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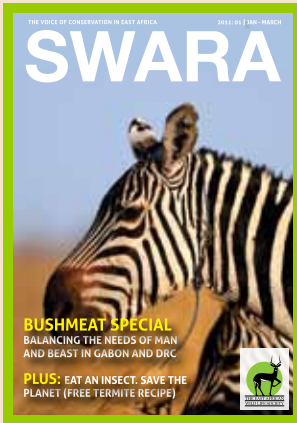


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The impala is the symbol of the East African Wild Life Society. 'SWARA' is the Swahili word for antelope.

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Just as SWARA 2010:04 was emerging in neatly packaged bundles from English Press, our printer and supporter, a letter landed in our inbox from Edna and Allan Jeffrey in England. "After 30 years' membership, I still look forward to receiving my copy of SWARA each quarter, but sometimes I am saddened by all the negative content. I

know there are many conservation issues that need to be addressed, but could they not be mixed with a few brighter stories?" A good point and we wish the Jeffreys well; their letter, and memories of their most recent trip to Kenya (we too hope it is not the last), appear on the Letters page. It looked like a memorable trip.

And there is good news too. All journalism is essentially about conflicts between opposing forces and in the case of conservation that conflict is between humans and wildlife. So it is uplifting to be able to showcase a story from the Democratic Republic of Congo, itself a cauldron of conflict, about people opting not to chop down the branch on which they are sitting. (pp. 16-19). Another example of local people protecting their livelihood branch is what is happening

with community conservancies in the Maasai Mara. (pp. 48-53).

We are grateful to Dino Martins for his amusing and enlightened take on the human consumption of insects (pp. 30-33) We would love to hear from anyone who tries his recipe for termite dip, or any other culinary creation that involves eating insects.

We hope you enjoy this, our first issue of 2011. As we go to print, we are on the cusp of launching the new EAWLS website which will, for members, include access to old issues of SWARA. Watch this space-www.eawildlife.org-in late January. ●

Andy Hill
Editor

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CHANGE OF EDITORSHIP

Dated: 02 December 2010

Dear SWARA,

I have only this week received (because it was sent to my old address and the box holder was out of the country) the EAWLS Membership Renewal form dated 16 August 2010. In it you suggest that a person has not renewed "due to the recent global financial recession" or the "previous failure not to produce the SWARA magazine on time."

I wish to state explicitly that neither is relevant in my case. I let my EAWLS membership lapse because I was deeply distressed by the way the previous editor was sacked. (I'm attaching the letter I wrote to you at the time-to which I received no response, not even a note of acknowledgement.)

Despite my anger about the way Gordon Boy was dismissed, to be fair I might have considered renewing my membership if under new editorship the magazine was at least as good as it used to be. (Coming out on time was never important to me either as a contributor or reader.) After I returned from a long stay in Ethiopia, I got the fourth issue for 2009. And found that, on the contrary, it had greatly deteriorated.

Under Gordon Boy's editorship, the covers were always stunning; the design of this one is hideous. I looked at the contents page, found it difficult to read. Some articles looked interesting, but when I turned to the page, I couldn't find the author mentioned until the end. A great many of the photographs were of poor quality, whereas previously they had all been exceptionally good. As a cat lover, I liked the last page, but why on earth was the story titled 'for a peak', rather than 'for a peek' it would have been far better to change the spelling of the first word to 'squeek'. And I find the overall layout extremely unattractive, unappealing to the eye, difficult to read.

I understand the problem new editors have: they have to change things around so as to make their mark. You write in your Membership Renewal form that "There has also been a significant improvement in SWARA in terms [sic] of contents and style." I see only deterioration. I would far rather SWARA came out a bit late and be a stunning world-class journal, rather than have it come out on time as a second-rate local magazine.

That is why, with true regret, I am neither renewing my membership nor contributing any more articles to SWARA. Please delete my name from your list.●

Cynthia Salvadori
Tel. +254 735 798 714
P.O. Box 547, 00502 Karen
Nairobi, Kenya

Dated: October 24, 2008

Dear SWARA,

I have greatly enjoyed contributing to SWARA all the years that Gordon Boy was its editor. He had turned it into an excellent magazine, full of interesting articles, a good

combination of short and long, with broad variety, and with excellent illustrations. And on a personal note, he was always scrupulous about not changing anything I wrote without my express permission. (Unlike your current interim editor who managed to insert mistakes in both the articles which appeared in issues she edited, -one on mangroves and the current one on 'ergams'.)

I was deeply shocked, therefore, when I heard from Gordon himself that he had been sacked as editor. I know there are always two (at least) sides to any story, and so I made a point of talking to people on the editorial committee. I then waited for the July-September issue to come out, in order to see what the director or the head of the editorial committee would have written to announce and account for Gordon's departure.

I picked up my complimentary copies yesterday and found to my astonishment that there was absolutely no mention of Gordon Boy at all, nothing about his 'leaving', not even a sentence to thank him for all the work he had done. He had simply been erased!

Not only Gordon but we contributors and readers deserve an explanation. I feel under the circumstances I cannot continue contributing articles to SWARA.●

Sincerely distressed,
Cynthia Salvadori
Tel. +254 735 798 714
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Nairobi, Kenya

EDITOR'S REPLY

Dear Cynthia,

I have forwarded your email to the new Executive Director for a response. Neither he nor I were working at EAWLS when Gordon left. I know nothing about his dismissal bar that it happened.

I have also forwarded this to Esmond Martin, who was a Council member at the time.

I can, however, take full responsibility for the many typos and other errors that afflicted the magazine when I took over. If you were to look at a more recent issue, I think you would find that these have, by and large, disappeared although perfection is still distant.

The look and style did not result from a new editor seeking to make his mark but from a new editor trying to implement the recommendations of the EAWLS Task Force on SWARA. Esmond Martin can vouch for that.

Thank you for writing.●

Andy Hill
Editor - SWARA



into 150-acre shambas, may well sound the death knell for the Maasai Mara unless the current conservation efforts hold sway with the resultant establishment of conservancies where cattle, goats and wild animals equally share the land, and the Maasai can be persuaded to refrain from selling/leasing their land for agriculture, quarrying, charcoal burning, etc.

National parks are sacrosanct. Most came into being because they did not have to dislodge any tribal settlement. The vast Tsavo East and West were uninhabited and so were the Maasai Mara and surrounding plains and woodland, mainly due to the prevalence of tsetse fly. Veterinary services have improved the health and life expectancy of pastoralists' cattle. In view of uncontrolled breeding, the wildlife suffers, already under huge pressure from the bushmeat trade.

Pastoralists contribute very little to the national economy. They do not breed their cattle for urban consumption or export. Their cattle remain lean and impoverished despite 50 years of independence from the 'colonial masters' (how I hate that term!). But tourism earns huge sums of foreign exchange, not to mention providing employment opportunities. It's in this direction the Maasai should diversify.

Blaming European settlers for taking away their land is nonsense (with a few exceptions). The land was uninhabited, unclaimed, under-governed and vacant. I doubt Professor Ian Scoones' and Dr Jonathan Davies' advocacy is in any way practical in today's African pastoralism.

A healthy balance between rearing livestock and protecting wildlife will eventually benefit those nomadic tribes. By championing an age old tradition of wandering over huge distances, Prof. Scoones is only perpetrating a culture stuck in ancient practices. Both sides have to give a little. The visitor must pay and the visited must protect. ●

Yours Faithfully
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PHOTO BY: EDNA & ALAN JEFFREY

Our last safari? We hope not!

Dear SWARA,

My wife and I may have just taken our last safari. We went to Kenya to see the migration. If it was our last safari, it could not have been more memorable.

Our safari started in Samburu with all its specialised species, and with a good chance of seeing leopard. Samburu is a beautiful park, and did not disappoint. One leopard in particular, was very accommodating, and gave us wonderful photo opportunities. The third time we found her she was resting up a tree, when suddenly she climbed down and set off



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at a pace. We followed her, keeping a respectful distance. We got ahead of her and positioned ourselves for some more great photos.

To our surprise, she came straight towards us, and without breaking stride, she lowered her body and disappeared under our vehicle. She reappeared on the other side, her body hugging the ground, her shoulder-blades working like pistons. It was then that we noticed a dik-dik behind the bush directly ahead of her. When only metres away, she froze, time seemed to stand still, and then suddenly she exploded forward. For a moment we lost sight of her amid the dirt and dust her powerful back legs kicked up as she launched her attack. The dik-dik never knew what hit her. Seconds later the leopard appeared from behind the bush with the dik-dik clenched firmly between her teeth. Amazingly, she repeated the feat the next day.

Our safari continued in the same vein while we were at Sweetwater's tented camp. On a night drive, we saw a Striped hyena with cubs; a Caracal; and a cheetah kill a Thompson's gazelle.

Moving on to the Mara triangle, where we hoped to see the migration in full swing, we were not disappointed. We saw three massive crossings, one where a crocodile caught a wildebeest. On our first morning game drive, we watched a lioness stalk and kill a zebra. On other days, we saw lions hunting hippo, Serval and Honey badger both hunting, four Cheetahs, one with six cubs, four Black rhino, a Rock python, a pride of lions which had taken up residence near a popular crossing point and killed almost daily, and the amazing sight of a Thompson's gazelle giving birth. Phew!

These were but the highlights. Kenya, and Africa as a whole, has so much more to offer. We can but hope we get the opportunity to visit again. ●

Edna & Alan Jeffrey
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Regional cooperation initiatives need reinforcement

BY FREDRICK OWINO

There are many cases where effective management of natural resources requires trans-boundary and regional approaches, including the development of relevant policies and legislation. The most obvious ones, and those attracting considerable regional and international attention and negotiating effort today, are all the questions related to forest-climate interactions-including the Reducing Emissions from Deforestation and Degradation (REDD) discussions-such as the ongoing regional arrangements for Congo Basin forests. Other environmental regional links to forests include biodiversity conservation (cf. trans-boundary national parks, such as the “four corners” area) and desertification.

