential of wildlife. All the other aspects of the diverse economic potential of wildlife genetics and products are well researched, well established and are only relevant to the debate on consumptive utilisation in the context of advocating full exploitation of all economic potential.

We are not a nation overly endowed with natural resources, but we do have a priceless wildlife heritage significantly inhabiting areas of wonderful scenic beauty. We currently rely heavily on donor funding from well-resourced international conservation organisations who seem to regard wildlife resources as only something to be seen and marvelled at and more importantly make funding conditional upon compliance with their bidding.

It is no secret that the act of burning valuable stocks of ivory and rhino horn resulted in massive inflows of donations to support conservation. Such funding whilst undoubtedly put to good use, comes with no guarantees of continuity, which is what is necessary for budgetary support, without the realisation of full potential economic returns from management of wildlife.

The fact remains that management and full economic value exploitation should be what provides sustainable conservation funding. The appointment of the task force on consumptive utilisation by the responsible Cabinet Secretary would appear to be a step in the right direction.

The recent deaths of 11 black rhino has been variously blamed, incorrectly in this writer's opinion, on KWS (Kenya Wildlife Service) operatives and involved veterinarians. The real blame should rest squarely with the international wildlife 'conservation' funding agency, which financed the costly fencing of a large segment of Tsavo East National Park to become a fully protected rhino sanctuary.

Whether or not environmental impact assessments had been carried out, there were, reportedly, very specific expert recommendations made on feasibility, which required definitive implementation prior to introduction of the rhino. It would seem very likely that the donor agency was applying pressure for operationalisation and it is not unreasonable to presume that such pressure revolved round availability – or otherwise -- of future funding.

If consumptive use of wildlife is to continue



PHOTO BY: WILDERNESS INQUIRY

## A SIGNIFICANT CONSIDERATION IN ASSESSING AND DETERMINING THE MODALITIES FOR IMPLEMENTING UTILISATION OF WILDLIFE IS LAND USE.

**ABOVE: In April 2016, Kenya incinerated 105 tonnes of confiscated elephant ivory, aiming to send a clear signal to the poachers and public alike: killing elephants for their tusks and buying ivory-based products is simply not acceptable. But does this really help conserve elephants? Or could they, in fact, be counterproductive?**

to be resisted, then conservation of our wildlife heritage merely to be seen and marvelled by mankind, should become a thoroughly United Nations' affair. In such a situation, the animals might no longer be considered simply as a national resource, and the international conservation bodies with all their abundant funding sources might legitimately contribute some say in how and where the wildlife should be conserved.

A significant consideration in assessing and determining the modalities for implementing utilisation of wildlife is land use. The land contained within our national borders is finite and can be considered either abundant or scarce depending upon the number of living organisms to be supported by it.

The only living organism capable of determining and managing land use, through 'ownership' of the resource, is mankind. With this privilege comes an absolute obligation to utilise the land to its full potential and because of mankind's propensity to greed, this obligation is likely to require some regulation, which is where good governance comes in. ●

# ELEVEN RHINOS DIE IN RUSHED RELOCATION IN KENYA



**A PROBE SHOWED THAT THERE WERE AREAS OF CLEAR NEGLIGENCE THAT OCCURRED AFTER TRANSLOCATION BY JOHN NYAGA**

**A** rush to relocate critically endangered black rhinoceros from Nairobi National Park to Tsavo National Park ended in catastrophe when all 11 pachyderms died soon after arrival because the habitat, with saline water, was ill-suited.

The deaths triggered recriminations within Kenya's conservation circles as the Cabinet Secretary in charge of Tourism and Wildlife, Najib Balala, attributed the deaths to "multiple stress syndrome that was aggravated by salt poisoning, dehydration, starvation, opportunistic bacterial infection of the upper respiratory tract, gastric ulcers and gastritis."

Former KWS Board of Trustees Chair, renowned palaeontologist and conservationist Richard Leakey, had voiced concern over high water salinity in Tsavo and had thrice blocked the translocation during his tenure, which ended in April of 2018.

On August 23, Leakey told Kenya's parliamentary Environment and Natural Resources Committee that Balala himself, and acting director-general of the Kenya Wildlife Service (KWS), must be held accountable for the debacle.

"The Cabinet Secretary, Principal Secretary and the acting Director-General are responsible [for the death of the rhinos]. I don't think they can escape from this because it can't stop with the veterinary officers or the wardens because they did not attend the meetings that made the decision to move the animals," said Leakey.

Balala had suspended a number of senior officials of KWS, saying investigators had found "unacceptable professional negligence" among six senior officers, most of them veterinarians.

However, between 2005 and 2017, KWS successfully translocated 149 rhino to other area of the country.

"The results of the water assessments were hardly considered before execution of the operation," Balala said. After a truck load of fresh

water sent to the sanctuary broke down, there was a delay of four days before more fresh water arrived.

"The animals were thirsty and they drunk and drunk the salty water ... it is crazy and very shameful experience to the country," Leakey said.

World Wide Fund for Nature (WWF-Kenya), the donor that funded the construction of the new rhino sanctuary in Tsavo East National Park, sought to distance itself from the decision to move the animals. "We supported the rhino translocation to Tsavo East, which was managed by the Kenya Wildlife Service as the mandated government wildlife institution, as part of broader efforts to protect the critically endangered species. Decisions in relation to the timing and technical aspects of the translocations were made by KWS," WWF said in a statement.

However, WWF said it had initiated an independent review into its role and responsibilities as the project donor. "The recommendations from the review will be used to improve our internal processes where necessary, so that we can continue with our work to ensure the survival of the species," said Mohamed Awer, the WWF-Kenya CEO.

Leakey told *The Daily Beast* "... WWF spent a lot of money building this sanctuary. They wanted the rhinos released in it so they could tell donors 'job done,' 'ribbon tied,' 'more money please.' ●

**"THE ANIMALS WERE THIRSTY AND THEY DRUNK THE SALTY WATER ... IT IS CRAZY AND VERY SHAMEFUL EXPERIENCE TO THE COUNTRY," LEAKEY SAID.**

JOHN NYAGA is the editor of Swara Magazine.

**+ FIND OUT MORE**

To learn more about black rhino conservation in Kenya visit: <https://www.savetherhino.org/>



## FACT FILE

### BLACK AFRICAN RHINO

*DICEROS BICORNIS*

**HABITAT:** The highest densities of rhinos are found in savannas and in succulent valley bushveld areas. Black Rhino favour small Acacia's and other palatable woody species as well as palatable herbs and succulents.

**DIET:** They are also known to dine on succulents and tasty herbs that they can pull out by hooking their upper lips around the plant and tugging.

**THREATS:** Loss of habitat, conflict with humans and poaching of their horns.

IUCN RED LIST STATUS  
**CRITICALLY ENDANGERED**

# NABOISHO CONSERVANCY

## A TALE OF TWO ALTERNATIVES



**Felix Patton** is a rhino ecologist. He has an MSc in Conservation Biology and a PhD based on research on individual rhino identification and social behaviour. He is a frequent contributor to SWARA.

**Top: A leopard feeding on an impala kill**

**MIDDLE: Giraffe browsing acacia.**

**BOTTOM: Lions with a kill with hyena, waiting their turn. The density of lions within Naboisho is one of the highest in the world, with a population of more than 70 identified lions who use Naboisho as their home territory.**

An amazing wildlife experience awaits those who find their way to the Mara Naboisho Conservancy. Whether you arrive as a VIP or a Volunteer, the 210 km<sup>2</sup> conservancy offers wildlife sightings without the crowds of the main Masai Mara National Reserve.

If rules are followed, only four vehicles are allowed close to any wildlife sighting, with other vehicles waiting their turn a distance away. Naboisho was not established for the masses, but high quality, low volume facilities are widely spaced to give guests the exclusivity they desire.

Vast open grassland plains are home to herds of topi, wildebeest, eland, hartebeest, impala, Thomson's and grants gazelle. Giraffe are abundant in acacia dominated bushland. Such a menagerie is a food source for lions, leopards and cheetahs, along with scavenging hyenas and jackals. Herds of elephants and buffaloes can be found in either habitat. VIP visitors can expect great sightings and the chance to watch animal behaviour at close quarters.

The abundance of big cats can have negative impacts on the wildlife; this is where volunteers play their part. The Big Cat Wildlife Research and Conservation, Kenya project run by African Impact, uses volunteers to monitor the number, movement patterns and behaviour of big cats. They also carry out wildlife counts across species, measure grass density, pull out invasive weeds and other activities that protect the health of the conservancy. And, volunteers enjoy great wildlife



PHOTO BY: AMALIA GIL-MERINO



PHOTO BY: FELIX PATTON





sightings while they work. While facilities at the research project are limited, just 500 metres away is Eagle View, one of four tourist facilities in Naboisho of provider Basecamp Explorer. Volunteers are welcome to view wildlife from the decks perched on a rocky outcrop overlooking a water hole and salt lick. They may also use the Wi-Fi system.

Volunteers work with the local community by giving some lessons at nearby primary schools. They also interact with 30 or so Maasai men and women trainee guides at the Koiyaki Guiding School, next door to the African Impact facilities on the conservancy. The guiding school offers an 18 month programme for potential guides which not only covers wildlife ecology but includes information technology, driving and foreign language training. This leads to an examination for the Kenya Professional Safari Guides Bronze Level award. Trainees also take turns to accompany volunteers on their game drive-based research.

**TOP: A herd of elephants viewed from Eagle View Lodge. Eagle View is located atop a natural hilltop, allowing for exceptional views of Naboisho Conservancy. The camp overlooks a waterhole, frequently visited by a variety of wildlife, including elephants.**

**BELOW: One of the wide variety of antelopes that can be found in the Conservancy.**



PHOTOS BY: FELIX PATTON

## **VOLUNTEERS WORK WITH THE LOCAL COMMUNITY BY GIVING SOME LESSONS AT NEARBY PRIMARY SCHOOLS.**

The Conservancy was created in 2010 when over 500 community landowners signed a 15-year lease to enable the land to be managed to the mutual benefit of the livestock pastoralists, tourism investors and conservationists. Grassland management is central to the success of Naboisho as it determines the diversity and abundance of the wildlife population while still enabling local Maasai to keep livestock, central to their traditional way of life.

To facilitate the formation of the conservancy, the landowners called on the Basecamp Explorer Foundation, a not-for-profit organisation that works with local communities to safeguard nature. The Foundation is part of the Basecamp Explorer Group, a tourism provider which built their first Kenya facility in 1998 in the Masai Mara National Reserve. Now they have four more facilities - all within Naboisho. These, along with the other tourist providers Asilia, Hemingways,

# CONSERVATION



PHOTO BY:AMELIA GIL-MERINO

Kicheche and Porini provide income to pay landowners their lease fees.

The lease fees, averaging 14,000 Kenyan shillings (about \$165) per month, are paid directly into the bank accounts of individual landowners. Communities also benefit from employment and trading opportunities that arise from tourism.

To prevent illegal grazing and poaching, security is essential to the success of the conservancy. Seiya Limited, with expertise in wildlife security, began to train rangers, set up outposts and patrols in 2010. There is now a staff of around 50, with dedicated vehicles and maram roads. A network of game drive tracks enables licensed lodge vehicles to get close to wildlife with minimum need for off-road driving (which is allowed in Naibosho, unlike in the National Reserve).

**TOP LEFT: Volunteers eradicating problem plants.**

**TOP RIGHT: Hippos at one of the river crossings.**

**BELOW: Visitors flying into the Conservancy.**



PHOTOS BY: FELIX PATTON

Naboisho Conservancy lies to the north east of the Mara National Reserve, abutting it at one section on its south west side to create a protected corridor, allowing animals to move between the two in search of food and water.

Safari operators offer game drives in the National Reserve as it is only a short drive away.

Naboisho is truly a Tale of Two Alternatives in many different ways - an exclusive wildlife experience as an alternative to the crowded National Reserve, a visit as a VIP or a Volunteer. ●

## ||||||| HOW TO GET THERE |||||

Naboisho Conservancy can be reached by road from Nairobi via Narok town; on the main C12 turn off at Nkoilale Town - a trip of some 5 hours. An alternative is to fly via Safarilink, Airkenya or Fly-SAX, landing at the Ol Seki airstrip, then take a game drive to your lodge. **For more information see: <http://maasaimaraconservancies.co.ke> and/or lodge websites.**



# CONSERVATION THROUGH COLLABORATION ON TANZANIA'S MAASAI STEPPE

Collaboration and innovation are bringing promise to pastoralists and wildlife that live in one of Tanzania's most threatened places



**Fred Nelson** is the executive director of Maliasili.



**Chira Schouten** is the NTRI Coordinator for The Nature Conservancy.



**Jessie Davie** is Maliasili's Portfolio Director.

**W**ildlife can be hard to see in Makame Wildlife Management Area (WMA), but that doesn't mean it's not there. Makame is a vast wilderness area made up of community lands belonging to five Maasai villages southeast of Tarangire National Park in northern Tanzania.

Much of the area is covered by impenetrable thickets of *Sanseveria* and *Acacia-Commiphora* brush, that deters poachers because the landscape is hard to navigate.

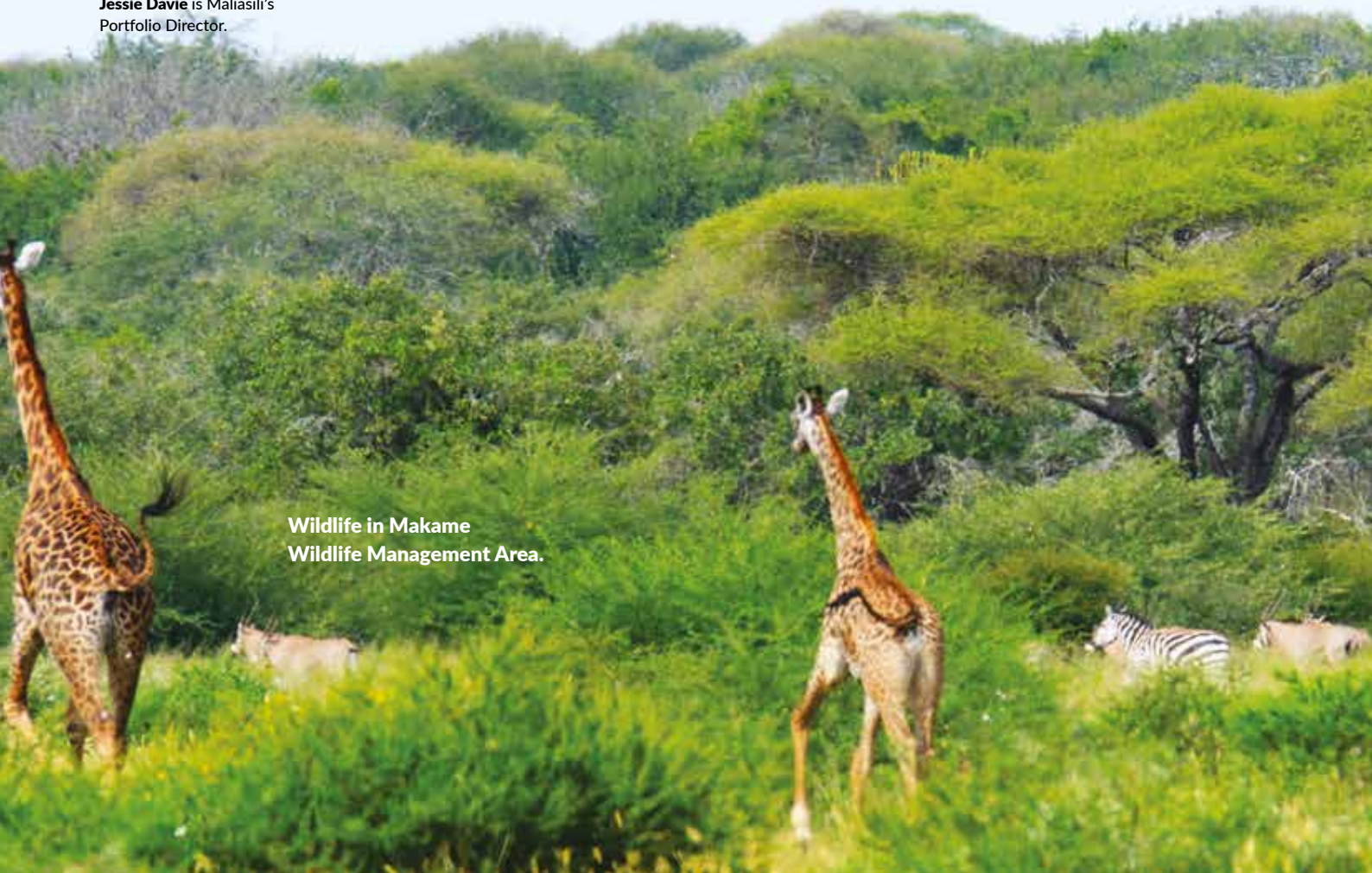
For a long time, little was known about wildlife activity in the area. However, recent camera-trapping surveys done by the Wildlife Conservation Society (WCS) recorded elephant, lion, wild dog, leopard, oryx, aardwolf and an overall wildlife density and diversity as high as many of Tanzania's national parks.

