

# THE TANA RIVER DELTA

a wetland in the balance



A PHOTOGRAPHIC EXHIBITION  
**APRIL - MAY 2012**  
NAIROBI NATIONAL MUSEUM

poster photograph by Cyrille Le Déaut



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THE EAST AFRICAN  
WILD LIFE SOCIETY

The impala is the symbol of the East African Wild Life Society. 'SWARA' is the Swahili word for antelope.

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Your SWARA may be reaching you a little later than usual this month. That's because we delayed going to the printers until the closing session and press conference of the Nairobi Rhino Summit (see news roundup section) so that we could include a brief item on its conclusions to save this iconic species. We will be taking a more in-depth look at its recommendations in coming issues. Suffice to say that the experts from range states, governments and NGOs

concluded that the scourge needs to be attacked from both the supply and demand ends. Part of that approach must involve the more rigorous enforcement of laws already on statute books and in international agreements; in other words, governance and accountability, two of the watchwords that drive EAWLS advocacy.

Our Director, Nigel Hunter and his Deputy, Michael Gachanja, are on the frontlines of this work and spend countless hours trying to improve existing legislation and fine-tune proposed laws, whether they concern Kenyan wildlife or cross-border timber trade. The devil is in the details, as they say, and no more so than in the Environmental Impact Assessment process which we highlight in this issue.

We are indebted to all our contributors for making this complex, confounding and critical process understandable, and for stories that

illustrate how it works (or does not) in practice. There are stories too from Turkana, one of the least-visited and most breathtaking ecosystems on the continent. Here too, alas, accountability and transparency are crucially needed in the rush to develop.

We hope you enjoy the other stories too, and marvel, as we did, at Paolo Torchio's three photo stories. The birth of the elephant was rightly a front-page picture special in one of the world's leading digital dailies, the UK's Daily Mail, and captures the wonder of nature that draws us to the wilderness in general and Africa in particular. His Rear Window shows us the challenges that still exist to get humans and wildlife living in dignity side by side.●

**Andy Hill**  
**Editor**



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# MISMANAGEMENT AND CONGESTION IN THE MASAI MARA

Dear Swara,

I refer to Mr Dave McKelvie's letter to the editor entitled "The Eighth Wonder of the World" printed in your October-December 2011 issue of Swara.

Mr McKelvie's horror with the invasion of Maasai cattle into the Mara Game Reserve is well described but not new to us in the safari business. The practice of moving cattle into the Reserve under the cover of dark was sanctioned by the Warden during the great drought of 2009. The only stipulation being that they had to be herded out by daybreak so as not to be seen by tourists.

The gift of abundant rain returned in 2010 and continues in 2011. But why do the Maasai continue to herd their livestock into what is deemed the most outstanding game reserve in Africa. Simple - the Maasai are a law unto themselves. Given an inch, they will take a mile. They will continue to exploit their tribal areas, including the gazetted wildlife sanctuaries, as long as possible. If Narok County Council and the Warden turn a blind eye to the Rules and Code of Conduct then there is little hope in preserving the rolling savannah plains so vital to preservation of the Eighth Natural Wonder of the World - namely the Wildebeeste Migration.

Where stricter rules apply, such as the Trans Mara triangle, managed by Mr Brian Heath, there remains some hope. Then there are the new Conservancies around the northern and eastern edges of this amazing eco-system where strict codes of behaviour have been laid down for both the Maasai landowners and the visitors. The landowners are given cash in return for regulated movement of livestock so as not to offend

tourists. This cash outstrips rental income from envious large scale grain farmers. The downside of these agreements have resulted in the Maasai moving their manyattas and livestock to the very edge of the Mara Game Reserve to take advantage of nocturnal grazing which is so detrimental to the habitat and the peaceful existence of the wildlife.

What do the Maasai landowners do with their new found wealth? Buy more cattle or squander it in other wasteful ways? The better educated Maasai understand limiting livestock numbers in ratio to what the land can sustain, and allowing adequate space for wildlife so vital to the economy of both the Maasai and the tourist industry. Income over and above immediate needs can be invested in city property or on the Nairobi stock exchange. But few trust these alternatives.

There certainly needs to be an outcry amongst environmentalists to safeguard the Mara Game Reserve. Members of Narok County Council and the Senior Game Wardens have much to answer for. Their leniency towards malpractices in the Mara could be construed as economic sabotage and a criminal blow to the sanctity of environmental protection as spelt out by Kenya's new Constitution.

How can the action of a few greedy Masai, not interested in improving the quality of their cows, be allowed to over-run the Mara. **It must be stopped!**

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Dear Sir / Madam,

I was recently in the Mara and came across a collared elephant and would be interested to know who is behind this project, and if there is a number of elephant in the Mara that are collared, or if they are up from Tanzania? I would appreciate it if you could enlighten me on this. Many thanks.

**Best regards,**  
**Sheels Ballard**  
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# LOOPHOLES IN CROSS BORDER TRADE IN FOREST PRODUCTS

My recent travels in South Sudan, Uganda, Tanzania and Zambia have revealed some serious loopholes in cross border trade in forest products. A recent border post survey conducted by the Kenya Forest Working Group has reported a significant illegal flow of timber and charcoal from Tanzania into Kenya. The loopholes in the control of cross border trade rob governments, forest owners and local communities of significant revenues which could be ploughed back for improved forest management. The loopholes encourage illegal forest exploitation with serious consequences of deforestation and degradation of forest ecosystems. They distort timber markets for forest products and act as a disincentive to sustainable forest management. Associated with the loopholes are problems of evasion of royalties, stumpage and taxes, unfavorable pricing structures that do not reflect the true value of tree products, lack of awareness of the importance of forest products at local and national levels and limited incentives to support sustainable forest use.

**THE LOOPHOLES IN THE CONTROL OF CROSS BORDER TRADE ROB GOVERNMENTS, FOREST OWNERS AND LOCAL COMMUNITIES OF SIGNIFICANT REVENUES WHICH COULD BE PLOUGHED BACK FOR IMPROVED FOREST MANAGEMENT.**

The growing concern with illegal trade in forest products is the basis for recent initiatives on forest law enforcement, governance and trade in both developed and developing countries. For example, in Africa, a Ministerial Conference on Forest Law Enforcement and Governance was held in Yaounde, Cameroon in 2003 which culminated in the Yaoundé Declaration and the formation of Africa Forest Law Enforcement and Governance (AFLEG) initiative. The Yaounde Declaration underscored the fundamental role of governments to provide effective governance, including laws, policies and institutional capacity to enforce those laws to eliminate illegal logging, and the

associated trade and corruption in the forestry sector.

In East Africa, there have been past attempts to harmonise cross border trade under relevant East African Community protocols. It is reported that significant large volumes of Zambian timber is exported illegally through neighbouring countries. There is urgent need for the countries to adopt pragmatic measures which should include improved enforcement of laws and more effective tracking of movement of illegally sourced forest products within and outside each country. There is a good case for the countries to adopt regional measures similar to those of TRAFFIC or CITES.



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Over and above such regional measures, each country needs to address the underlying factors resulting in illegal exploitation of forests. Such factors include:

**(i) Breakdown in law and order**

This is particularly the case on South Sudan and in the Democratic Republic of Congo (DRC). DRC and South Sudan happen to be the origin of illegally sourced forest products in international trade. During the protracted wars in South Sudan, there was breakdown of law and order with plundering of forest resources. There was uncontrolled logging partly to feed the war chest. Even at present, law and order is only slowly being restored with some forests still under threats from militia groups. Some forests of South Sudan are still infiltrated by the Lord's Resistance Army (LRA) from neighbouring Uganda. There is little government control in Eastern DRC opening room for illegal activities.

**(ii) Corruption**

Corruption exists within forest service staff and among law enforcement agencies. This is partly related to meagre salaries paid to staff against the background of high levels of poverty. Corrupt practices include bribes for unrecorded extraction, falsifying records to circumvent

royalty and other payments, bogus taxes and road tolls, etc. Unless drastic measures are taken to counter the current trend of corruption, it will soon become deeply rooted and much more difficult to handle.

**(iii) Political influence**

In most of the countries mentioned above, there is some and steadily growing political interference with public forest administration, including issues of leases and product extraction permits. Some political leaders are exerting undue influences based on vested interests. This is partly due to the current very weak institutional capacities to apply rules and regulations transparently. It is expected that such direct interference will decline as relevant institutions become stronger.

**(iv) Inadequate capacity and weak inter-agency cooperation**

Currently, institutions charged with management of forests are very weak in capacity. Public forest administrations at central and local government levels lack field based staff to stem illegal forest activities. Moreover, there is weak coordination between forestry agencies and other law enforcement arms of government. For example, there are weak working linkages and co-

ordination with wildlife Service, Police Service and Revenue Authorities. This opens a major loophole in checking illegal trade practices.

**(v) Unregulated cross border trade**

Currently, there is no formal regional mechanism to regulate cross-border trade and movement of forest produce. Consequently, forest produce illegally acquired from neighbouring countries is treated as legal import into a country. This makes it difficult to regulate trade in forest produce. In addition, there are different, often conflicting policies and procedures, regarding entry and exit of forest products into and from neighbouring countries. The case in point is the manner in which the some East African countries handle timber from the Democratic Republic of Congo (DRC) and South Sudan. There are reports that valuable mahogany sourced in DRC gets into international trade with Uganda as its origin. Similarly, teak from South Sudanis traded as originating from Uganda. It is also possible that the valuable Acacia Gum from South Sudan is traded internationally as originating from Kenya. ●

**Fredrick Owino  
Chairman, EAWLS**

## EAWLS would like to welcome the following members to the East African Wild Life Society:

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# DO ENVIRONMENTAL IMPACT ASSESSMENTS WORK?



**O** mari Mbonde explores this question in his thought provoking article in this edition of Swara. It is a particularly important question, because in Kenya, for instance, the Environment Management and Coordination Act (EMCA) was developed to try and ensure that development in Kenya paid proper regard to environmental issues. The mechanism developed to achieve this objective was the undertaking of an EIA in regard to any development proposal which, after due consideration, would

lead to the issue or otherwise of an Environment license. Any license issued contains conditions on what can or cannot be done.

Regrettably this mechanism has proved to be deeply flawed. The EIAs are funded by the proponent which usually leads to a lack of independence and therefore a lack of neutrality and objectivity. The register of persons and companies who are deemed suitable for undertaking EIAs is not an accurate reflection of true competence and skill. We have seen examples of desk exercises; of complete replicas (one classic example of this was an EIA undertaken for Samburu copied for Maasai Mara, where Grevy's Zebra was left

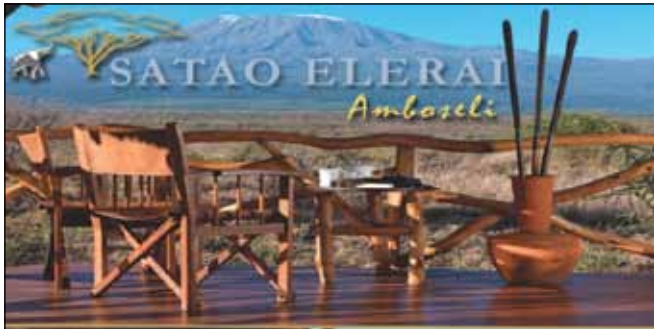
in as a species of importance for Maasai Mara); of the designated contractor doing the EIA, etc.

These flaws are widely recognised and acknowledged and there is some light at the end of the tunnel. EMCA, like many other laws of Kenya, is undergoing a review in order to bring it into line with the requirements of the Constitution. This provides an opportunity to reform the EIA and license process and we understand that the Task Force mandated to do the review, will be proposing significant changes.

It is one thing to have good laws and processes. It is another thing to have them followed properly. For 20 years or more, the Society has been lobbying to have Ministers and their Ministries set an example in following Kenya's laws. Instead we have had illegal excisions of forest reserves; projects undertaken without proper consideration of local community rights and tenure; failure to gazette management plans for protected areas, etc. The latest example is that of Nairobi National Park. This a case of a much-needed Southern Bypass being converted into a transport corridor with a road and two railway lines, without following EMCA requirements and indeed encroaching into Nairobi National Park, in spite of an Environment license condition saying that the road should not encroach into the Park.

However, the wheel may be turning. I say that because there are one or two successes that I can highlight. Firstly, in conjunction with others, we successfully resisted Amboseli National Park being downlisted. Secondly, we are informed that the National Environment Management Authority (NEMA) will not be issuing an Environment License for growing *Jatropha* in the Dakatcha Woodlands area. Thirdly there appears to be a willingness to have some of us meet with Government to discuss how the Nairobi National Park issue can best be resolved. ●

**Nigel Hunter**  
Executive Director



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# TAKING RESPONSIBILITY FOR GLOBAL DOMINATION

**RICHARD VIGNE**  
CEO, OL PEJETA CONSERVANCY



**T**he Chinese are coming and it would appear nothing can stop their inexorable demand for Africa's resources. I think they should be welcomed as an engine for development and wealth creation. Kenya cannot afford to refuse the opportunity for economic progress.

However, this must not come at the cost of Kenya's greatest natural asset,

its wildlife. Growing Chinese demand for ivory, rhino horn, shark fins, sea cucumbers and other "natural products" is leading to disaster. Poachers are now being paid up to USD 240 per kilogram of ivory – that equates to USD 3600 for what would have been considered a small tusk 50 years ago. Consequently the levels of elephant poaching are escalating sharply and beginning now to approach levels last seen in the elephant poaching crisis of the 1980s. Rhinos face similar threats (witness the massive losses in South Africa, but almost exactly equivalent in percentage terms to the numbers lost in Kenya in 2011) and sharks are now hard to come by along the Kenyan coast.

Eventually this assault on Kenyan wildlife will come at great cost to the nation. It will destroy the Kenyan tourism industry (and all the economic multiplier effects that come with it), as well as acting to erode the natural environment upon which all great nations ultimately depend.

Moreover, whilst we continue to pressurise China to start taking responsibility for its expansionist policies, we must also look closer to home in our efforts to ensure proper and sustainable environmental stewardship. Recently, ivory poachers

caught in West Laikipia in the act of hacking out the tusks of a newly killed elephant were fined Kshs 15,000 in the same court that sentenced a livestock thief to seven years imprisonment for the crime of stealing one sheep – all on the same day! This demonstrates how current law-makers, the administration and existing judiciary appear to pay little attention to wildlife crime, despite this resource being the bedrock of the tourism industry.

It would be unfair though to lay the blame entirely at the feet of the administration. A new wildlife law – with greater penalties for poaching – remains "in draft", largely because the conservation fraternity has been utterly unable to arrive at any sort of consensus regarding a new and more suitable wildlife policy for the country.

It is hardly surprising therefore that the government feels pulled in so many different directions that a total impasse appears to have been reached. Consequently the judicial risks to poachers and organised crime syndicates remain minimal, even as wildlife crime becomes more and more profitable and attractive.

But whilst it is incumbent upon the government to begin to treat wildlife crime more seriously, in the

final analysis it is by our actions as individuals that the fate of Kenya's environment will be ultimately determined. I am sure most people reading this are not consumers of ivory or rhino horn, but how many of us pay any regard to the environmental sustainability of our daily lives? We still order lobsters – as a special treat of course – when visiting the coast despite knowing full well that this marine crustacean has been harvested to near extinction in Kenyan waters. How many of us insist that the furniture we buy must be manufactured from sustainably harvested wood, instead preferring to turn a blind eye to the fact that the mahogany table we so covet can only have been made from a tree illegally removed from the rain forests of central Africa? Are readers aware that at least eight of the Chinese restaurants in Nairobi that we all patronise sell shark fin soup, tasteless muck that is cruelly harvested from live sharks along Kenya's coastline?

The state of the global environment – let alone Kenya's – is in a poor and worsening state. The speed of degradation is increasing day by day, year by year. It appears to be inexorable, something that only governments can deal with and stop, but it is not. Actually we as individuals, through our behaviour and the choices we make, are in a fantastically powerful position to arrest current declines. We can boycott health food shops that sell shark products (yes they exist in Nairobi too), we can telephone our MPs to urge new wildlife bills to be passed, we can stop buying Chinese goods until they adopt a proactive approach to stopping the illegal ivory trade and we can say no to that menu offer of a lobster on our next coast holiday.

Unless we begin to make these choices, the world we live in will become a poorer and poorer place. Is that really the legacy we wish to leave our children? I doubt it, so let us not leave this to governments and policy makers,

or "somebody else" to deal with. Instead let us as individuals start to "walk the talk" and do what is necessary to care for and preserve this incredible and beautiful country in which we are so lucky to be able to live. ●

**The views expressed in this article are the author's**

**Copies of this magazine have been sent to the Chinese ambassador in Nairobi, the Ministry of Wildlife and Forestry and the Ministry of Tourism. We will be happy to print any response.**

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# NEW KENYAN AWARD TO RECOGNISE ENVIRONMENTAL MANAGEMENT



## THE PRESTIGIOUS GREEN AWARD

The Environmental Management and Coordination Act (EMCA-1999) institutions, led by the National Environment Trust Fund (NETFUND) and including the National Environment Management Authority (NEMA), Public Complaints Committee (PCC) and the National Environment Tribunal (NET) are seeking to recognize and reward exemplary practices in environmental management through an annual Award Scheme; with the inaugural gala event

scheduled for April 25TH, 2012.

This award seeks to ensure a participatory approach and the involvement of all stakeholders in managing the environment. As such, the award is being conducted throughout Kenya with the selection of winners in various categories starting from the county level to the national level.

Dubbed the Prestigious Green Award, the initiative will serve as an incentive that supports environmental conservation and management by encouraging commendable activities and initiatives involved in environmental management. This will also increase awareness and encourage self regulation in protecting the environment. It will provide great opportunities for promotion of greater involvement and participation of Kenyans in embracing best environmental practices at the individual and corporate levels.

The Prestigious Green Award is looking for unique inventions, groundbreaking research, innovative ideas and

extraordinary grassroots initiatives, carried out by individuals and groups in the following categories; Primary and Secondary schools, Community Based Organizations, Tertiary Institutions and Individuals.