There is a long tradition of managing Trans Frontier Conservation Areas (TFCA) and wildlife corridors, particularly in Southern Africa, e.g. the Kavango-Zambezi (KAZA) Park straddling Angola, Botswana, Namibia, Zambia and Zimbabwe, Greater Limpopo, Malawi-Zambia and mid-Zambezi-Luangwa areas. In East Africa there is the world

famous wildlife migration through the Serengeti (Tanzania) and Maasai Mara game reserves and the Mountain Gorilla corridor between Uganda and Rwanda. The managed resources in all these cases are focussing on the wildlife-there are very few, if any, cases where the forest and tree trans-boundary resources per se are the focus of management, even if there are many places where joint management of forest resources shared by two or more countries would be relevant and justified. Future actions are needed to strengthen the functioning of TFCAs. Furthermore, there is need to understand and to sustain ecological linkages between forests and national parks and wildlife reserves in all the countries.

The role of forests in cross-boundary hydrological conditions, while not a new question, is becoming more and more important as the water supply problems worsen-cf. the many “watershed” based programmes (the Nile, Zambezi and Limpopo Rivers, the Lake Victoria Basin, the Songue River Catchment, and the Okavango Basin programmes, etc.), or the “water tower” discussions in Kenya, and the Southern Africa Development Community (SADC) “Forest Protocol” emphasising the role of forest to shared water courses. Other water-related trans-boundary initiatives are the ones between Sudan-Uganda and Sudan-Ethiopia.

In some cases, trans-boundary forests and woodlands are degraded through settlements of large numbers of refugees. For example, forests and woodlands in the Kagera River Basin, which rises in Burundi and flows through Rwanda, Uganda and Tanzania into Lake Victoria, are facing increasing pressures and degradation as a result of sudden and big increases in population, mainly refugees, often relying on unsustainable land use and natural resources management practices. The basin’s land and freshwater

resource base, and its associated biodiversity, are threatened by a declining productive capacity of cropland, rangeland and forests.

The issue of international trade, and particularly how to reduce illegal trade (e.g. in timber, charcoal, rosewood, blackwood, wild orchids and other non-wood forest product (NWFPs), etc.) is the focus for the EU’s Forest Law Enforcement, Governance and Trade (FLEGT) process. Regional bodies, such as the Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC), are increasingly recognising the importance of intra-regional trade in forest products, and trade tariff agreements nowadays include these.

The general problem is that while countries sharing trans-boundary resources may already be party to several multilateral environmental agreements (MEA), sub-regional protocols and project-based bilateral instruments, nothing much is being implemented within individual countries because the agreements and instruments have not been “internalised” in country policies and legislation. The general trend has been for countries to become party to agreements, with good intentions, and then fail in follow up country actions, largely due to lack of technical capacity.

There are a few good examples where conservation programmes and projects are designed and implemented in full recognition of trans-boundary effects and influences. These include the UNEP Global Environment Facility (GEF) cross-border biodiversity project, the Mount Elgon Regional Conservation Project (MERCEP), implemented by IUCN, and the Uganda-Rwanda Mountain Gorilla project. Regrettably, however, these efforts are pegged to short-term donor support.

In general, there is no sufficient capacity to analyse the regional

I would personally like to welcome the following members to the East African Wild Life Society:

KENYA:

Mark and Anne Simpkin, Ms C Pulver, Nele Forch and Sajid Darr, Mr and Mrs Steve Tankard, Alison Flatt

BOTSWANA:

Pat Drury

USA:

Virginia Dean, Eileen Manchester



implications, problems and opportunities associated with them. Furthermore, there are no national and regional policies and resources in place to address them. It is in this regard that some emerging regional and continental initiatives to support such analyses are making great impacts. For example, the African Forest Forum has, in its short time in

existence, either taken a lead in or been asked to contribute to assisting African governments and regional bodies with technical and policy advice in connection with some of these issues and processes. However, the capacity of the African Forest Forum and its expert and working groups is far from sufficient and there is a need in Africa to build up a solid capacity,

also at existing regional bodies, to analyse and provide advice on technical and policy aspects of regional and trans-boundary issues.●

Fredrick Owino
Chairman - EAWLS

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Nature Kenya, strongly objected for a variety of reasons. These reasons included opposition to felling Dakatcha Woodland, which is a forest of high biodiversity significance; opposition to growing Jatropha, when all the evidence shows that the crop has little chance of succeeding in these circumstances; and opposition to converting community land to commercial leasehold, without any evaluation of existing uses and rights. NEMA denied the application, but allowed the company to reapply for a pilot 10,000 hectares. We have again objected as in addition to our original grounds, we feel 10,000 hectares is not a pilot and the constitution must now be considered in handling such matters. We await NEMA's decision.

OLOOLUA FOREST

The Society is concerned on possible illegal allocations of land in Oloolua Forest adjacent to Nairobi. We are seeking information to establish if this is the case.

NDARAGWA FOREST

Government has been encroaching into Ndaragwa Forest (Nyandarua District) for expanding a new district centre, without following the procedures set out in the 2005 Forest Act in regard to a possible excision. We have been supporting the lobby to have government set an example in following proper procedures. We understand the matter has now gone to court.

RING NET FISHING

Our advocacy, in conjunction with others, has led to a suspension of ring net fishing activities in the Kenya Coast. A task force has been established to review the situation and the Society is a member of that task force.

WATER TOWERS

We continue in various ways to be involved in the restoration of the Mau complex. Michael Gachanja has recently been appointed to the Task Force set up to cover all water towers.

WILDLIFE BILL

We are part of a small Ministry of Forestry and Wildlife team that is

WORKING FOR IMPROVEMENTS

BY NIGEL HUNTER

An important area of our work is championing the better use and management of our natural resources with the elimination of corrupt practices and personal vested interests that ignore Kenya's best interest. I want to highlight some of this advocacy work.

TANA DELTA

The Tana Delta communities have petitioned the courts to stop projects such as the TARDA/MUMIAS sugar project in order to give an opportunity for a multiple land use plan to be carried out with their full involvement. The communities are not saying no to development, but believe that the governments current approach has

ignored their traditional rights and ignores the environmental importance of the Delta and now ignores the requirements of the new Constitution and National Land Policy. The case is in its early stages and is attracting a lot of interest. The Society in partnership with Nature Kenya is providing technical advice and support.

DAKATCHA WOODLANDS

Following an application to Kenya's National Environmental Management Agency (NEMA) for 50,000 hectares of community land to be leased to a foreign company for Jatropha cultivation in the Dakatcha Woodland near Malindi, the Society in collaboration with



working on bringing the Wildlife Policy and Bill in conformity with the Constitution.

SERENGETI ROAD

In conjunction with 7 other NGOs, we have been bringing to the attention of the Kenya Government, the threats posed by the planned highway that crosses Tanzania's Serengeti National Park from east to west some 30-40 km south of Kenya's border. The concern is that this development will have a significant impact on the Mara-Serengeti wildebeest migration. We understand that the Kenya Government is concerned such that the matter will be discussed at presidential level. There are other ecosystem issues, such as the lack of an agreed management plan coupled with continued approvals of tourist developments relating to the Mara, which we will continue to try and have addressed.

LAMU AREA

The possible Lamu port development cannot be isolated from the fact that such development will introduce a new town, rail and road corridors and an influx of large numbers of people. This pressure will have enormous impact on an area of high biodiversity value as well as social and economic impacts on the local communities. It is vital that a coordinated planning and implementation approach is adopted. However there is growing uncertainty as to whether the Lamu initiative will occur. A recently signed agreement between S. Sudan and Uganda to build a railway from Juba to the existing Kenya/Uganda railway line brings a new dimension. We are seeking clarification in regard to this option.

LAKE NAIVASHA

Lake Naivasha's woes may be getting more attention, but despite letters to the Minister of environment to have the case processed, the management plan

developed five years ago in a widely supported consultative process still remains locked up in the courts. We will continue to urge for the management plan to be rescued, the plan updated and then implemented as soon as possible, in order to give the lake its possibly last chance for revival.

AMBOSELI NATIONAL PARK

The Amboseli court case was recently resolved in our favour. In other words Amboseli will remain a national park. This decision took into account the new constitution. We are hearing that the local council would like the decision reviewed.

Nigel Hunter
Executive Director - EAWLS



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OPINION



PHOTO BY: JONATHAN AND ANGELA SCOTT



Do we need nature? A zebra replies

BY FRED BURCHELL ALIAS BRYAN HARRIS

What a question! Only a dumb human could ask such a thing. I'd really like to meet the person responsible for it and measure the width of his or her forehead because I bet I'd find a match with their semi-primate ancestors who, thousands of years ago, passed through these self-same plains that are home to me today. You see I am a zebra and I've just about had enough of the human race. I mean who is the "we"? You! An arrogant collection of bipeds who consider the world your oyster to do with as you wish.

What about "us"? I know you think we're just some peculiar offshoot of the horse family wearing funny jerseys. Gee, (pun intended) I cannot recall just how many times I've overheard some safari-booted, bush-jacketed, know-all tour-guide telling a captive audience crammed into a minibus here in Nairobi's National Park, that each of us has a distinctive pattern of markings with the result that our stripes are as individual as fingerprints are to humans, blah, blah, blah.

Then, nine times out of 10, the youngest member of the party will be asked whether the stripes are black on white or vice versa, and which English football team we play for. Cheap laugh, Newcastle United. Ha, ha, or rather, hee-haw. Then, the party has to endure a dose of the current (human) thinking about the crucial importance of nature and how it must be preserved at all costs. The sheer hypocrisy of this last point always makes me bray and buck

my back legs. And why? Because not more than a few kilometres as the crow flies from this very spot lies Kenya's most popular restaurant, beloved of tourists, air crews and even do-gooders of all persuasions. And what is its name and claim to fame? Well, it's the Carnivore Restaurant, known around the world for serving meat from wild animals. Looking after our welfare indeed!