These surveys, along with new inventories carried out in Makame by Carbon Tanzania, the country's leading developer of forest carbon offset projects ('REDD+'), highlight just how much is at stake in this impressive expanse of natural habitat on community lands.

Makame is a key part of a wider mosaic of savannah and community lands that covers around one million hectares. This area stretches from Tarangire in the west to the Pangani River in the east and forms the southern border region of the Maasai Steppe, which runs north all the way to the Kenya border.

The Maasai Steppe is surrounded by lands that are heavily degraded due to poor farming practices and deforestation, particularly to the south towards Dodoma and central Tanzania. Landsat analysis has found that over the past 20

PHOTO BY: DAUDI PETERSON



Wildlife in Makame  
Wildlife Management Area.



PHOTO BY: WILDLIFE CONSERVATION SOCIETY (WCS)

years across this wider region of northern and central Tanzania, more than 100,000 hectares of woodland savanna mosaic is being lost, which means a lot of lost wildlife habitat.

But in Makame, an area that has received almost no formal conservation management in decades, wildlife persists. “The Maasai living in Makame have helped maintain natural vegetation, which provides grazing lands for their livestock and for wildlife,” explained Marc Baker, founding Director of Carbon Tanzania. Today, several hundred elephants still reside in Makame WMA, and range-restricted antelopes, such as lesser and greater kudu, gerenuk, and oryx remain widespread.

**Makame's thickets and woodlands provide key habitat for endangered wild dogs, as demonstrated by recent camera trap surveys carried out by Wildlife Conservation Society.**

Recently, threats to this landscape have increased dramatically, primarily driven by agriculture and on occasion leading to violent clashes over land use. The Tanzanian government stepped in, investing more resources to help communities enforce their land use plans to prevent these clashes. But ultimately the future of this area, and perhaps the entire Maasai Steppe and Tarangire ecosystem, will be determined by the ability of local communities to effectively manage their resources.

“If Maasai communities in Makame can protect their grazing land, then their will be safe, and so will the wildlife that depend on the savannas and forests,” said Baker.

**BUT IN MAKAME, AN AREA THAT HAS RECEIVED ALMOST NO FORMAL CONSERVATION MANAGEMENT IN DECADES, WILDLIFE PERSISTS.**

### **MAKING COMMUNITY-BASED CONSERVATION DELIVER IN TANZANIA**

Wildlife Management Areas, such as Makame, have been around in Tanzania for about two decades. They were first called for in the landmark 1998 wildlife policy that promoted

community-based conservation as a key to the future of the nation's wildlife. But getting them to actually perform effectively -- to benefit local communities or wildlife -- has been a protracted challenge.

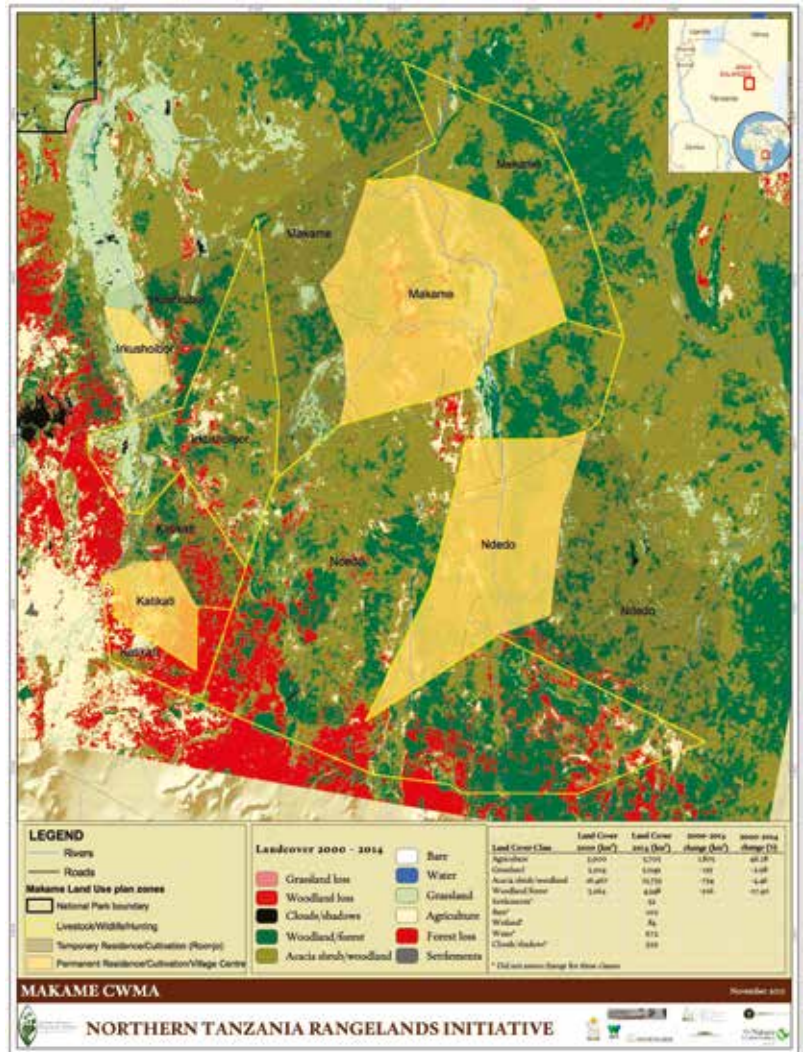
One recent study by a group of Tanzanian, British, and Danish researchers found that WMAs are not achieving what they set out to, especially in providing benefits for people: "A re-balancing of priorities could help resolve many of these issues," the study concludes.

Often WMAs get established to fulfill external government or NGO agendas, rather than genuine local interests. It then takes time for local communities to build the capacity to manage these institutions, something that often gets undervalued but is critical for success.

Most significantly, WMA's have yet to become financially viable. They are heavily taxed, with gross revenue earned from tourism or hunting operations going to national and district government, but receive very limited institutional or infrastructural support or investment in return.

But Makame, and a few other WMAs in northern Tanzania, are starting to show the potential of WMAs to deliver. "What we're seeing is that with out-of-box thinking, collaboration, and a business approach, WMAs can actually become viable, community-led conservation areas," explained Damian Bell, Executive Director of Honeyguide, a leading NGO with a mission to make the WMA model work, and which supported some anti-poaching and wildlife law enforcement work in Makame.

Beyond Makame, Honeyguide also works in Randilen WMA, which borders Tarangire to the north. There, they have helped the WMA



**TOP: Map of Makame WMA showing land conversion (in red) of savannah to farmland encroaching from the southwest. Makame provides a critical land use buffer on the southern portion of the Maasai Steppe, by maintaining integrated livestock grazing and wildlife habitat.**

professionalize its management systems, improve its tourism marketing, and protect its wildlife.

Recent research findings published in the *Journal of Mammalogy* by Derek Lee and Monica Bond indicate that giraffe populations in Randilen have increased by over 40 per cent during the past five years, while income from tourism jumped by over 20 per cent last year. With the right approach and support, WMAs are finally showing real potential to deliver for people and wildlife.

**CONSERVATION NEEDS COLLABORATION**

A key to progress has been deepened collaboration amongst local and international conservation groups. The Northern Tanzania Rangelands Initiative (NTRI) provides a unique collaborative platform for 10 organisations to come together around a shared vision of community-based conservation and rangeland management, including organisations like



PHOTO BY: DAUDI PETERSON

## CONSERVATION

Carbon Tanzania and Honeyguide, as well as international groups like ours, The Nature Conservancy and Maliasili.

Through funding from the United States Agency for International Development (USAID) and others, NTRI has channeled resources towards key local organisations, which in landscapes such as Makame, are the ones delivering vital outcomes on the ground.

A key member of NTRI working in Makame is the Ujamaa Community Resource Team (UCRT). UCRT is acknowledged as the leading grassroots organisation in northern Tanzania helping to secure community land rights for pastoralists and hunter-gatherer communities. In Makame, UCRT plays an important role supporting the development of the WMA's governance institutions, including a UCRT staff member from the area actually sitting on the WMA's board, and providing it with legal support.

"We want to see transparency and accountability at all levels," said Edward Lekaita, land rights lawyer for UCRT and board member of Makame. UCRT has helped the WMA negotiate contracts with investors, advocate for greater rights and autonomy with government bodies,

## IN MAKAME, UCRT PLAYS AN IMPORTANT ROLE SUPPORTING THE DEVELOPMENT OF THE WMA'S GOVERNANCE INSTITUTIONS.

**\$200,000**

Revenue earned by the Hadzabe community from carbon offsets over the past four years.

and ensure transparent local decision making processes are followed.

UCRT and Carbon Tanzania are working to develop a carbon offset project in Makame, building upon their successful previous collaboration with the Hadza hunter-gatherers in the Yaeda Valley, west of Makame. In Yaeda, UCRT and Carbon Tanzania, together with the Hadza community, pooled their skills and resources to secure land rights, develop land use plans, build local capacity, design the carbon project, and market and sell offsets to international buyers.

In turn, the Hadza communities have earned over \$200,000 in revenues over the past several years, which they have invested in development priorities, as well as paying for local scouts to enforce their land use plans. Some of the revenue is also shared with district and village

**A Carmine bee-eater, one of the bird species find in Makame Wildlife Management Area.**





PHOTO BY: DAUDI PETERSON

governments, which also support the project and help enforce the land use plans.

UCRT and Carbon Tanzania are now adapting this model in Makame WMA. Thanks to USAID funding, Carbon Tanzania completed the carbon measurements and projections required to obtain third-party verification and it expects to start selling offsets from Makame by early 2019, bringing in a new revenue stream to support the WMA.

Partnerships are essential to Carbon Tanzania's approach and success, explained Baker: "In Makame, the governance work by UCRT provides the foundation for us to build a long-term relationship with the WMA and participating villages; the biodiversity monitoring by WCS provides critical information needed for the carbon certification process; and Honeyguide's capacity support helps ensure the WMA follows and enforces its Resource Plan."

In addition, The Nature Conservancy works with all these parties through technical support on areas such as remote sensing analysis, which helps understand rates and patterns of land use change, and management planning for the WMA.

NTRI provides a novel platform for these kinds of collaborations. It is an example of what's possible when organisations work together across a landscape based on a common vision, contributing complementary skillsets and putting

**Carbon Tanzania is a social enterprise that has spent the last 10 years developing a model of conservation that protects Tanzania's existing forests while benefiting the communities and wildlife that depend on them, as well as contributing to the fight against global climate change.**

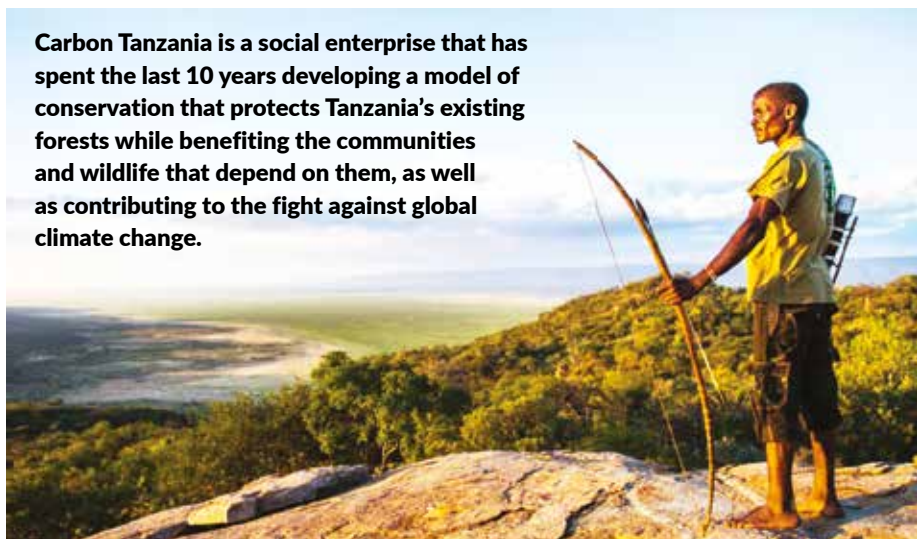


PHOTO BY: CARBON TANZANIA

**TOP: Makame's semi-arid savannahs provide important habitat for fringe-eared oryx at the southern extent of their range.**

people at the center of conservation. NTRI is finding ways to prove large-scale conservation can and must work. Makame is one of its testing grounds, and the stakes are high but the prospects for lasting conservation on a large scale in northern Tanzania are improving as a result of these innovative approaches and new partnerships. ●

**+ FIND OUT MORE**

For more about the Northern Tanzania Rangelands Initiative: visit: <https://www.ntri.co.tz/>

# Community Marine Parks as Climate Adaptation Frontiers



**Wanjohi Kabukuru** is an award-winning environmental journalist based in Kenya's South-Coast.

**A**long the narrow alleyways that form the main “street” of historic Lamu Island in Kenya’s northern coast are the offices of the Lamu Marine Conservation Trust (LAMCOT). Cozy but modest is the impression one gets of the office, an appearance that belies the extent of the trust’s work.

An expansive turquoise blue ocean space stretching from Kiweni on neighbouring Pate Island all the way to Manda Island has been demarcated as a community run marine park. The area, called Kiweni locally, has been set aside by LAMCOT for marine conservation.

“As a community we were concerned that our fishing stocks were dwindling and corals were threatened with the ever changing climate patterns and human activities;” said Mwalimu Mohammed Ali Baddi, a former teacher. “So we had to do something as individuals but collectively as members of the Lamu county Beach Management Units. We agreed that the ocean belongs to us all but we could gain more if we used it sustainably.”

This led to the formation of LAMCOT that coordinates better fishing practices and promotes conservation within the Lamu archipelago. The idea was to set aside a voluntary, community-driven marine conservation area. In 1992, Kiweni Marine Park was born.



PHOTO BY: WANJOHI KABUKURU

According to Sarah Wanjiru, programmes and outreach manager of LAMCOT, the trust’s main activity is turtle conservation. Carol Korschen of Peponi Hotel took it upon herself to redress the declining turtle population, especially during their nesting season. Korschen set up a project whereby members of the community were encouraged to protect turtles rather than kill them or take their eggs.

“Our work focuses on protecting the critically endangered sea turtles and marine ecosystems,” said the mother of two who manages Peponi’s. “We do these through our four thematic programme areas touching on turtle protection, education awareness, alternative sustainable livelihoods and waste management”.

**BELOW: An aerial view of Manda Island lamu.**

PHOTO BY: MANGO AFRICAN SAFARIS





PHOTO BY: NATURE CONSERVANCY

With Kiwini Marine Park alive, close to 5,000 fishermen from several fishing villages in Lamu, (notably Mokowe, Manda and Mkunumbi) agreed to make sacrifices and adopt the “no-take policy” within their designated area. They agreed to delve into the deep sea for fish and abandoned destructive gear that plowed over corals. This move allowed the designated waters to become fish spawning sites, and an easy to access community-run marine protected area for the thousands of tourists who flock into Lamu every year. They took a step further and employed marine park rangers to enforce their plan, monitor plastic pollution, coastal erosion and even safeguard and monitor turtle nesting sites within the archipelago.