### The Prestigious Green Award Partners

Through the Award Scheme, NETFUND has partnered with various institutions e.g.

- Wildlife Clubs of Kenya ( WCK)
- Kenya Secondary School Heads Association ( KSSHA)
- National Council of Community Based Organizations (NCCBOs)
- Kenya Scouts Authority (KSA)
- Kenya Universities Students Organization (KUSO)

**The Prestigious Green Award  
Geomaps Centre, 7th Floor, Matumbato  
Road, Upperhill**

**P. O. Box 19324-00202**

**Nairobi, Kenya.**

**Tel. 020 2369563/4**

**Email: [pga@netfund.go.ke](mailto:pga@netfund.go.ke)**

**[info@netfund.go.ke](mailto:info@netfund.go.ke)**

**[www.netfund.go.ke](http://www.netfund.go.ke)**

# RHINO SUMMIT TARGETS ANTI-POACHING AND TRADE STEPS

Private and public conservation bodies held an emergency meeting in Nairobi this month to take urgent steps to stem a surge of rhino poaching that threatens to make the animal extinct in the wild by 2025.

“The situation is rapidly reaching crisis levels and requires far-reaching efforts to ensure the continued survival of rhinos across Africa,” said the Emergency Plan of Action issued after a two-day “Rhino Summit.”

Hosted by the African Wildlife Foundation (AWF) and the Kenya Wildlife Service (KWS), the meeting grouped some 40 representatives of private and public conservation organizations from South Africa, Tanzania, Zambia, Zimbabwe and the United States.

The gathering, which is thought to have been without precedent, drew up plans to stiffen anti-poaching steps in range states and to attack the trade



PHOTO BY: EAWLS LIBRARY

from the demand side in China, Vietnam and Thailand.

“Range states must....positively and actively engage diplomatically with embassies and consulates of key consuming countries, to request their assistance in law enforcement, prosecutions and public awareness,” the plan said.

It further called for the appointment by the United Nations Environment Programme (UNEP) of a Special Envoy for

Rhino Conservation to bring attention to the rhino crisis and to work to “debunk the medical myths associated with rhino horn consumption and attempt to create stigma around the consumption of rhino horn products.”

The meeting was held against a background of rampant poaching of rhino horn across African range states because of demand, mainly from China, for spurious medicinal properties linked to traditional medicine. Africa’s rhino population is currently estimated at 25,000 but poaching surged by one third between 2010 and 2011 with 448 rhino killed by the end of last year. In South Africa alone, some 135 animals have been poached this

year, one third of the entire number slaughtered in 2011.

KWS Director Julius Kipng'etich told a news conference at the summit conclusion that there was concern that the focus of organized poaching would shift from one country to another as loopholes were closed.

"The criminals move from country to country. Today they are in South Africa. Tomorrow they will be in Kenya, the next day Namibia."

Demand has propelled the price of rhino horn to USD 50,000 per kg, higher than the prevailing international price of gold. "Rhino poaching and horn trafficking is a serious organised crime, on a par with drug and human trafficking, and therefore should be treated as such," the final statement said. Signatories pledged to find "actionable steps that target the next six to nine months" to suppress the supply of rhino, (and) to decrease or eliminate demand.

#### These will include:

- Tougher surveillance and anti-poaching units with new strategies, tools, technology and resources
- Stiffer penalties for criminals and sterner law enforcement and coordination at national and regional levels
- Public education and awareness campaigns to curb both demand and supply
- Contact with policy-makers, financiers and government officials at the highest levels to seek policy and behaviour change.

The document underlined the need for stiffer penalties against poaching and called for a crisis fundraising campaign by international conservation NGOs to underpin all aspects of the action plan.

"Africa is rapidly losing a heritage, an iconic species that drives tourism and wider economic development and other benefits on the continent. Concerted and strong action is needed by governments, citizens and the conservation community to prevent the extinction of the species."



## Safaricom Foundation, Rhino Ark Partner to Conserve Mau Eburu Forest

Safaricom Foundation has extended a USD 1.8 million grant to Rhino Ark Charitable Trust to support a four-year conservation project of the Mau Eburu Forest and its wider ecosystem.

The forest, within one of Kenya's five main water towers, has over the past two decades experienced severe destruction partly due to increased demand for agricultural land as a result of increasing population. This has in turn affected the hydrological cycle in the water tower and resulted in water shortages across the country. Mau Eburu Forest is one of the 22 forest blocks within the Mau Eco-system.

The new project will support among other activities, the completion of a 50 km electric fence around the Mau Eburu Forest to help mitigate against human wildlife conflict; restoration of areas degraded by unsolicited encroachment through tree planting; protection of the forest's considerable biodiversity and particularly its outstanding birdlife and threatened wildlife, as well as engagement in a forest rehabilitation partnership schemes with forest edge communities.

Currently, Kenya's forest cover is less than 3 per cent compared to the internationally recommended 10 per cent. To address the challenge, Kenya's Vision 2030 goals for the environment sector are to increase current forest cover by 50 per cent and fully protect all wildlife ecosystems in order to sustain the anticipated high growth rate of the tourism sector.

Safaricom Foundation Chairman, Les Baillie said that the foundation is

keen to provide sustainable support to the preservation of Kenya's environment and natural resources through partnerships to grow forests, conserve biodiversity, mitigate against human-wildlife conflict and promote the use of renewable energy sources.

"Integrating the principles of sustainable development into Kenya's communities through our various projects is helping to reverse the loss of Kenya's environmental resources," he said during the launch of the partnership.

The partnership comes barely five months after the Foundation extended a donation of Kshs. 43 million to Nairobi Greenline Project to support the latter's efforts to preserve the Nairobi National Park from further encroachment and environmental degradation caused by urbanization.

On his part, Rhino Ark Charitable Trust Chairman, Mr. Colin Church noted that Safaricom Foundation's commitment to Rhino Ark's vision for conservation of Mau Eburu Forest through the extension of the Kshs. 155 million grant will have a major impact upon the precious but highly threatened forest ecosystem.

"It means that together with the Eburu forest bordering communities, and working in close partnership with the key government bodies; Interim Co-ordinating Secretariat (ICS) for the Mau Forest Complex, Kenya Forest Service (KFS) and Kenya Wildlife Service (KWS), we can together create a conservation model for other communities bordering state owned forest land in the Mau Complex and other threatened 'water towers,' he said.



Flamingos on soda crater lake, Central Island

# KENYA'S JADE JEWEL IN PERIL FROM ETHIOPIA PLANS

**BY PATRICK AVERY**  
doctoravery@yahoo.com



Patrick is a doctor currently living in Bristol, England where he is training to be a General Practitioner. He was born and raised in Nairobi where his parents still live, and hopes to return there to work once he is fully qualified. He has a strong interest in tropical and expedition medicine and has been a passionate life long enthusiast of Africa's wild places, its people and its wildlife.

**L**ake Turkana and the Kenyans who live around and off its fabled jade green waters, are under threat from the demands of development in neighbouring Ethiopia.

Anyone who has been lucky enough to visit Lake Turkana will know what a unique and special place it is. But for how much longer?

Ethiopia's plan to use water from the Omo river to generate electricity, food and development may siphon off precious water that has fed Turkana for centuries.

Known as the Jade Sea because of the colour of its waters, it is the world's largest permanent desert lake, running 260km from north to south. It was the last of the great African lakes to be 'discovered' when the Austrian explorer

Count Teleki visited the lake in 1888. He found the alkaline waters of the lake to be teeming with fish and encountered animals such as elephant along its shore. Multiple discoveries of early hominid fossils in the area have led to it being dubbed the 'Cradle of Mankind', and in the 1960s the lake was reported to hold the greatest concentration of Nile crocodiles on earth.

As a casual visitor it is easy to get caught up in the rugged romance of the landscape, and its history, thereby missing the bigger picture. Although the landscape is not much changed, the environmental and social aspects of modern Turkana are spectacularly different from that of Teleki's time and the lake is facing some very serious ecological challenges.





Cattle Egrets on the lake shore



Cormorants on the beach, South Island



Dead Soft Shell Turtle in fishing camp

An estimated 300,000 Kenyans, mainly from six tribal groups, rely on the lake for their livelihoods, mostly through fishing and agro-pastoral means. The Turkana region has suffered from a severe lack of government investment and the people here are amongst Kenya's poorest with 94% living below the poverty line and in some areas up to 50% of the population reliant on food aid for survival<sup>1</sup>. The very dry harsh climate makes for tough living conditions and this, coupled with severe recent droughts, has left many people destitute following the loss of all their livestock. So even more people are looking to the lake and fishing as a means for survival.

The story of the complex modern issues affecting this mighty lake is a fascinating and intriguing one that pulls together a range of important current topics that are pertinent to Africa as a whole.

**300,000**

Number of estimated Kenyans, mainly from six tribal groups, who rely on the lake for their livelihoods, mostly through fishing and agro-pastoral means.

I have been privileged to visit Lake Turkana on at least 10 occasions. Getting to the lake takes two long days of driving on rough dirt roads through very wild countryside. The area is frequently subject to tribal tension through banditry and livestock rustling, a situation exacerbated by the widespread availability of modern weapons from neighbouring war zones. These trips have generated in me a great

passion for this wild piece of Africa as well as its culturally diverse people. I have recently returned from a 10-day scientific expedition to the lake with my brother and my father, who is an engineering hydrologist, and who has become one of the modern experts on the lake's hydrology. Through our experiences of the lake over the last 30 years we have noticed a lot of changes, and our most recent trip was thought-provoking.

The lake has no outflow apart from natural evaporation and 80-90% of its inflow comes from a single source, the Omo river, which flows south out of the Ethiopian highlands, ending in a delta at the Lake's northern end<sup>2</sup>. There are three areas on the lake that are conserved as national parks under the jurisdiction of the Kenya Wildlife Service (KWS). These include two large volcanic islands (Central Island and South Island) and a large piece

<sup>1</sup>Oxfam Kenya

CONSERVATION



ALL PHOTOS BY: PATRICK, KIERAN AND SEAN AVERY

**INSERT**  
**TOP:** Crocodile egg stolen from a nest and eaten by the fishermen on North Island.  
**BELOW:** Crocodile tracks and nests South Island

Main Photo: Tilapia Lake Central Island

**SINCE 2006 THE ETHIOPIAN GOVERNMENT HAS BEEN BUILDING AN ENORMOUS 1800MW HYDROELECTRIC POWER SCHEME IN THE MIDDLE OMO RIVER BASIN. THE GIBE III DAM IS ALREADY 40% COMPLETED BUT WAS INITIATED WITHOUT ANY PROPER ENVIRONMENTAL IMPACT ASSESSMENT OF THE POTENTIAL DOWNSTREAM EFFECTS ON THE LAKE.**

of land adjacent to the lake on its eastern shore, known as Sibiloi. These parks are listed by UNESCO as World Heritage Sites for a number of reasons including their importance as crocodile breeding areas and as a stop over for

migrating palearctic bird species. The area also supports hundreds of native bird species. Sibiloi protects a decent number of plains game as well as smaller numbers of predators including lions, cheetah, leopards and hyenas.

Sadly the wildlife occupying the non-protected shores of the lake has been decimated for bushmeat consumption and the elephants of Teleki's time are long gone. Even within Sibiloi there is much encroachment from people and their livestock and two years ago we heard several poachers with guns shooting at a herd of zebra within five km of the park headquarters at Alia Bay.

Since 2006 the Ethiopian government has been building an enormous 1800MW hydroelectric power scheme in the middle Omo River Basin. The Gibe III dam is already 40% completed but was initiated without any proper environmental impact assessment of the potential downstream effects on the Lake<sup>2</sup>. Chinese banks have reportedly agreed to provide funding to complete

<sup>2</sup>Avery ST. Hydrological impacts of Ethiopia's Omo basin on Kenya's Lake Turkana water levels and fisheries. Final Report prepared for the African Development Bank, Nov 2010.



Turkana fisherman with AK-47



Fishing nets on North Island



Nile Perch caught by fishermen

the scheme. Two further hydro schemes are planned downstream at Gibe IV and V. The Kenyan Government signed a memorandum of understanding to buy 500MW of electricity from Gibe III once it is complete although the impacts to Lake Turkana had not been published at that time. Ethiopia predicts that power exports from Gibe III could bring in \$440 million annually and will surpass coffee as the country's most valuable export<sup>3</sup>. This sort of development utilises a clean renewable energy source and is seen as vital for the growth of the Ethiopian economy and for the future energy security of the whole region, although it makes Ethiopia ever more reliant on hydropower, leaving its electricity supply vulnerable in drought years.

My father calculates that to fill the dam over the proposed course of three years will cause the lake to drop by two metres. A figure of 7-10 metres has been widely quoted but this is based on unsubstantiated calculations that a large proportion of Gibe III's water will be lost to the Omo due to underground cracks in the underlying rock formations<sup>4</sup>. The lake level should eventually restore but the flood cycles that the lake's plankton and fish species thrive on will potentially be lost because the dam will regulate any floods originating from the upper Omo basin. It is proposed that there will be a release of a simulated flood from Gibe III for 10 days every September but this will be very different from the natural state when the river would rise



Dead tilapia, Turkwell delta



Catfish skeleton in fishing camp, South Island

<sup>3</sup>Ethiopia's Gibe III dam sowing hunger and conflict. International Rivers, October 2009.

<sup>4</sup>ARWG (Africa Resources Working Group), January 2009. A Commentary on the Environmental, Socioeconomic and Human Rights Impacts of the Proposed Gibe III Dam in the Lower Omo River Basin of Southwest Ethiopia, ARWG-GIBE.org



The Author's father collecting information from fishermen

### IT GOES WITHOUT SAYING THAT AFRICA NEEDS TO DEVELOP IN ORDER TO IMPROVE FOOD SECURITY AND AN UNFORTUNATE COST OF THIS IS THE IMPACT TO THE ENVIRONMENT.

and fall over several months. The exact impact of the loss of these large floods and the nutrients they bring is not yet fully certain but one would suspect that it will have a negative impact on fish populations that rely on the seasonal inundation of the lake shore to trigger their breeding cycles. The loss of seasonal flooding of the lower Omo valley will also affect the people there who depend upon flood-recession agriculture to grow their crops.

The dam itself is not the immediate challenge however, because the Ethiopian Government is now

developing a huge 150,000 plus hectare irrigation scheme in the Lower Omo near the Lake, the Kuraz Sugar Cane Development Project. The scheme will need 19% of the total annual Omo flow and up to 135,000 hectares of the plantation has been taken from the Tama Wildlife Reserve and the Omo and Mago National Parks<sup>5</sup>. The Lower Omo is also a UNESCO listed World Heritage site so the national park excisions are extraordinary. The Ethiopian Government says that the project will address the domestic sugar demand as well as generating

150,000 much-needed jobs. The local infrastructure will benefit from new roads and a new bridge over the lower Omo. Once again there has not been any publicly disclosed environmental and social impact assessment of these developments and the knock-on effects on Lake Turkana are a growing concern.

The Ethiopian government insists that the indigenous peoples of the lower Omo valley have been consulted as stakeholders in the new scheme on their tribal lands but there is much criticism growing from the likes of the NGO Survival International, with reports that these people are being forcibly removed from their lands by the Ethiopian authorities and re-housed in new villages to make way for the development. There is much concern about further marginalisation of the rightful owners of the land. The loss of 19% of water from the Omo will be

<sup>5</sup>Enawgaw C, Deksis D, Timer G. Plantation development versus wildlife conservation in the Omo-Tama-Mago complex. Ethiopian Wildlife Conservation Authority, September 2011.

dramatic and my father's model predicts that the lake will drop permanently by five metres.

It goes without saying that Africa needs to develop in order to improve food security and an unfortunate cost of this is the impact to the environment. The question is what is the limit point at which we say the benefit in terms of development no longer justifies the social and environmental costs?

The lake is under plenty of pressure locally too. It is heavily utilised mainly by the Turkana tribe as a fishing resource. The people doing the fishing get paid very little for their efforts and most of the fish is dried and shipped to western Kenya or the DRC. When I first visited the lake as a child you would see huge crocodiles at numerous places along the shoreline. Sadly on our most recent trip we only counted 22 crocodiles in eight days on the lake. During this time we travelled the entire length of the lake by boat and visited the Omo delta, as well as the three protected areas including Central Island, which was famous for its huge numbers of crocodiles. Unfortunately we did not visit Alia Bay or Koobi Fora, two traditional crocodile strongholds. We found numerous remains of crocodiles, pelicans and Soft-shell turtles in the many fishing camps that we visited around the lake. These are killed, sometimes unintentionally, for food with the added bonus that with fewer crocodiles there is less competition on fish and less danger to the fishermen. We also saw the fishermen digging up crocodile nests and eating the

eggs. From our own observations and from speaking to the local people it would appear that the predatory fish population is being depleted too and the fishing is more widespread than we realised. The lake once held a substantial hippo population but they too have mostly been eaten and we did not see a single hippo on the lake.

The sad thing is that much of the evidence of over-fishing and crocodile killing came from areas that are supposedly protected. All three protected areas are meant to be a haven for wildlife with no commercial fishing allowed within 2km of shore. Sadly all three are heavily utilised by fishermen. On South Island, which is more than 10 km long, we saw semi-permanent fishing camps but there are only two KWS rangers tasked with protecting the island. They are stationed on the mainland 40 minutes boat journey away, have limited resources, and only visit the island periodically. Local fishermen complained of corrupt practices. It is very hard to see how the crocodiles and turtles will survive when the few protected areas where they can breed are being exploited by commercial fishing. On a positive note, we did see over 100 hundred species of birds on the lake during our trip, including a large number of migratory plovers, raptors, gulls and terns.

It is very sad to see the lake changing so much but when one spends time with the local fishermen and gets to understand how impoverished and poorly educated they are one realises that the daily struggle for survival does

not allow time for forward thinking. They live hand to mouth. As such they augment their diet in any way that they can, to the detriment of the wildlife, the lake and future generations of Kenyans. The reality is that crocodiles are very dangerous and damage their nets, and if we were in the same position we would want to get rid of them too. I think the key is to provide the animals with enough genuinely protected space whilst educating the fishermen and encouraging government investment in the region to improve the opportunities for those who live there, and ensure regulated fishing on the Lake. The reality is that this seems very unlikely to happen any time soon and if we are not careful irretrievable losses may result unless a serious and concerted effort is made to address this wealth of problems.