You're probably thinking that I'm irreconcilably antagonistic to the human race. Not so. We animals lived alongside the original human inhabitants of these plains in a reasonable state of co-existence for a very long time indeed, and I'm told that my ancestors even felt sympathy for early hominids, being as they were a pretty stunted bunch, usually huddled together for warmth with not a stitch between them. Fairly brainless too by all accounts, (just consider that massive brow ridge), so much so that even wildebeest outwitted them and so, as often as not, they had to rely on blind luck by stumbling on a kill which they'd share with the jackals and vultures.

Yuck! So, Homo sapiens ipso facto equals intelligent being equals the ultimate creation? Now isn't that an example, if ever there was one, of mankind's arrogance? Having scabbled around for millions of years at the bottom of every pecking order, suddenly, and in the blinking of an eye relative to eternity, you emerge as top dog.

Maybe you're thinking how overbearing, even snooty, I've been

throughout, but if you are, you ought to meet my cousins, the Grévy's zebras (the textbooks refer to us as the Common-ughhh!-or Burchell's zebra) who inhabit the dry bush country of northern Kenya, some 300 km from here. They have pencil-thin stripes and fancy hindquarters which they claim prove they must be further up the evolutionary ladder. Ridiculous of course, but they're so la-di-da that they won't give us commoners the time of day and never visit. How like their human counterparts!

Finally, and getting back to the subject, when it's almost too late, the fashionable talk is about ecology, biodiversity, saving the planet and all that mumbo-jumbo, while the destruction of the environment continues unabated everywhere. Do we need nature? We in the animal kingdom certainly do, but so do you, just as much, in fact much, much more than you could ever imagine. For goodness sake, wake up, get real and stop asking stupid questions! ●

BRYAN HARRIS has written a wide range of articles, features and short stories for practically every publication in Kenya, including this issue of SWARA (pp. 48), since 1950. 'Do we need nature?' was originally written in an extended form for an international essay competition sponsored by Shell Petroleum and 'The Economist' magazine.



Breaking the bushmeat cycle in Congo: A good news story

BY TERESE AND JOHN HART



Black fronted duiker in a metal snare trap in the forests of Kailo Territory, Maniema Province, Democratic Republic of Congo (DRC).

The provincial governor took the podium for the closing remarks. “I want you all to know that after this presentation of the important flora and fauna of our province of Maniema, I plan to do my part to preserve it.” He paused.

“As of today, I will no longer eat Bonobos.”

Some in the audience laughed; they all clapped.

“I repeat. I will no longer eat Bonobo”. Again, applause.

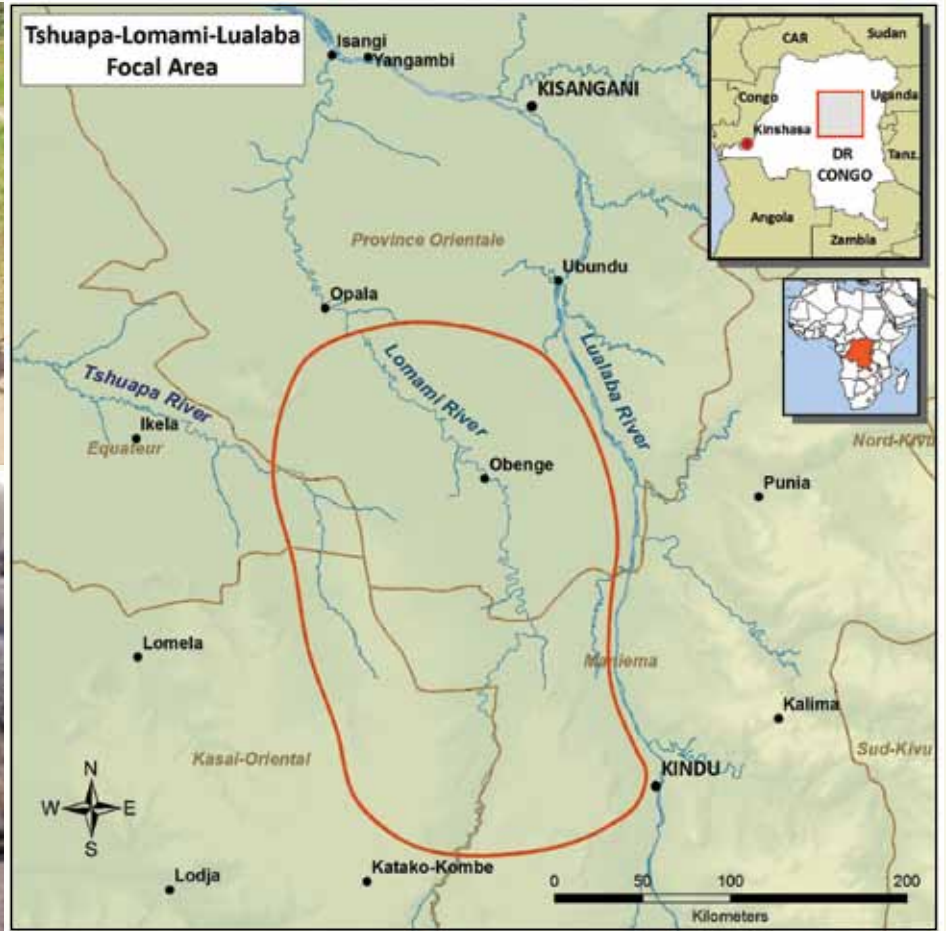
Terese Hart was probably more taken aback than anyone in the audience. She had just presented to a gathering of over 40 members of the provincial administration the results of John’s field surveys. He and the project teams had found previously unknown populations of wildlife in the forests between the Tshuapa, Lomami and the Lualaba rivers, a region known as the TL2 for its three dominant basins. Among their findings was a surprising abundance of Bonobos, Democratic Republic of Congo’s endemic ape. Yet everywhere throughout this vast, road-less, nearly unsettled forest, the field teams also found evidence of hunting: snare sets, hunting camps and spent ammunition from 12 gauge shotguns.

This was in 2008. The Presentation was the first we, the TL2 project, had made in Kindu, a city of 150,000 and the capital of Maniema Province as well as the destination for most of the wild meat taken from the area we explored. The Bonobo is a totally protected species and yet smoked carcasses were frequently available in Kindu market for about \$50. We were gratified to get the no-Bonobo-eating pledge from the governor. But if even he, a trained medical doctor, was eating Bonobos, a major information campaign would be necessary to stop the practice.

We started exploring the TL2 landscape in 2007. In addition to Bonobos, the surveys documented populations of Okapis, elephants, and a wide range of primates including two forms endemic to the TL2 region and even a new species of monkey, now being described.

Hunting is the only major threat to the conservation of the TL2 landscape and its wildlife. Unless it can be controlled, there will be major losses. Further to the north and west, in areas closer to settlement, we found entire blocks of forest nearly

PHOTOS BY: TL2 PROJECT, LUKURU FOUNDATION



Top: This Sitatunga is being carried to market through the streets of Kindu.

Bottom: De Brazza's monkey (*Cercopithecus neglectus*) laid out for sale as bushmeat in a market along the upper Congo River.

BASED ON OUR EXPERIENCE, ONLY A SMALL FRACTION OF CONGO'S REMAINING FORESTS, THE LARGEST IN AFRICA, STILL CONTAIN WILDLIFE POPULATIONS NOT LARGELY DEPLETED BY UNCONTROLLED HUNTING.

empty of wildlife. In the TL2 landscape, only about a third of the region still has important concentrations of the large mammals targeted by hunters. The pattern we found in the TL2 region mirrors results of surveys we conducted elsewhere in Congo over the last 20 years.

Based on our experience, only a small fraction of Congo's remaining forests, the largest in Africa, still contain wildlife populations not largely depleted by uncontrolled hunting.

It is easy to suggest that Congo's persistent conflict and poverty are the

ultimate causes of its uncontrolled and unsustainable commercial meat trade. This is an over-simplification and prevents us from recognising opportunities for action to stop losses that would otherwise seem to be inevitable.

Conservation seems to be a low priority for government action in Congo, but then the government is hardly able to take action on any priorities. Congo's low capacity to govern by law, coupled with a lack of economic options, has allowed hunting to spiral out of control.

Government employees are often unpaid and unsupervised so motivation is low, corruption widespread. The rudimentary conditions of rural life in Congo, ethnic divisions and the lack of education all contribute to a limited vision and facilitate unsustainable exploitation by a few of wildlife resources that should be for many.

The governor's pledge to get behind wildlife protection was more a statement of personal engagement than an expression of political will. Could we transform this personal commitment into real protection of the TL2's wildlife? Our experience over the last two years in Maniema has proved that personal engagement can compensate for weak government and can lead to effective conservation.

After his speech, the governor signed into law Maniema Province's first No Hunting season, which came into effect in July 2009. While the entire province was included in the ban, the TL2 landscape



A subspecies endemic to the TL2 landscape, *Cercopithecus mona elegans*, is carried along with Black and white colobus (*Colobus angolensis*) to the market in Kindu on the back of a bicycle.

was especially affected as most of Kindu's wild meat originated in the TL2 region, funnelling into the city along bicycle tracks that traverse the Kasuku River, an otherwise impassable barrier, at two crossing points. Following the governor's lead, the mayor of Kindu joined forces with the TL2 Project in a media campaign to inform Kindu's consumers of the upcoming ban on wild meat. Several of Kindu's wild meat vendors, who had already begun to see declining supplies of their produce, joined forces in the outreach. As the date for the hunting ban approached, we placed monitors at the Kasuku crossings. There was essentially no legal enforcement, so we were doubtful that there would be widespread compliance.

Amazingly, we found almost total compliance with the ban during that first closed season. Market vendors and transporters, who had earlier declared that they had no other way to live except to sell bushmeat, began to sell dried fish and other produce. Monitors at the Kasuku crossings found the bicycle transporters, who formerly carried loads of smoked, dried monkeys and duikers, now carried live goats, pigs, chickens and other small stock.

While we were encouraged by this result, we were uncertain that we could expect the same result during the no-

hunting season of the following year. In addition, the hunting ban provided only a temporary, three-month reprieve. More protection was needed.