Ali Said is one of the community marine park rangers. “As head of security, my work is to coordinate with other security rangers and scouts and monitor all activities around our community marine park.” Soon the fish that had been scarce began to increase both in number and in size

**TOP: Poaching is just one of many threats facing the turtles. The development of sea walls, houses, hotels and restaurants along the beaches has led to the destruction of natural coastal defences and important habitats for nesting turtles.**

**BELOW: Mohammed Ali Baddi, environmental activist and board member of LaMCoT.**



PHOTO BY: WANJOHI KABUKURU

**“WE DO THESE THROUGH OUR FOUR THEMATIC PROGRAMME AREAS TOUCHING ON TURTLE PROTECTION, EDUCATION AWARENESS, ALTERNATIVE SUSTAINABLE LIVELIHOODS AND WASTE MANAGEMENT”.**

and through a quota-based system, fishermen no longer needed to go further offshore but simply wait at near-shore borders of the marine park for their catch. The increase in by-catch has been noticeable. Ever since the yearning for more community-run marine reserves has spread across the entire western Indian Ocean seaboard to complement government-run marine parks.

Marine Protected Areas (MPAs) in the Western Indian Ocean trace their roots to some 52 years ago when the first marine protected area was gazetted at Nosy Tanikelly in Madagascar in 1966. Kenya followed suit when it gazetted three MPAs in 1968. Tanzania set up its own in 1969. Currently, there are 74 gazetted Marine Protected Areas covering 133,273 square kilometres in in the Western Indian Ocean. These are government-funded and run under the top-down approach where the government has the conservation mandate.

## CONSERVATION

The emerging trend however seems to favour the smaller and effective “bottom-up” approach now known as community-managed marine parks over the large government-run ones. Community marine parks success stories continue to increase.

Today Kenya boasts of 14 community-run marine areas, complementing the government’s 9 marine protected areas. South from Lamu one encounters Malindi Conservation Trust and the world famous Mikoko Pamoja (Kiswahili for “mangroves together”) in Gazi Bay, which has pioneered a global first mangrove carbon offset project in the world.

Begun in 2013, Mikoko Pamoja is a blue carbon community-led conservation and restoration project bringing together two communities of Gazi Bay and Makongeni Villages in Kwale County. The project trades some 3,000 tons of carbon and benefits have resulted in clean water and infrastructure development as wells as school materials for over 700 children. A mangrove eco-boardwalk is run entirely by women as a picnic site. An educational centre spreads out as an intertwining maze and corridor along the scenic 117- acre mangrove forest benefiting 498 households through the United Nations-led reducing emissions from deforestation and forest degradation (REDD+) initiative.

According to the Western Indian Ocean Marine Science Association (WIOMSA) the region boasts 63 community-managed marine parks spread across Kenya, Madagascar, Mozambique and Tanzania covering some 15,649 square kilometres



PHOTOS BY: WANJOHI KABUKURU

**TOP: Josphat Mwamba the Mikoko Pamoja (Swahili for “mangrove together”) programme manager showing proposed mangrove restoration areas.**

**BELOW: Mangrove forests in Lamu County. Lamu hosts 33,500ha, which is more than half of Kenya’s mangrove forests.**

which is equivalent of 3.8 per cent of the Western Indian Ocean. Barren Isles Archipelago in Madagascar created in 2014 remains the largest community marine park covering some 4,300 square kilometres. Other than being the first nation in the western Indian Ocean to gazette a marine park, Madagascar hosts 35 community marine parks.

Interestingly, regional governments appear to be warming up to the idea as it complements national conservation ideals and conforms to international standards while reducing budgetary costs on the governments.



The Southern African Development Community (SADC) has drawn up a concept for the Western Indian Ocean Trans-frontier Marine Park, which is to cover the sea space of South Africa, Madagascar, Mozambique, Mauritius, Seychelles, Comoros, the French territories of Mayotte and La Réunion, and Tanzania.

Though largely unappreciated, these local initiatives are a significant contribution in the quest for the global marine protected areas that help combat ocean acidification while boosting coastal climate resilience.

In 2010 under the UN Convention on Biological Diversity (CBD) it was agreed, through the Aichi Biodiversity Target 11, that protected areas be increased to reach at least 10 per cent of coastal and marine areas. This target was buttressed further when the world adopted the Sustainable Development Goals (SDGs) with SDG14 clearly committing the global community to “conserve and sustainably use oceans seas and marine resources for sustainable development.”

“Marine reserves are proven and effective tools to conserve and protect marine biodiversity, fish populations and vulnerable marine ecosystems,” said Alicia Crow, Oceans campaigner at the international lobby Greenpeace International.

Are marine parks among the solutions for sustainable use of oceans? An independent study conducted around 120 marine reserves across the globe by the Partnership for Interdisciplinary Studies of Coastal Oceans (PLISCO) found out that biodiversity increased by around 21 per cent with biomass overshooting by 446 per cent inside well managed marine reserves boundaries.

Findings by Conservation International identified five key pointers to a successful marine protected area. They the presence of no-take zones where fishing is completely banned to allow spawning; effective enforcement patrols; large size of about 100 square kilometres for fish mobility and isolated areas surrounded by deep waters.

“No-take marine reserve areas free from all extractive activities such as fishing or mining are proven tools for ecosystem recovery,” said Crow. “The effects of marine reserves on the populations



PHOTO BY: TOKY RASOLOARIMANANA, IOC

**Ourite is the local name describing “octopus fishing” in Rodrigues which is a small island that lies 595km east of Mauritius.**

of organisms within them are astonishing. As well as being used as a tool to aid recovery where damage has already taken place, marine reserves are an essential part of the package of precautionary measures needed to prevent healthy ecosystems from becoming degraded in the first place [...] as we see government and industry race for seabed mining space.”

The UN World Database of Protected Areas that retains an up-to-date tracker on marine protected areas shows that the world has some 15,324 marine protected areas covering some 26,302,971 million square kilometres. This roughly indicates that 7.26 per cent of global oceans space is under protection. This is a huge increase compared to 2000 when MPAs covered a negligible 0.7 per cent which was two million square kilometres.

“Highly protected MPAs are best for the health of the ocean and most effective means of achieving global conservation targets set by the international community,” said Johnny Briggs of the Pew Bertarelli Ocean Legacy project. “With 2020 fast approaching, governments around the world should step up and create large MPAs with strong safeguards. Meeting the 10 per cent target with gold standard protected areas would be good news for the many species including ours that rely on a healthy ocean.”●

2010

The year UN Convention on Biological Diversity agreed, through the Aichi Biodiversity Target 11, protected areas be increased to reach at least 10 per cent of coastal and marine areas.

**“NO-TAKE MARINE RESERVE AREAS FREE FROM ALL EXTRACTIVE ACTIVITIES SUCH AS FISHING OR MINING ARE PROVEN TOOLS FOR ECOSYSTEM RECOVERY,” SAID CRAW.**

**+ FIND OUT MORE**

To learn more about Lamu Marine Conservation Trust visit: <http://www.lamcot.org>

A photograph of several Masai giraffes in a savanna landscape. Two giraffes on the left are facing each other, with one's head raised high. On the right, two more giraffes are walking towards the right. The background shows a vast, open plain under a clear sky.

Masai giraffe in  
Uganda's Kidepo  
National Park.

# Uganda at the Forefront of Giraffe Conservation

**Curtis Abraham** is a freelance writer from Queens, New York, currently based in Uganda. He writes on science, development, the environment, bio-medicine/health and African social and cultural history.

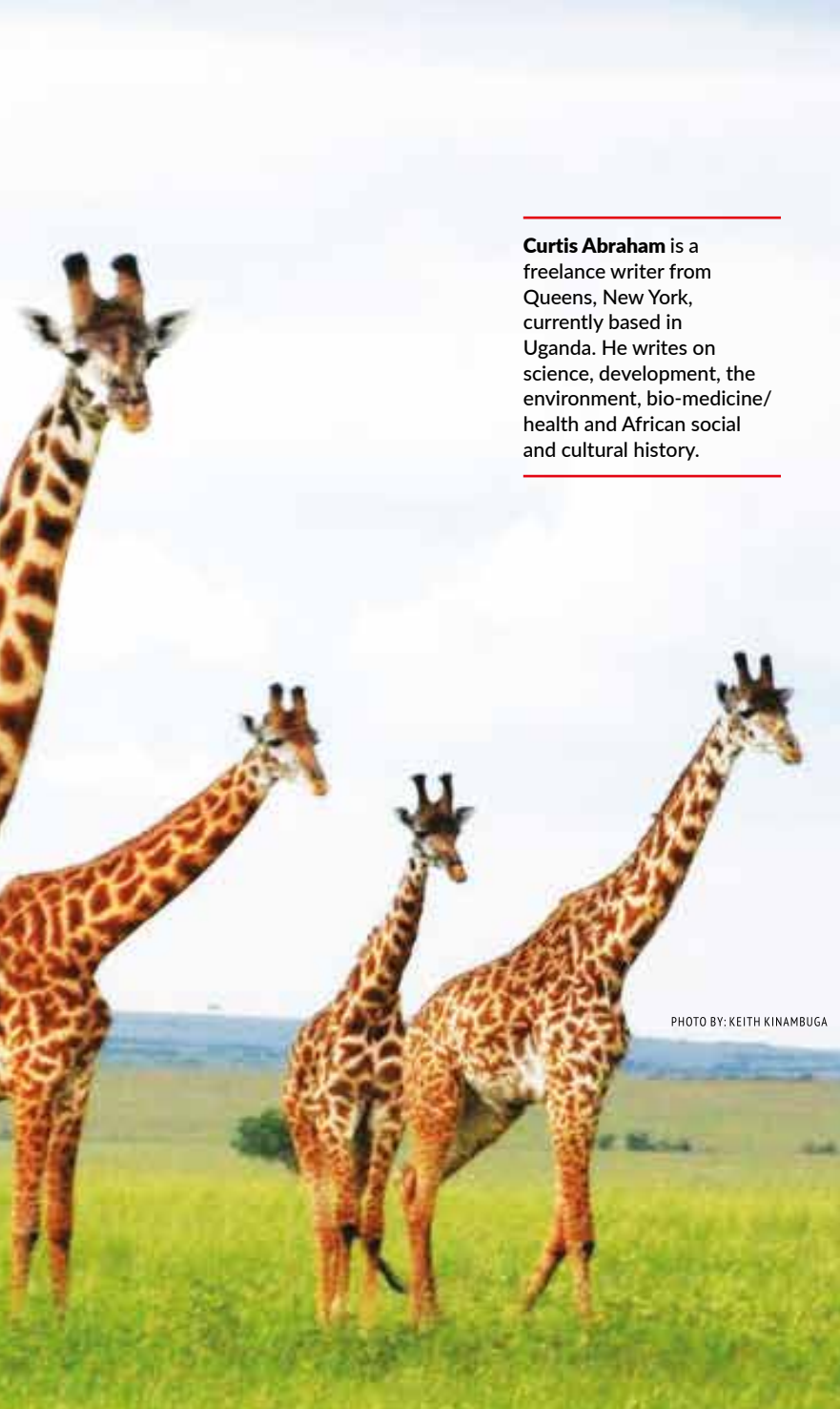


PHOTO BY: KEITH KINAMBUGA

**IN 2001, THE FIRST-EVER GIRAFFE GPS SATELLITE UNITS WERE TRIALLED BY THE GCF DIRECTORS DR JULIAN AND STEPHANIE FENNESSY IN NAMIBIA.**

In recent years, the Uganda Wildlife Authority (UWA), one of the governing bodies that regulate wildlife conservation in Uganda, conducted three successful giraffe translocations and the country finalised its first-ever National Giraffe Conservation Strategy and Action Plan -- all with the support of the Giraffe Conservation Foundation (GCF), based in Windhoek, Namibia (according to their website, the GCF is the only non governmental organisation in existence that exclusively focuses on the conservation and management of Africa's giraffes).

One such translocation was called Operation Twiga III, a conservation translocation of Nubian giraffe from Murchison Falls National to Kidepo Valley National Park that is helping to further bolster the small resident population. Both new populations report the birth of giraffe calves.

"Giraffe conservation translocations in Uganda have proven very successful with two new populations (now only four in total) established in the last three years," says a GCF statement.

Last April, the GCF in partnership with UWA undertook the largest ever GPS satellite tagging of giraffe. In recent times, GPS satellite tracking has become a vital tool in learning about the daily and seasonal movements of Africa's giraffes and how these animals interact with the larger ecosystem. In 2001, the first-ever giraffe GPS satellite units were trialled by the GCF Directors Dr Julian and Stephanie Fennessy in Namibia. Twenty-five new solar powered GPS satellite units were fitted to giraffe in Kidepo Valley and Murchison Falls National Parks in northern Uganda.

"The information these devices provide is invaluable for supporting long-term species and land-management plans for giraffe and other wildlife," reads a statement from the GCF, which has also established a World Giraffe Day (WGD) an annual celebration that takes place every June 21st.

During the collaring exercise of 25 giraffes by the UWA veterinary team, they were able to collect vital bio-data that included body measurements as well as genetic and blood samples. The giraffes were also accessed medically for skin diseases and other ailments, and were then treated with medication to help with potential current and future health problems.

The Uganda GPS tracking exercise is part of a new Africa-wide, science-based initiative named Twiga Tracker ('twiga' is Kiswahili for giraffe)



## EQUALLY WORRYING, IN SOME AREAS TRADITIONALLY REGARDED AS PRIME GIRAFFE HABITAT, NUMBERS HAVE DROPPED BY MORE THAN 95 PER CENT.

to promote long-term giraffe conservation. Twiga Tracker is a collaboration between GCF, Smithsonian Conservation Biology Institute, San Diego Zoo Global and Wildlife Conservation Alliance. Twiga Tracker is aiming at studying more than 250 individual giraffes across their habitats.

As part of the continent-wide Twiga Tracker initiative, the recent GPS satellite tagging of giraffe in Uganda will allow the team to monitor the movements and habitat use of the tagged giraffe in these critical refuges over the next few years.

A generation ago the total number of all giraffes in Africa was estimated at more than 155,000 animals. Currently, the International Union for Conservation of Nature (IUCN), the Species Survival Commission (SSC), the Giraffe and Okapi Specialist Group and the Namibia-based

**TOP: Giraffes fight with their necks because it's the most powerful and maneuverable weapon they have. Bulls fight to establish dominance or to win the right to mate with the females (cows) in a particular area.**

Giraffe Conservation Foundation (GCF) headed by Julian and Stephenie Fennessy, estimated that the current Africa-wide giraffe population to be less than 100,000 individuals, a drop of almost 40 per cent. Equally worrying, in some areas traditionally regarded as prime giraffe habitat, numbers have dropped by more than 95 per cent. Their status has gone from 'Least Concerned' to 'Vulnerable'.

There are four species of giraffes and five subspecies. There are three sub-species of the Northern giraffe (*Giraffa camelopardalis*). One of these is the Nubian giraffe or Rothschild giraffe (*Giraffa camelopardalis camelopardalis*) that is most numerous in Uganda with more than 1,545 individuals (there are smaller populations in Western Ethiopia, eastern South Sudan and Kenya where they live outside their natural range for conservation purposes).

Giraffe sub-species differences centre around the size, hue and shapes of their patches as well as the presence or non-presence of markings and colorations on their legs. The Nubian variety has large patches that are reticular in shape and chestnut brown in colour. The patches are

## GIRAFFE BROWSING STIMULATES SHOOT PRODUCTION IN A NUMBER OF PLANT SPECIES WHILE ALSO ACTING AN IMPORTANT POLLINATOR.

surrounded by an off-white, creamy colour. There are no markings on their lower legs.

Besides being the tallest animal on Earth (reaching heights of up to six metres) and having the ability to deliver a lethal kick in all directions with any of its legs as well as reaching speeds of up to 56 kilometres per hour, other aspects of their behaviour remain a mystery -- a strange fact for one of Africa's iconic species of large mammals.