Turkana is no stranger to change. Within the four million years of its existence the lake has at times been 80m deeper than at present, when it spilled into the Nile system and in so doing inherited many Nilotic aquatic species including crocodiles and Soft shell turtles. There is evidence that it has been much lower too. The only difference today is that the changes are man-made and potentially within our control. Wider publication of the issues facing the lake can only be a good thing because the last thing we want is another Aral Sea. ●



Fishing boats at sunset, North Island

# CENTRAL ISLAND

## KENYA'S 'LOST WORLD' IN THE MIDDLE OF LAKE TURKANA



**BY DINO MARTINS**  
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Dr. Dino J. Martins is an entomologist and evolutionary ecologist broadly interested in life on the planet and natural history. He studies the intricate connections between insects and the way the world works and how they keep the planet running. He is currently a post-doctoral fellow of the Turkana Basin Institute – Stony Brook University and a Research Associate of the Museum of Comparative Zoology at Harvard and the Smithsonian Institution. For more information on research and conservation in the Turkana Basin please visit: [www.turkanabasin.org](http://www.turkanabasin.org)

Northern Kenya remains one of the least explored and developed parts of East Africa. Over two-thirds of Kenya alone is typified by arid and semi-arid bush and semi-desert, while most of the human population remains confined to the lush, verdant and increasingly overcrowded highlands. Within Kenya's north is the vast and enigmatic Lake Turkana, the world's largest desert lake.

Lake Turkana runs north-south extending almost 400 km through the vast arid northern reaches of Kenya: a ribbon of blue-green water in a landscape of rock and sand. Famous for the fossil discoveries of human ancestors made over the last four decades, the Turkana Basin remains relatively unexplored in terms of flora and fauna.

Seemingly almost by evolution's design rather than geological happenstance, there are three islands conveniently placed at the top, middle and bottom end of Lake Turkana: named North, Central and South Island respectively. These are all currently gazetted as National Parks and form part of the region's UNESCO World Heritage Site. The existence and spacing of these islands is basically an evolutionary biologist's and entomologist's dream-come-true: a veritable paradise for speciation and adaptation.

Central Island is all the more incredible as it is formed from volcanic craters that shelter three additional crater lakes, isolated from the main body of Lake Turkana! So basically you have three lakes within an island that is within a lake. These crater lakes can be viewed as ecological 'islands' in themselves as they are isolated from the main lake.

Two of the crater lakes are fresh, inhabited by crocodiles and shoals of beautiful Nile Tilapia. However, the northernmost crater lake is unusual in that with the high cliffs

of the crater around it, the shallow depth and high evaporation rates all combine to make it a classic 'soda' (alkaline) lake complete with its unique fauna and flora adapted to the hot and high pH conditions.

I've been privileged to visit this remote island several times now as part of my post-doctoral fellowship with the Turkana Basin Institute. Each visit has yielded some fantastic insights into the biodiversity and potential for understanding evolution in the region and on the planet as a whole.

First and foremost, islands are especially fascinating to biologists and students of evolution as they serve as natural 'experiments' as it were, helping control and isolate species and patterns from the broader chaos of life's endless tapestry. One of the first grand syntheses of these ideas and patterns was through the work of the Harvard biologist E.O. Wilson collaborating with the mathematician M.A. MacArthur to create the *'Theory of Island Biogeography'*, which has become a standard reference for studies of biodiversity and speciation.

Central Island is most famous in recent history as a nesting ground for the Nile crocodile whose populations and grip on Lake Turkana's ecology is legendary. In the late 1960's studies of the Nile crocodile on Central Island revealed some 500 breeding individuals using one of the crater lakes! The shoreline of one of the crater lakes was divided up into territorial swathes by a dozen large males who extended their autocratic reach into the water as well.

Today, Nile crocodiles still use the crater lakes for nesting, though their numbers are much diminished (as are those of the overall crocodile population in Lake Turkana). A number of large individuals can still be found using the crater lakes, with lengths of

## CONSERVATION



Pied Kingfisher preparing to dive into the water after a fish.



Crested Lark



White-Winged Tern



Slender-Billed Gull

up to four metres (although this is my rough estimate made from a safe distance!).

The crocodile nests on Central Island are typically located in sheltered banks within burrows that are often partially excavated by the females who guard the nest for the duration of the incubation. Incubation lasts up to three months, and the main enemies that need to be kept at bay are the voracious Monitor lizards who would love a snack of crocodile eggs.

The Tilapia within the two freshwater crater lakes are primarily Nile Tilapia (*Oreochromis nilotica*), but they seem to have more fluorescent blue on their heads than their counterparts from the nearby Ferguson's Gulf, where they form the basis of a local fishing industry.

A number of waterbirds use the crater lakes. Around the freshwater lakes, Goliath and Grey Herons are fairly common, Little Egrets, Great White Egrets, Sacred Ibis and Egyptian

**A NUMBER OF WATERBIRDS USE THE CRATER LAKES. AROUND THE FRESHWATER LAKES GOLIATH AND GREY HERONS ARE FAIRLY COMMON, LITTLE EGRETS, GREAT WHITE EGRETS, SACRED IBIS AND EGYPTIAN GEESE ARE OFTEN PRESENT. THE EGYPTIAN GEESE DO BREED ON THE ISLAND.**

Geese are often present. The Egyptian Geese do breed on the island; pairs can often be spotted with small entourages of goslings.

The most famous avian inhabitants of this area are no doubt the African Skimmers. These are strange and wonderful birds that forage at night flying low over the water with their elongated lower beaks placed in the water. They have only been glimpsed occasionally in recent years, but Central Island's beaches were once a breeding ground for this bird on Lake Turkana.

Various Gulls and Terns move through the area, including a number of pelagic species.

The alkaline crater lake within 'Flamingo Crater' is home to numbers of Lesser Flamingos, who can number in the thousands. Black-winged Stilts and Spur-winged Plovers also favour this part of the island. Patrolling the crater rims are birds of prey, with Ospreys being common and appearing to feed on both fish and flamingo. Clambering up to the rim of the crater surrounding the flamingo-covered lake is a short,





**AFTER RAINS, THE ISLAND IS A VERITABLE MEADOW OF FLOWERS. BLUE BLEPHARIS, PINK RACEMES OF POLYGONUM, CARPETS OF YELLOW TRIBULUS AND WAVING HEADS OF DELICATE CLEOME ARE VISITED BY DROVES OF BUTTERFLIES AND BEES.**



**MAIN PICTURE:** This is the Blue Spotted Arab (*Colotis phisadia*) visiting a Ploygonum flower.

**RIGHT:** Cleome sp. that is pollinated by butterflies.

**BELOW:** Illustration of the Yellow Splendour (*Colotis protomedia*) one of Northern Kenya's most spectacular butterflies.

steep, hot and dusty climb that is rewarded with one of the most sublime and breathtaking views in East Africa: a wide sweep of multi-coloured cliffs and the opalescent blue alkaline lake dusted with pink flamingos as birds of prey swirl lazily in the sky at eye level.

Here too, numbers of dragonflies can be seen patrolling, including the familiar Banded Groundling, which ,although it resembles the common species from the rest of Africa, is actually a relict population of a species found in the Mediterranean. Large numbers of Globe Skimmers, a migratory species that makes an incredible journey from Turkana, and all over East Africa, across the Indian Ocean via the Maldives and Seychelles, can be spotted seasonally hawking insects at Central Island.

The flowers and insects are really amazing on the island and remain little-studied. The flora here is really precious as it has been mostly spared the attentions of those rabid overgrazers, the sheep and goats, in recent years.

After rains, the island is a veritable meadow of flowers. Blue Blepharis, pink racemes of Polygonum, carpets of yellow Tribulus and waving heads



of delicate Cleome are visited by droves of butterflies and bees. It was an immense surprise when visiting the island in December 2011 to find clouds of butterflies, including several species rarely spotted in the northern Kenyan deserts, such as the Pearly Charaxes or Emperor and numerous Acraea, happily sailing about the flower-covered meadows. The most common butterflies are those of the 'whites and yellows' family (*Pieridae*) including the clouds of the pretty Blue-Spotted Arab (*Colotis phisadia*).

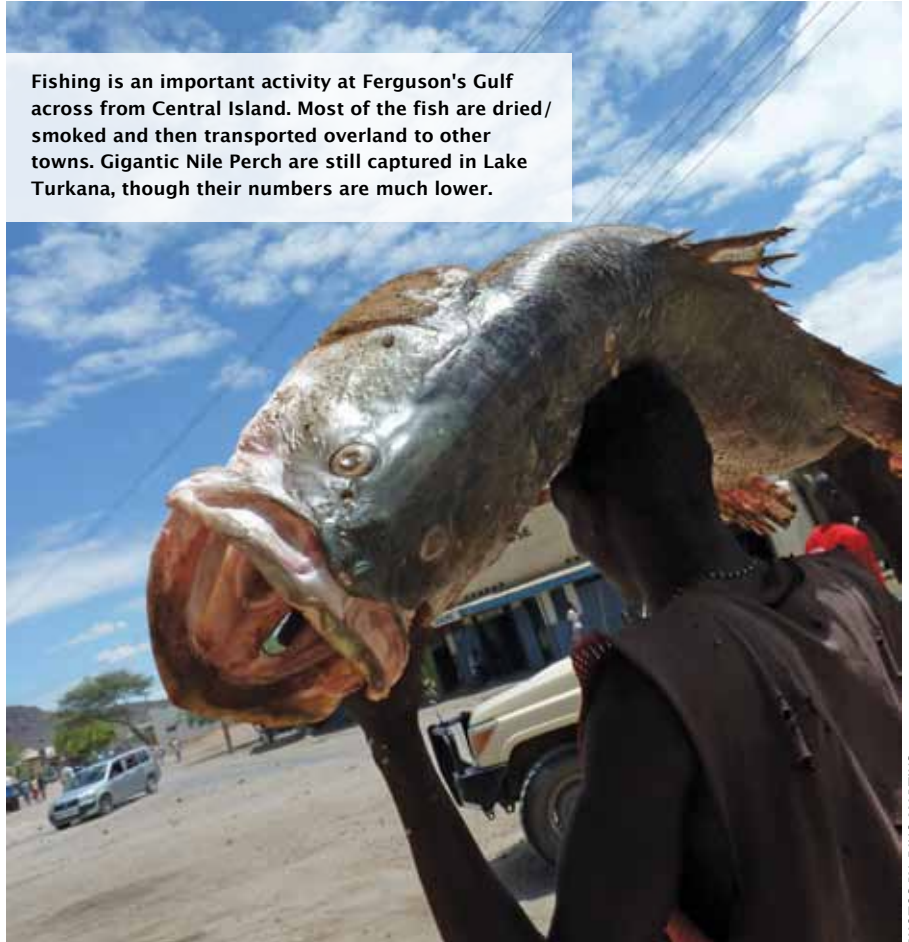
Many of the bees, flies and other insects on Central Island remain to be properly described and compared to their mainland counterparts. From just the first glimpse, it is apparent that there are some very exciting discoveries to be made here.

## CONSERVATION



Lake Turkana and the Turkana Basin as a whole have been mostly ignored in terms of conservation and development. As northern Kenya ‘opens up’ through oil exploration, construction of roads and pipelines and becomes more in touch with and accessible to the outside world, we need to better understand and protect the unique areas like Central Island.

This tiny gem lying in the jade waters of Lake Turkana is but one example of the amazing biodiversity and resilience of life in this region. Today Lake Turkana is seriously threatened by large-scale developments along the Omo River. (See pg 16-21) It is simply mind boggling to think that Kenya and the world would stand to lose places like Central Island and the greater Turkana region given how much we can learn about life on the planet and ourselves from this hot, dry and beautiful part of the world. ●



Fishing is an important activity at Ferguson's Gulf across from Central Island. Most of the fish are dried/smoked and then transported overland to other towns. Gigantic Nile Perch are still captured in Lake Turkana, though their numbers are much lower.

PHOTOS BY: DINO MARTINS



Google Map of Central Island

### Acknowledgements:

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# ENVIRONMENTAL IMPACT ASSESSMENTS OUR ENDURING EMBARRASSMENT

**DR MORDECAI OGADA**  
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Dr. Mordecai Ogada is the Executive Director of Laikipia Wildlife Forum. He is a carnivore ecologist and has been involved

in carnivore conservation work locally and internationally for 13 years. He is also a member of the KWS carnivore management committee and the board of Ecotourism Kenya.

**T**he idea of Environmental Impact Assessments (EIA) must rank amongst the regulations that were introduced with the noblest intentions for Kenya. The concept of every development being done with due reference to environmental conservation is something out of utopia for many of us. I was an undergraduate student in the mid 1990s when it was first mooted

and I rejoiced at the knowledge that our natural environment would be jealously protected. The idealism of youth is so often misguided in hindsight, but it beggars belief that we could subvert and defile this well-intentioned process to this extent within 20 years. Environmentally irresponsible projects dot our country wherever you look, some bordering on the reckless, like the Nakumatt Ukay building and the nearby temple that straddle a river with impunity. Why aren't we, as a nation outraged that each and every one of these structures has an EIA certificate based on 'assessment' by an 'expert'? This should not be described in mild terms like 'mediocrity' - it is the systematic destruction of our natural environment driven by self-interest and greed, with the explicit collusion of our regulators and acceptance by us, the owners of the said environment. The fatal flaw in this whole system is the fact that the person putting up a building hires and pays the consultant for the EIA. Is it actually possible that

the consultant could condemn his or her client's project? Like in any other field, there are lots of honest, competent and professional environmental consultants in Kenya who do a good job every day. How they deal with the odium attracted by the impostors in their midst is anybody's guess.

We have now reached the stage where we are no longer doing shoddy quick and dirty EIAs, but utter falsifications where findings are completely cooked up, or copied and pasted from existing EIA's. The first part of the problem is that we do not seem to have any real qualification requirements for someone to be certified as an EIA consultant. Secondly, there are way too many qualified scientists who are willing to 'sell' their reputations and qualifications to the highest bidder. The first problem is a huge affront to those who have the proper qualifications and experience to do the job.

**TO SUGGEST DUE DILIGENCE IN THE IMPACT ASSESSMENTS IS NOT TO BE IN OPPOSITION TO THE PROJECT, BUT TO SEEK THE RIGHT WAY OF DOING IT.**

Surely, other professional fields in Kenya cannot allow this, so why is environmental conservation the constant 'grey' area where any Tom Dick and Harry can ply his or her trade without question? It is not the first time I am asking this vexing question, and its unlikely to be the last. Unqualified people who masquerade as lawyers, doctors or policemen get arrested all the time but we leave our most important natural resource in the hands of quacks. One cannot imagine Saudi Arabia having quacks in its oil industry, so how can Kenya do this with her most important asset?

Secondly, the scientists, (a group to which I belong) by and large, have a completely warped idea of what it means to have advanced qualifications in the field. These qualifications are not a stock in trade to be sold. It is the knowledge that those qualifications (supposedly) confer on the holder that should be used to advise all and sundry on how to develop our country without destroying our environment. Kenya is in a sort of infrastructure 'growth spurt' right now with huge (and much needed) developments taking shape left, right and center. These include expansion of roads, ports and airports which cannot be done without significant cost to the natural and human environment. To suggest due diligence in the impact assessments is not to be in opposition to the project, but to seek the right way of doing it. Even when the correct way has been found, we are duty-bound to document the costs that we do incur as a result of the particular project. This is important for posterity and future planning of similar projects.

A prime example of this malaise is the Ethiopia-Kenya power line. An engineering firm was given the assessment assignment, including the Environmental Impacts Assessment. I am appalled to think of how many potentially lucrative engineering consultancies I have spurned, thinking that a PhD in wildlife ecology wasn't the right qualification! As a result of this, we have ended up with an assessment of impacts of the power line on wildlife that is a particularly shameful example of the sort of "professionalism" that is constantly visited upon the Kenyan people by these EIA impostors. You have a list of 17 species as the wild animals found in Laikipia and Samburu, when the reality is three times that (without counting the more cryptic ones that only an expert would know). This report also has a list of endangered species in the area that includes the Tana River Red colobus (*Procolobus rufomitratu*s) Another 'gem' is the Umani springs-Mtito Andei water pipeline EIA (pg 30-34). It lists the faunal biodiversity along the route as follows; Elephants, birds and fish. The unfortunate truth in Kenya and elsewhere is that there is no shortage of people trying to obtain money by false pretences, in fact the more successful ones are quite famous. However, the most difficult part of this sad tale to swallow is that (to the best of my knowledge) Kenya Electricity Transmission Company (KETRACO) and Water Resources Management Authority (WARMA) respectively have accepted this drivel and are proceeding with the projects accordingly. I would be delighted to be proved wrong on this point. If these falsehoods continue being copied and pasted to other EIA assessments, (as I am sure they will be), the environmental costs of infrastructure development will eventually be lost from our country's

psyche.

What is it that ails us when it comes to matters of the environment? Ideally, the late Wangari Maathai should not have stood out in our society, because we should all have been like her. My opinion is that we have a lost generation who grew up 'disconnected from the natural environment. They were never taken to the National Park (or Uhuru park) on weekends and they never got to appreciate nature and they are now senior officers, captains of industry and prominent members of our society. They are people of means who drive big 4x4s but never go to Amboseli or Maasai Mara on weekends. They are buying big plots in the leafy suburbs and chopping down the trees to make paved driveways to their doors. Their children know the wildlife intimately from National Geographic channel, but not from visiting parks. They would probably never know the difference if my EIA report for a project on Lake Turkana included polar bears under the threatened species because lots of wildlife shows on TV show polar bears swimming across large expanses of water... We in Kenya desperately need to 'reconnect' with our environment and get our kids out there for the sake of posterity.