In 2008, after we informed the governor of the importance of the TL2 region for conservation, the head of DRC's national parks agency, the Institut Congolais pour la Conservation de la Nature (ICCN), came to the province

himself and announced at a gathering attended by more than 70 local chiefs, elders, and provincial administrators that the TL2 landscape needed a national park, with total protection for its wildlife. He also planned to create a base for the ICCN in Kindu and to send a warden to head it.

After a day of debate, including closed-door sessions, the gathered chiefs announced that they agreed that there should be a protected area in TL2 landscape, but with an important condition. The head chief of the Bangengele people, whose homelands would be included in the park, a woman known as Mama Chieftaine, spoke for the entire assembly stating that no park would be accepted if consultation did not culminate in a traditional ceremony, the *tambiko*, to request blessing from the ancestors.

Our field season in 2010 began with organisation of the *tambiko* ceremonies. A single ceremony became three, thus covering ethnic divisions within the landscape. The TL2 Project provided logistics and food, but the ceremonies were in the hands of the elders. There was dancing, singing, chanting and lots of talking. At the meetings we organise, we give Powerpoint presentations to explain the implications of overhunting and the importance of protected areas. At the *tambiko* ceremonies, we said nothing. We listened, as did the provincial administrators from Kindu, who joined us



A group of hunters from the Bangengele village of Tshombe Kilima now must walk a full day to their hunting grounds carrying 12 gauge shotguns and metal cable snare traps.

THE RUDIMENTARY CONDITIONS OF RURAL LIFE IN CONGO, ETHNIC DIVISIONS AND THE LACK OF EDUCATION ALL CONTRIBUTE TO A LIMITED VISION AND FACILITATE UNSUSTAINABLE EXPLOITATION BY A FEW OF WILDLIFE RESOURCES THAT SHOULD BE FOR MANY.

as witnesses. We slept in our tents while the singing and discussions continued into the night. The ceremonies varied from one *tambiko* to the next, but in all cases every chief gave an exhortation, and spat on the ground through a mixture of herbs pulled from the same earth.

No papers were signed at the *tambikos*, no official list of attendees drawn up, but afterwards everything changed. The next step, participatory delimitation of the park borders, was relatively easy. That happened with painted signs on the trees at key points along the park perimeter and the signature of the traditional authorities who attended.

Although illegal hunting has not completely stopped, now, at the close of 2010, hunting in the TL2 landscape is greatly reduced. Local hunters are informed of rules controlling hunting including the limits of the proposed protected area. There is general acceptance. After the chiefs marked out limits for the future park, the provincial government provided an edict in support of protected area rules. ICCN has sent the first park guards: patrols have been initiated. The killing of Bonobos has become rare and we even feel comfortable habituating some groups in the park area.

Where rule of law is weak, we have tried to reach out to organise and motivate people from across Congolese



Along the road that leads from Kindu to the Lomami River, a villager and his son return to their village with a Black mangabey killed with a 12 gauge shotgun.

society, accompanying them in decisions they make to protect wildlife. In the ongoing experiment in TL2, committed individuals at all levels, from the governor and the mayor of Kindu to the local chiefs and even individual hunters and market vendors, have each in their separate ways recognized the value of their wildlife and made contributions to ensure its

protection for the future. The challenge is to make this long term and make conservation part of a tradition.

We thank our funders who were willing to try a new approach: Arcus Foundation, Abraham Foundation, Wood Tiger Foundation, USFWS, Canadian Ape Alliance, DFID-UNOPs and USAID-DAI.●

THE HARTS first came to the Democratic Republic of Congo in the mid-1970s, John for a two year study living amongst the Pygmies to learn their Ecology and Terese as a Peace Corps teacher. They returned in the early 80s to do their PhD research in the Ituri Forest, Terese in botany and John in zoology. Now working under Lukuru Foundation, the Harts have developed a project of exploration, monitoring and conservation action in the central forests of DRC. The project works between the Tshuapa River and the Lualaba River and is concentrated in the basin of the Lomami (TL2 project). Their teams work in the forests, villages and towns of three provinces: Maniema, Kasai Oriental and Orientale.

For more info go to: <http://www.Bonoboincongo.com/>



First ivory, now meat: Elephants face second threat to survival

BY DAN STILES

The little Cessna 206 cruised over the dense Ituri Forest in north eastern Democratic Republic of Congo (DRC) 100 metres above the tree tops. Wispy clouds rose from the forest like smoke from hidden fires. The forest stretched to all horizons and I wondered how many elephants were left down there after more than a decade of unrest and forest invasion by military forces.

The plane circled the village of Epulu, our destination, a slash of open land hacked from the forest, dotted with mud huts, small shops and the buildings of the Congolese Institute for Nature Conservation (ICCN). The Institute was there to manage the Okapi Faunal Reserve, established in 1992 with the goal of conserving the rare and dwindling Okapi population. I was there to meet

Jean Joseph Mapilanga, the warden of the reserve, and two research assistants from a local NGO who were going to collect information for a project that I was supervising for the International Union for the Conservation of Nature (IUCN).

The plane began its approach towards a narrow grass strip resembling a golf driving range and glided disconcertingly over half the strip before finally touching



PHOTO BY: KARL AMMANN

Left Page: Wispy clouds rose from the forest like smoke from hidden fires. The forest stretched to all horizons and I wondered how many elephants were left down there after more than a decade of unrest and forest invasion by military forces.

Top: These poachers are about to butcher the elephant for meat. If the meat trade became a serious economic proposition, elephants had a big problem. They could be wiped out for protein, like the Dodo of Mauritius.

"ELEPHANT MEAT IS WORTH MUCH MORE THAN THE IVORY," KARL HAD SAID. "CONSERVATIONISTS SHOULD REALIZE THAT."

down. Mapilanga arrived with a car to pick us up. I was travelling with Karl Ammann, a noted wildlife photographer and film-maker. The warden gave us a warm welcome and drove us to a guesthouse, a simple cottage on the banks of the Epulu River.

Bushmeat was the reason for my visit, specifically elephant bushmeat. Central Africa has long experienced heavy elephant poaching. People have always assumed it was to supply the illegal

ivory trafficking networks, especially since East Asians prized the creamy hard ivory of the forest elephant. I carried out an undercover ivory trafficking survey of the region in 1999 and found abundant evidence of this illegal activity, particularly in Kinshasa, the capital of the Democratic Republic of Congo (DRC).

But investigators who were looking into wildlife and bushmeat trade in the mid 1990s, including my travelling companion, Ammann, began reporting that they had seen elephants killed primarily for their meat. Before our trip started I visited Karl at his beautiful home on the slopes of Mt. Kenya and he showed me video footage and photos of elephants being butchered by poachers. The hundreds of kilograms of meat were smoked and transported to market, where the meat from one elephant could fetch several hundred dollars. The tusks would rarely bring in even a hundred dollars to the hunters.

"Elephant meat is worth much more than the ivory," Karl had said.

"Conservationists should realize that." Some conservationists were already beginning to wonder about it, but no studies had ever been carried out on the question. IUCN's African Elephant Specialist Group (AfESG) is the first to investigate the importance of meat as a cause of elephant killing in Central Africa. The Monitoring the Illegal Killing of Elephants (MIKE) programme of CITES is funding the project. We knew that the average size of tusks coming from the Congo Basin forests had steadily been decreasing due to heavy poaching of the big tuskers. Conservationists were hoping that there would be a threshold of tusk size below which poachers would no longer bother killing elephants. But if the meat trade became a serious economic proposition, elephants had a big problem. They could be wiped out for protein, like the Dodo of Mauritius.

Central Africa, because of its dense forests, does not have large populations of cattle, sheep and goats like other parts of Africa. Humans living there



PHOTO BY: DAN STILES

Bushmeat is the primary source of protein in Central Africa. Unsustainable use leads to 'empty forest syndrome'.

have since time immemorial depended on wild animal meat trapped and shot in the forests to satisfy their protein needs. Many cultural beliefs linked with different species have become entwined with purely nutritional concerns, so the problem of unsustainable bushmeat harvesting is a very complex one. Already, conservationists are talking about the 'empty forest syndrome', in which all the larger species are being hunted and eaten, leaving behind an eerily silent, pristine forest.

I met Jean Joseph, the warden, and briefed him on the objectives and planned activities of the project. He agreed that elephant poaching was a big problem in the reserve and only a few days earlier three elephants had been shot within hearing distance of his rangers. When the rangers arrived, the poachers ran off. They set a trap and when the poachers returned for the tusks they arrested them after a shootout. They turned out to be soldiers from Mambasa, a town about

MANY CULTURAL BELIEFS LINKED WITH DIFFERENT SPECIES HAVE BECOME ENTWINED WITH PURELY NUTRITIONAL CONCERNS, SO THE PROBLEM OF UNSUSTAINABLE BUSHMEAT HARVESTING IS A VERY COMPLEX ONE.

50 km to the east where the Congolese army's 144th Brigade was based.

The African Elephant Database, managed by the IUCN AfESG, had been finding a steady decline in elephant numbers in the Okapi reserve as a result of this type of disregard for the law. In 1995 there were an estimated 7,300 elephants in the reserve area and by 2006 the number surveyed had dropped to approximately 2,700. Of the elephants lost over the past 15 years, how many had been killed for meat? "You will not find it easy to collect the kind of data you

want," Jean Joseph warned me. "People are very aware that selling something from an elephant is illegal. They will not tell you anything."

This I already knew, which is why I was working with a local NGO that already had a poaching and bushmeat monitoring project in the Okapi area. Richard and André arrived in the afternoon on a motorcycle on which they had ridden the 460 kilometres from Kisangani. That afternoon and the following morning we discussed the project.



PHOTO BY: KARL AMMANN

Top: Tusks confiscated from poachers in the Okapi Forest Reserve office of Jean Joseph Mapilanga.

Bottom: The provincial director of the Ministry of Culture and Arts tried to sell me Okapi and Leopard skins, along with ivory, totally illegal by local law.