We do know that they range from solitary older males to large, loose to mixed herds that adjust their social systems (known as fission-fusion) by individuals or smaller groups readily merging with or splitting from the herd, which differs from one population to another.

Giraffes are habitat and landscape engineers. In addition to other large browsers, they open up

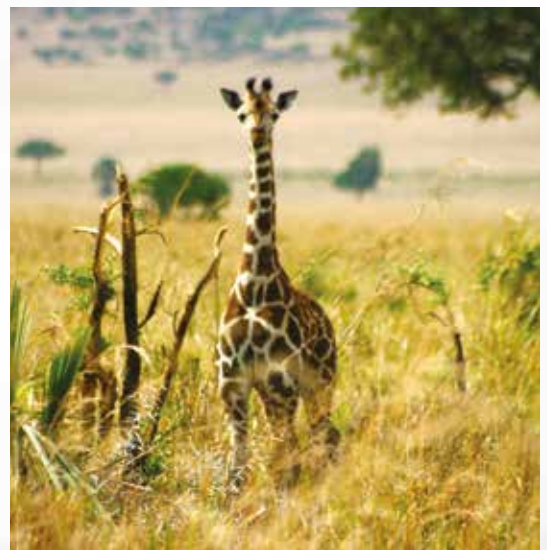
**RIGHT: A baby giraffe. When baby giraffes are born, the animals average 6 feet tall and can weigh anywhere from 100 to 150 lbs.**

**BELOW: Mother and baby. Young ones usually stay with mom as long as necessary to learn surviving skills. Weaning can take as long as 16 months, with females staying with their mothers longer than males.**

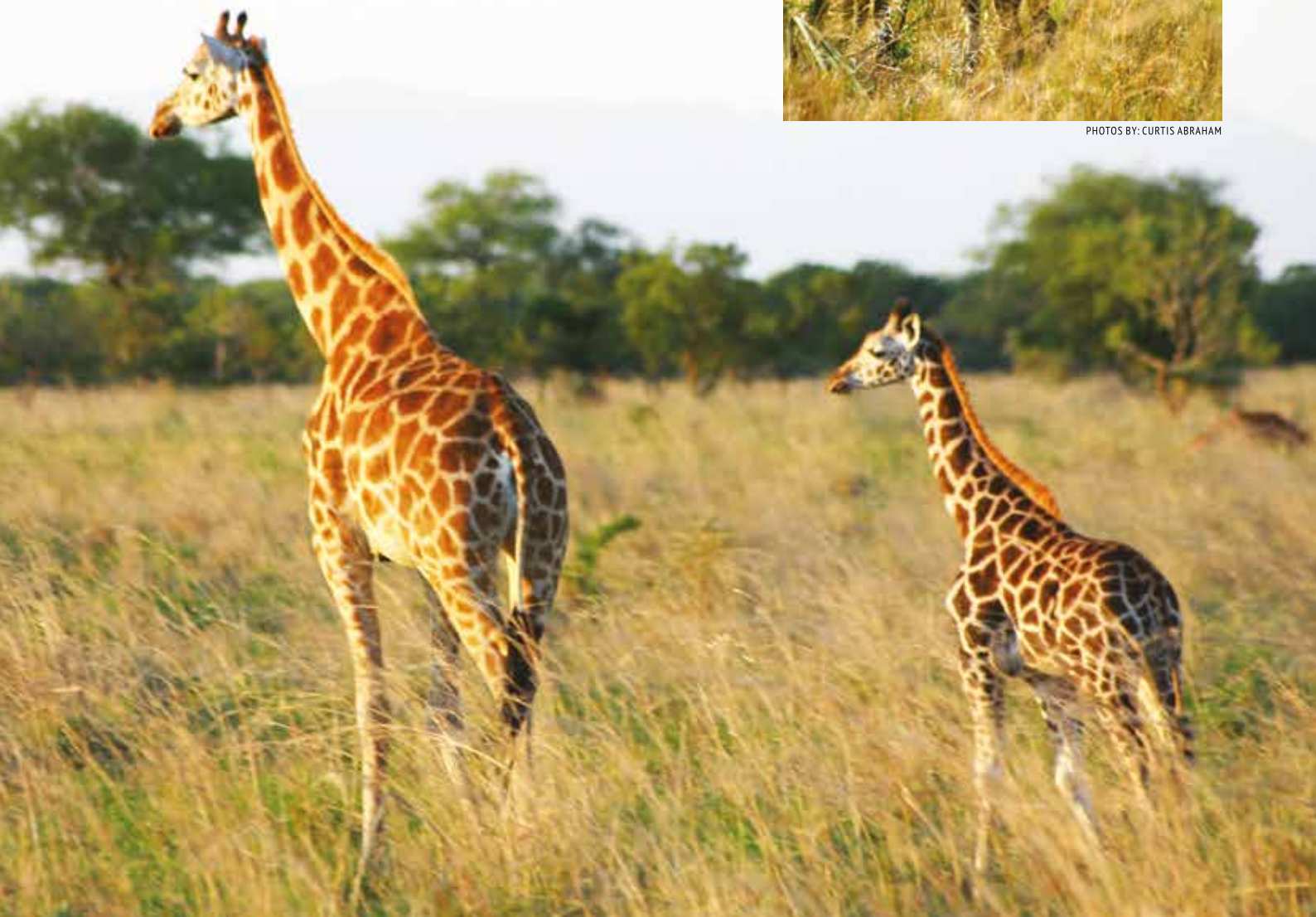
vegetated areas while promoting the growth of new forage by eating plant seeds and dispersing them in new areas.

Giraffe browsing stimulates shoot production in a number of plant species while also acting an important pollinator. In areas protected from giraffes and other large herbivores, a decline of some Acacia species can be seen. This has a negative effect on the availability of food sources for other wildlife species.

During the 20-plus years of war and civil strife that Uganda experienced during the 1970s and 80s, many large herbivores, including giraffe, population numbers plummeted



PHOTOS BY: CURTIS ABRAHAM



## CONSERVATION

due to indiscriminate poaching by military personal, rebel militias and the local population. Subsequently, this altered savanna ecosystems.

“The drastic drop in large mammals also affected the ecology of the savanna parks with large increases in woody vegetation occurring in Queen Elizabeth [National Park] and Murchison Falls [National] Park since the late 1970s”, says British zoologist Andrew J. Plumptre, formerly of the Wildlife Conservation Society (WCS) in Uganda.

Giraffes face many threats in the wild. Poaching is one of them. In the Democratic Republic of the Congo (DRC) hunters kill giraffes for their tails, used as gifts to in-laws as part of the bride price. Other illegal hunters are said to be selling giraffe leg bones to buyers in Africa and Asia, which are then carved to resemble ivory or cooked in a soup.

Meanwhile, in Tanzania, some are convinced that eating the brains of a giraffe and its bone marrow can cure them of HIV/AIDS. Furthermore, the San (“Bushmen”) who inhabit areas of southwest Africa including Namibia, Botswana and South Africa and are said to believe that giraffe’s blood possesses the ability to change the weather.

Other dangers include a loss of large scale habitat, fragmentation and degradation of their preferred habitat, and disease. These threats were also highlighted by the IUCN SSC Giraffe & Okapi Specialist Group when giraffes were uplisted to ‘Vulnerable to extinction’ on the IUCN Red List in December 2016.

## GIRAFFE FACTS

# 5

Height in feet new born giraffes fall to the ground upon birth

# 15

Number in months the pregnancy of a mother giraffe lasts

# 20

The average length of a giraffes tongue in inches

# 25

The average lifespan of a giraffe in the wild and can live longer in captivity



**Three giraffes surveying the Kidepo plains. Giraffes have good vision, which is important to maintain herd cohesion in the vast savannah. This good eyesight also helps to avoid surprise attacks from predators.**



PHOTO BY: CURTIS ABRAHAM



PHOTOS BY: WILDLIFE CLUBS OF KENYA

# WILDLIFE CLUBS OF KENYA



**Sandy Price** was WCK's National Coordinator and Director of African Operations, African Wildlife Foundation.

**TOP: Members Wildlife Clubs of Kenya learn about tree species.**

**Two girls read Komba magazine.**

**W**ho could have guessed, back in 1968, that a band of enthusiastic Kenyan youths would spearhead a conservation movement? Yet the Wildlife Clubs of Kenya (WCK) is the longest running grassroots awareness programme in Africa.

When a student at Kagumo High School sent a letter to the Ministry of Tourism and Wildlife, pointing out that foreign tourists knew more about Kenya wildlife than he could glean from reading a newspaper, the late Major John Pile sensed an idea whose time had come.

In league with The African Wildlife Foundation, The Elsa Wild Animal Appeal, and Dr. Richard Leakey, then Director of National Museums of Kenya, support was mustered for a seminar at the school, and WCK was born, December, 1968. This year is their 50th Anniversary.

In 1969, when it was evident that the Museum's Education Section could not shoulder more work, I became WCK's first National Coordinator. I did not look sideways for nine years (1969-1978), until I handed over to a Kenyan counterpart, Nathaniel Chumo, for 12 years. Dr. Ibrahim Ali guided WCK from 1991-2006. When he moved



on, I went back 2006-2008, until we recruited Dr. Margaret Otieno, former Manager of AFEW Giraffe Centre and Elsamere Conservation Centre, with a PhD in Climate Change and Education for Sustainable Development.

WCK made three firm commitments from the start:

- a termly 'newsletter' which turned into a stunning, full-colour, 32-page magazine: *Komba*, sent free to every club three times a year;
- free entry to Kenya National Parks for WCK groups,
- an annual 'Seminar' for club leaders, which evolved into five-day field courses held in Kenya's Tsavo, Amboseli, and Lake Nakuru National Parks.

**YET THE WILDLIFE CLUBS OF KENYA (WCK) IS THE LONGEST RUNNING GRASSROOTS AWARENESS PROGRAMME IN AFRICA.**



The Kenya Wildlife Clubs spread like wildfire and became a success story which offset some of the despair at what wildlife was suffering at the hands of poachers, their middlemen and kingpins.

With help from curators, naturalists, wardens, scientists, artists, government ministries and world famous conservationists, WCK received funding, moral and material support, and acclaim. Today, WCK is nurturing potential conservation leaders and introducing thousands of Kenyan youth to their country's magnificent wildlife, firsthand. Two million children have participated with WCK. If you ask a Kenyan warden, ranger, or wildlife researcher, they are likely say WCK motivated them to follow a career path in conservation.

Club members' priorities remain, "What do we do in this Wildlife Club?" "When can we visit a Park and see the animals?" "When can you show us films?"

### A MIX OF SOMETHING FOR EVERYONE

We devised a WCK Sourcebook illustrating school-based activities -- bird feeders, tree nurseries, museums, plaster casts of animal

**TOP LEFT: A young art competition entrant holding her drawing.**

**TOP RIGHT: Gabriel Ngale visits with WCK's Mobile Education Unit.**

**BELOW: Sandy Price congratulates winner of WCK's Annual Art Competition.**

tracks, research projects, and nature trails. Since little superseded the students' desire to visit a national park, we showed how to plan a trip, and provided camping equipment for 40 members.

Realising we needed more depth, WCK produced study guides for various parks; and directed attention to Wildlife Club patrons with tailored field workshops.

Annual Art and Essay competitions brought out youthful talent, whose submissions produced WCK's logo (a bushbaby: *Komba* in Kiswahili) and a WCK motto: "Learn to Conserve For a Better Tomorrow". A Club badge added to esprit. We broadcast a weekly radio programme and were frequently featured in local newspapers.

Fortunately, we got the core activities right: a mix of something for everyone. In its first decade, WCK was called "the best grassroots awareness programme in the developing world, therefore probably on the planet," by Dr. George Schaller. WCK became the prototype for similar projects in Uganda, Tanzania, Malawi, Zambia, Seychelles, Ethiopia, and India.

In the mid-1970s, WCK acquired Hostel/Education Centres in Langata and Lake Nakuru National Park. Some 6,000 Club members stay at the WCK Nakuru Hostel each year. In the 1990's, WCK went regional, augmenting Nairobi and Nakuru with centres in Kisumu, Mombasa, Malindi, Kitui, and volunteer Action Group Leaders across Kenya. In 2015 Meru was added to embrace the Mt. Kenya ecosystem.

Conceived in the 1990's, the Centre for Tourism Training & Research (CTTR), at WCK national headquarters in Langata, is a residential, exemplary diploma course for middle-cadre staff in the tourism industry.

We reasoned the clubs could only stay strong if (in addition to school-based activities and the occasional trip to a park) they got regular input from WCK headquarters. In the early 1970s, we created WCK's first Mobile Education Unit (MEU). It consisted of myself, driving a Renault 4, packed

with a projector and 16mm films, visiting clusters of Clubs in various regions -- 3 schools per day, a 3-hour session at each, for 7-10 days.

In 2018, the MEU Officer reckons to reach 9,000 students in 21 days. Similar efforts emanate from WCK's regional centres, though equipping and staffing MEU's remains one of the biggest challenges. A grateful nod here to The East African Wildlife Society for their pioneering support.

### AWAKENING ENVIRONMENTAL CONSCIENCE

There is so much more, from international exchanges, tree planting, wetlands, forests, practical activities, enormous input by WCK's Kisumu staff to the community outreach segment of WWF's Lake Victoria Environmental Education Project; even "Saving Endangered Taita Hills Butterflies".

We celebrate these achievements. Moreover, we know that individual lives have been transformed by WCK. We know that domestic tourism is a reality in great part thanks to WCK's guest houses



PHOTOS BY: WILDLIFE CLUBS OF KENYA

### Wildlife Club members at a retreat in Kenya's Coast.

in Lake Nakuru National Park and Mombasa; its hostels in key areas; and a 51-seat bus acquired for WCK headquarters, thanks to AFEW (African Fund for Endangered Wildlife) in 2008.

We know that Kenya's youth can be mobilized, as evidenced in 1971 in Nairobi by WCK's march down Uhuru Highway in support of the government's efforts to curb poaching.

In this country of 42 million people, with half its population under the age of 18, with 19,000+ primary schools and 6,000+ secondary schools, can we affirm that WCK is effective? The answer



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PHOTOS BY: WILDLIFE CLUBS OF KENYA



“Conserve Our Water Catchments”. The issue of water catchments is particularly appropriate to the popularity of Lake Nakuru as a Wildlife Club destination, with textbook examples of what can go wrong with waters flowing into the Lake i.e.: sand quarrying, inadequately treated sewage, pesticide pollution, irrigation-offtake by surrounding farmers, all of which threaten one of the most glorious wild places on Earth. In 2018, WCK’s themes are: *Reject Plastic Bags*; and *Mitigate against Climate Change*.

Kenyan children are starved for information and experiences of the world beyond their homes. Responses to seeing wildlife for the first time can be touching, even poetic: “I never knew my country was so beautiful!” “I thought from pictures that you would be able to drive a car under a rhino.” “We saw a leopard, whose beauty is too heavy for the camera to bear”.

If you love African wildlife, then you are a beneficiary of this effort, either as a tourist, a safari operator, or someone far away needing to know that rhinos and lions still exists.

Consider investing in this programme that helps ensure Africans hold on to their wildlife. That positive outcome may only be assured through hard-to-measure, not-very-glamorous, education and exposure. WCK possesses the management, transparency and dedication to do the job

- If you are a naturalist, offer to give a talk to a local Wildlife Club.
- If you are a lodge manager, adopt or generate some Wildlife Clubs in your area’s ecosystem.
- If you own wildlife films, nip along to some schools and share them.
- Donate a pair of binoculars, books and magazines.
- Take a carload of kids into a Park or Reserve.

You might alter the destiny of one young person who could become a powerful advocate for conservation. For more info visit: <https://www.wildlifeclubsofkenya.org>.

is yes, if we reach enough people, early enough, and providing ample opportunities for firsthand experience of wildlife. The alternative - not trying - is unthinkable.

Expanding and funding WCK’s outreach is the big challenge now. The current crop of Kenyan students are the next generation of parents, teachers, corporate leaders, politicians, and voters who will have far tougher environmental choices than their forbears, and not just about wildlife. For WCK to maintain relevance, it cannot ignore issues like climate change, curriculum content, or water catchments.