But back to the here and now: Kenyan conservationists (myself included) have been very vocal in their opposition to the excision of forests for sugarcane in Uganda, the Omo river hydro-electric dam in Ethiopia, the Serengeti road in Tanzania, and many other projects in the region that we perceive to be environmentally irresponsible. It is unacceptable that we cannot (will not?) fight with the same alacrity to prevent the injustices that are being perpetrated in our own backyard. If we don't, we will very soon reap the bitter fruits of our silence. ●

# KIBWEZI FOREST AND UMANI SPRINGS: PIPE DREAM OR INNOVATIVE CONSERVATION?

Canopy of the groundwater forest around Umani Springs  
with the Chyulu Hills in the background

ALL PHOTOS BY: OMARI MBONDE

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BY OMARI MBONDE & QUENTIN LUKE

Between the Chyulus, one of the world's youngest mountain ranges, and the dangerous chaos called the Nairobi-Mombasa highway, lies a small and fragile green pearl around the Umani Springs, the Kibwezi forest. It has been naturally protected from vehicle access by the recent lava flows, some probably only a few hundred years old, which have created jumbled and sharp-edged ridges that form barriers to vehicles. In spite of having been designated a forest reserve in 1936 and covering just under 60 km<sup>2</sup>, it is relatively little studied but it accommodates considerable biodiversity values and provides renewable resources to a large number of users. Initially woodcarvers, charcoal-makers and hunters operated at sustainable levels and provided mainly local markets but increasingly their intensity and scale started eating into the natural capital, heavily

degrading the most accessible parts by, for example, providing truckloads of charcoal as far as Nairobi.

Most of this area of Kenya, roughly between Machakos and the thin high rainfall coastal strip is semi-arid and covered by *Acacia-Commiphora* woodland of varying density. Though the soils can be quite fertile, the low rainfall and the absence of rivers are obstacles to agricultural development. A very large proportion has therefore been allocated to extensive livestock keeping or to wildlife in the 64,000 km<sup>2</sup> Tsavo Conservation Area, best known for the Tsavo East and West National Parks and Amboseli National Park. Within this vast rangeland there are very few permanent water sources as the volcanic rock is highly permeable and rainfall quickly infiltrates. They exist only where there is a combination of a high rainfall area (higher altitudes) and a layer of Precambrian metamorphic rock that is

impermeable, creating a contact zone where the infiltrated water resurges. The link between Mount Kilimanjaro and the marshes of Amboseli is well known, as are the Mzima Springs in Tsavo linked to the southern reaches of the Chyulu Hills (peak of over 2000 m).

The much smaller Umani "springs" that are at the origin of the existence of the Kibwezi forest are dependent on the rainfall on the northern part of Chyulu Hills where forest cover is relatively intact and which was incorporated into the Chyulu Hills National Park. Such groundwater flows are also highly sensitive and a small tectonic event can close off a route and open up another. This happened in the positive sense in Amboseli in late 1957 when resurgence suddenly increased and created the main marshes.

In contrast to most of the other "springs" in the area (Kiboko, Kibwezi, Mtito Andei) where a small river

originates directly from the springs, the water from the Umani springs first fills a series of clear water pools, then disappears underground again and supplies a series of marshy wetlands between the springs and a very large recent lava flow that acts as a kind of embankment. The water then flows underground again towards Kibwezi town, some 80 m lower than the springs.

Where the groundwater is close to the surface the land is covered by a magnificent groundwater forest of over 25 m height with splendid fig trees (12 species have been recorded), a large number of centuries old *Newtonia hildebrandtii*, and several hundred other plant species including a number of vulnerable (*Drypetes natalensis* var. *leiogyna*) and endangered subspecies (*Craibia brevicaudata* ssp. *burttii*). This list of threatened species is expected to expand as the Red List for eastern Africa, currently under revision, will soon be published. Likely candidates are the restricted range species *Euphorbia friesiorum*, *Cyphostemna kibweziense*, *Commiphora ovalifolia*, *Secamone attenuifolia*, *Anisotes ukambensis*, *Thunbergia reticulata* and *Asparagus denudatus*. Not only is the forest highly diverse but it is also characterised by an unexpectedly large number of “typical” coastal species, having perhaps moved there along a much larger river connecting to the coastal forest strip, including *Combretum schumannii*, the woodcarver’s dream. The forests are home to Sykes and Vervet monkeys



Groundwater resurging at the top of the pools in Umani Springs.

that come under attack from the African Crowned eagle, congregations of Trumpeter and Crowned Hornbill feasting on figs are the target of African Hawk Eagle. Other predatory residents are Tawny and Long-crested Eagle, while large flocks of Crested Guineafowl roost there.

The wetlands attract a colourful variety of waterbirds and also large mammals, especially elephant and buffalo, of which a substantial proportion are thought to be dry season migrants from the Chyulu East National Park (NP). The need for the animals to drink also made them vulnerable to poachers. Before the fence and the anti-poaching patrols were put in

place, shooting platforms from which poisoned spears and arrows could be planted in their backs abounded along the paths leading to the springs. Snares and poisoned “footnails” were also used in abundance. The wetlands are such an ideal habitat for waterbuck that their absence is conspicuous. This probably indicates that they were hunted into local extinction.

#### INNOVATIVE CONSERVATION

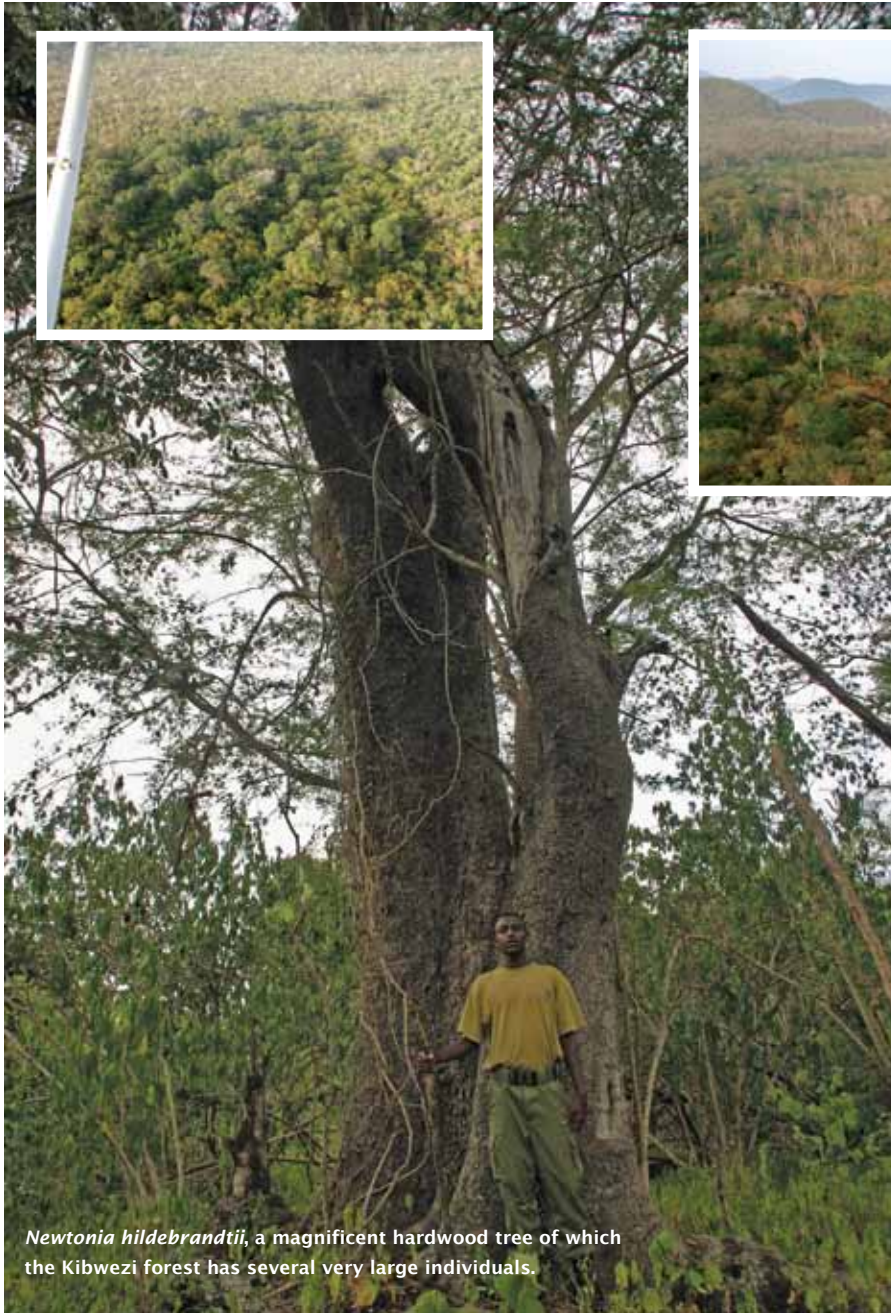
The forest reserves of Kenya have so far attracted much less attention or investment than the more “touristy” wildlife parks but in 2010 the Kenya Forest Service and the David Sheldrick Wildlife Trust entered into a joint management agreement, a first in Kenya, since then followed by the Ngare Ndare forest in Laikipia. The core areas of the Kibwezi FR south of the highway were enclosed on three sides by an electric fence, maintaining the connection to the Chyulu East NP but considerably reducing animal damage to the surrounding farmland. The regeneration of the highly degraded charcoaling areas is already obvious.

Traditional access rights are guaranteed and the collection of firewood by legitimate users has increased substantially. Animals are slowly becoming less jittery as the hammering by poachers has been brought to a halt. The Umani Springs Lodge was upgraded and beautified



The “Dancing Jewel” damselfly (*Platycypha caligata*) at Umani Springs.

## CONSERVATION



*Newtonia hildebrandtii*, a magnificent hardwood tree of which the Kibwezi forest has several very large individuals.

**RIGHT:** Mass mortality of Yellow Fever tree just downstream of the dried out wetlands. This is an early warning signal and the phenomenon is expected to affect other tree species and will soon expand upstream towards the overexploited springs as well as affect forest productivity in all downstream areas to Kibwezi town.

**INSERT:** Forest dominated by centuries old *Newtonia hildebrandtii* that is the be sacrificed for the 400 kV powerline if the project goes ahead as planned.

at considerable cost. This should in principle be able to generate enough funds to maintain the fence and the anti-poaching brigades. So all seemed at last on track for the preservation of the pearl.

However, the fence has failed to stop another type of destructive folly, namely the over-abstraction of the water that is the engine that sustains

this productive ecosystem. The first abstractions were done to supply the steam engines of the railway. A metal pipe was laid above ground on a crushed lava rock bed but the take-off was limited and did not affect the ecosystem as a sufficient reserve flow was left to maintain the functions that depend on the underground flows. With population growth, three additional pipes were

laid in and still the ecosystems were able to cope. But since the addition of the Kisayani water project in 2005 the groundwater levels seem to have been falling, the wetlands started to recede and some tree mortality was noted. This was attributed to the general drought that hit Kenya at the time. However, from 2011, as trenches to accommodate the pipe for a much larger planned abstraction, the Mtito Andei water project, were starting to be dug, the wetlands dried out completely and the mortality of groundwater dependent Yellow Fever Tree (*Acacia xanthophloea*) just downstream from the wetlands has reached dramatic proportions.

This is the kind of damage that could be avoided by professionally conducted and carefully audited ESIA's, technically correct regular flow measurements as well as by conscientious management of the scarce water resource. Sadly none of these conditions have been fulfilled. The ESIA for the Mtito Andei water project, conducted in 2009 and revised in 2011, ignored the obvious tree mortality and took an absurdly high flow as the base flow from the springs, namely 954 litres per second, about six times higher than the average flow of 163 liters/sec based on monthly flow measurements between 1984 and 1987. Obviously, the reserve flow, i.e. the flow that has to remain in the ecosystem to maintain its functions, should not be based on the maximum or even the average flow but on the minimum flow, probably of the order of 110 litres/sec. This is especially true as none of the off-takes





**TOP:** For the first time in living memory the Umani wetlands, a vital dry season refuge for wildlife over a wide area including the Chyulu Hills NP, have dried out. Increased abstraction for settlements along the Nairobi–Mombasa highway is the cause and worse is expected.

**TOP RIGHT:** Traditional Kamba rainmaker Mutweya has been visiting the wetlands for over 50 years and have never before seen them dry out.

**ACCORDING TO KAMBA RAINMAKER MZEE MWANZIA MUTWEYA, BORN SOMETIME AROUND WORLD WAR ONE, AND WHO HAS BEEN COMING TO THE AREA SEVERAL TIMES A YEAR FOR ABOUT FIFTY YEARS TO PERFORM THE RITUALS TO APPEASE THE TRADITIONAL SNAKE SPIRITS THAT PROTECT THE SPRINGS AND ALSO REQUEST FOR RAIN, THE WETLANDS HAVE NEVER BEEN DRY.**

has any mechanism for limitation when flows in the spring decline. According to the Kisayani water project ESIA, the total off-take after implementation will be 102 litres/sec, leaving less than 10% as reserve flow, while the report states that it should be at least 25%, preferably 30%. So, according to their own figures, this project should not have been implemented. Even the Mtitio Andei water project ESIA agrees that a reserve flow of 46 litres/sec should be maintained but at the same time proposes an additional off-take of 76 litres/sec bringing the total off-take to 178, higher than the average flow and almost twice the minimum flow.

But the project is going ahead regardless. It will be impossible

for the groundwater forest and the wetland ecosystems to survive if water abstraction from the springs is not brought down to pre-Kisayani project levels.

According to Kamba rainmaker Mzee Mwanzia Mutweya, born sometime around World War one, and who has been coming to the area several times a year for about fifty years to perform the rituals to appease the traditional snake spirits that protect the springs and also request for rain, the wetlands have never been dry. He and fellow rainmaker Francis Mwambua Ngeke, who has been frequenting the area since the 1970s, have occasionally seen the water levels much higher, actually flowing over the railway pipe before the

others pipes were put in. A traditional well in the lava flows downstream from the wetland has also dried out for the first time. The situation is therefore critical and immediate action should be taken to limit the current off-take, re-establish a sufficient reserve flow (initially even a higher one to refill the underground aquifer and the wetlands) and especially stop all additional off-take projects until a thorough environmental audit has been conducted. It is clearly essential to put a system in place to continuously monitor the reserve flow and the groundwater levels and to install control valves that allow limitation of the off-takes as a function of these monitoring results.

Worse still, the laying of the Mtitio Andei pipe, which is put in deeper than the previous ones, possibly to avoid vandalism, includes drilling through the thick slab of mixed volcanic ash and travertine that underlies the forest floor. This layer possibly prevented the groundwater from disappearing before having supplied the forest and the wetlands. This entails the risk that the reserve flow, even if restored, will simply go underground.

In any case, as population figures along the Nairobi-Mombasa highway are set to continue increasing, there is no way a limited and fragile water source such as Umani Springs, that in addition has many other ecosystem functions to fulfill to sustainably supply benefits to the local communities and the country, can be the solution. Water will simply have to be brought from elsewhere!

## CONSERVATION



The laying of the new pipeline involved breaking the rock layer that is possibly a key feature of the functioning of the system.

As if the attacks on the forest from ground level and below were not enough there is now an aerial attack on the way. For over a hundred years new linear elements in the landscape, the railway line, the highway, the KPL pipeline and a powerline have all taken a path that, to a large extent, avoided fragmentation of the forest block, even though a few slices were separated from the rest at the northern end. The proposed 400 kV powerline that is to link up Mombasa with Nairobi is scheduled to simply bisect the forest reserve and even go straight through the middle of one of the most pristine groundwater forests with immense *Newtonia* and fig trees.

As usual the ESIA is below par, it has not evaluated the presence of threatened species, biodiversity, aesthetic and carbon storage values along the wayleave. It can hardly be judged as an independent ESIA as some of the “consultants” are employees of the powerline company. It does not consider any alternative routes (taking it along the northern edge like all the previous linear elements would certainly

only add a very marginal amount to the total cost of the 500 km line), and even states that the project is not in a forest reserve or protected area (and therefore the forest act does not even apply). Fortunately the Director of Forests is adamant that will not be allowed to happen. In addition, the obligatory consultation of the local stakeholders seems to have been a pure formality as these have been made to believe that the project will provide reliable power locally while it is intended to just pass over their heads. The risk of passing a 400 kV powerline over an electric fence (an investment of over \$200,000) and inducing some ground-level current surges, has not been evaluated.

The argument that the powerline was allowed to go through Tsavo NP unopposed does not hold as there is a fundamental difference between a sparse *Acacia-Commiphora* woodland and a dense primary forest that supplies an immense range of ecosystem services. The gung-ho fashion in which the green pearl is being handled by the various companies and national

institutions involved in both the water and power projects, the lackadaisical execution of the ESIA's and the absence of thorough evaluation and auditing violates both the spirit and the letter of the environmental laws and of the new constitution. Those days should have been behind us by now. ●

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**OMARI MBONDE** is an ecologist with 20 years' experience in various African countries. His main interest is in the maintenance and enhancement of water-related ecosystem service delivery for human well-being. The equitable sharing of the benefits, derived from these services, with vulnerable social groups is his near-obsession.

**QUENTIN LUKE** has worked with the East African Herbarium, National Museums of Kenya for over 25 years. He worked towards the gazettelement of the Mjikenda Kaya forests as National Monuments, published several new plant species, and carried out many plant surveys in West, Central and East Africa. He is Chair of the East African Plant Red List Authority, an Honorary Associate of Royal Botanic Gardens, Kew and an Alternate Member for Africa on the CITES Plants Committee.

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# A GUIDE TO THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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BY OMARI MBONDE

**E**nvironmental Impact Assessment (EIA) was established as a technical tool to help decision-makers weigh the pros and cons of a specific development project in the best interest of society as a whole. EIA has existed for several decades and has been a legal requirement in an increasing number of countries, starting with the United States of America in 1969, European Community countries in the 1980s and most African countries in the first decade of the 21st century.