PHOTO BY: DAN STILES

In order to understand properly the meat and ivory 'commodity chains', we needed to follow both from the dead elephant as far as we could through the hunters, transporters, middlemen, vendors and consumers. I wanted to know how many of the elephant carcasses had been butchered and how many had had only the tusks removed. Had the poachers worked of their own volition, or had they been hired by someone to kill elephants? I knew from what informants had told me in Gabon and Cameroon that it was common practice for wealthy businessmen, government officials and army officers to provide weapons and ammunition to hunters to go after ivory. One hypothesis I wanted to test was that these 'commanditaires', as they were called in French, were only after ivory and that commercial hunters working for them were the ivory poachers, which



Richard and Andre set off to begin investigations on elephant meat trafficking.

IN ORDER TO UNDERSTAND PROPERLY THE MEAT AND IVORY 'COMMODITY CHAINS', WE NEEDED TO FOLLOW BOTH FROM THE DEAD ELEPHANT AS FAR AS WE COULD THROUGH THE HUNTERS, TRANSPORTERS, MIDDLEMEN, VENDORS AND CONSUMERS.

included soldiers. Those who killed primarily for meat should be part-time, subsistence hunters.

I also wanted to know prices of meat and ivory at various points in the commodity chain in order to analyse the economics of the trade and assess incentives and motivation of elephant killing. Price is a sensitive indicator of demand, if you have data on supply and past prices. Ivory prices had been rising almost everywhere over the past 15 years, though why was a disputed question. In almost all of the countries I and others had investigated for ivory, demand had fallen since 1990. Only the China market seemed to be growing, but was demand in China alone high enough to drive the dramatic price rises seen in recent years? Or, was it rather a constriction of legal raw ivory supply to the world caused by the international ivory trade ban imposed by CITES, which came into effect in 1990?

I was hoping the IUCN project results would cast light on the question. We also had case studies in Cameroon, Central African Republic and the Republic of Congo.

That afternoon Richard and André jumped on their bike and headed for Mambasa to begin work. Richard has worked in the Okapi area for years and has established a network of informants, especially amongst the Mbuti and Efe Pygmies who inhabit the region. The elephant poachers are almost always non-Pygmy, but they are guided by Pygmies, who are expert trackers.

Our respective work completed, Karl and I left for Kisangani in a rented car. We visited bushmeat markets along the way and I collected information on the various meats that I saw, mainly duikers, larger antelopes and monkeys. It wasn't until Kisangani that I found elephant meat, displayed discretely on one table in the Central Market.

Elephant meat is transported to Kisangani from surrounding forest areas in smoked lumps weighing 7-8 kg called *grume*. These retail for \$ 35 each, or about \$ 5 a kg. The vendors, mostly women, usually slice these lumps up into smaller pieces, as few people can afford to pay \$ 35. The slices are put into small *tas* (piles) of about 100-150 grammes each and sold for 500 Congolese francs (\$ 0.55). Depressingly, I found that elephant meat was very popular.

We also visited the local ivory carvers and vendors. They were finding it very difficult to get their hands on raw ivory, as Chinese were buying up all the tusks they could find and shipping them to China.

I asked the ivory carvers in Kisangani about this, but they had never heard of CITES. I explained what CITES did and they said, 'We don't need CITES, the Ministry of Culture and Arts provides buyers with export certificates.'

I decided to visit their office in Kisangani, a ramshackle colonial era building. Jonas, the man in charge, tried selling me ivory and an Okapi and Leopard skin, all illegal to sell under Congolese law and to export by CITES. I managed to photograph permits that he had issued to a Frenchman and to an Israeli to export worked ivory pieces to Europe. Jonas claimed that his permits were sufficient to get 'art' objects into Europe or America.

There was obviously a lot of work to do to clean things up in the DRC. But first, I wanted answers to my questions in order to understand how all the wildlife product smuggling worked. The investigations are under way. ●

DAN STILES Dr. Daniel Stiles has been coordinating a study into the dynamics, scale and impact of the elephant meat trade throughout the Central African sub-region for the IUCN/SSC African Elephant Specialist Group (AfESG), funded by CITES MIKE. The study will be published by IUCN in 2011.



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PHOTO BY: BRENDA BRAINCH

Adventures with Rive Gauche chimps in the heart of darkness

BY RUPERT WATSON

Hubert was more than happy to supplement his work in Basankusu's missionary school by acting as our translator at the Reserve de Faune de Lomako in central Democratic Republic of Congo (DRC). He could move freely between English, French and Lingala as we helped design systems to reduce conflicts between the surrounding communities and the Institut Congolais pour la Conservation de la Nature (ICCN), which was charged with running the reserve.

His wife's efforts to augment household income had been less successful. Some months earlier she had decided to try a foray into commerce. After investing in three huge bags of bushmeat, she boarded the downstream boat at Basankusu. After a hellish

fortnight on the sort of river boat we only hear about when it has capsized, she arrived in steaming Kinshasa with three sacks of putrid animal flesh.

Basankusu is about 800 km northeast of the capital Kinshasa. You can get there in 10 days by road, if it's dry, two weeks by river, if there's been enough rain, or in two hours in an alarmingly ancient Russian Antonov, if it's Sunday. The town lies at a fork in the river and big boats can go no further, which gives it the feeling of a gateway to the real heart of upstream Congo darkness.

Basankusu's street commerce is dominated by Kinshasa city wide boys, who hide behind the dark glasses they sell along with beauty products and T-shirts emblazoned with the insignia of First World football teams and blurred

pictures of rock bands. But duck between tea stalls and head off the main streets and you will find a world of local produce.

Passing piles of forest fruits and mangoes, we came to the protein protein section, which was covered by a large tin roof. As if vetting visitors, a woman with a baby on her back wielded a large bloodied knife behind the carcass of a medium-sized crocodile. Next to her was the smoked monkey stand, where primate carcasses were splayed on wooden frames. The dismembered carcass of a Sitatunga in a large raffia basket was easily identified by the long, elegant hooves which had once helped it through the swampy edges of the forest. On the floor, knee-high piles of black caterpillars with red tips to their bodies were being measured out by the mug-full. Nearby,



BASANKUSU IS ABOUT 800 KM NORTHEAST OF THE CAPITAL, REACHABLE IN 10 DAYS ON A ROAD, IF IT'S DRY, TWO WEEKS ON A RIVER, IF THERE'S BEEN ENOUGH RAIN, OR IN TWO HOURS IN AN ALARMINGLY ANCIENT RUSSIAN ANTONOV, IF IT'S SUNDAY.

writhing black catfish, graded according to size, were scooped out of huge green plastic basins and wrapped in banana leaves for sale.

This was legitimate trade. If you live in the forest, you live off the forest. Such has been the way of life in the vast Congolese river basin ever since people first arrived there and today hunting in the *Forêts communautaires* remains perfectly legal. But while the hunters may be genuine forest dwellers, the consumers most often are not, as Hubert's wife would find as she set off to try and exploit the insatiable demand for bushmeat in the cities.

Theoretically, there are closed seasons for hunting certain animals, but, at least in Basankusu, these were only enforced if the police needed to supplement their rations when their salaries were not paid.

Although we didn't know it at the time, five months of salary arrears for the guards up at Lomoko was part of the cargo of the huge hollowed out tree trunk, powered by a 75 hp outboard, which was to take us to the end of our journey. The only way to travel further inland from Basankusu is up the river. Our drivers had thoughtfully installed wooden armchairs for the foreign visitors.

"Going up that river was like travelling back to the earliest beginnings of the world, when vegetation rioted on the earth and the big trees were kings". So wrote Joseph Conrad in 1899 (*Heart of Darkness*) and his words still ring true today. The forest which dripped over the edges of the Maringa River was dominated by raffia palms whose leaves, nuts and sap provided thatch, oil and palm wine for the people who live in the huts along the banks. Fish were

clearly a crucial component of their diets, but both technique and equipment seemed in short supply and probably the most successful fishing nets were those stretched between Basankusu trees at Basankusu to catch bats for the pot.

The current was smooth and swift, and decaying vegetation gave the water the colour of strong black tea. This high concentration of humic acids seems to have very little effect on fish life, which, throughout the Congo River system, is notoriously diverse. However, we saw few species of birds. Palm Nut Vultures were common, and easily identified; Grey Parrots were a delight to see in their native environment rather than in cages, and the undulating flight of Pied and White-Crested Hornbills was distinctive. Hartlaub's Duck was an occasional highlight, as were two sightings of Finfoots, but most notable was what was missing. Very few waders found such muddy patches as there were to their liking. Only one Fish Eagle showed itself in two weeks and only one kingfisher—a Shining Blue, which once came to witness my daily dawn dip in the river.

Ten hours later and two hours past sunset, we reached the reserve headquarters. Lomoko owes itself to the vision of the African Wildlife Foundation (AWF) and the determination of the ICCN to manage an area of forest for

PHOTO BY: BRENDA BRAINCH



Previous Page: These Bonobos were rescued in Kinshasa and then released into the Basankusu Reserve.
Bottom: Rangers being addressed by the Reserve warden at a Thursday morning briefing.



PHOTO BY: BRENDA BRAINCH



Top: Heading away from the Reserve headquarters at Lingunda – dugout canoes are the only mode of travel.
Bottom: Fruit bats disturbed by canoes on the way up the Lamoko River.



PHOTO BY: BRENDA BRAINCH

the protection of Bonobos, the pygmy chimpanzees (*Pan paniscus*) and one of Africa's four great apes. At the Lomako headquarters over 60 guards and their families live in a clearing in the forest. Their work, and the overall management of the reserve, is hugely difficult. Transport is either by canoe, foot, or motorcycle, along muddy forest tracks. Most of the supplies must be brought up from Kinshasa, and local produce is sparse.

Relationships with the local communities are mixed. With such devastated infrastructure in the DRC, and given the remoteness of the reserve, it is simply not feasible to promise tourism benefits to surrounding villages. People had to move out of the reserve to facilitate its creation, and while they can still hunt in the *Forets communautaires*, the pickings there are much slimmer. Agriculture is helping compensate for the lost sources of food and this entails an acceptance by all concerned of the unavoidable clearing of forest. Hunters are being taught to rotate crops in the easily exhausted sandy soil, so as to avoid slashing and burning their way through more and more forest every year.