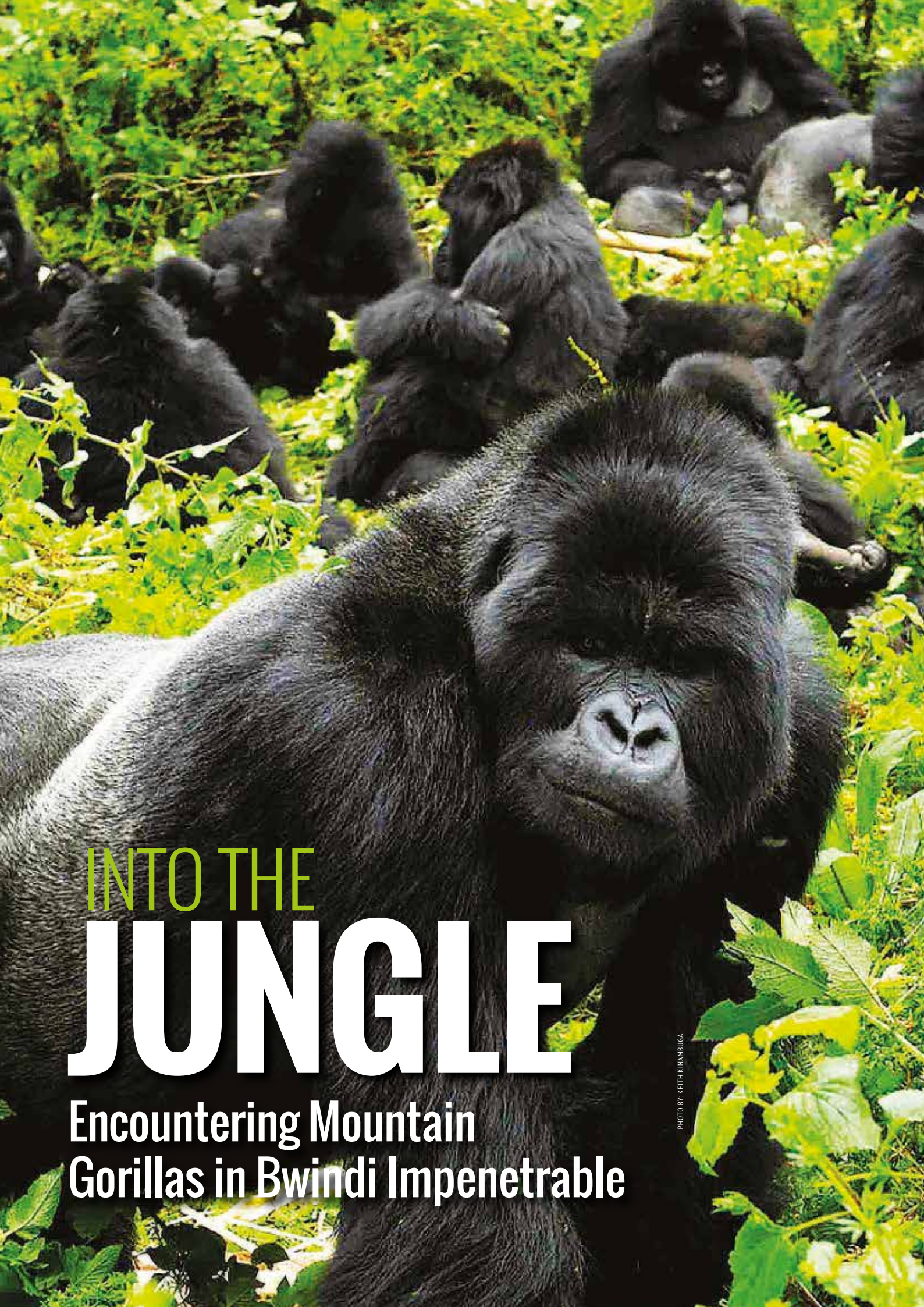
Annually, WCK promotes a theme. In 2005, it was, presciently: “Say No to Plastics”. 2007’s was:

**TOP LEFT: Tree Planting - a perpetual club project nationwide.**

**TOP RIGHT: Cheetah family.**

**BELOW: Community members and pupils gather for the Mobile Education Unit.**

**FOR WCK TO MAINTAIN RELEVANCE, IT CANNOT IGNORE ISSUES LIKE CLIMATE CHANGE, CURRICULUM CONTENT, OR WATER CATCHMENTS.**



INTO THE  
**JUNGLE**

Encountering Mountain  
Gorillas in Bwindi Impenetrable

PHOTO BY: KEITH KIMMUBICA



PHOTO BY: HAKUNA MATATA SAFARIS LTD



**Joe Stephenson** works as a naturalist river and trail guide in Alaska's national forest and parkland. He holds a degree in geography and a minor in anthropology.

**LEFT: Gorillas live in troops or bands with one silverback serving as leader, decision-maker, and protector.**

**TOP: A lone gorilla feeding.**

**I**n a southwestern pocket of Uganda, not far from the Rwandan and Congolese borders, I'm bushwhacking through a dense rainforest undergrowth of ferns, vines, flowering plants, and shrubs in Bwindi Impenetrable National Park -- 128 square miles of prime, virgin rainforest and home to about half of the world's remaining 880 critically endangered mountain gorillas.

This is up from 254 gorillas in 1981 and 776 in 2010 -- a result of intense local and international conservation efforts.

The forest, lush and green at every turn, is loud with whistling cicadas, exotic birds, toads, and frogs. Panoramic vistas of green, mist shrouded mountains, periodically open up and stretch as far as the eye can see. The views are absolutely heavenly.

Established in 1932, Bwindi was originally in two sections known as the Crown Forest Reserves and totaled 80 square miles. Ten years later, the

reserves were combined, enlarged, and renamed the Impenetrable Central Crown Forest.

In 1966, the reserve grew to 124 square miles and in 1991, it was given its current name 'Bwindi'-- which means 'impenetrable'-- in reference to thick stands of bamboo amid dense undergrowth. Bwindi is also known as 'the place of darkness,' for a tree canopy so dense that it blocks out the light.

At the front and rear of our group, which includes eight tourists from Denmark, Canada, Mexico, and the USA -- all here for the thrill of seeing gorillas in the wild, -- are two machine gun-wielding policeman. "For poachers," said Robson, our Ugandan guide, when I asked if the guns were for protection at the start of our one day trek. Robson is in his early 40s, has twenty years guiding experience, and wears a green camouflage uniform and beret. "If we encounter poachers they will be easier to arrest if we are armed," he said, going on to explain that the guns are also for general safety should we get into a dangerous situation, like being surrounded by forest elephants. Also with us are two porters, and set out an hour ahead of us are three gorilla trackers of whom Robson is in constant radio contact.

Poaching of gorillas, either for live capture or trophies has gone on since 1902, when German explorer Oscar von Beringe became the first non-African to encounter them. Over the next two

**ESTABLISHED IN 1932, BWINDI WAS  
ORIGINALLY IN TWO SECTIONS KNOWN  
AS THE CROWN FOREST RESERVES AND  
TOTALLED 80 SQUARE MILES.**



PHOTO BY: JOE STEPHENSON

## BESIDES GORILLAS, BWINDI IS HOME TO NINE OTHER PRIMATES, INCLUDING CHIMPANZEES, COLOBUS MONKEYS, AND RED-TAILED MONKEYS.

decades, at least 50 mountain gorillas were killed by European and American trophy hunters and scientists. In the 1960s and 70s, gorillas were captured and poached for sale in international markets.

Though poaching is an ongoing threat today with cases occurring in 2002, 2004, 2007, and 2013, the greatest threat to the survival of mountain gorillas is deforestation. Terraced farms lead right up to the edges of Bwindi, and demand for firewood grows with the surrounding population. The goal is for eco-tourism revenue to be the most economically viable option.

Human diseases transmitted to the primates is another threat. We share 98 per cent of the same DNA with gorillas, so a human illness, of which gorillas have no immunity, has the potential to wipe out an entire population. Other threats stem from climate change, the region's general

**TOP: Gorillas spend about 60% of their day foraging on a variety of vegetation, including bamboo shoots, stems, and fruits. Males consume about 65 pounds (30 kilograms) of vegetation per day, while females consume about 40 pounds (18 kilograms).**

instability, and low fertility -- females give birth just every four to six years. They may only give birth two or three times in a lifetime.

In the high, forest canopy above is a L'Hoest's monkey -- a medium-sized black and brown coloured monkey known for its distinctive white beard. It leaps and swings from just below the tree tops before disappearing out of sight.

Besides gorillas, Bwindi is home to nine other primates, including Chimpanzees, Colobus monkeys, and Red-tailed monkeys. With 120 mammal species, 348 bird species of which 23 are endemic, 220 butterfly species, 220 tree species, 104 fern species, and over a thousand flowering plant species, Bwindi teems with wildlife. Few places on earth are richer in biodiversity, and for this reason, the United Nations Educational, Scientific and Cultural Organization (UNESCO) recognizes Bwindi as a Natural Heritage Site.

They say it can take 20 minutes to five hours to find the gorillas, but sightings are almost guaranteed. My worry grows as it's been nearly five hours, and all we've seen of gorillas is one pile of their scat and an area of matted down vegetation where they apparently slept last night.

Periodically, Robson stops and lets out a loud, shrill howl -- 'owoooha!' I'm not sure if this is done to alert the gorillas of our presence (as not to startle them into aggression) or if it is to locate the trackers. I assume the latter, but hear no responding howl. So far we have ascended and descended at least two valleys. There's been one nasty, but injury-less fall by one of the tourists and several noticeable tears from another, likely due to fatigue.

But then we reach the trackers, and Robson explains that the gorillas are close. He instructs us to turn off the flashes of our cameras and to leave our walking sticks behind, as gorillas are threatened by them.

With wide eyes and pounding hearts we continue on, carefully negotiating the terrain over downed trees and vines. I'm on the heels of the lead tracker as he slashes through the vegetation

## CONSERVATION

with his machete. Soon he stops and points. And there before us, is a silverback gorilla.

I'm shocked when the tracker walks right up to the silverback and begins clearing the vegetation around it -- equally shocked that the gorilla allows him to do so without fiercely beating his chest and charging. Silverback gorillas stand just under six feet tall and can weigh anywhere from 300 to 425 pounds. The tallest wild, mountain silverback ever recorded stood six feet five inches tall, weighed 483 pounds, had a chest of six feet and six inches, and an arm span of eight feet and ten inches. Females are much smaller with average weights around 220 pounds. It's estimated that gorillas are anywhere from five to 16 times stronger than humans, and though they are herbivores, their bite strength has been measured at 1,300 pounds per square inch (psi) -- twice that of great white sharks and lions.

This gorilla, however, has been habituated, meaning it's used to human presence by frequent encounters. Of the 36 distinct gorilla family groups living in Bwindi, 11 have been habituated. Habituated or not, it is still a wild silverback gorilla, and I can't believe how close the tracker is getting to it.

In silent awe, I watch the gorilla from a mere 15 feet away -- its silver fur, its massive cone-shaped head, its enormous hands and fingers as it sits and forages -- reaching up and effortlessly stripping bark and leaves from small trees before munching them down.

Ten minutes later the silverback rises and walks off on all fours displaying its stocky, incredibly muscular body. We follow it and moments later we find it foraging in a new position. Again, the tracker walks right up to it, this time hacking so close that the gorilla vocalizes his disdain with several hoots and grunts. Then the tracker motions to me, and a moment later I see a second gorilla rise out of the vegetation and begin walking towards me. It's no silverback, but still a good-sized gorilla, coming up to my waist on all fours. Silent, wide-eyed and motionless I watch the gorilla getting closer and closer, until sure enough it grazes against my leg as it passes and then sits down just a few feet away. I'm ecstatic! I hadn't expected to get so close to these rare and magnificent beasts, let alone make physical contact.

I shuffle around to make room for the other tourists, and soon we are once again watching the silverback. Just his head sticks up out of the vegetation, his large mouth and thoughtful eyes facing us. Gorilla intelligence is highly debated. They've been observed using sticks as tools to



PHOTO BY: REDDIT.COM

**TOP: Baby gorillas weigh about five pounds (2 kilograms) when they are born. At two months they begin to crawl and cling to their mothers backs before learning to walk at around nine months. At four months, they're experts at grasping their mothers' fur and can eat and sleep on piggyback. They are nursed by their mothers for about two and a half years.**

fish out insects from logs and to check the depth of a stream before crossing it. They've also been observed breaking rocks to create a sharp edge to strip bark from branches. The mirror test -- a widely accepted method used to determine whether animals are aware of their own existence -- has had inconclusive results with some gorillas clearly recognizing themselves and others not.

Francine Patterson, author of *The Education of Koko* and primary caregiver to Koko, a female gorilla born at the San Francisco Zoo in 1971, believes gorillas show evidence of extreme intelligence, emotion, and social ties. According to Patterson, Koko understands one thousand different words of sign language, two thousand spoken words, and has created signs for words not taught to her.

I follow the tracker a few steps to another large gorilla lying on its belly sleeping. "Black back," the tracker says delightfully, explaining in whispers that it is a juvenile male that will one day become a silverback. Gorillas live in groups ranging from two to 50, however they tend to live in groups of six to



PHOTO BY: WWW.VIRGINMEDIATELEVISION.IE

12 individuals with one silverback as their leader, decision-maker, and protector.

On the other side of us is a mother gorilla. She is lying on her back, completely relaxed as her tiny baby -- just a few months old -- clumsily plays upon her belly. The baby, so extremely cute, reaches up and grabs a tree branch which breaks a moment later causing it to tumble harmlessly to the ground. We watch in delight as the baby continues to play about. A smaller gorilla is just beyond the mother, while another gorilla of similar size is just a few feet away near the black back. In all there are seven gorillas, and we are right in the middle of them while they rest and forage.

Regulations allow for only an hour to observe the gorillas. I could stay all day, but an hour is quite sufficient. Our way back to the main trail is somehow much shorter. We stop and have lunch and excitedly share our thoughts of the experience with each other. I felt in awe the entire time and was constantly thinking about how rare, precious, and vulnerable these massive gorillas are, and what an invaluable place Bwindi is.

There is a dire need to preserve these gorillas for future generations, and it would be a pointless, pathetic shame to let their habitat be destroyed. I feel privileged to have partaken in such an unforgettable adventure -- one that I will carry with me for the rest of my life. I am grateful to the ongoing work of environmentalists, and glad to have put my money (portions of park fees and gorilla permits go directly to local schools and medical centres) towards not only the future conservation of Bwindi, but also towards the impoverished communities that surround it. ●

**Mothering is the primary role of female gorillas. Infants are in constant contact with their mothers for their first five months of life and will continue to be carried by their mothers until age three.**

## HOW TO GET TO BWINDI

### BY ROAD

From Queen Elizabeth National Park (2-3hrs) drive; from Kampala through Mbarara (6-8hrs). A 4x4 vehicle is required in the rainy season. There is also a daily bus service from Kampala.

### BY AIR

Travelers can fly from Entebbe airport or Kampala's Kajansi airfield. Air charters are also available. There are 3 airstrips in Bwindi – Kihiihi and Kayonza in the northern area, and Nyakabande in Kisoro town for those going to track mountain gorillas in the southern area.



# Hands on Nature

Reconnecting children with nature



Having a discussion on termites.

PHOTO BY: MICHELLE BEHR

Is it better for a child to be inside or outside of the house most of the day? The answer would seem to be indisputable. However, Richard Louv (author of the book *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*) tells the disturbing story of interviewing a fourth grade child who told him that they liked playing indoors more than outdoors “cause that’s where all the electrical outlets are.”

Richard Louv is just one of many who have highlighted their concerns of children spending significantly more time indoors than out. Today, the average eight-year-old is able to identify cartoon characters far more easily than they can the native fauna and flora in their own community.

As George Monbiot stated in his article in the *Guardian*, “While surveys

## HANDS ON NATURE IS ABOUT RECONNECTING CHILDREN WITH NATURE, REIGNITING THE FLAME AND PASSION FOR THE BEAUTY OF THE NATURAL WORLD.

show that the great majority would like to see the living planet protected, few are prepared to take action. This, I think, reflects a second environmental crisis: the removal of children from the natural world. The young people we might have expected to lead the defence of nature have less and less to do with it.”