In EIA it is important to distinguish the formal procedure (the 'how') from the fundamental goal (the 'why'). In a very perceptive paper, Jay *et al.* (2006) analysed to what extent EIA has been achieving its purpose and how effective

the tool has been. The result is 'much less than was expected'. In fact, even in the United Kingdom, EIA has very little influence on planning decisions. One of the reasons of this failure arises from the historical origins of EIA in the 1960s with, as its basic tenet, that 'decision-makers would give objective consideration to an issue, taking into account possible alternatives, each of which would be assessed on the basis of the technical information available, and would come to a decision that was in the best interests of society as a whole.'

Obviously this ignores some quite different and very powerful motivators in decision-making, which is not always a completely objective process. Elements that can manipulate this process include personal self-interest

and greed, as well as 'pork-barrel politics' where funding is directed to constituents in return for political support.

The formal legal procedure, however well-designed, cannot therefore, be separated from the general governance environment in which it operates. Governance is the process of decision-making and the process by which decisions are implemented (or not implemented). Good governance has eight major characteristics: it is participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimised, that the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society. Unfortunately, this governance process is often compromised (Kakonge 1998), especially with regard to the equitable sharing of the available information. In this manner, the capacity of the most vulnerable local stakeholders to effectively partake in the informed decision-making process is curtailed. Still, they stand to lose most because

**In general, the goals of EIA are:**

- 1) To predict the negative environmental, social, economic and cultural impacts of a proposed development activity;
- 2) To develop plans to mitigate those impacts, including a monitoring plan that can inform on required adaptations while the activity is ongoing;
- 3) To perform a cost/benefit analysis of alternatives for the proposed activity.



PHOTO BY: OMARI MBONDE

Isolated patch of degraded riverine forest in the Tana Delta Irrigation Project. The habitat contains several Red-listed plant species and also Tana River Red colobus and Tana River mangabey. It would need to be reconnected by corridors to other forest patches and its ecosystem services delivery enhanced through managed flood releases.

**BASICALLY, FOR THE EIA PROCESS TO BE SUCCESSFUL THE POLITICALLY, ECONOMICALLY AND SOCIALLY POWERFUL MUST WANT IT TO WORK AND TAKE A LONG-TERM VIEW OF WHAT CONSTITUTES THE NATIONAL INTEREST.**

their access to or the availability of the natural resources on which they depend will be compromised.

In some quarters the requirement for an EIA was, and often still is, perceived as an obstacle to the implementation of development projects whose utility cannot and should not be called into question (at least not by the direct beneficiaries who are relying on the development money). In such cases, there may be attempts to dilute the EIA of its substance, even when the required legal procedure for the EIA has been adopted. Basically, for the EIA process to be successful, the politically, economically and socially powerful must want it to work and take a long-term view of what constitutes the national interest.

In countries where there is sufficient capacity for reaction to the manipulation of the EIA process, this can easily lead to a strong polarisation that is detrimental to the constructive

dialogue between the three key players required for sustainable development: government, civil society and the private sector.

Under these circumstances the forces that try to uphold the substance of the EIA process can be unfairly branded as green lobbyists trying to block development. In the worst case they may be subjected to intimidation or violence. The affected communities can be caught between the interests and objectives of the various main players, with poverty facilitating manipulation. Examples abound of participants to the public consultation process being brought in from outside or paid small sums (equivalent to the cost of a few beers) to sign up to the “conclusions” of the “debate”; Communities are often quite powerless when confronted with large projects that may have quite diverse ulterior political or economic objectives (such as land grabbing and personal enrichment).

To have a more detailed understanding of how an EIA works, and where its intended outcomes may be altered, it is necessary to review the formal procedure for implementing an EIA. This procedure is similar in most African countries, though emphasis on certain aspects may differ.

1. The submission to the National EIA Review Authority by the proponent of a project proposal, elaborated by a registered EIA expert;
2. A screening procedure by the National EIA Review Authority to assess if the project requires a full EIA;
3. If a full EIA is required, then it is necessary to implement a scoping exercise and draw up the terms of reference which, in most countries, include a public consultation phase (not in Kenya);
4. The production of the EIA report (or EI statement);
5. The review of the EIA report by the authority (often strengthened by a Technical Advisory Committee) and “the public”;
6. The approval or rejection of the proposal;
7. If approved, project implementation;
8. Monitoring;
9. Auditing;
10. Decommissioning.

## CONSERVATION



PHOTO BY: JULIE POULIQUEN

**The Tana River mangabey, one of the world's most threatened primate species, with an estimated population of less than 2000 individuals, is restricted to a few dozen forest patches of the Lower Tana floodplain and delta. The establishment of corridors between these patches would benefit this and a host of other species.**

On paper the legal instrument seems adequate but there are often substantial gaps between what should happen and what happens on the ground, which is partially dependent on political will, especially with regard to public participation. According to a survey conducted by Okello *et al.* (2009) the situation in Kenya is improving in the early stages of the process but still perceived as very deficient by most stakeholders, including the proponent, in the follow-up activities (monitoring and evaluation).

Legislation is only as strong as its weakest link and again this may be the governance environment in which policy, law and practice operate. Open and transparent communication to, especially local, stakeholders using appropriate tools and language and ensuring its effectiveness is still a major hurdle.

As is the case with catchment forests, functional African floodplains are very

important habitats that play a key role in maintaining aquatic and wetland biodiversity and their associated livelihoods. But anything wet, flat and fertile is a prime target for the development of large-scale irrigated agriculture, usually in conjunction with so-called multipurpose dams (hydropower, flood “control” and irrigation), and this in spite of a long list of very expensive failures with dire economic, environmental and human well-being consequences (Adams 1996; Schuyt 2005). In contrast to the generally more insidious land use change of catchment degradation, such large-scale conversions would typically require very substantive EIAs, either from the funding agency or from the national legislation. The EU, the World Bank, the multilateral agencies in general and most bilateral donors from developed countries now require genuine EIAs to be conducted by companies with recognized capacity.

A range of new bilateral development partners have emerged, especially from oil-producing countries and the “emerging” G20 nations who, in general, adhere to less stringent environmental requirements. Increasingly, nationally funded projects are reaching scales that can also have serious impacts. (See article on Nandi dam pg 42-45).

What is often shocking in the locally sourced EIAs is the total absence of information on the presence and the vulnerability of threatened species. In fact, in most EIA teams, the capacity to actually do biodiversity inventory work is absent, i.e. they are all registered EIA experts but all with the same type of general environmental management diplomas but without any botanical or zoological knowledge nor mastery of inventory techniques.

Hirji and Ortolano (1991) describe how, in the 1970s and 1980s, the EIA process was systematically subverted on three dam construction projects and on the Tana Delta Irrigation Project (TDIP). Like all large-scale irrigation projects in the Lower Tana (Bura, Hola), the TDIP failed or at least did not produce outputs that are in adequacy with the enormous investments made.

The Tana case study is still relevant as the TDIP is currently being rehabilitated at a cost of about USD 10 million but without any of the structural causes of its failure (the top-down estate system, the exclusion of the traditional users, the purely agro-industrial approach instead of an integration of fisheries, forestry, livestock keeping and other ecosystem services such as groundwater recharge that could be enhanced by managed flood releases) having been addressed. Nor has the environmental impact of the initial phase been thoroughly and independently evaluated. Moreover, there are plans to expand the model for the production of sugar cane on tens of thousands of hectares in the Delta and also to initiate new irrigation projects upstream, e.g. in Ijara, all driven by Vision 2030, the Kenyan government's development blueprint.

In the 1980s, as part of the worldwide drive to “copy” the Tennessee Valley Authority model (Molle, 2008), TARDA

obtained major support from Dutch bilateral development aid to study the potential of the Lower Tana basin for various development options, including irrigation and navigation (e.g. TARDA – DHV – Delft Hydraulics, 1986), and this included a detailed feasibility study of the TDIP which emphasised potentially harmful environmental consequences. This prompted the Dutch aid agency to contract Ecosystems Ltd. to conduct a full EIA, which identified major biodiversity, ecosystem and livelihood concerns. The predicted impacts caused the Dutch aid agency to withdraw from funding the implementation phase. TARDA refused the recommendations of the report, delayed payment of the consultants for the EIA and went ahead to find new donors: the Japanese International Cooperation Agency (JICA) and their Overseas Economic Cooperation Fund (OECF).

*rufomitratatus ssp. rufomitratatus*, classified as Endangered according to IUCN) and the Tana river mangabey (*Cercocebus galeritus*, also classified as Endangered according to IUCN) that are flagship species in the area. To illustrate this point, the report made the following recommendations when discussing the impacts on wildlife and fisheries:

- Establishment and equipment of an appropriate force of trained wildlife officer and rangers to control predation by wildlife, particularly baboons, bushpigs and birds;
- Establish a fisheries section to enhance fish production and marketing;
- Construct observation towers along the strategic places of the dike and the rice paddies to locate destructive wildlife and birds;

impacts of wildlife on the crops, not the other way around, i.e. assessing the impact of the project on the area's wildlife. In fact, the entire EIA consists primarily of a list of suggestions for monitoring the decline of the environmental values, rather suggesting anything that could mitigate that decline.

An evaluation of the effectiveness of Japanese overseas development aid (Mwega 2008) paints an optimistic picture of the USD 50 million TDIP, both developmentally and environmentally. While this may please the donor, it stands in stark contrast to the findings of other researchers (Luke *et al.*, 2005).

According to Moinde-Fockler *et al.* (2007) forest cover in the Lower Tana was reduced by 38% which, in all likelihood, did affect forest-dependent animals. In addition to the continued loss of forest cover and the decline in forest quality, one immediate impact of the construction work on the polder embankments was the raising of the water level by 0.8 m upstream. This caused part of the river to follow a different, more westerly course (predicted by the feasibility study), which destroyed the well-known waterbird breeding colonies (>5000 pairs of over a dozen species) of Lake Bilisa just north of Garsen. However, according to the evaluation “no particular negative effects on rare animals” were recorded. This is a meaningless statement as no surveys were done to establish a baseline, nor were indicator species identified or monitored.

The full extent to which the TDIP project was an economic, environmental and social failure is hard to establish because of the destruction of the TDIP infrastructure by the 1998 El Niño-related floods. One indication that all was not well beforehand is that, in 1997, only 880 ha of the available 1800 ha were cultivated and produced 1400 tonnes of paddy rice, i.e. 1.6 tonnes per hectare or about 6% of the target 12 tonnes per hectare. At this rate it would have taken over 200 years to achieve a return on the investment.

In 2007, with EIA legislation in force, Mumias Sugar Ltd. proposed the development of several tens of

**A CLASSIC EXAMPLE OF MINIMISING THE POTENTIAL IMPACT OF EIA ON DECISION-MAKING AND THWARTING ITS RATIONALISTIC PURPOSE IS THE WAY THE TANA AND ATHI RIVERS DEVELOPMENT AUTHORITY (TARDA) IN KENYA HAS DEALT WITH THE EIA PROCESS.**

Neither JICA nor OECF seem to have been properly informed about the conclusions of the EIA. At the time, EIAs were not a legal requirement in Kenya and, therefore, TARDA was under no obligation to even acknowledge its existence. In fact, TARDA commissioned an alternative EIA (Maitha *et al.* 1991), conducted by a multidisciplinary team (composed of agricultural economists and geographers, livestock and army worm experts, a nutritionist and a rhinoceros ecologist) that conducted fieldwork from January 19 to February 3, 1991. This seems very short for such a socially complex and high biodiversity area. The findings suggests that the multidisciplinary team had limited capacity on the subjects of floodplain or high endemicity riverine forest ecology, nor an appreciation of the importance of two threatened primate taxa, the Tana River Red colobus (*Procolobus*

- Once crop production has commenced and animal distribution has stabilized, erect game fences along strategic sections if necessary;
- Evaluate the effectiveness of vegetational barriers along non-fenced parts of the dikes;
- Control soil erosion on the dikes where the problem is identified;
- Conduct aerial survey of the wildlife and birds populations in the adjacent areas during the time when the crop is on the farm;
- Monitor water quality levels before and after farm chemicals are applied; and
- Construction of fireproof barrier along the inside dike and rice paddy through the use of earth tracks/ roads. Water canals themselves are permanent fireproof barriers.

This demonstrates that the report was actually focused on mitigating the



PHOTO BY: OMARI MBONDE

**Whistling Ducks in the Tana Delta. With the regular presence of tens of thousands of waterbirds, the Tana Delta has considerable ecotourism potential.**

thousands of hectares of sugar cane in both the derelict TDIP and all the downstream floodplains of the Tana delta. The EIA (conducted by a Dutch company that specialises in agro-industrial development consulting) was deemed flawed by a range of stakeholders and environmental organisations (including individuals within NEMA), ([see www.tanariverdelta.org](http://www.tanariverdelta.org)). The criticisms of the EIA noted that the biodiversity assessment was certainly incomplete and that the EIA did not address any of the key issues that should normally figure in an EIA of a deltaic irrigation project (soil salinisation, salt water intrusion, loss of habitat for waterbirds and riverine forest dependent species, loss of the coastal protection function of the mangrove, impact of pesticides and fertilisers, etc.). Most importantly, the EIA did not consider any alternatives to the proposed development, nor did it contain any analysis of the current hydrology, and it was done in the absence of a detailed project document. The public hearings were conducted away from the main project area (as the mobile livestock keepers in the floodplains are considered to be

squatters, not legitimate users), and some observers noted that unemployed youths from non-impacted areas had been transported to the hearings and paid to support and endorse the project. Nevertheless, the EIA was approved by the National Environment Management Authority (NEMA).

This is especially sad as it would have been an ideal opportunity to do a complete environmental and social audit of all the development projects that have taken place in the Lower Tana and to propose innovative approaches, e.g. using the infrastructural investments to maintain and even enhance the flood-dependent ecosystem services. In addition to the production of rice, water abstracted from the river can also be used to restore the parts of the floodplain that have been lying idle for decades, allowing traditional users (fishers, livestock keepers, gatherers) to regain their livelihoods. In addition, restoring the groundwater recharge would allow the now isolated and degraded forest patches to revive. These patches could even be actively reconnected so the primates and other forest species would have corridors that will increase genetic exchanges and

reduce extinction risks. The creation of additional habitat can also enhance the ecotourism potential of the delta. Such ideas could have been put forward and discussed openly, assessing their cost effectiveness. But, for that to occur, the polarisation of the debate and the sterile opposition between development and conservation “lobbies” needs to be overridden. Let us hope that the recently created inter-ministerial task force on the sustainable development of deltas in Kenya can reopen the debate on a healthier footing.

As is illustrated by this case study, there are many strategies to subvert an EIA, starting with the selection of the consultants who will perform it. In many countries almost anybody can be registered as an EIA expert. In Tanzania, a new and mandatory registration of EIA experts is being implemented, requiring applicants to undergo a review process where credentials are scrutinised. The resulting list of registered experts is limited in number and mainly confined to individuals associated with the principle universities in the country. Many are well-established in their academic fields at least.



An EIA is not only a process but also results in a product, and in many parts of Africa an EIA is often the first opportunity for inventory work and the evaluation of the biodiversity values in the field. It can therefore contribute considerably to the biodiversity knowledge base that is rapidly expanding and increasingly comprehensive and accessible. In addition to the well-known websites for birds ([www.birdlife.org](http://www.birdlife.org)), information is now being made available for each of 7000+ sub-catchments across continental Africa and provides a baseline list of all freshwater species that can be expected to be found there, including information on ecology, habitat requirements, utilisation by people, major threats, as well as the IUCN Red List status of each species (see <http://www.iucnredlist.org/>

**initiatives/freshwater/panafrica).**

The red list for threatened plants in East Africa is also under intense development. What is still missing are guidelines that impose, admittedly time consuming, top-class inventory work and the establishment of a balanced team of expertise, including taxonomical.

EIA processes can not only help to build these data sets but existing data sets can serve as useful information sources for input to the EIA process itself. A key feature of the Red List data on species is that it allows the conservation value of any species identified within the assessment area to be determined within a broader regional or global context. Reliable information on biodiversity values is therefore an essential ingredient for a successful EIA. Therefore capacity for

both biodiversity assessment and its evaluation needs to be increased at all levels but in particular in the national review authority that needs to be able to check if the sampling design, method and intensity would have been capable of detecting the presence of threatened species, if the species lists produced are realistic and in conformity with what can be expected from similar habitats and to determine which species would be appropriate indicators that are to be monitored.

Once that capacity is built and biodiversity assessment becomes part of the EIA culture it will become possible to embark on the monitoring, evaluation and auditing stages of the process. These have so far been largely neglected. ●

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# SOUTH NANDI DAM DAMNED BY ITS OWN EIA



PHOTO BY: JACKSON BAMBO

BY JACKSON BAMBO

**W**ork is under way to build a multi-purpose dam in South Nandi despite an Environmental Impact Assessment that says local people and the environment will pay a heavy price for the development. Great tracts of forest will be cleared, the swampland homes of the rare Sitatunga antelope will be affected, and families will be relocated, adding to the as-yet unresolved problems of Keyans internally displaced by the clearing of settlements from the Mau forest.

Much of this was foreseen in a 2011 EIA (Environmental Impact Assessment) by TYPSA consulting engineers and architects. Their report highlights the following as likely impacts:

- About 1,186 Ha of forest or about 10 percent of the entire South Nandi forest will be cleared to pave way for the reservoir, 40 ha for offices, concrete mixing plant and associated road networks. This is a large surface, susceptible to surface runoff, in an area that receives over 1800mm rainfall p.a. This will increase the volume of storm water/surface runoff by 300%
- Deforestation will open pristine forest interiors that form major wildlife habitats. This vegetation provides food, nesting sites, and cover for escape from predators.
- There will also be negative socio-

economic impacts on the neighboring communities; the EIA indicates that at least 10 household families and their property in Tuyabei village in Kapchorwa Sub-Location will be relocated. This may lead to conflict and increase in number of internally displaced persons (IDPs) as plans to compensate and address their welfare are not very elaborate

- Dam construction will alter the carbon budget. The part of the forest set for destruction covers an estimated 1,186 Ha, which translates to 10 million tree stands with 71,000 tons of priced woody biomass that sequesters an estimated 3,100 tons of CO<sub>2</sub> per year

- The riparian ecosystem will inevitably change when its adjoining aquatic environment changes. The immediate and largest upstream impact of the dam construction on riparian vegetation is of course flooding. The dam will impact on the vegetation of the Kingwal swamp, which is home to the rare Sitatunga antelope and Kesses swamps upstream as a result of increased discharge volumes.
- Excavation; quarrying and deposition of soil material, stripping operations before development of the site may result in removal of topsoil and subsoil, and other material surplus to requirements. It is estimated that more than 1,000,000m<sup>3</sup> tons of soil from the dam foundation in the upper catchment, 294,000m<sup>3</sup> of soil from the HPP and 1,800,000m<sup>3</sup> of soil from irrigation project and 9,731,000m<sup>3</sup> for downstream reservoir.