The headquarters is at Lingunda, just outside and across the River Lomako from the reserve, but Red-tailed monkeys were common enough to make one realise that the guards respected the no-hunting zone around their camp. So too were Great Blue Turacos which would otherwise also end up in the pot. However, to see Bonobos we had to board a smaller canoe and head upstream for another three hours, before disembarking up a creek and then hiking 10 km, with porters relieving us of anything heavier than binoculars, to the research camp at Yemi.

The few thatched huts at Yemi have housed a succession of researchers and the current incumbent is Amy Cobden. Research for her PhD involves the daily study of two groups of Bonobos. She has to leave the camp at 3 a.m to reach their night-time nest sites in time for their waking. Her *pisteurs* (trackers) had made a grid of tracks in the research area and knew where the group we were to follow had most likely spent the night. By 5 a.m four of us were huddled in a clump of bushes in the pitch dark.

The Bonobos' day began with synchronised screeching, right above



our bushes. To identify ourselves as friends, even kinsfolk, we were told to rip up bundles of leaves, which sounded like tearing thick brown paper. I had asked Amy, on a scale of 1 to ten, how habituated were these apes? One, she had replied, The first, and critical stage of habituation is when the first reaction to a strange human is one of curiosity rather than fear. So it proved. When frightened, Bonobos will often descend to the ground and then melt away into the undergrowth, but our party of six stayed high in the treetops, two of them giving us intermittent views of their casual start to the day for an hour or so.

The Bonobos' day has been described as one of "fission and fusion"-moving off on their own to eat fruits in the trees or leaves and shoots on the ground, before joining up again later. They are known to kill duikers and other small mammals and Amy had found the remains of Tree hyraxes in their scat, but evidence of their killing other primates is scant. If it is stormy, they may build midday nests, but otherwise will feed intermittently until evening when they meet up together again and settle down in the branches for the night.

The sexual life of Bonobos particularly fascinates researchers, not least because they are the only animal other than man that separates sex from reproduction, happily copulating when the female is

THE SEXUAL LIFE OF BONOBOS PARTICULARLY FASCINATES RESEARCHERS, NOT LEAST THEIR BEING THE ONLY ANIMAL OTHER THAN MAN THAT SEPARATES SEX FROM REPRODUCTION, AND HAPPILY COPULATES WHEN THE FEMALE IS INCAPABLE OF CONCEIVING.

incapable of conceiving. The female's sexual organs become grotesquely enlarged when in season, but even when she is not, Bonobos indulge in varied sexual encounters with their own or the opposite sex, or just with themselves. Their society is largely matriarchal and leading primatologist Frans de Waal has commented that, "Chimpanzees resolve sexual issues with power; the Bonobo resolves power issues with sex".

PHOTO BY: AMY CORDEN



Female Congo Peacock - Congo Peacocks are very hard to capture with a camera and this may be one of the best pictures ever taken of these elusive birds.

Or put another way, Chimpanzees are from Mars and Bonobos are from Venus. Bonobos are sometimes called "Left Bank Chimpanzees" because they only live south of the Congo River. They probably separated from Chimpanzees within the last two million years and with the river having carved its way through the forest around then, their reluctance to swim

ornithologists' binoculars, and they were not to fill mine. But that night, amidst the clatter of cutlery, a couple began their harsh duet, tantalisingly close to the camp.

Passing through Basankusu on the way downriver, we had time to visit the nearby forest where Bonobos were being released back into the wild. Young Bonobos whose mothers have been poached are rescued by Les Amis des Bonobos du Congo (ABC) in Kinshasa and after a spell at the orphanage there, they are encouraged back into their native habitat following several months of supported feeding at Basankusu. Without partnerships between NGOs like ABC and AWF and governmental authorities, Bonobos would be slipping towards near-extinction, but a lot of people are trying really hard, in incredibly difficult circumstances, to make sure this doesn't happen. ●

probably kept them apart, allowing them to keep evolving down their own genetic pathways. They are only found in DRC and numbers are falling fast, because of habitat destruction, civil and military unrest, as well as the inevitable bushmeat trade.

Back at Yemi, I had the rest of the day to search for Congo Peacocks. Being largely nocturnal, these icons of the true, undisturbed forest have filled few

RUPERT WATSON is an environmentalist, lawyer and mediator with a particular interest in freshwater and conflict. He has written books about trout, salmon and another on the Baobab tree. He has lived in Kenya for 30 years.



CONSERVATION

Eat an insect: Save the planet!

BY DINO MARTINS



PHOTO BY: DINO MARTINS

Common Garden Locust. While most people view these insects as pests, many different species of locust and grasshopper are widely eaten across Africa. They make delicious snacks when prepared the right way.



A delicious aroma bursts from the dark, smoky doorway accompanied by a tangy sizzle. It sounds like something has just been tossed into a hot pan. The air fills with a rich, meaty, nutty smell. My mouth waters. Here on the edge of the Kakamega Forest in western Kenya, I've been invited to join some farmers for lunch. And with the sounds and smells coming from the kitchen, I'm really glad that I accepted.

We've spent the morning at the magical, profuse edge of the forest, watching the antics of bees and talking about the importance of pollinators for food production.

Now we are about to enjoy the labours of insects more directly. The table bears a platter with an ivory-white mountain of steaming ugali, a pile of speckled brown chapattis, a pot of stewed beans and pigeon peas (courtesy of at least 20 different bee species) and a large bowl filled with deep purple-green mchicha (one of my favourite traditional vegetables).

The lady of the house, Rehema, emerges smiling from her kitchen, bearing a bowl of steaming delight, and triumphantly places it on the low wooden table, saying "Karibu! Tafadhali kula!" (Welcome! Please eat!).

Yes, this is a very special meal. Today, the decrepit sheep and straggly, threadbare chickens that were running around earlier have been spared. Today we are dining on the food of gods: termites!

Rehema beams with the smug content of all good cooks who love to watch their food being enjoyed. I scoop some termites onto my plate and then, crafting a spoon from some ugali, gobble down a mouthful. Now I know that this would probably make many people squeamish. But frankly, the termites are delicious. The perfect balance of salt, fat and crunch to make any gourmand swoon.

In fact, I have a radical proposal to make. Perhaps the solution to the 'bushmeat problem' is to eat more of it. More of the right sort that is. Yes, I believe that insects are the new, in fact the original, 'white meat'.

Now, I know that many people, especially those from the developed world, squirm (or worse) at the thought of eating insects. Well, firstly let me tell you some inconvenient truths about the food that you've been putting into your mouth since you were weaned.



PHOTO BY: SARAH ELLEN MAMLIN

The author sizes up a Rainbow Locust. While some insects are edible, it is important to know exactly which ones are safe to eat. This colourful species gives an example of 'warning' coloration that tells of its toxic and hence unpalatable nature.

I HAVE A RADICAL PROPOSAL TO MAKE. PERHAPS THE SOLUTION TO THE 'BUSHMEAT PROBLEM' IS TO EAT MORE OF IT. MORE OF THE RIGHT SORT THAT IS. YES, I BELIEVE THAT INSECTS ARE THE NEW, IN FACT THE ORIGINAL, 'WHITE MEAT'.

Every single person on this planet has already eaten lots of insects. Insects are the masters of this planet, and they are truly ubiquitous. This includes all the cereals and other food products that are the staples of the world's diet. Every single bar of chocolate and loaf of bread already contains some insect body parts. In fact, so all-pervasive are these tiny reminders of where our food comes from, that in the USA (with arguably one of the most regulated food industries) the powers-that-be meekly ask that chocolate not contain more than 60 fragments of insects per six 100 gram bars, and only

30 fragments per 100 grams of peanut butter. Yes, like it or not, insects are part of our diet.

Many people who shun the thought of eating insects are happy to tuck into shrimps or lobster. Well, here is some news for you: these crustaceans are basically marine insects, sharing the same phylum, the arthropods, with their terrestrial cousins. Not only that, but shrimp and lobster are, both literally and in more ways than you probably care to know "bottom feeders". Not only are they frolicking and feeding in the detritus of the ocean's belly, they are often eating



PHOTO BY: DAVID LOHMAN

In many parts of the world, especially tropical Africa and Asia, insects are a popular part of the local diets. This is a roadside food stall in Thailand that has battered Giant Water Bugs, fried scorpions and katydids for sale. Insects can contribute much-needed calories and nutrients in many rural communities.

IN SOME COUNTRIES, SUCH AS THE DEMOCRATIC REPUBLIC OF CONGO, UP TO 60% OF SOME COMMUNITIES' PROTEIN INTAKE COMES FROM INSECTS.

dead, rotting and other unmentionable things too! Edible insects on the other hand are busy nibbling on nice clean plants and keep themselves and their surroundings scrupulously clean.

In many parts of Africa, insects are an essential component of human diets.

This is especially true in rural areas. Africa has the least amount of protein in the global diet. Each adult African consumes on average a mere eight grams of protein a day in contrast with North Americans who consume the most (almost nine times more: 71 grams/day!).

And protein as we all know is essential for proper growth and development. In some countries, such as the Democratic Republic of Congo, up to 60% of some communities' protein intake comes from insects. And hundreds, if not thousands, of edible insect species are utilised across the continent.

Termites are one of the most widespread and popular insect foods. Those eaten are typically the fat-laden alates (winged reproductives) who swarm out on mating flights during the rains. These are often mistakenly called flying ants. Markets all across tropical Africa will, during the rainy season, include these very special treats alongside yams, fruit, chicken and smoked fish. In fact, termites are so special that they are the treat one takes when going to visit Grandma-the equivalent of a nice box of chocolates. And today they are so prized they even cost more than beef or chicken in many places.

Furthermore, termites are common in many African habitats. A single acre of average grassland can hold a dozen mature colonies. And each of these can yield more than 10 kg of alates a season. That's a whopping potential 200 kg of food per acre per year. Far more, and more sustainable, than can be raised from a skinny cow or a highly destructive herd of goats. The termites can do this in even the most parched and desolate places. Simply because, thanks to a suite of bacteria and fungi that they have partnered with, they can digest cellulose (the bulk of plant matter), wet or dry, and turn it into nutrients and protein.