With this worrying shift staring them in the face, Glen and Michelle Behr looked in to ways that they could try to combat it, and in 2017 Hands on Nature was born.

Glen, a qualified safari guide, has the unique ability to impart this enthusiasm to all ages. He founded Hands on Nature and leads the groups; alongside his wife Michelle, who accompanies Glen and the children on their nature

walks and handles the administration and marketing side of the company.

Hands on Nature is about reconnecting children with nature, reigniting the flame and passion for the beauty of the natural world. It is about being outdoors, whatever the weather; exploring and having fun, with the long-term goal of encouraging the next generation to want to take care of and conserve the living planet.

Glen explains in more detail, “Hands on Nature is not a school or a daycare centre. The children learn, in an enjoyable and exciting way, about their surroundings; the importance of each little aspect of nature and the role it plays, about sustainable farming and the effects of pollution (amongst many other things), and as a result they see



Jackie Smith lives in Laikipia and enjoys writing about the region.

## CONSERVATION

and understand for themselves the benefits of preserving and conserving our environment.

“We’ve been amazed at the response, not just from parents in the Laikipia area, but from a number in other areas of the country who have specifically travelled to Laikipia so that their children can participate in the clubs on the weekend.

“No Hands on Nature club outing is ever the same, that’s the beauty of the outdoors, it’s unpredictable – we never know what we are going to see or find from one day to the next”.

Whilst each Nature club does have a general theme (decided by Glen after he’s scouted areas a few days in advance) this is sometimes adapted to suit the weather. So the decision of what they’ll do on a particular day can be made on the actual morning of a club.

When it rains, instead of opting to take cover and stay indoors, Hands on Nature uses a downpour to its advantage. On one occasion when there was thick mud everywhere, the children were told a few interesting things about tortoises and then collected mud and made their own tortoises out of it!

Another club, when the sun was out, included learning about cochineal and how it can be spread and used as an aid in getting rid of an invasive species of prickly pear.

One theme, approached in a number of ways, is about the devastating effects of pollution. One day the children collected debris from alongside a river, and then a guessing game was played on how long it would take for each of the items to degrade. This was followed by an experiment to see the effects of pollution and how it contaminates the water.

No club is ever complete though without the unplanned and unexpected diversion of nature – finding animal tracks or a little creature along the way to study – chameleons, stick insects, antlions, to name just a few. The enjoyment Glen and Michelle get out of this themselves is magnified by the ever increasing awareness and thrill of the children that there is so much around them.



PHOTOS BY: MICHELLE BEHR



**TOP LEFT & RIGHT: Having fun in the mud making models of tortoises.**

**MIDDLE: Learning about cochineal.**

**BOTTOM: Kids pose for a photo after a treasure hunt in the wild.**

Glen and Michelle have a number of plans for the future. They would like to introduce their concept to schools as an extra-curricular activity, either held in the school grounds (if there is enough flora and fauna) or on their own property in Laikipia, as well as working alongside those in other areas of conservation who are keen to share their knowledge with the children at the clubs. They also propose holding a few outdoor events which include the entire family, and it is their hope that they can attract donors to sponsor children from nearby villages who are unable to afford the clubs and who would like to learn about their environment. ●

# STRIVING TO PROTECT ROBBER CRABS IN TANZANIA



**Tim Caro** is Distinguished Professor of Wildlife Biology at the University of California, Davis specializing on animal coloration.



**Victoria Morgan** is a PhD student in the Center for Population Biology, University of California, Davis researching the evolution of terrestrial behaviour in crabs.

**C**oconut crabs are huge. They reach a whopping 4kg or more in weight, and can have a leg span of one metre across. They are the world's largest terrestrial crab and also the largest land arthropod on the planet.

They are also called Robber crabs (hence *Birgus latro*, *latro* meaning "thief" in Latin) because they steal food from kitchens. Some people think of them as insects (which they are actually closely related to) and therefore see them as disgusting things to eat, while others think of them as crabs, which are delicious. Unfortunately for these animals, the majority of people are crab enthusiasts!

In fact, this species is in trouble across its large geographic range, which spans the Indian and Western Pacific Oceans, and it is now restricted mostly to small islands.

In this part of the world it has all but disappeared from the Somalia, Kenya, and Mozambique coastlines. In Tanzania, there are reports of only very small populations scattered up the coast on a handful of islands, principally on small islands off the coast of Unguja and

Pemba (i.e. Zanzibar), but they are also found on the mainland marine reserve islands of Bongoyo and Mbudya only 20 minutes from the capital, Dar es Salaam. Although the total Tanzanian population is impossible to estimate at present, optimistically, Tanzania still has a sizeable number that form the westernmost viable population of these extraordinary animals.

Based at the University of California, Davis, we collaborate with the Department of Forestry and Non-Renewable Natural Resources on Pemba, to provide baseline data to conserve this species. Why the Department of Forestry and not the Department of Fisheries, you ask? Well, because this species spends almost all of its incredibly long, 60-year lifetime in coastal rag forests and *shambas* (small farms) and returns to the sea only once a year to mate onshore and drop its fertilized eggs into the water.

In the sea, tiny crabs called zoea pass through three to five stages before molting into the post-larval *glaucothoe*, a process that takes about a month. They then settle on the seafloor where they find a gastropod shell, to migrate to the shoreline with other species of terrestrial hermit crabs.

**A Robber crab climbing a tree to obtain fruit. This is a red morph.**

PHOTO BY: TIM CARO





PHOTO BY: ULLI KLOIBER



PHOTO BY: VICTORIA MORGAN



PHOTO BY: TIM CARO

Next, they leave the ocean permanently and lose the ability to breathe in water. As juveniles and adults, these crabs can actually drown. Like all hermit crabs, they change shells as they grow in size, but eventually outgrow and discard them, a habit unique to Robber crabs. Reaching sexual maturity about five years after hatching, Robber crabs can live as long as many East African people.

### CONSERVATION CONUNDRUM

So if you see a really large Robber crab, or worse, are offered it to eat, you are looking at an animal that's possibly older than you are, who was alive around the time Tanzania gained independence (1961), or during the Revolution on Zanzibar (1964).

Herein lies the conservation problem: since these animals take a long time to mature, and most of their eggs are eaten by marine predators at the *zoea* stage, it is very difficult for the population to sustain itself under even mild

**REACHING SEXUAL MATURITY ABOUT FIVE YEARS AFTER HATCHING, ROBBER CRABS CAN LIVE AS LONG AS MANY EAST AFRICAN PEOPLE.**

**TOP LEFT:** Measuring the pinch force of crabs using a specially constructed TR150 Novatech© pinch-force meter.

**TOP RIGHT:** Tim Caro holding two Robber crabs.

**BELOW RIGHT:** A small blue morph.

human predation pressures. That is why there are almost none left on the African mainland, the Indian subcontinent, or most of Indonesia.

What can we do to help this species? We think there are three problems that need to be overcome. First, we need to find sites where the crabs are left alone and give these sites formal protection. Our research suggests that these potential sites are on islands where there are no overnight fishing camps. When fishermen use islands as temporary or semi-temporary camps, they forage for tasty Robber crabs to supplement the fish they catch. On islands where there are no beaches to build a shelter, or on islands near their homes where food and family await, the fishermen are gone by sundown and the crabs can walk around unmolested.

Second, children 6 -15 like to hunt for these crabs in the early evening and then roast them out in the bush. These activities might be stopped with concerted education initiatives.

The third problem is habitat loss caused by people cutting coastal scrub to plant *shambas*. On



PHOTO BY: TIM CARO

Pemba, these *shambas* are used to grow beans, bananas and cassava. This is the most difficult problem -- how do you dissuade farmers from extending their fields during cash-hungry times?

The International Union for Conservation of Nature (IUCN) used to list Robber crabs as “Vulnerable” but downgraded them to “Data Deficient” for lack of information. Now there is a new movement to upgrade them to Appendix III (i.e. the crabs would require collaborations between several nations to prevent their unsustainable and illegal exploitation). This might occur at the next Convention on International Trade in Endangered Species (CITES) meeting (May, 2019)-- which would be a good start.

We are also conducting a population-level genetic study across their range to figure out how fragmented and at risk the global Robber crab population is. We have sampled populations in Okinawa, Japan, Christmas Island, Australia, and Zanzibar, Tanzania.

We are also studying the crabs to answer a question many people have after seeing them

**Victoria Morgan holding two coconut crabs. Coconut crabs (*Birgus latro*), also known as robber crabs, are an imposing sight. They can weigh up to 4 kilograms, as much as a house cat, and sport legs that span almost a metre. This makes them the largest invertebrates – animals without backbones – on land. The crabs live on coral atolls in the tropical Indian and Pacific oceans.**

in the wild -- why do they come in two striking colours? As previously discovered with our colleague, Ossi Nokelainen, Robber crabs are either red or blue with very few intermediate colour morphs. Why? Classic explanations such as sex differences, size differences, living in distinct habitats, mating between like colour morphs, or differences in strength and fighting abilities simply don't apply.

We even measured the pinch force of their immense claws with specially constructed pressure equipment (and recorded up to a massive 150 kg force from one powerful crab!). But we found no differences between the colour morphs.

So we can't yet explain these two colour morphs across populations. We can, however, investigate the genes responsible for the coloration and how these might be regulated, and hopefully genes hold the key to this intriguing question. So for those interested in the evolution of colour, these are wonderful animals to study. But they need our protection. ●

# Shimba Hills

## Overlapping species within Eastern Arc Mountains



**Rupi Mangat** writes about travel and environmental issues and is editor of the Wildlife Clubs of Kenya magazine, *Komba*.

**A Krefft's Warty Frog, *Callulina krefftii*.**

**B**eryl Bwong's recent study of Kenya's Shimba Hills gives new insight to the amphibians found in the massif bordering Kenya's south coast along the Indian Ocean and close to northern Tanzania.

Her Ph.D. research concluded in 2017 from the University of Basel, Switzerland, included the first amphibian checklist of Shimba Hills National Reserve.

The list has 30 known amphibians (28 anurans—frogs and toads, plus two caecilians, a group of limbless, serpentine amphibians).

A new surprise to the list was the presence of two Eastern Afromontane species -- Ribbon caecilian (*Scolecormorphus cf. vittatus*) and Krefft's warty frog (*Callulina krefftii*). The latter had not been recorded since the original collection of a single specimen over 50 years ago.

"These two species were until now listed as endemic to the Eastern Arc mountains but we

found them inside the Shimba Hills National Reserve, which contains thirty per cent of Kenya's amphibian species," said Bwong. "This figure translates to the highest number of amphibian species of any known locality in Kenya."

Better known for the last herd of the endemic Sable antelope in Kenya, Shimba now has its status further increased as a reserve of national conservation importance.

Bwong's research also reveals the threat to fragile swamps that harbour these amphibians. The swamps around the reserve are being drained to be converted into farm land.

Inside the protected reserve, the huge wetland around Shimba Hills Lodge is the only swamp of size with a wealth of amphibians, including a wetland in Kivumoni area that is increasingly being fragmented outside the reserve, threatening the quality of the swamp and species in it. The 192-square-kilometre Shimba Hill National

**BWONG'S RESEARCH ALSO REVEALS THE THREAT TO FRAGILE SWAMPS THAT HARBOUR THESE AMPHIBIANS.**



PHOTO BY: BOB DREWES

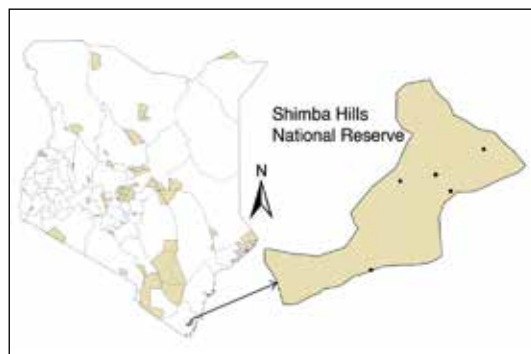


PHOTO BY: MICHELE MENEGON



**TOP: A Ribbon Caecilian.**

**BELOW LEFT: A new endemic caecilian, Spawls' Boolee, from the Ngaia Forest, Meru.**



MAP BY: RESEARCH GATE

**MIDDLE: Map showing location of Shimba Hills National Reserve.**

Reserve together with the 420-square-kilometre Arabuko-Sokoke forest (160 kilometres north of Shimba Hills) hold the largest coastal forests in East Africa. Both sites are listed as Important Bird Areas (IBAs) identified using an internationally agreed set of criteria as being vital for the conservation of bird populations globally. There are 12,000 IBAs listed worldwide, including Nairobi National Park and New York's Central Park. In addition, the two Kenya reserves are listed among 25 biodiversity hotspots in the world. Since Bwong's field research, there have been regular field visits to the reserve which saw the discovery of yet another Eastern Arc endemic frog; Amani Tree frog (*Leptopelis grandiceps*) in

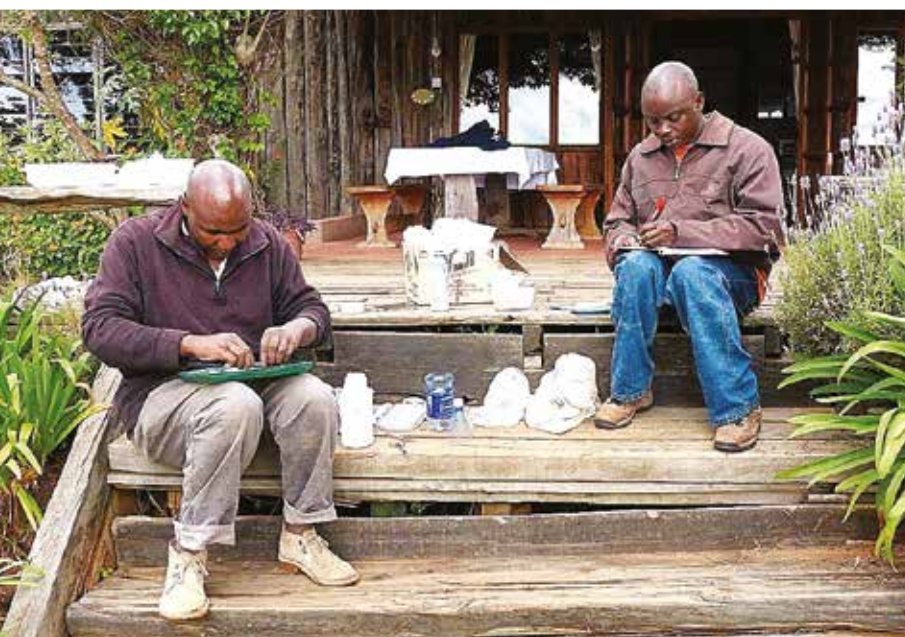
**BELOW RIGHT: Dr. Beryl A. Bwong - Herpetologist, National Museums of Kenya.**



PHOTO BY: JOASH NYAMACHE



PHOTO BY: MICHELE MENEGON.



**TOP:** Amani Tree frog *Leptopelis grandiceps* also known as the Peacock tree frog.

**MIDDLE:** National Museums of Kenya herpetologists preparing frog specimens in the field at Lollidaiga Hills in Laikipia.

**BOTTOM:** Swamp at Shimba Hills Lodge.



2016 by Patrick K. Malonza and Joash Nyamache both in Herpetology section, at the National Museums of Kenya (NMK).

“Research is expensive and therefore we usually collaborate with western researchers and universities,” Bwong told *Swara*. Local government and researchers have few resources available.

The herpetology section of NMK is collaborating with a number of research organisations locally and internationally in various aspects of amphibian diversity, distribution, taxonomy and conservation.

Research is an important variable in the protection, new findings and sustainability of the last of the open spaces and species. It calls for government strengthening and international collaboration. ●

## HOW TO GET TO SHIMBA HILLS

### BY ROAD

Shimba Hills National Reserve is only 60km from Mombasa, and is ideal for a day visit. From Mombasa or Diani Beach the road is good, and just about an hour’s drive from Diani Beach.