Nandi Multipurpose Dam Project is to be implemented by the Lake Basin Development Authority at a cost of KSh 15 billion in 8 years. This project was approved by the Cabinet on 20th August 2009 and the consultants who undertook Feasibility and EIA studies were contracted on 20th January 2010.

The Project is meant to divert the River Yala from the forest and basically include a 60 m high dam with a 1.5 km long crest over the Yala River (one of the five main rivers that drain into Lake Victoria), a hydraulic tunnel approximately 17 km long and 3 m in diameter and a hydropower plant of approximately 50 MW with a 550 m waterfall.

The project also includes: irrigation of 17,000 ha in the Nyanza sugar belt, the supply of drinking water to the Vihiga/Sabatia, Hamisi, Central Nandi, Kisumu and Nyando districts (in the region of Lake Basin District), flood control downstream of the dam, the development of fisheries in the area of the reservoir and the tourist development of the region.

The indigenous South Nandi Forest of Nandi County covers an area of 20,000ha and is home to White-spotted Flufftail *Sarothrura pulchra* and the



PHOTOS BY: PETER STEWARD

**FACING PAGE:** Tuyabei cluster 2 water intake plant on river Yala.

**THIS PAGE TOP:** Turner's Eremomela

**MIDDLE:** Great Blue Turaco

**BELOW:** Oriole Finch

## CONSERVATION



A recent fact finding mission by environmentalists inside the South Nandi forest.

**INSERT:** Yellow Gloriosa

endangered Turner's Eremomela (*Eremomela turneri*), Red tail monkey, the leopard as well as to numerous species of antelopes, birds and other vertebrates. Placed at the confluence of rivers Kimonde and Sirua, in the South Nandi Forest Reserve. A Roller-Compacted Concrete (RCC) dam has been designed, with a total top length of 1,509 m and a maximum height of 66.4 m; its related reservoir is of about 230 hm<sup>3</sup> its area is 1,185.00 ha which is approximately 10 % of the forest.

The EIA report has some inadequacies in its mitigation measures:

### RESETTLING PEOPLE

The Resettlement Planing the EIA report is not clear on the exact number of people to be affected. it talks of 10 families (with a family size of 7 and the number of cattle owned per household being four) in Tuyabei village and goes on to contradict this on page 355 where it says that only about 20

families would be liable to be displaced. The Resettlement Action Plan has not been developed and it is not clear on time frame. Tales are legion in Kenya where families have been displaced by development projects -- a case in point is displacement of people in Mau forest where payment for compensation has either been long delayed, or when it finally does come, is less than the agreed amount. These families to be displaced should be fully and adequately compensated long before civil works commence.

**The EIA report says: "All people who depend on the natural flow of the river and its associated natural resources for their subsistence should be adequately compensated for losses resulting from dam construction, or be among the primary recipients of benefits generated."**

The existence of an overall balance between positive and negative impacts should not be taken as the only

criteria of a project's acceptability. The distribution of costs and benefits is also important, and heavily impacted groups (especially those downstream) should not bear uncompensated costs without balancing benefits.

### PUBLIC CONSULTATION

**"Project planning should allow for the participation of people affected by project development in downstream areas."**

This is a challenge for two reasons: first, because of the technical complexity (and cost) of dam design, and secondly because of the large and diverse communities that will be affected by the dam. While the principle of participation may require new approaches to planning, it has never happened. Authentic and effective participation must take place in a way and at a time when decisions about the project and mitigation of its impacts could be influenced. Cost/

benefit analyses should be balanced by participatory forms of planning involving all actors where all have a say in determining and assessing the nature of the costs and benefits and their effects on their lives, livelihoods and environment, and the nature of mitigation. The rights of those who will be directly affected by this dam must include the right to be heard, and the right to information in a complete and culturally appropriate form. Gender-sensitive policies are needed to ensure that women can articulate their fears and apprehensions without intimidation from state, community or agencies.

**REFORESTATION & FOREST EXCISION**

Any ex-situ reforestation plan cannot replace an indigenous forest. Tree planting initiatives outside the gazetted forest boundary in Ururu, Kaptaroi and other hilltops and agroforestry practice in the small and large scale farms in the entire catchment is unattainable and cannot replace an indigenous forest and the impact cannot be reversed. The compensatory reforestation programme is an unattainable

The Forest Act 2005 Part III article 38-40, states that, "...upon application by government agency and after approval by the Board has been obtained, enter into appropriate management agreement for all or part of any forest." No application of this kind has been undertaken by the proponent, the KFS. This should be reflected within the management plan and agreements. In the approved South Nandi Forest Management plans of Kimondi and Kubojoi there is no mention of any dam of any kind.

**WILDLIFE**

In order to prevent impact during the construction phase, sensitive periods for the wildlife-phonological calendar need to be established in addition to comprehensive Wildlife Rescue Plan (WRP). This has not been done. During the dam construction and deforestation period, many animals could be starved, injured and affected by new conditions, making it difficult for them to survive. Those lucky enough to survive and migrate from the reservoir can face difficulties as the new areas might not

be suitable in terms of food, water sources, or refuge.

**WATER FLOW REGIMES**

The EIA needs to establish the accurate water balance. Floods could be originated by the hydropower generation flow into the Great Oroba River basin. Flooding at the Great Oroba River as a result of the outflows is imminent. Also, there is an important flow risk during the rainy season because downstream reservoir can get filled because irrigation is not needed.

Soil erosion and silt runoff into the river: Rainfall on the construction site will however still result in topsoil and other soil materials finding their way into the river channels.

**IMPACTS DOWNSTREAM**

In western Kenya, the Yala river drains its waters towards Lake Victoria through the extensive floodplain complex-the Yala swamp - fed by flood flows. This area is of enormous economic and ecological importance, supporting a large human community engaged in extensive rice farming, grazing, and fishing. The construction of an upstream Multipurpose dam on the river Yala will significantly reduce flooding in the wetland, which in turn will have considerable impact on flood-recession farming, fishing and grazing and will have measurable economic costs. It is feared that the diversion of about 12% of the water volume from the Yala River for other uses may deprive the downstream communities of their reliable water sources and may generate bitter conflicts.

No analysis of the economic and ecological value of wildlife, agriculture, fishing and water in the Yala Wetlands has been done. In terms of water availability, groundwater recharge, livestock, grazing, non-timber forest products and wildlife tourism, the net economic and ecological value has not been calculated. The economic and ecological benefits are dependent on river inflows, and increase and decline in proportion to the extent of flooding. There is also a complex spatial component to the dynamics in the agricultural economy, since spatial patterns of flooding are variable between years. There is a reason for this.

Technical assessment of the nature and extent of downstream impacts requires extensive environmental, social and economic data, preferably including long time-series. Such resources are unusual. Assessment of downstream impacts also demands a high degree of knowledge of ecosystem dynamics, and an ability to be able to make realistic predictions about their response to stresses of various kinds, and above all an understanding of the society and culture of potentially affected people.

**COMPENSATION AND MONITORING**

A programme to monitor and periodically re-examine the impacts of dam development in downstream communities should be an integral element of the planning process and should be matched by resources to mitigate impacts. This has not been fully addressed by the planning process and has not been highlighted in the EIA report. For instance, human rights and key socio-economic parameters need to be monitored, at least along the river valley in the early years of dam operation. These parameters should be disaggregated enough in order to capture and address imbalances in the distribution of socio-economic costs and benefits of dams.

It is important to generate gender-specific indicators that take into account the varied locations of men and women at all levels of society. Special financial resources, human and institutional resources should be built-in the dam project design to address unanticipated social and economic problems emerging from the monitoring activities. Affected people who feel they are experiencing negative impacts should be entitled to request quick appraisals, inspections, and specific research to document the seriousness and scope of the problems and to find solutions. ●

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SPOTLIGHT

# The Militarisation of Wildlife Protection

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BY FELIX PATTON



Soldiers arrest a suspected poacher in Central Africa Republic.

**W**ar and political instability threaten endangered animal populations. One UN report suggests that of the 35 conflicts since 2000, 18 have been about or fuelled by the exploitation and control of natural resources, as opposed to wars fought over issues of ideology and territorial security. These 'new' wars involve warlords with no political programme and employ violence to accumulate wealth for its own sake, and thus develop into inherently powerful and corrupt elites.

Animals are threatened by some humans while depending on other humans for their protection. International covenants on the protection of endangered species can be considered as 'soft' power approaches to animal conservation while direct action or force based approaches can be considered as 'hard' power.

There may be huge commercial incentives to 'attack' and exploit the natural resource base. In the worst cases, criminal gangs operate beyond

the law and lead the way in habitat destruction and the specific targeting of sensitive wildlife, which may also have serious security implications.

There is growing evidence of the willingness to protect sensitive animal populations with force. Many wildlife charities use their resources to train and equip game park rangers to counter the sharp rises in poaching arising from the activities of sophisticated and violent criminal gangs who are well equipped with automatic weapons, GPS and night vision equipment. To match this, in-field support has seen the provision of weapons, ammunition, barracks, vehicles and even light aircraft. Consequently, the growing militarisation of wildlife protection has led to a rise in the deaths of rangers in gun battles with poaching gangs.

The best known legislation to protect wildlife is the Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES). Established in 1973, CITES aims 'to ensure that international

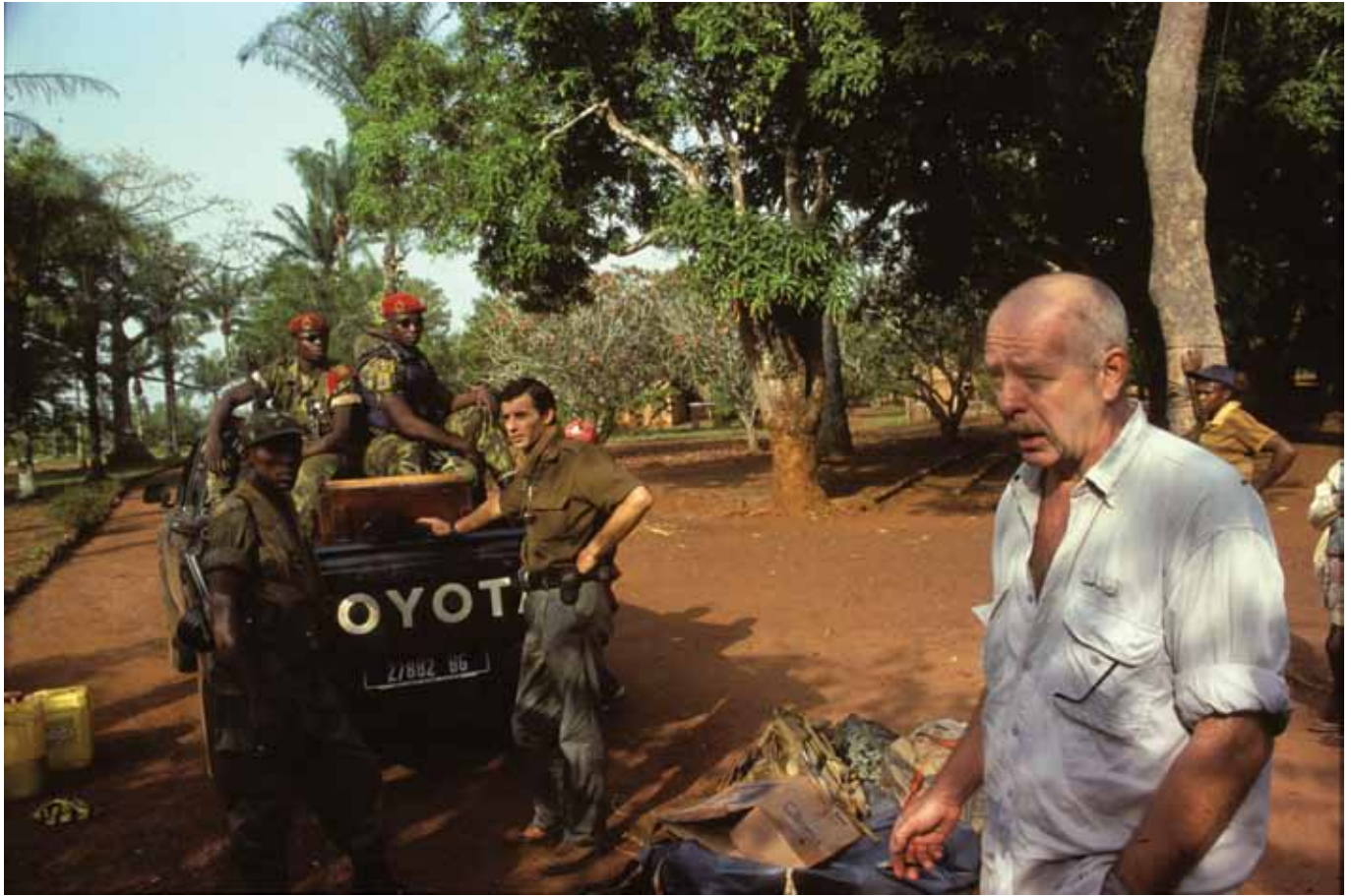
trade in specimens of wild animals and plants does not threaten their survival'. However, CITES relies on the goodwill and cooperation among signatories and lacks the means of enforcing compliance in the face of mounting and complex threats to animals, which either did not exist or were unknown when CITES was originally established. No action has yet been taken against any actor for wilful environmental destruction or to protect endangered species.

Some of the largest international NGOs, with significant funding ability, can wield great power even over governments. It is believed that the Kenyan government banned wildlife culling largely due to pressure from the International Fund for Animal Welfare (IFAW). However, NGOs are constrained by physical and self-imposed limitations. Areas of contention in the NGO mandate are how far they can, or should, intrude on sovereignty and whether they have an independent mandate to use force in the name of conservation, especially



Dead rhino and ranger standing next to the rhino in Kenya.

PHOTOS BY: KARL AMMANN



Presidential Guard soldiers in the Central African Republic under the command of South African mercenaries conduct anti-poaching work.

in places where state authority barely exists?

Wildlife forms part of the natural resource base of a state. The principle of permanent sovereignty is enshrined in the United Nations Charter. It is regarded as a basic right of self-determination, and provides for the exclusive control of the resources within state boundaries. The issue of sovereignty becomes more fraught in resource-rich areas. Wildlife parks and reserves are often located in areas of abundant mineral wealth like oil, diamonds, timber products and coltan. These areas invariably become the locus of conflict and any concern for conservation is rapidly eroded, not least because the remote terrain often shelters the armed groups along with the wildlife.

Many conflicts are civil wars involving political factions and ethnic groups. These result in the mass migrations of refugees who come to share a common need with the military forces that oppress them, which is to

**THE AFTERMATH OF WARS INEVITABLY LEADS TO FURTHER PROBLEMS SUCH AS ILLEGAL LOGGING, THE EXPANSION OF THE 'BUSHMEAT' TRADE AND THE SUPPLY OF 'LUXURY COMMODITIES' LIKE IVORY AND RHINO HORN. TAKEN TOGETHER WITH THE ILLEGAL TRADE IN LIVE SPECIES, WILDLIFE TRADE IS THE THIRD BIGGEST MARKET FOR ILLICIT GOODS AFTER DRUGS AND GUNS.**

survive off the land, with devastating effects on wildlife and wider ecosystems.

The aftermath of wars inevitably leads to further problems such as illegal logging, the expansion of the 'bushmeat' trade and the supply of 'luxury commodities' like ivory and rhino horn. Taken together with the illegal trade in live species, wildlife trade is the third biggest market for illicit goods after drugs and guns.

The growing influence of China by offering soft loans with no political strings, has enabled it to discreetly 'invade' Africa, extracting raw materials on a vast scale. This has brought with it an enticement for local people to poach and trade wildlife presenting high-reward/low risk opportunities for poachers, especially where there are weak enforcement regimes.

Conservationists tend to fall into two opposing camps - 'protectors' and





**ABOVE:** Window shopping for poached artefacts in Democratic Republic of Congo (DRC).

**BELOW:** Illegal fruits of poaching on sale in a Vietnamese market.

‘developers’. ‘Protectors’ believe that in the absence of government security, inaction would be disastrous and therefore they should take whatever steps are necessary including the use of force. ‘Developers’ believe the insertion of armed personnel must be a decision for governments and not for any wildlife organisation and that assuming a security role goes beyond the bounds of legitimacy as laid down in their mandate.

Wildlife has been traditionally understood to form part of the natural resources of a country and therefore subject to sovereignty and self-determination of the state, as codified in the UN Resolution on Permanent Sovereignty over Natural Resources in 1962. The General Assembly and the United Nations Environmental Programme (UNEP), established in 1972, has developed a range of important environmental declarations and treaties over the last four decades. The 1992 Rio Declaration

announced that ‘peace, development and environmental protection are interdependent and indivisible’. In theory, the Rio Declaration could permit the Security Council to authorize military intervention under Chapter VII of the UN Charter.

Laws, covenants and international goodwill are one thing, but to give practical meaning to these positive values ultimately requires enforcement on the ground and there has been increased public acceptance of tough measures to protect wildlife. Developments in wildlife protection have ultimately crystallized into state directed military intervention such as the deployment of the Botswana Defence Force to protect elephants and rhinos and the South African armed forces patrolling the porous border between Mozambique and the Kruger Park tourist ‘hotspot’ where numerous rhinos have been slaughtered.