Eating insects is good for you and good for the planet too. Insects are very nutritious. One hundred grams of termites yields 600-700 calories. Larvae of beetles and other large grubs are even richer. And not only are they packed with energy, but insects are also laden with essential vitamins and micro-nutrients. Insects also breed quickly and play the ecological gamble of survival by over-producing offspring, expecting most of them to be gobbled up. So insects are actually meant to be eaten in large quantities.

Caterpillars of several different moths are widely eaten across Africa. These include the well-known 'mopane worms' of southern Africa. These are the larvae of a beautiful Emperor moth, *Imbrasia*. Analysis of caterpillars has found that



How to make a terrific Termite dip

Next time you are faced with an invasion of flying termites during the rains, rather than sweeping them out, gather them up and try this recipe.

Ingredients:

- 1 cup freshly collected winged termites ('flying ants')
- 1 chopped onion
- 1 clove finely chopped garlic
- 1-2 cups cottage cheese or ricotta
- 1 tbsp of oil
- 1 lemon
- Salt to taste

Preparation

Remove wings from termites and lightly roast with salt in a pan on low heat. Cook till termites are crisp and evenly done. Remove and set aside. Add 1 tbsp of oil to pan, heat and add onion and garlic. Brown these on low heat. Remove from heat. Mix with termites. Let mix cool. Squeeze lemon over mix. Combine with cottage cheese/ricotta. Add fresh herbs, pepper or seasonings as preferred. Enjoy as a dip or spread. Makes a great party conversation piece. Can substitute cheese with avocado and tomato and turn this into guacamole with an edge.



PHOTO BY: BEN OPANDA

Termites on sale in a market at Kakamega in western Kenya. These are a popular seasonal delicacy in many parts of tropical Africa. They are both delicious and nutritious and can be harvested without negatively impacting on the termite populations or habitat because the insect strategy here is to flood the market and hope that a few survive.

they are over 60% protein and also very rich in iron. This is three times the amount obtained from a similar portion of beef. A single serving of caterpillars can also supply over 300% of the daily requirement of this essential micro-nutrient. Iron deficiency is a serious and growing problem in many rural communities. Eat more of this bushmeat and the problem is solved.

Dried caterpillars can be stored easily for months on end. And they retain their nutritional value through time. In fact, most edible insects can be readily dried and stored. This makes them a lightweight, energy-packed and nutritional snack that can be carried around and saved for leaner times. It is highly likely that our hominid ancestors were primarily nourished on the ancient savannahs by insects.

Locusts and grasshoppers are another ignored potential smorgasbord. Common in most areas, they are often sprayed with noxious chemicals when they swarm. This is such a waste as the arid lands that they plague would be better off if we simply ate locusts rather than struggle to grow crops that inevitably fail. De-winged, de-legged and fried with salt, lemon and garlic... mmmm! You would be hard pressed to tell the difference between this and a fancy prawn in a blind taste test.

There is even a grasshopper-canning factory in Uganda that supplies a vibrant local market with these treats. And in

an interesting historical footnote, this supposed biblical plague even sustained the missionary David Livingstone and his compatriots on one of their treks across the continent.

Today we are faced with the serious issues of a growing world population and the need to increase food production. As a species we are now presented with the challenge of feeding nearly seven billion people (and soon to be nine billion!).

Even more important than simply pumping calories down the world's maw, is the issue of nutritional security. We need food that is both sustainably produced and nutritional. A first step towards meeting this demand may be creatively and sustainably using insects as food. ●

DINO J. MARTINS is a Kenyan naturalist, artist and writer studying how insects influence both human life and the way the world works. He is particularly interested in grassroots initiatives towards sustainable human enterprise that support human life, livelihoods and natural areas. His work has been featured on the BBC and WildlifeDirect as well as in the Smithsonian. He has twice won the Peter Jenkins Award for Environmental Journalism writing.



Bushmeat: Gabon seeks to balance human and wildlife needs

BY KATE ABERNETHY

A decade ago, the Wildlife Department in Gabon launched a programme of research and policy development to bring the harvesting of wildlife to sustainable proportions. Surveys across Gabon revealed that key species such as apes, elephants, buffalo, bongo and giant hogs were found only in very remote areas, and there was a climate of growing concern about the impact of hunting across the Congo Basin. Wild animals are the traditional

protein source in the forests, where grazing land is scarce and livestock diseases rife. To this day, bushmeat is an extremely important resource for rural forest people. Clearly hunting for food cannot be banned in communities where few options exist, so there must be dual goals for a managed harvest: sustaining rural food security and protecting viable wildlife for the future.

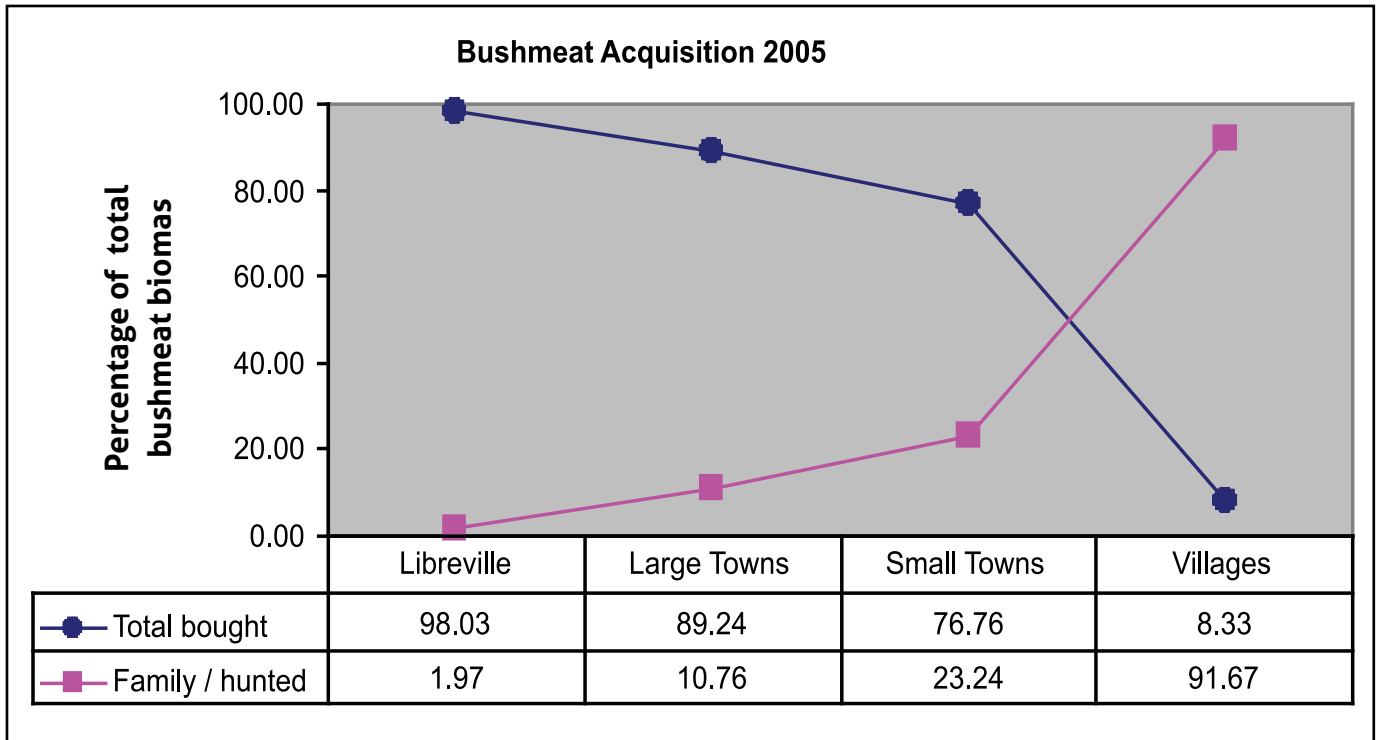
In 2000, the 'Projet Gibier' or 'Game Project' came into being under the control

of the Wildlife Department director. The project was staffed by a member of the Wildlife Department, Ernestine Ntsame Effa (and later Anne Marie Ndong Obiang) and myself, a senior researcher at the UK's University of Stirling. The project brought together the technical capacity of international conservation NGOs, national NGOs, institutions and government departments. We wanted to look at all aspects of bushmeat use, whether as food, a cash crop, medicine or



PHOTO BY: PHILIPP HENSCHKE

Hunters in the Bateke savannahs, south west Gabon, taking self portraits in a wildlife survey camera trap.



Even in small towns, the majority of bushmeat is bought, not directly hunted by the family. Recognizing the importance of bushmeat as a commodity is essential in planning for sustainable use.

Source: Direction General of Wildlife and Water, 2010, Bushmeat in Gabon report.

for cultural identity. All these contribute to the ultimate harvest rates. It was necessary first to establish the scale of the industry and the impact on wildlife, but we were most keen to understand what was driving the hunting and trade—who was benefiting and who stood to lose from any regulatory policies that were made.

The project design had three phases:

- 1) research to establish the basic parameters of the trade on a national scale and to understand the local drivers of harvest and trade;
- 2) policy-making, building on the research results and bringing together a wider group;
- 3) delivery and monitoring of practical solutions on the ground.

The project design hoped for outcomes in 10 years and although we are still in the latter stages of the second phase, we are hoping to roll out some local management plans in 2011-2012.

We started with survey teams who travelled far and wide to map out where bushmeat was being hunted and traded and we then looked more closely at

HUNTING ON A NATIONAL SCALE IS AN ACTIVITY OF THE POOR, AND OVER THREE-QUARTERS OF RURAL FAMILIES HUNT THE MEAT THEY EAT AND SELL MEAT FOR A SIGNIFICANT PART OF THEIR INCOME.

key points along the chain: villages where bushmeat was hunted; markets in settlements from villages to the capital city; restaurants and households where bushmeat was eaten. For six years, we collected and analysed data on the amount of harvest and trade, the species involved, the people involved, the economics of the system and the fate of different animals. We looked at cultural issues, taste preferences and health concerns. We investigated roadside sales, high-class restaurants and medicinal uses.