### BY AIR

You can get a flight at Moi International Airport in Mombasa.

## SOME OF FROGS FOUND IN SHIMBA HILLS



PHOTO BY: FLORIAN FINKE



PHOTO BY: BERYL A. BWONG



PHOTOS BY: STEVE SPWALS



1. Endemic Shimba Hills Reed frog
2. The Nile Rocket frog, a champion jumper
3. Toxic Red-banded rubber frog
4. Ornate tree frog
5. The Senegal Kassina
6. African bullfrog, Kenya's biggest frog
7. Guttural toad common
8. Amani tree frog

## FACT FILE

### EASTERN MOUNTAIN BONGO

*TRAGELAPHUS EURYCEROS ISAACI*

**HABITAT:** Bongos are only found in rain forests with dense undergrowth across tropical Africa.

**DIET:** Like many forest ungulates, bongos are herbivorous browsers and feed on leaves, bushes, vines, bark and pith of rotting trees, grasses, herbs, roots, cereals, and fruits.

**THREATS:** The main threat facing the Eastern bongo is the destruction of their forest habitats. They are also hunted for their meat and fur.

IUCN RED LIST STATUS  
**CRITICALLY ENDANGERED**



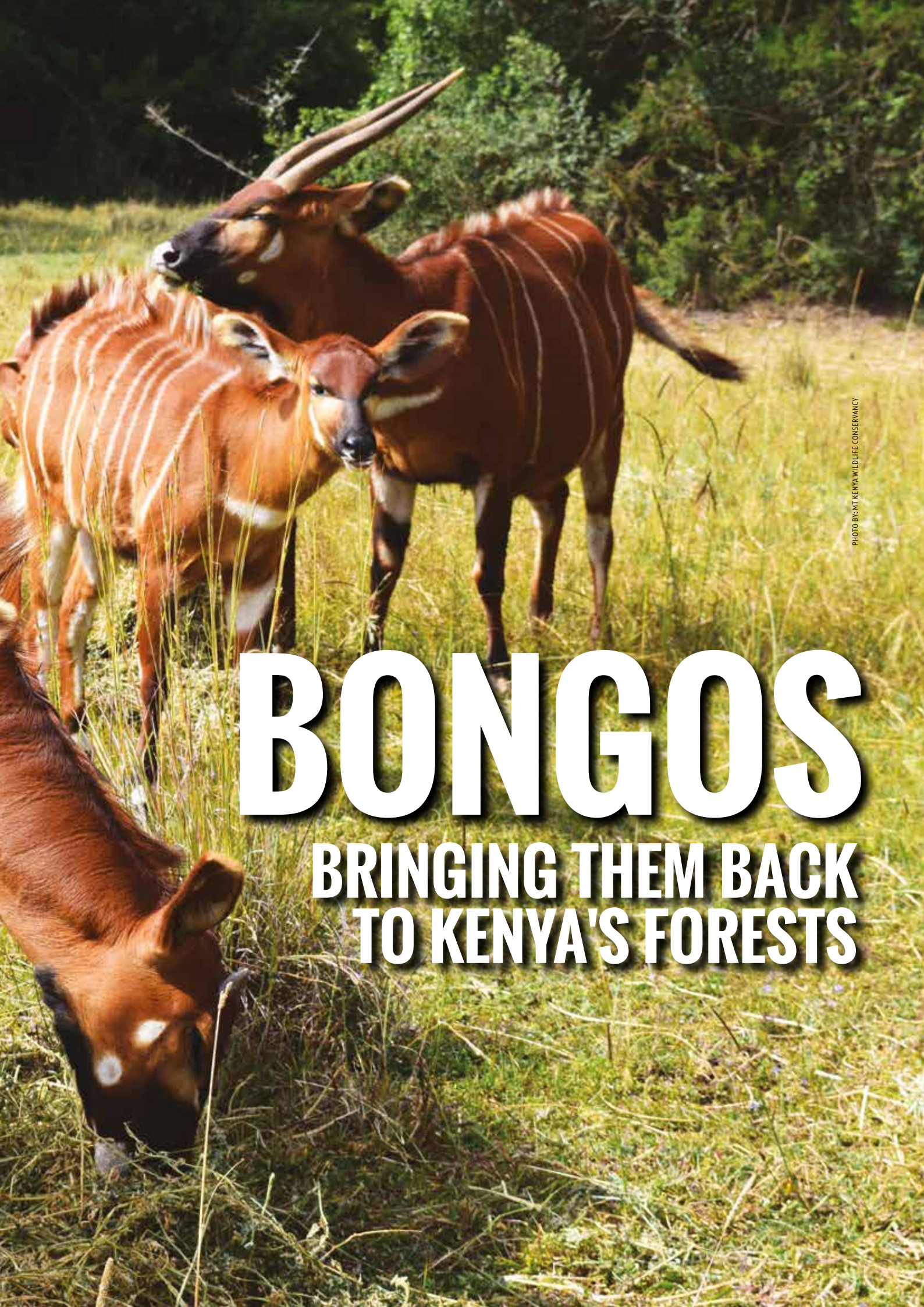


PHOTO BY: MT KENYA WILDLIFE CONSERVANCY

# BONGOS

**BRINGING THEM BACK  
TO KENYA'S FORESTS**



**Kari Mutu** is an independent writer for various newspapers and magazines.

**TOP: Feeding bongos at Mt Kenya Wildlife Conservancy.**

**BELOW: Guest with bongo at Mt Kenya Wildlife Conservancy.**

**T**he perilous status of elephant and rhino is well documented. But a lesser-known and more threatened wildlife species is the Eastern Mountain Bongo, Africa’s largest forest antelope.

Classified as critically endangered on the IUCN’s Red List of threatened species, the Eastern Mountain Bongo is endemic to the high forests of Kenya. No more than 100 individual bongo are thought to live in the wild, far below the 250 mature individuals needed to ensure a genetically stable population.

Historically their territory included Mt Kenya, the Aberdares Mountain Range, Cherangani Hills, Nandi Hills, Mt Elgon and wide areas of the Mau forest complex. A sub-species, the Western Lowland Bongo, occurs in the forests of Central and West Africa.

The decline in bongo over the last 50 years is attributed to encroachment of forest habitats, bush meat hunting with snares and dogs, trade in animal products, and predation. In the 1930s, lions were introduced into the Aberdares, not their natural rangeland.

Kenya’s mountain forests are surrounded by densely populated areas. “An outbreak of Rinderpest in the 1900s and 1980s, probably from nearby settlements, severely affected the population,” said Donald Bunge, wildlife and



operations manager at Mount Kenya Wildlife Conservancy.

Handsome shy creatures, Eastern bongos are high-altitude antelopes found between 2,000-3,000 metres, with a preference for forest areas with thick undergrowth. Most active between dusk and dawn, browsing on shrubs and leaves, they are extremely hard to spot.

“Numbers of wild bongo are estimated from camera trap images, faecal droppings and tracks,” Bunge says. Scouts from the Bongo Surveillance Project (BSP), have been monitoring bongos in the Aberdares, Mt Kenya and Mau since 2004 and advising wildlife stakeholders. “Only two of the scouts have ever seen a live bongo in the wild,” he said.



PHOTOS BY: MT KENYA WILDLIFE CONSERVANCY

Today, bongos survive as isolated pockets of about 50 individuals in the Aberdares, 20 in Mau forest complex, 15 in Mount Kenya, and 10 animals each in the South-West Mau and Eburu forests.

Outside of the forests, the Mt Kenya Wildlife Conservancy (MKWC) is the only captive bongo breeding programme in Kenya. Originally a holding ground for export bongo after wildlife hunting was banned in 1978, the conservancy works with the Kenya Wildlife Service (KWS) and the Kenya Forestry Service (KFS) to protect bongos.

### **CAPTIVE CONSERVATION IN THE UNITED STATES**

Mt Kenya Wildlife Conservancy and animal orphanage was founded in 1967 by American TV personality Don Hunt and his wife, Iris, together with Hollywood actor William Holden, for the rescue and rehabilitation of wildlife. In the 1970's, 32 bongo were sent from the conservancy and other locations in Kenya to zoological parks in the United States to ensure the species' survival through captive conservation.

In 2004, MKWC started the bongo breeding programme. Currently there are 70 bongos

## **“NUMBERS OF WILD BONGO ARE ESTIMATED FROM CAMERA TRAP IMAGES, FAECAL DROPPINGS AND TRACKS,” BUNGE SAYS**

**Mother and calf. Female bongos give birth to a single calf following a gestation period that lasts for around 9 months. In order to try and protect the vulnerable calf from predators, females give birth to their calf in dense vegetation.**

including the second oldest bongo in the world, a 22-year old female. Five years ago the conservancy was bought by Kenyan businessman Humphrey Kariuki and opened to visitors. Today, up to 15,000 school children and 10,000 tourists visit the facility annually as part of MKWC's bongo education and awareness programme.

Ex-situ management of captive bongo has its challenges, not least the lack of financial support from stakeholders such as the KFS and KWS. It costs about 56 million Kenyan shillings (\$556,600) per year to run the bongo rehabilitation programme, with food and veterinary care topping the list of expenses. Entrance fees to the animal orphanage and donations meet about 50 per cent of operational costs while the rest is funded by the owning company.

Managing the diet is has been problematic with 80 per cent of nutritional needs for the captive bongo coming from domestic animal feed



PHOTO BY: MT KENYA WILDLIFE CONSERVANCY

formulas. “Sometimes feeds were not properly formulated for antelopes resulting in low reproductive vigour and deficiency of copper and selenium,” said Bunge. “We are now working with Unga Feeds to manufacture the right antelope feed.”

According to the international studbook of 2017, there are now more than 530 bongo in various locations in the United States while another 220 live in zoos and parks in Europe, Asia, Australia and the Middle East. Artificial insemination to raise genetic diversity has been tried in the USA but was unsuccessful, so natural breeding remains crucial. “But we have to be careful to overcome genetic inbreeding,” explains Bunge.

Foreign zoos have been beneficial for raising bongo numbers. But these animals may not be the ideal for replenishing Kenya’s forests because they are raised on over-ideal circumstances of rich diets, exceptional veterinary care and no exposure to indigenous forest conditions.

In 2003, 13 zoos in the United States contributed 18 captive bongos for repatriation to MKWC with the goal of eventual relocation into the forest. “Seven animals died in the first 20 days from Theileria, a tick-borne illness. The planners did not consider endemic diseases,” said Bunge.

MKWC is a captive breeding facility but wildlife translocation falls under the jurisdiction of the KWS and The National Bongo Conservation Task Force. The Task Force -- which includes national

**Eastern mountain bongo in front of Mt Kenya. The mountain was once the home of mountain bongos, an endangered sub-species of antelope. But thanks to hunting and predation, the extremely shy and elusive animal is fighting for survival, ironically away from the mountain.**

wildlife and forestry authorities, some NGOs and individuals -- was formed in 2010 to create a blueprint for bringing bongo back to the forests. After several years of research, the Task Force completed a master plan for returning bongo to their original forest homes. The document awaits launching by KWS.

Bongos also happen to occupy Kenya’s water towers, mountain forest habitats that act as water catchment areas and feed into major river systems. Efforts around forests conservation is good news for the recovery of wild bongo populations. At present an electrified fence is being constructed around Mt Kenya in a programme spearheaded by the conservation organisation, Rhino Ark Charitable Trust. A 400-km fence around the Aberdares Conservation Area was completed in 2009.

Meantime, MKWC is working with the forestry department to secure a 1,000-acre fenced sanctuary in Mt Kenya. It will serve as an interim bongo rehabilitation zone where the animals have no human interaction. “A population management programme will review the relatedness of individual bongo, combining it with best phenotypic features to pair the best females with specific males,” said Bunge.

He believes that by the second or third generation, bongos will be sufficiently habituated to live freely in the greater Mt Kenya forest or any other habitat. ●

**\$556,600**

**Amount it costs per year to run the bongo rehabilitation programme, with food and veterinary care topping the list of expenses.**

# DNA from Smuggled Ivory Helps Identify Trafficking Gangs

BY JOHN NYAGA

Scientists have used DNA collected from smuggled ivory shipments to identify three organised groups of criminals responsible for trafficking in ivory at the height of the recent African elephant poaching crisis between 2011 and 2014.

The researchers, led by Samuel Wasser from the University of Washington, United States, said in paper published in the scientific journal *Science Advances* that they had been able to trace some of the smuggled ivory and link it to gangs based in Kenya, Togo and Uganda.

“We combine DNA-based sample matching and geographic assignment of tusks to show that the two tusks from the same elephant are often shipped by the same trafficker in separate large consignments of ivory,” the scientist said in their research paper.

“The paired shipments occur close in time from the same initial place of export and have high overlap in the geographic origins of their tusks. Collectively, these paired shipments form a linked chain that reflects the sizes, interconnectedness, and places of operation of Africa’s largest ivory smuggling cartels.”

Each cartel was identified by a chain of multiple linked seizures exported or about to be exported out of Africa from the same port, with the two matched seizures in any given link occurring close in time and composed of tusks largely derived from the same poaching locale.



PHOTO BY: U.S. EMBASSY IN SINGAPORE

**Researchers are examining the genetic data in seized elephant ivory to trace it back to the animals’ homelands and connect it to global trafficking crimes.**

The researchers noted that targeting such cartels could have a major direct impact on combating the illegal ivory trade by preventing contraband from transiting out of Africa before it becomes far more diffuse and expensive to trace.

High overlap in the genetically identified geographic origins of the ivory in the matched seizures, along with the convergence of large quantities of ivory to the same cartels over time, also implies a strong link between the cartels and the poaching hotspots where those elephants were killed.

Targeting these cartels could also directly reduce the rapid loss of wildlife. The tools described in the paper may further provide information that can help law enforcement target other forms of contraband to the extent that these major ivory cartels are also involved in smuggling other wildlife products. The

trafficker implicated the in two seizures in Togo and a six-tonne ivory seizure in Malaysia was convicted in August 2013. The ivory seizure in Togo was partly from genetic evidence provided by the researchers. He received a jail term of two years, but the sentence could have been much stiffer had the additional findings in the report been available at the time of his prosecution.

Another major trafficker was similarly convicted for one seizure in Kenya in June 2014, but the report potentially connects him to many others. He was subsequently freed on appeal after the court upheld claims of evidence tampering by the police.

A suspect was in custody in Uganda at the time the report was released. He was linked to one of the ivory seizures in Uganda and is believed to a member of a network of traffickers based in Entebbe. ●



# Oserengoni Wildlife Sanctuary, Naivasha

## Prime Accommodation & Fine Dining

By John Nyaga

For anyone looking for a weekend escape from Nairobi and the city's surrounding areas, Oserengoni Wildlife Sanctuary is an ideal getaway. You get to sample a wide variety of Kenya's wildlife, luxurious accommodation, delicious food and a boat ride on Lake Naivasha – after just over a two-hour drive from the Kenyan capital.

The conservancy, past Lake Naivasha in eastern Rift Valley, is anchored by two recently renovated lodges – Chui and Kiangazi – and the increasingly popular Ranch House Bistro on the shores of Lake Oloidien. The lodges and the eatery generate the income needed to run the wildlife sanctuary, according to Geoff Mayes, Tourism Manager, Chui Lodge, Kiangazi House & Ranch House Bistro.

Chui Lodge comprises eight cosy cottages, while Kiangazi House has seven rooms, including a couple of larger ones for visitors who need more

Black-backed Jackal



space. Both lodges are at the forefront of the eco-camp revolution, being powered by geo-thermal electricity and with state of the art Solar and Gas water heaters.

Hemmed by the breathtaking view of the undulating Mau Escarpment in the horizon to the west and bordered by the Hells Gate National Park to the east, Oserengoni, previously a cattle range and wheat farm, measures roughly 18,000 acres.

The sanctuary was established in 1995 by Dutchman Hans Zwager, his wife June and their son Peter, aiming

Migrant visitor, European Roller



to conserve biodiversity, attract visitors and become a centre for sustainable conservation of biodiversity. The animal population in Oserengoni was initially small, but has risen over the years, a factor attributable to suitable habitat management and effective security and wildlife protection measures.