In Kenya, the 27 national parks are managed by the Kenya Wildlife



Service. Its ranger department is run on paramilitary lines: rangers are armed, wear uniform and employ spotter-planes and infra-red cameras. Between 1999 and 2007 42 Kenyan rangers were killed in anti-poaching operations.

By contrast, the Democratic Republic of Congo (DRC) is a failed state with almost no state institutions capable of offering protection to wildlife. In the 1980's, the Garamba National Park in the DRC boasted the last wild population of the Northern White rhino but was in disrepair. WWF and others, working with and supporting the DRC's wildlife authority, the Institut Congolais pour la Conservation de la Nature (ICCN), revived the Park in the early 1990s. However, in 1993, heavily armed members (or former members) of the Sudanese People's Liberation Army started poaching in Garamba and were more than a match for the park rangers. In 1994 the International Rhino Foundation (IRF) joined forces with the WWF to help administer Garamba, but two years later the DRC itself collapsed into full-scale civil war, with troops and guerrillas from all sides invading the park, forcing

**42**  
 No of Kenyan rangers were killed  
 in anti-poaching operations  
 between 1999 and 2007

many rangers to leave, resulting in the further slaughter of wildlife.

By 1997 the WWF was faced with a difficult choice. With Garamba taking up 60 % of its rhino budget, could it afford to carry on or use the money better elsewhere? The WWF reviewed its options. One was to employ private security companies to mount armed patrols and train local guards which to some seemed to be the only way of stopping the poaching. However, the estimated cost for this was over \$1million, just about WWF's total annual budget for rhino conservation.

In 2000, WWF handed over full control of the Park to the IRF, who

supported the use of private security. Five years later a plan to transfer five rhinos to Kenya - to provide an insurance population for later relocation back to DRC when their safety was assured - was vetoed by Congolese politicians who used the long-neglected rhino as a convenient nationalist vote-catcher, a decision that effectively signed the rhinos' death warrants. Following further attacks by heavily armed poachers the Northern White rhino is now believed to have been wiped out in the DRC.

The DRC is far more typical of the contemporary African state where the rudiments of governance are used as a means of exploitation and the enrichment of small elites. The absence of workable governmental structures necessitates external intervention through the activities of animal charities to help protect the endangered species. The message potentially communicated by the heightened interest in conservation is that the welfare and protection of animals is more important to westerners than the welfare and protection of Africans, who have been left to suffer and die in their millions as a result of war, famine and under-development.

Conservation organizations struggle to confront the dangers to sensitive animal populations with 'soft' power solutions in areas where state power and corresponding civil institutions are weak. 'Hard' power is the only realistic answer to wildlife protection in many parts of the world. The use of force to protect wildlife has arisen out of necessity. ●

**FELIX PATTON** is a rhino ecologist, who writes and broadcasts about the species from Africa and Europe. He is a frequent contributor to SWARA.

**This article summarises a paper by Jasper Humphreys of the Marjan Centre for Conflict in Conservation of Kings College, London.**

# SOLIO:100 NOT OUT AND LOOKING THERE TO STAY

BY FELIX PATTON

On January 21, the four-and-a-half year-old female Moraa became the 100th black rhino to have been bred at Solio Game Reserve and moved to a new home. On this occasion Moraa was relocated to the newly designated Ruma National Park in western Kenya.

Moraa was the seventh rhino captured by the specialist KWS unit as part of an operation to move 11 black rhinos from Solio to Ruma as founders for a new breeding population along with nine other rhinos moved from Mugie Ranch.

Commenting on the translocation, Solio Director and General Manager Edward Parfet said: "It was a special

moment to see the 100th black rhino leave Solio. My deceased father, who was instrumental in breeding rhinos to help stock other sanctuaries throughout Kenya, would have been proud to see we are continuing his work with great success".

During the 1970s and early 1980s, Mr Courtland Parfet, then owner of Solio, the first fully-fenced wildlife sanctuary in Kenya, agreed to look after 28 black rhinos for the Kenyan government. The excellent habitat meant that these rhinos bred rapidly and so the population grew too big for the facilities. By the end of the 1980s new rhino sanctuaries were being started and Solio's rhinos were in great demand to start new breeding populations. National Parks such as Nakuru, Tsavo East and Aberdares have benefitted along with private sanctuaries including Lewa Downs, Sweetwaters/Ol Pejeta Conservancy, Ol Jogi and Mugie Ranch.

KWS Senior Veterinary Officer and Senior Warden in charge of capture and translocation, Dr Isaac Lekool, thanked Solio for the 11 rhinos for Ruma and for having made such a special

contribution to rhino conservation in Kenya.

Having reached the milestone of 100 black rhino translocations, Solio has no intention of slowing down. During the capture of Moraa, her mother Nanjala was seen with a new calf as the reserve continues its breeding success. Perhaps one day this calf will be among a group from Solio to be founders for another, much needed, new rhino sanctuary in Kenya. ●

1. Dr Isaac Lekool, KWS Senior Veterinary Officer and Senior Warden in charge of KWS Capture and Translocation Unit (left) and Edward Parfet, Director and General Manager, Solio Ranch Limited with the black rhino Moraa, the 100th to be moved from Solio to other reserves in Kenya.
2. Moraa lies quietly anaesthetised prior to it being prepared for shipment to Ruma.
3. Four and a half year old black rhino Moraa walks in Solio Game Reserve before its capture.
4. Female black rhino Tope takes a dim view of KWS trying to catch it to move out of its Solio home.



# RARE PARASITIC BEE GENUS DISCOVERED IN KENYA

BY DINO MARTINS

East Africa is not just home to spectacular herds of large mammals and predators, but also to a diverse and beautiful bee fauna. When one thinks of bees, the familiar honeybee comes to mind. The honeybee is just one species of bee (*Apis mellifera*), that lives in social colonies

with sterile female workers and a queen. There are many other species of bees in East Africa. Most of these are solitary (not social) species that forage and construct and provision nests singly.

Nearly 20,000 different wild bee or native bee species have been described to date. There is no exact figure for the

number of bee species in East Africa, but it is likely to be quite high as bees prefer hot and arid conditions and East Africa has plenty of seasonal arid and semi-arid landscapes.

While most bees work hard (well, the females do!) to collect pollen and store it in a special brood cell for their larvae, some bees are parasites and specialise on exploiting other bees' nests. Parasites are typically rarer than their hosts, as they are subject to something biologists call 'frequency dependent selection'. This basically means that parasite populations have to track those of their hosts, and the parasites can never become more abundant than the host (not for long anyway!) as this would lead to the host population crashing, and therefore the parasite population too.

Nonetheless, there are many different kinds of parasites in the world. After all it is much easier to live off others than to work hard and support yourself. It is estimated that close to half of all the biodiversity on this planet, is parasitic in some form. This also applies to the hardworking bees.

There are many different parasitic species of bees. Parasitic bees typically lay their eggs like cuckoos in other bees' nests, which saves them the trouble of having to forage and stock up on food for their larvae on their own. Some of the parasitic bees are among the most rare and beautiful of the bees.

On a trip to look at bees last year with one of the world's leading bee taxonomists, Professor Laurence Packer from Canada, we discovered a rare and enigmatic parasitic bee that had not been recorded in Kenya before.



Female *Chiasmognathus* foraging on a desert herb.



Host bees: these are the bees that the *Chiasmognathus* most likely exploits. on the left is a female *Ceylalictus* sp. and on the right a male *Nomioides* sp.



which are seasonally carpeted with wildflowers, are among the most bee-rich habitats in Eastern Africa.

Along a road overlooking the cobalt-blue lake shimmering with pink flamingos we stopped to look for bees visiting a wide array of flowering herbs in the drainage area along the road. A few minutes into our work I heard Professor Packer exclaiming wildly and looked up to see him leaping about with his net. I ran over and he reached into the net and gently pulled out a tiny bee that at first looked like just a speck of dirt. Peering closer I could make out that this was a tiny (and enraged) bee that was valiantly trying to sting the professor.

This parasitic bee *Chiasmognathus*, appears to exploit the common dryland bee called *Nomioides* in Kenya. These tiny, black and yellow bees are very common and nest in the soil. Each female *Nomioides* tends her own nest, which consists of a burrow leading to a series of special chambers called brood cells that she packs with nutritious loaves of pollen to nurture the eggs that she lays within when they hatch into larvae.

The parasite *Chiasmognathus* appears to exploit these brood cells by sneaking in and laying its own eggs in the brood cells where the larvae develop and feed. The *Nomioides* bees, while each female is solitary and collects food

**ON A TRIP TO LOOK AT BEES LAST YEAR WITH ONE OF THE WORLD'S LEADING BEE TAXONOMISTS, PROFESSOR LAURENCE PACKER FROM CANADA, WE DISCOVERED A RARE AND ENIGMATIC PARASITIC BEE THAT HAD NOT BEEN RECORDED IN KENYA BEFORE.**

This bee is in the genus *Chiasmognathus*. It is an enigmatic bee, a tiny parasite, just a few millimetres long. Previously in sub-Saharan Africa, these bees were only known from a single male specimen collected from the Sahel region in Niger in West Africa. Most of the other species of *Chiasmognathus* have been collected

from the Middle East (UAE, Oman and Yemen) and parts of Central Asia including, Tajikistan, Uzbekistan, Iran and Pakistan.

We first found it at Lake Bogoria in August where the incredible rains in the later months of 2011 had transformed the landscape into a sea of greenery and flowers. Areas like Lake Bogoria,



The author standing in one of the open semi-desert sites in South Turkwel, Turkana. Even though this landscape looks bleak, it is rich with life and especially so for bees. Brief rains transform the ground into a carpet of flowers and this is when the many different species of bees appear.

for her nest only, do live in aggregations and many females can often be found nesting together in a patch of bare ground.

A few weeks later in September 2011, I was up in Turkana at the Turkana Basin Institute teaching for the Turkana Basin Field School. The incredible rains had also reached the semi-desert of Turkana and transformed the landscape of dust and sand into one of waving *Aristida* grass and carpets of wildflowers.

It was heavenly and a perfect opportunity for my students and I to look at bees and flowers in the desert. We spent many happy hours watching the comings and goings of bees. One of the things we did was look at the movement and diversity of pollinators visiting different flower species. This was a hard lesson for the students as it involved sitting still for long periods of time watching a patch of flowers. One day I settled all the students at different flower species, and then feeling that I had to set a good example myself, sat down on some open ground where a tiny succulent herb called *Gisekia* was flowering.

There were a few *Nomioides* zipping about, the females hard at work gathering pollen and the randy males trying to impress them. Then out of the corner of my eye I spotted a tiny black-and-red bee nonchalantly grooming itself on one cluster of flowers. My heart skipped a beat as I realised that it was the rare parasite *Chiasmognathus*! The students realised that something was up, and that despite the odds of my having had too much sun, this was really interesting. We were able to find the nests of *Nomioides* among the roots of an acacia tree, where a small number of parasites were also patrolling. They were waiting and watching carefully for the *Nomioides* females to leave their nests so that they could sneak in an lay

some eggs quickly while the host was away hard at work.

One might question as to why it is worth spending many hours of one's life looking for rare and obscure parasites in the desert. However, even the furtive glimpses accorded to us of these creatures' fascinating lives help us as biologists weave together a little more their story in fabric of life.

We need to care about, and equally importantly learn about, all the species around us, both great and small. Understanding parasites offers insights into the evolution of life on the planet to which we are all connected and this is especially important given the rapidly changing world that we live in.

### Acknowledgements:

Many thanks to Professor Laurence Packer, Prof. Michael Engel, Martha N. Mutiso, William Kimosop and his team at Bogoria, the students from the Turkana Basin Field School, Dr. Anja Deppe, students from Hillcrest School (Elleni, Tashi and Nekesa), Drs Richard, Meave and Louise Leakey, Ikal Angelei and staff of the Turkana Basin Institute. For more information on research and conservation in the Turkana Basin please visit:

[www.turkanabasin.org](http://www.turkanabasin.org)

# Threat to Kenya's Coast Colobus



**BY DAN STILES**

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Dan Stiles first came to Kenya in 1971 to assist on the Koobi Fora paleoanthropology project at Lake Turkana. He taught at the University of Nairobi from 1977–1981 then worked for UNEP and other UN agencies for several years. He has researched extensively in

Africa and Asia on forest and drylands natural resource utilisation. Since 1999, he has been carrying out ivory trade studies and is currently coordinating an IUCN elephant meat and ivory study in Central Africa.



Angola black-and-white colobus monkey (*Colobus angolensis palliatus*)

The Angola black-and-white colobus monkey (*Colobus angolensis palliatus*) is a flagship species for Kenya's south coast. This striking creature once lived far to the north along the coast, but hunting for

its colourful skin, used by traditional dancers, and for bushmeat has wiped it out north of Mombasa.

Before the last Ice Age colobus ranged from western Africa across to the east coast. Even today, after geographic separation caused by climate and vegetation changes, the same species lives in Angola and Kenya, though the

subspecies differs. The colobus living in Diani Beach, a fast growing resort town, are becoming seriously threatened by the clearance of forest for development. Hotels, cottage rentals, residences and shopping centres are replacing forest



Peter Ndungu of Colobus Trust shows an area of coral rag forest cleared illegally to make way for a hotel.

at a blistering pace. Colobus are not the only wildlife affected. Five other primate species and hundreds of other mammal, reptile, bird and invertebrate species, many of them found nowhere else, are losing their homes to human encroachment.

The Diani forest is an important remnant of what has been termed 'coral rag' forest, as the plant life grows mainly in weathered fossil coral. This rare type of woodland, endemic to Kenya, has been identified by IUCN as an East African Biodiversity Hotspot and by Bird Life International as an Important Bird Area. In addition, it is part of the Eastern Arc and Coastal Forest system, which is one of 25 global biodiversity hotspots and one of 11 priority regions for international conservation attention.

In spite of its great rarity and immense biological value, very little is being done to protect the Diani and other south coast forests. Large-scale development in principle is controlled by Kenya's Environmental Management Co-ordination Act, in which an Environmental Impact Assessment should be undertaken. But developers flout this law, along with provisions of the Forests Act and the Antiques and Monuments Act, to clear forest land with impunity, obliterating rare endemic species and archaeological sites.

The Colobus Trust, a conservation NGO based in Diani, and the South Coast Residents Association have been trying to gain the co-operation of Kenya's National Environmental Management Authority, the Kenya Forestry Service and local administrators to enforce the laws. Unfortunately, with little success. The developers have money and political influence, which count more than the law in Kenya.

Ironically, those in the tourist industry tout Diani as 'an unspoilt tropical paradise... set in one of the last vestiges of virgin coastal rainforest.' Yet it is they who are paying for the bulldozers. ●

PHOTO BY: DAN STILES



PHOTOS BY: JOHN ALPORT

# NO BIBLES AT A SAMBURU SUNDAY SCHOOL

BY ANDY HILL

*Sunday schools simply attempt to offer meaningful instruction concerning Christian doctrine and keep little or no record of performance for any given week. Attendance is often tracked as a means of encouraging children to attend regularly, and awards are frequently given for reaching attendance milestones. (Wikipedia).*

There's not a bible in sight at the Ewaso Lions Sunday school. Not a hymn is sung. But there is, in the stillness of the classroom and the scent of the savanna outside, a feeling of reverence for a doctrine. Its name is conservation – the sound management of people, wildlife and the habitat they share.

Welcome to the Ewaso Lions Sunday school for Samburu warriors. The students are young men who are swapping the killing of wildlife as a display of manhood to the conservation of the environment as a tool of social

and economic advancement for their remote and poor community.

It's a striking sight: a dozen or so warriors dripping in red ochre and elaborate finery, perched around desks meant for children a third of their age – and learning the alphabet in a dusty village in the Westgate Community Conservancy in Kenya's Samburu region.

Their teacher, Shivani Bhalla, lays a word in front of some students and asks one of them to match the letters to an animal picture. You can see the name being strung together on the lips and





**FACING PAGE LEFT:** Samburu Warriors Dancing.  
**TOP:** Jeneria works with Ewaso Lions Warriors.  
**INSERT:** Lemeen, a Warrior from Naisunyai, practices writing animal names.

in the mind of Lpuresi. O-S-T-R-I-C-H. OSTRICH! He jabs the picture, the right one, and triumph beams from his face, and from every other face around the tiny table.

“We teach them to recognize animals and spell their names. It’s the first time they have learned to read or write. Then we teach them how to use a GPS to track animal movements. They are becoming our park rangers and the eyes and ears of the community,” she says.

It’s her idea of getting the local community involved in conservation, the central tenet of the Northern Rangelands Trust (NRT) philosophy. This patchwork of 16 locally managed conservancies covers some three million acres of land and a population of around 60,000 pastoralists. Each guest who visits the many lodges within the conservancies donates \$50.00, which supports the community through

**“WE TEACH THEM TO RECOGNIZE ANIMALS AND SPELL THEIR NAMES. IT’S THE FIRST TIME THEY HAVE LEARNED TO READ OR WRITE. THEN WE TEACH THEM HOW TO USE A GPS TO TRACK ANIMAL MOVEMENTS. THEY ARE BECOMING OUR PARK RANGERS AND THE EYES AND EARS OF THE COMMUNITY,” SHE SAYS.**

school-building, awareness-raising, education and health clinics.

Bhalla is “headmistress” at the Sunday School, founder of the Ewaso Lions Project and as dedicated a conservationist as you will ever meet. Tiny in size, she is huge in influence and her flamboyant students clearly think the world of her.

There are, in truth, few lions about in Westgate these days but that’s in

line with the depressing national trend. There are perhaps 2,000 lions in Kenya today, and about 100 are dying each year because of poisoning, hunting and persecution.

She became interested in them while working with Iain Douglas-Hamilton’s Save the Elephants foundation and realised that little study had been done on lions in the Samburu region. It became the subject of her doctorate,

## SPOTLIGHT



PHOTO BY: PAUL THOMSON



PHOTO BY: SHIVANI BHALLA

**TOP:** Collaring Lguret, maneless male lion in Samburu.

**BELOW:** Jeneria Lekilele, Ewaso Lions' Field Officer (on the left) teaches Lpuresi Lenawasae how to use a GPS.

much of which is committed to keystroke in one of the tents which serve as her home – one to sleep in, one to work and eat in. These are pretty basic army tents, not the cocktail lounges with tent pegs you will see at some of our more luxurious encampments.