For its size Oserengoni boasts an incredible variety of mammals and birdlife. The conservancy teems with herbivores, including giraffe, buffalo, beisa oryx, topi, Thomson's gazelle, wildebeest, bushbuck, eland, zebra and



**TOP: Kiangazi House deck overlooking the waterhole.**

**BELOW: Resident leopard in the sanctuary.**

hippopotamus. Ostriches dart across the grassland to get away from our approaching vehicle. A hyena seems unsure whether to run or stay put, but eventually appears to decide err on the side of caution. It dashes into the bushes.

Grey-helmeted shrikes have a safe haven among stacks of leleshwa [camphor bush], while vultures glide over the open glades in search of leftover carcasses. Leopards are a common sighting.

To enrich the genetic pool and broaden species diversity, several animal species were brought into the sanctuary in the late 1990s. They included the white rhino, Oryx and Grevy's zebra. [The rhinos were subsequently translocated to other sanctuaries after several poaching incidents.]

The sanctuary is ringed with a 40-kilometre fence to keep the animals in and people out, thus minimizing the potential for conflict between the two.



PHOTOS BY: GEOFF MAYES

Watering holes dot the sanctuary. The fence is, however, in need of upgrade, an expensive undertaking considering the size of the sanctuary and its limited sources of revenue, Mayes told Swara.

Another challenge is that the population of some species has outstripped the conservancy's ecological carrying capacity. With the country's policy on how to manage wildlife populations when numbers become

## FOR ITS SIZE OSERENIONI BOASTS AN INCREDIBLE VARIETY OF MAMMALS AND BIRDLIFE.

too numerous still not yet gazetted, Oserengoni finds itself struggling with more herbivores than the optimum number that the conservancy can hold.

"In the absence of predators, wildebeest and warthogs are not being kept in check," said Mayes. "As a result the ever increasing herbivores numbers are pushing out other herbivores such

## ON SAFARI

as the topi and kongoni.” Introducing more predators, such as lions, into the conservancy would be a good idea, said Mayes. But he cautions that bringing in lions without first ensuring that the fence is intact could lead to animal-wildlife conflict when the big cats stray into the nearby human settlements. Oserengoni offers various activities for its visitors, notably game drives or walks that can start with a lavish breakfast in the bush and end with a refreshing sundowner by a bonfire in the wild.

One can venture to the shores of the nearby Lake Oloidien, frequented by pelicans. A boat ride on Lake Naivasha for a rendezvous with hippos, pelicans and fish eagles is one of the highlights.

And since Oserengoni Wildlife Sanctuary is an offshoot of Oserian Group, the company that owns the largest flower farms in Naivasha, guests interested in floriculture can visit the farms and processing facilities and learn all there is to know about roses, carnations, sunflower, et cetera, and how the blossoms are prepared for export to markets in Europe. ●



Giraffe and wildebeest on Ngondi plains



Kiangazi House swimming pool

PHOTOS BY: GEOFF MAYES

### Bush breakfast in Oserengoni Wildlife Sanctuary.



# Safari *into* Sunset



**Graham Mercer** lived in Tanzania for 34 years before resettling in his native England and has been on many safaris.

**W**hen I was diagnosed with lung cancer in 2016, the last thing I thought about was going on safari again. When my wife and I found ourselves on safari in Kenya two years later, just prior to my 78th birthday, the last thing I thought about was my cancer. Or my age.

Nothing matters on safari except being on safari. It is like being in love. It *is* being in love. With the bush and its wildlife; with the adventure that life on safari represents; with the often captivating, wide-angle landscapes under unbroken skies; with the rediscovery, after sundown, of a galaxy scintillating with stars; with the evocative sounds of the bush, not least the strangely imploring call of lions in the night. And most of all, with the excitement on awakening with the dawn to a silence, save perhaps for the



**Dawn over the Ngulia Valley, Tsavo West.**

PHOTOS BY: GRAHAM MERCER

plaintive murmuring of doves, seldom experienced elsewhere. And a stillness that implies that the Earth, and time itself, have stopped moving.

In that serenity, with the early morning mug of coffee, come the promises of the day: New or unusual sightings, unique photo-opportunities, the comradeship that shared safaris often engender and reinforce. And all those simple things; the hearty breakfasts after the morning game drive, the first ice-cold lager at sundown, the whole uncomplicated

sequence of events that makes life on safari so incomparable.

And that inspires in us that rarest and most pleasurable of states; of being, in Karen Blixen's words, "at one with the moment".

## **QUADRUPLE LOVE AFFAIR**

We went on hundreds of safaris when we lived, for half a lifetime, in Tanzania. But my very first safari was in 1962, a two-day trip from Mombasa to Kilimanjaro and back, as a young sailor in the Royal Navy. Long before then I



**Tree at sunset, Dika Plains, Tsavo East.**

## ON SAFARI

was predisposed, through books, to fall in love with Kenya, with East Africa, and with life in the bush. Soon after sailing into Mombasa's Kilindini Harbour, I fell for all three, adding Mombasa to the list. A quadruple love affair that has never faltered.

My passion for safari life was consummated in December, 1962, soon after entering Tsavo East's Buchuma Gate, which for me will always symbolize a Harry Potter-type portal into the world of wonderment beyond. After a less-than-wonderful drive from Mombasa along what my 1962 diary tells me was "a red earth track, rutted and rough", in a dilapidated Peugeot 404, owned by "Jimmy's Tours" and

**TOP: White-throated Savannah Monitor, Tsavo East.**

**BELOW: Elephant family, near Tsavo East's Buchuma Gate.**



driven by one of their staff, Mohammed.

"Jimmy's Tours" was as low-budget as it sounds. The car broke down on the way back, in a remote corner of Tsavo West, with a badly leaking radiator and no spare water. A situation leading to my first foot safari when Mohammed, carrying "Jimmy's Tours" emergency kit (an old cooking-oil tin) led me and three companions into the bush to look for a waterhole.

We found one but it was almost dry. Mohammed scooped liquid mud from the hoof-prints of a giraffe and various antelopes, and this got us back to the gate. Where a ranger, himself short of water, topped up the sludge in our

radiator, allowing us to limp back to Mombasa.

A diary tells me that on this short safari we saw antelopes (unidentified except for dik-diks and hartebeeste) elephants, gazelles (again unnamed), giraffes, zebras, baboons, wart-hogs, a bush pig, a rhino and "dozens of birds".

The elephants were few, and except for one that mock-charged us, out of camera range. My first wild elephant, in a photograph I still have, is no more than a tiny, red-brown blob amid a grey-green expanse of scrub. On being shown the photo months later my dear mother peered at it over her glasses in futile concentration, eventually murmuring,





Leopard hoping it hasn't exceeded the speed limit, Tsavo West.

PHOTOS BY: GRAHAM MERCER

"It's a bit much when you can't see an elephant, isn't it?"

The nearest we came to seeing one of the big cats on that first safari was when we encountered antelope alert to the presence, in the nearby bush, of a lion or leopard that to us remained unseen.

By comparison, on our recent trip, we saw, over eight days, 34 species of mammal, including at least 260 elephants; five lions; a leopard that walked past our mini-bus in mid-afternoon and leaped up, like an athlete at the Olympics, on to the "winner's podium" atop a stone sign-post; quite a few Lesser Kudu, often hard to find and harder to photograph; and an antelope I had yearned to see, the Hirola, the most threatened antelope on Earth.

### ATAVISTIC THRILL OF LIFE

In 2015, Hirola were estimated to

number only 76 in Tsavo East, where it was introduced, decades ago, from its already decreasing natural range straddling the Kenya-Somalia border. If the estimate of 76 is correct we saw about half of them just south of Tsavo's Satao Camp.

We also saw around 110 bird species. But as our days on safari dwindled, knowing that this reunion with the bush might be my last, I longed to see lions. Since encountering my first wild lion in Manyara National Park in 1967 the thrill of seeing them has never diminished. They epitomize, for me, the atavistic thrill of life on safari.

So on our last morning, after leaving Satao for the Buchuma Gate via Voi, I was overjoyed when we encountered two lionesses and a cub at the edge of the Ndara Plains, watching, with the affected nonchalance of cats that know

they have been seen, congregations of zebras, oryx and eland filing in to drink from the nearby borehole.

A perfect end to a perfect safari. We had seen far more than I saw in my first visits to the Tsavo, despite the fact that the ecosystem then boasted around 35,000 elephants and 5,000 rhinos.

Now organised poaching, corruption, disruption caused by the new Nairobi-Mombasa SGR railway, habitat loss due to expanding human populations (Kenya's is approaching 50 million, compared to 8.6 million in 1962) test the resolve of those entrusted with conservation in Kenya.

But the fact that our recent safari went so well, and that we saw so much (and few other vehicles), is a tribute not only to our driver-guide William Changulo, with his phenomenal "binocular eyes", but to many others: David and Daphne Sheldrick, and Bill Woodley (all, at the time of my first safari, achieving great things in the Tsavo) to the best of their Kenyan successors, from Chief Park Wardens to rangers.

Meanwhile we are back in England, planning our next "final safari". ●

**MY FIRST WILD ELEPHANT, IN A PHOTOGRAPH I STILL HAVE, IS NO MORE THAN A TINY, RED-BROWN BLOB AMID A GREY-GREEN EXPANSE OF SCRUB.**

# PROFILE OF WILDLIFE PHOTOGRAPHER JEFFREY WU



**Delta Willis**, the author of *The Hominid Gang* and publicist for Audubon, Earthwatch, and the Survival Anglia TV documentaries.

**R**are is the image that can change the way you see the world, but Jeffrey Wu's aerial portraits of Kenya's Lake Magadi appear to be a swirling galaxy in distant space. Then you notice the flamingoes, like pink arrows on black infinity. Shot from a copter piloted by Andrew Belcher, the perspective is from 2,000 feet, and the scene, underexposed to emphasize spirals of soda and sand that would otherwise glare.

Born in Shanghai, Wu began to learn photography at the age of seven at his

mother's professional studio, where he found magic in the darkroom. "Seeing a blank paper soaked in chemicals to gradually show an image of people and things, I was hooked."

After college he worked for an aviation firm, and began to save for his first camera. It took him 8 months, and he began by focusing on birds. Traveling to 15 different habitats around the world, he photographed over 80 species.

"A good bird portrait should reveal mood and behaviour," Wu said. "The best bird images show action or conflict." Shooting Cape buffalo beneath an acacia when a tiny flash of blue landed on top of the tree, he switched from a wide-angle lens to a telephoto to see "probably the most beautiful bird in the world because of its complex but vibrant colour range," the Lilac-



breasted roller. Wu got the shot because he had added a tele-converter, and held his finger on the shutter to activate a motor drive which recorded action at 8 frames per second. Opportunity favours the prepared. A second roller flew into frame.

Now based in Toronto, he made his first journey to Kenya in 2013, and on his flight back, he felt, as Hemingway wrote, "All I wanted to do was get back



**Lilac-breasted Roller Feeding**  
Masai Mara, Kenya



**A Sunset Stroll**  
Giraffe in Masai Mara, Kenya



**"Sorry, mom"**  
Cheetah in Masai Mara, Kenya



Beginning of Time  
Lake Magadi, Kenya



The Crossing  
Wildebeest in Maasai Mara, Kenya



## Deadly Race

Cheetah and Hare, Masai Mara, Kenya

to Africa.” Wu sold his business in Toronto, including three restaurants. “I knew I must follow my heart.” He now spends six months a year shooting wildlife (increasing to 10 months in 2019) and leads a photography course every year in the Mara. But he doesn’t like the mass tourism that dominates during the migration, and encourages travellers to instead visit East Africa from January to March. From lion cubs, to cheetah cubs, he shows me images that would have been impossible during the migration “because there are too many vehicles.”

His clients “don’t want crowds,” and via an online photography site, lectures, and books, he finds wealthy Chinese who can afford exclusive conservancies, and copter rides at \$1,000 per hour.

In 2014, he went to China to lecture on photography. “I found the number of wildlife photography enthusiasts was huge, but their techniques were out-dated. “So he wrote *Beauty of the Wild* in 6 months. Choosing images was the easy part, because he had a vast inventory. “The hard part was

to write in a way that a beginner could understand, a practical wildlife photography field guide.” The book was the first instruction book for the digital era written in Chinese. Now he plans children’s books on East African Wildlife.

For wildlife photographers to succeed, Wu emphasizes storytelling, and “to evoke emotions by interpreting an animal’s behaviour or habitat.” Art is the second essential element, but he has a third gift. Seeing a scene in a new way.

Among the millions of photos taken of the famous wildebeest crossing, Wu chose black and white to create an evocative portrait of a herd leaping in their own dusty cloud, as if they could fly across the river.

“Black and white adds mood to a scene, using shape and light to elaborate a coloured world.” Wu favours b/w for low contrast scenes, rough surfaces or texture, such as elephant skin.

A colour image from Lake Magadi features on the cover of Chinese National Geography, “read by China’s president,” Wu says proudly. While not

associated with National Geographic, the magazine is poised to cultivate more interest in East African Wildlife. “Three years ago, conservation focus was on the panda.” Wu said; “But millions of upper-class Chinese want to see Africa.” Wu is bringing the editor to Kenya to show him cheetah, rhino and elephant. “One third of my income goes back to the Mara,” Wu says, including a vehicle to protect cheetah.

For readers who want to finesse wildlife photography, Wu cites three essentials:

1. Do your homework; study the habitats and species before you go. The more you understand wildlife behaviour, the better you can predict action.
2. Instead of “Hit and Run” shots, stay in a habitat longer from morning to evening, work it through, in-depth.
3. Know your gear, especially the limits of your camera. Modern digital cameras can capture complicated and extreme light conditions. Understanding how your camera works will help you in difficult conditions.

Wu’s images of a leopard featured in the London Daily Mail were of a female he had followed for four years; he waited for 10 hours to get the shot of a kill that happened in two seconds.

[www.jeffreywuphotography.com](http://www.jeffreywuphotography.com) ●

**“BLACK AND WHITE ADDS MOOD TO A SCENE, USING SHAPE AND LIGHT TO ELABORATE A COLOURED WORLD.”**

Over the Galaxy  
Lake Magadi, Kenya





# In Search of the Lost Leopard



**Santiago Legarre** is visiting professor at Strathmore University Law School, Nairobi

**I**t is a well-known fact that the Samburu National Reserve is one of the best places in Kenya to spot a leopard in the wild. While this feline is shy and elusive, the semi-arid landscape of Samburu, coupled with its relatively high density of leopards partly explain the well-known fact.

I would like to add some experience-based opinion on top of that fact and share the ups and downs of leopard spotting in Samburu and in general.

I went to Samburu for the fourth time in August 2018. I stayed at the Ashnil Samburu Lodge on the banks of Ewaso Ng'iro in Buffalo Springs National Reserve. In my previous visits to the Samburu-Buffero ecosystem, I had been lucky when it came to leopard spotting. Shukri (Ashnil's driver) and I agreed that we would pursue only the shyest feline -- my favorite animal.

It is quite something to spend three days in search of something and ... not



find it. You learn a lot: patience, focus, concentration. You are reminded that safari is for real: there is no guarantee that you will find what you are looking for. In other words, a national park is nothing like a zoo!

Finally, it is worthwhile to try to go about safari without the help of technology -- such as radio, cellphone and other gadgets -- just like Shukri and I in those days in Samburu and Buffalo Springs. It was a fascinating endeavour.



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I learned how to distinguish animal tracks and where to look for the beast.

At just one point did we betray our disconnected policy and ironically (or maybe I should say rightly so) our betrayal did not pay off. We received a call from another driver. He was five minutes away from us, facing a tree on whose branches a leopard was resting.

Shukri took it easy and we drove casually towards the tree. An instant before we arrived the leopard leapt down and vanished into the tall grass. We stayed, alert, for a few minutes, but the animal was not to be seen again. Was I unhappy? There was surely an instinctive reaction of disappointment. But at the same time, had I seen that leopard I would not have been willing to count it as the lost leopard I was in search of. ●



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