With the help of the warriors and scouts, Bhalla is monitoring and tracking the wildlife in and around Westgate, ticking off a lot of statistical boxes for her forthcoming doctorate and, in the process, blending traditional Samburu pride and a hunger for change into a force for conservation.

“The warriors were a neglected entity in wildlife decision-making within this Conservancy,” says Bhalla, while the students change groups, feathers rustling and beads clicking, to work on another exercise.

“But they shouldn’t be neglected. It’s part of their culture to grow up alone in the bush, so they are the eyes and ears of the community. They see everything, every significant movement of people

or wildlife or weather. So instead of excluding them I thought, let’s involve them.”

And involve them she has. A key problem, not one faced in Samburu alone, is the war between livestock owners and lions. With discussion and guidance, Bhalla has brought the warriors – avenging angels for lost livestock in the past – to become apostles of sensible herding.

“One of the key problems here is the number of unattended livestock roaming around, or the fact that the people left to herd this are just kids. The warriors have come to realise that this is just asking for lion trouble. So now when they spot unattended or vulnerable herds, the message comes back to the community, and action is taken.”

“These guys, (as she speaks there is an eruption of laughter – someone has been caught cheating at a memory game) are spreading the word about how to protect your livelihood and your

PHOTO CREDIT: EWASO LIONS



**TOP:** Shivani with one of the students in class.

**BELOW:** Shivani and Jeneria work with Lpuresi on how to use a GPS unit.

livestock. They love to learn. To get to this class today, some of them left their own villages yesterday, and walked all the way.”

Westgate is on the key Kipsing corridor that links the National Reserves of Buffalo Springs, Shaba and Samburu to the private and community conservancies in Laikipia. Elephants, Grevy’s zebras, wild dogs and other game move up and down this corridor. Visitors to Westgate often include groups going to the neighbouring National Reserves and to overnight at Sasaab, an airy lodge overlooking the Ewaso Nyiro and its processions of bathtime elephants.

Westgate comprises the Ngutuk Ongiron Group ranch covering

87,000 acres and some 3,500 people, most of whom depend on tourism to supplement their traditional livelihoods from herding cattle, sheep and goats. The Lodge is pivotal in directing donors towards funding projects in the conservancy such as school building and finding bursaries for students. “We’ve been lucky to have a lot of generous donors, especially Americans. They come here and see what is going on and they want to be a part of making change,” says Tony Allport, until recently the manager of Sasaab.

And are the warriors making a change in perceptions and behaviour, to use NGO-speak?

“We selected 15 engaged and influential warriors for this

programme,” says Bhalla. “And they are spreading the message, making changes. Before, if a lion or wild dog or cheetah were spotted, they would go off to kill it or chase it away. Now, instead, they spread the word and the herders avoid that area,” Bhalla says. “And they are teaching each other. The message is spreading. Conserve, don’t kill.”

It’s clearly fun for the warriors, too. One of the learning games used is Pelmanism or Memory games in which a few dozen cards picturing animals are turned face down on a desk, and each warrior is allowed to turn over two cards, and then replace them, in the hope of memorizing where a pair lies. The winner is the one with most pairs.

The fun is just the catalyst to learning. By being able to read and write the names of animals, and more, the warriors can communicate with conservancy scouts and NRT teams and enter information into a GPS and Ewaso Lion’s monitoring system and data bank.

“Before I came here, the only letters I knew were A, B and C. Now I know them all and I know how to write them,” says Lpuresi. He has somehow planted artificial flowers in his headdress and has the top of a suntan lotion bottle protecting the handle of his Simi or sword. Adornment is all, but conservation is also becoming part of the culture too.

“Wildlife has brought many people together for the good of all people. Many of us now look after and protect the wildlife. It was never like that before. It was a struggle before. Now we are a team, and I am part of that team and I am very happy,” he says.

“When I was younger, I would walk in the bush and I would see a dead animal and I would ignore it. Now I know so much. If I see a dead animal now I understand what killed it and why and I can tell the others and prevent more deaths. We are warriors, but we are all helping each other.” ●

**For more information:**  
[www.nrt-kenya.org](http://www.nrt-kenya.org)  
[www.ewasolions.org](http://www.ewasolions.org)  
[www.sasaab.com](http://www.sasaab.com)



# THE AMBOSELI ELEPHANT BABY BOOM



PAOLO TORCHIO AND MAGALI' MANCONI

Even from afar, we can see that the group of elephants is behaving in an unusual and agitated manner; the animals huddle together in a compact group, shoulder to shoulder, and circle around, switching positions without ever leaving a gap in what seems to be a formidable defensive wall.

We had seen something similar a little earlier, but that elephant family was protecting a calf born a few hours earlier as they guided the new-born animal on its first steps across the plains.

But this group is not moving at all. It's clear that what is happening here is

one of the most intimate and complex moments in the life of an elephant: A Birth.

We get as close as the tracks allow and wait. We cannot see much through the barrier of elephants' bodies but it's clear from the excitement that something is about to happen at any moment, and that excitement spreads to our car. Nobody speaks. The silence within the 4WD is one of nervous expectation.

Suddenly something happens and three of the larger females raise their trunks and blare out heart-rending trumpeting to the sky.







At the same time the whole group starts a strange dance, stamping the ground and digging up the earth with their feet. They dig and shift the soil like tractors, throw big sheaves of grass in the air with their trunks. It falls down, covering their backs and heads, then they throw more earth, and then grass again, creating a bedlam of movement and dust.

Finally we spot a dark bundle on the ground. It only reveals itself as a new-born elephant calf when it raises its small trunk to the sky. It is between the protective legs of the mother, but all the other members of the family appear to want to take part in the party. They enthusiastically approach the calf, they touch it with their trunks, sometimes pushing it with their strong feet, even giving us some moments of apprehension, but in spite of their mass, elephants can be incredibly subtle and caring.

More than an hour passes before the excited family allows us to see something more of the new arrival, and we finally witness the little one's very first uncertain attempts at standing up. Though lovingly aided in this first exhausting task, the little elephant collapses ridiculously on the ground countless times, but finally there it is, erect on its four legs, and for some moments clearly illuminated by the sunlight.

In the car we are moved and happy, as if we were part of the group. I am convinced that, at that moment, if we had been equipped with trunks, we too would have sounded our excitement to the sky. At the time of this wonderful experience we were in the Amboseli National Park, to document the exceptional number of births to elephant families this year.

More than 100 calves have already been born in these few months, and the number appears destined to grow. The cause seems to be the great drought

that hit the entire country in 2009, with the consequent loss of a large number of young elephants that were not able to survive. Due to the scarcity of pasture and consequent weakness, the females blocked their reproductive cycles, coming back into heat to be fertilized more or less simultaneously at the beginning of 2010, when the abundant rains restored the ideal conditions for reproduction.

This is why after around 22 months of pregnancy, we were witnesses to an extraordinary number of births more or less simultaneous and rarely documented before. The spectacle of all these tiny elephants toddling between the mothers' legs, slowly crossing the plains of Amboseli, is exhilarating, but reignites the hope that these marvellous pachyderms can grow undisturbed, and above all without being caught in the sights of poachers' guns.



**ITALIAN BORN PAOLO TORCHIO AND WIFE MAGALI' MANCONI** are wildlife enthusiasts who live in Kenya. You can see more of Paolo's work on



PORTFOLIO

# SUNBIRDS ON PLANTS - NATURE IN ACTION

*By Paolo Torchio*



Female Collared Sunbird



Female Bronze Sunbird





Male Bronze Sunbird

PORTFOLIO



Female Bronze Sunbird

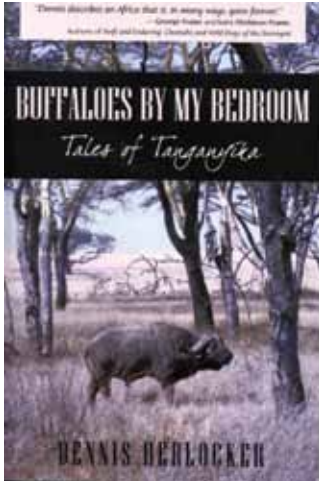


Male Bees



Beautiful Sunbird

**BOOK REVIEW**



**ARTISANAL FISHING GEARS OF THE KENYAN COAST**

**By: Melita Samoilys, George Waweru Maina and Kennedy Osuka**

**Published by: CORDIO East Africa**

**First Edition 2011**

**ISBN: 978-9966-21-115-6**

Simple, relevant and straightforward is the summarized description of the book.

This publication comes at a very timely period in the fishing industry, where the government is in the process of reviewing the use of Ring Net fishing along the Kenyan coast amid confusion over its legality and use.

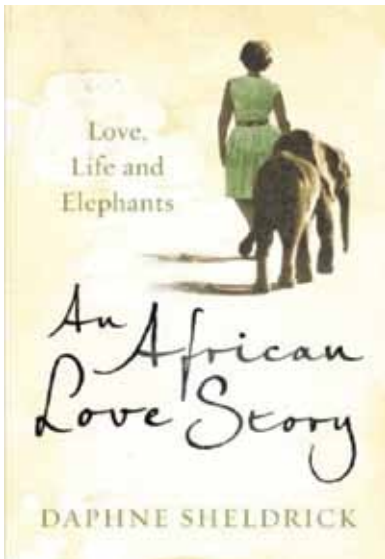
As described in the book, a Ringnet or “*Nyavu ya Kufunga*”, the Swahili term, is a “small purse seine (1.2 – 7.6 cm) made of multifilament nylon mesh netting which is suspended from floats and weighted at the bottom....it is deployed from either a single vessel or by a ‘mother’ vessel and a smaller support vessel, with a crew of 15-40 fishers” It targets offshore surface water species such as tuna and in outer reef slopes it catches fish living near or at the bottom of the sea such as snapper.

The book further describes the negative impact of Ring net fishing on the habitat and fish populations that include damaging living seabeds; damage to corals; targeting spawning aggregations; as well as catching a high number of juveniles and discards. It suggests that if it is properly deployed offshore in surface waters in depths of > 50 m it can be a very cost effective fishing method.

This fishing gear which is neither traditional nor modified traditional is listed as introduced and currently under legislative review.

The publication therefore gives the reader a brief and clear summary of 15 types of artisanal fishing gear used along the Kenyan coast. It highlights: the Swahili name of the gear; the type of gear (traditional, introduced or modified traditional); the dimensions and units; how it is deployed; the target species; the by catch; the impacts on fish populations and habitat; the advantages and the legislation governing its use. Each gear is limited to two pages with photographic references hence does not overburden the reader with information.

The book is a much needed reference book that will contribute towards sustainable fisheries by providing clarification on the different types of artisanal fishing gear for managers, fishers and other relevant stakeholders. It is simple, easy to read and clear, thus it is easily understood by a large audience. We might just need a Swahili version to complete it!



**AN AFRICAN LOVE STORY**

**DAPHNE SHELDRICK**  
**Published by:**  
**ISBN No.**

**By Iain Allan**

If it had not been for David Sheldrick it is likely that Tsavo East National Park would not exist today. It is 35 years since his death. But even if the great work his wife, Daphne, has done with the David Sheldrick Wildlife Trust had never

happened, his name would still be stamped on the landscape of this magnificent region of Kenya. As its Senior Warden, he created Tsavo East, laid its road systems, and unfalteringly protected its wildlife.

In Daphne Sheldrick’s new autobiography, AN AFRICAN LOVE STORY she describes her family settling in Kenya in the early

1900s, her own growing up in the colony, and the deep love she shared with her husband David, set against the turbulent canvas of Tsavo. Daphne is an easy lady to respect. She has devoted the greater part of her life to raising orphaned elephants, and what she has learned from them has contributed greatly to their fragile existence. She has written some of this before in her excellent THE TSAVO STORY (1973), an underrated book, and one that I have - in my own 34-year involvement with Tsavo - turned to frequently. I wish I could say the same about Daphne's new book.

Since the publication of Born Free and the subsequent stardom of Joy Adamson, Kenya has produced more "wildlife celebrities" than any other country in Africa. To many their word is inviolable and to question or criticize can be tricky. Daphne Sheldrick is deservedly part of this group.

Her work, books, and recent films are one of the few positives for Kenya's beleaguered tourism industry, which struggles with the tarnished image of the country. It is therefore with a reluctance to criticize, and a certain caution, that I review her new book.

The first third of AN AFRICAN LOVE STORY is excellent, and I enjoyed reading about Daphne's growing up, the honesty with which she describes it, and for me the book held together until the point where she meets David. The deep love they shared is the African love story that is the backbone of the book, and I can easily understand why Daphne would wish to paint only the

most glowing portrait possible of David, but by doing this she has inadvertently made him one-dimensional. Has any man ever attained such levels of sustained perfection as the one who is described here? From the moment we meet David he is walking on water. Was he ever wrong about anything? Were there any flaws, the flicker of a darker side? The kind of thing, if we are honest, exists within all of us? David Sheldrick had to be more interesting than this. The best memoirs and biographies are the ones that delve deeply into these darker corners because it makes the person more interesting and consequently easier for us to identify with. This is one of the reasons why the autobiographies of politicians aren't worth the paper they are written on. This one-sided approach sadly undermines some of David's greatest achievements, an example of which is his firm stand against the scientist Richard Laws, who advocated the culling of 300 elephants in Tsavo in 1967-68. Time would prove Sheldrick to be correct but the impact of this is diminished because by the time we reach this section of the book the reader has been brainwashed into knowing that David will undoubtedly be right anyway. This is a pity because Daphne writes this section well, you can feel the Sheldricks' pain and anguish at Law's ignorance, the sinister company Wildlife Services, and its boss, "Chickweed" Parker. After the deed was done, Daphne wrote...

"In a procedure that reminded me of my father's biltong days, the (elephant) meat was dried for sale; the feet sent to be converted into waste-paper containers or stools; the ears turned into handbags, briefcases or wallets; the hide cured to luxury leather; the bones crushed into bonemeal; and, of course, the ivory sold swiftly to dealers in Mombasa, with a share of the profit benefiting Wildlife Services. Pointing to his brand new plane some time later, "Chickweed" Parker said, "Your elephants."

Passages like the above are the reason why I bought this book but I found them few and far between. I understand the need to be careful in present day Kenya, but Daphne Sheldrick knows more about Tsavo than any other person alive and she has proved that she can write well about it. Over the past three decades Tsavo has had more than its share of controversy and I feel we have reached a point where such things can be stated rather than subtly insinuated.

As one would expect, there is a lot in the book about the elephant orphans, and we have read and heard many of these stories before. I have no problem with this. One can't help but admire Daphne's work in this area. Her knowledge of elephant behaviour is remarkable and has contributed greatly to the understanding that all thinking people now have of this magnificent animal. My problem is, and I am aware that my views are shared by the

minority: are we right to humanize them to the extent we do? Daphne writes:

"...David was openly contemptuous of those who viewed animals as a mere commodity placed on earth for the benefit of mankind, as well as those who had the "anthropomorphic block" which prevented them from accepting that animals were endowed with the same emotions as humans."

There is a worrying Disney-like tone to Daphne's well-intended descriptions of her orphans and household pets. Haven't we been humanizing wildlife for far too long? We've been doing it for hundreds of years. Foxes, remember, are sly; people "rat" on each other; we can be "catty". And on a more serious level, all this humanising of endangered species hasn't helped them much, their futures are still as bleak as ever. Perhaps it is time to look at different methods, accept that animals are not like us, that within the confines of their natural environments they are in many ways superior, start treating them as species that have "rights". To say that elephants share human-like emotions is insulting to them. Why not the other way round, they've been on the planet longer than us? Their tragedy is a simple one: there are just too many people in the world for them to have a chance.

I very much doubt if my views on AN AFRICAN LOVE STORY will be shared by many. Those who crowd the Elephant Orphanage at Nairobi National Park every morning will love this book, and I suspect that these are probably the readers Daphne has aimed it at. There is however, another book that needs to be written, and with her passion, knowledge, and writing ability, Daphne Sheldrick would have been the one to do it.

These days I often think about David Sheldrick when I'm in Tsavo. I don't think he would like it now. When he was there the population of Kenya was about four million, and when he left it was less than 15 million. Today it is over 40 million and the pressure on the park boundaries is unprecedented.

His beloved Tiva River, along with other areas of the park, has been plundered for bushmeat, livestock invades it from every direction, and there has been a recent surge in elephant poaching. In 2009 the southern region of Tsavo West became the temporary home of thousands of cattle, which ate all the grass, and consequently caused the deaths of about 80% of the hippo population on the Tsavo River from Mzima Springs to the Nairobi/Mombasa road. In his day, David Sheldrick would have stood up and done something about it. Therein lay the greatness of the man.

**Iain Allan lives in Nairobi and is a frequent visitor to Tsavo.**

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The Text Book Centre – Galleria, Junction and Sarit Centre.

# OF MAN (AND BOYS) AND BEASTS

BY PAOLO TORCHIO



What do these pictures show you? Is this peaceful co-existence between the Maasai and Amboseli elephants or is it a cameo of the human-wildlife conflict? We were watching a group of three large bull elephants drinking at the edge of swamp in one of the world's most famous National Parks.

Suddenly, a mooing herd of cows, their bells tinkling, arrived on the scene led by young Maasai herders intent on watering their charges at the same drinking hole as the elephants. We watched in amazement. The young boys showed no qualms about throwing anything they could lay their hands on at the elephants to get them to move away. As far as they were concerned, this water was for the cows alone.

All this took place deep inside a Kenyan National Park where there are strict laws to protect wild life, a national asset, to encourage tourism, tourists and economic growth.

What happens in Amboseli is replicated in the Maasai Mara and elsewhere. The herders see it as a right. It's illegal, but tolerated or too complex to prevent. Conservationists call it encroachment and wonder why bother to have parks with boundaries and rangers and all the attendant bureaucracy if the laws are violated on a daily basis with such flagrant and habitual disregard.