We found that the bushmeat harvest supports a complex industry in which nearly all rural families participate. Hunting on a national scale is an activity of the poor, and over three-quarters of

rural families hunt the meat they eat and sell meat for a significant part of their income.

Village hunting is governed by 'customary' and 'village' rights which are very strict about wildlife protection and do not provide well for subsistence hunters, as there is a closed season for six months of the year. Traditional hunting management is becoming very difficult to apply, as it relied firstly on villages shifting around clan lands and secondly on hunters recognising a chief who set their individual hunting rights. This situation now rarely applies. Villages have sedentarised over decades as modern infrastructure brought the benefits of schooling and health services and state-installed chiefs applied state law, which



PHOTO BY: CHRISTIAN TCHEMBELA

Bushmeat on sale at a festivity in Libreville.

does not recognise individual territories or rights within village community lands.

There is no clear boundary between hunting for household food or for income, as most villagers use their meat for both. But itinerant hunters have a purely commercial focus. These are not village residents but salaried hunters who often poach in national parks or forestry concessions, outside of village subsistence hunting lands. They have been recorded as far as 60 km from access roads or rivers, walking into the forest to find high-value species like gorilla or elephant. This commercial hunt brings no rural benefits and is not the subject of a search for balance between rural livelihoods and wildlife. Policy on this sort of hunting is a clear Zero Tolerance.

Even though neither traditional customs nor state law are able to regulate village hunting well, villagers know that the wildlife is declining and want to find a management system that will work. Older men often say that there are only a quarter, or less, of the large animals that were in their area 50 years ago and decry the commercialisation of hunting as the root of the overexploitation they now see.

In all, 114 species have been recorded as bushmeat in Gabon since 2000. All species over 3 kg are used, and half of all

mammal species (all the ones over 3 kg and many under 3 kg). Birds and reptiles are also common. The top five species provide 70% of the biomass hunted, and Blue duikers, Brush-tailed porcupines and Red duikers are always the most important species used in Gabon.

Several small species that are fast-breeding and live at high densities seem quite resilient to village subsistence hunting. Very large animals, on the other hand, are now rare closer than 10 km from a village, and leopard, the top predator which competes directly for food with the human hunters, cannot survive in heavily hunted areas, even if it is not directly hunted itself. Rare and vulnerable wildlife species form a small minority of the village hunters' catch, so limiting the offtake of these species would have a relatively low impact on village hunter livelihoods and a relatively high impact on wildlife survival and biodiversity conservation.

Village subsistence hunters trap the area close to a village intensively but rarely hunt beyond 15 km from it. Sixty-five percent of Gabon's territory is probably hunted for village needs, and 96% is within reach of commercial hunters and poachers, so sustainable solutions are critical for the survival of wildlife.

Bushmeat is a very significant part of the rural economy, with most families gaining some benefit from it. It is providing almost all the protein in the diet of remote rural families and nearly three-quarters of family income in remote forests (which could be more than 50,000 people). Alternative proteins and sources of income are rare in rural villages.

Hunters across rural forested Gabon sell about half the meat they catch and eat the rest in the family home. Most village families make the majority of their income from agriculture but remote villages cannot transport their agricultural produce to market and make most of their income from bushmeat. Successful hunters can make up to \$ 20 per day, but only around 5% of families that hunt get these sorts of returns—the vast majority (90%) of hunters make less than \$ 2 per day. Cash from bushmeat is not generally considered a reliable income and is not usually used for daily needs but for luxury goods, or more occasional needs, like clothes, medicines or ceremonies. Nonetheless, it is an important part of the subsistence economy.

Although around half of the originally hunted catch is commercialised, larger species are targeted for sale and hunters with a commercial aim have a disproportionate impact on them. These species are targeted by itinerant commercial hunters who often supply rich urban households directly, with no economic benefit to rural communities. In the capital, Libreville, although 80% of bushmeat consumed in households came from a commercial supplier of some sort, only 18% of meat was purchased from a recognised marketplace.

Some trade is currently necessary to supply the subsistence cash needs of villagers who have no other viable produce, but unregulated and long-distance trade allows a limitless urban demand to overexploit rural wildlife. Regulating trade out of villages will be a key component of successfully reducing hunting offtakes to sustainable levels to protect rural food security and wildlife, but reducing the importance of bushmeat in the village cash economy is the hardest part of the equation. After the meat is sold by a hunter, lots of traders and middlemen also make financial gains from bushmeat and a minimum of 11% of all Gabonese families probably make some money from the bushmeat trade



in some way, further complicating the picture and increasing the short-term consequences of regulating trade.

Urban consumption is very low per head, but as urban populations are high, the overall effect of city demand is about equal to the subsistence demand of the villages. This half of all the bushmeat hunted is not a necessity for the consumers, who buy it as an expensive luxury, but is important to the village sellers, who use the money for essentials.

Stopping all trade would probably result, in the short term, in hardship in villages and small rural towns. These are the poorest communities of the country and the least able to afford such hardship.

However, preventing trade out of small towns towards the capital would have less immediate effect. In the short term, prices paid would drop and this might push harvests up, but in the medium term, villagers would diversify into other revenue sources, particularly if conservation initiatives back the generation of alternative rural revenue streams.

Policy development is currently looking at ways to give hunting permits for geographic areas and to better police transport of meat along major roads and rivers. Trade regulation will require the collaboration of a wide set of ministries and civil society organisations. An inter-ministerial workshop was held in 2007 to discuss application of the law and identify ways in which different law enforcement agencies, private sector and civil society could work together.

Gabon's hunting laws are very strict and designed for long-term wildlife conservation. But they do not affect the modern village hunting methods such as year-round use of shotguns and wire snares. The Game Project has shown how wildlife species are affected, how villages might respond to regulation and how urban consumption is a luxury for the rich but also part of a crucial market for the poor. The legal framework governing hunting access, methods, seasons, bag quotas, species and age-sex limits of the catch needs to be thoroughly revised in the light of current rural needs and the limits to sustainable harvesting. New legislation for sustainability of rural hunting must also be flexible enough to allow wildlife recovery to be planned for.

Currently, the Food and Agriculture Organisation of the United Nations (FAO) is supporting an initiative in Gabon to test



PHOTO BY: CHRISTIAN TCHAMBELA

A range of forest products, including bushmeat, on sale at a market stall, Libreville. Small species, such as this forest tortoise, the Green Pigeons or the Acatina snails, are usually eaten in the home, but the wide catchment of the Libreville market means that even rarer items like these can be regularly found.

local community wildlife management capacity. The project focuses on working with the government to develop policies that allow for community wildlife management strategies, for cash or food benefits, and that provide sustainable offtakes of a few game species, whilst protecting the more vulnerable species and the overall integrity of the wildlife community. Although no blueprint strategy exists, there are ways of monitoring changes in hunting returns, catch composition and catchment which allow management groups to see whether their hunting pressure is likely to be sustainable or not, and to adjust what they do accordingly. Management systems based on protecting sanctuary 'no take' areas, on establishing species quotas and individual hunter permit limits are being devised for testing on the ground in 2012.

The legal review and setting in place of a national strategy for bushmeat regulation, with sufficient adherence for it to work, are significant hurdles, but as hunting returns decline and rural communities are faced with threats to their long-term food security, willingness to try new solutions is growing, together with a national awareness that regulation of the bushmeat industry is a necessity, with benefits for all.

Along the way, the Game Project has involved as many stakeholders as possible as we believe that a wide

general understanding of the issue will lead to better and more constructive participation in solutions to this complex problem. We share data from the studies widely, through the Wildlife Department and participate in various regional initiatives to build a common approach to managing the bushmeat industry, such as the wildlife trade monitoring network TRAFFIC's 'Syvbac' initiative, the FAO initiative to design local community management systems for wildlife, and various action plans for particular species, such as gorillas, chimpanzees, crocodiles or elephants. ●

KATE ABERNETHY is a senior research fellow at the University of Stirling where she heads the African Forest Ecology Group. She has worked full-time in Gabon since gaining her PhD in Zoology from the University of Edinburgh in 1994. She directed the Lopé National Park ecological research station from 2000 to 2006. She has been an advisor to the Wildlife Department on conservation policy since 2000. Kate currently divides her time between the Institute for Tropical Ecology Research (IRET) in Libreville and Stirling.



PHOTOS BY: SHAZZAAD KASMANI

Top: Buffalo with snare wire clearly visible, dangling from the throat.

Bottom Left: The three inch wide and one inch deep wound visible, throat being tightly strangled.

Bottom Right: The buffalo's open wound is attracting lots of irritating, blood thirsty oxpeckers.

Pictures from the bushmeat frontline

BY SHAZZAAD KASMANI

Photographer Shazzaad Kasmani filed these images from a recent visit to Ngutuni sanctuary in Tsavo East. The buffalo managed to break free from the snare but the wire still hangs from its body. The noose will get tighter as the days go by, consigning it to a slow and painful death.

The wire, with a breaking strength of over one tonne, is clearly visible dangling

from the throat of this unfortunate buffalo, creating extensive wounds over three inches wide and one inch deep. As the days go by, the wire around its throat gets tighter and tighter, impeding the animal's breathing, restricting its movement and making feeding impossible, until the animal eventually succumbs to a terribly agonizing slow death. ●



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New Ugandan skink raises questions about the pace of evolution

BY STEPHEN SPAWLS

New animal and plant species are still being discovered regularly in tropical Africa. Nearly 2,000 years ago, Pliny the Elder, a pioneer naturalist, thinker and philosopher, said, “*ex Africa, semper aliquid novi*” (there is always something new out of Africa). True words even today.

In a paper recently published online and in the *African Journal of Herpetology* (Vol 59/2, pp 123-132), authors Rungwe Kingdon and Stephen Spawls have described Uganda’s first endemic species of lizard: a distinctive, black-and-gold, gregarious skink from a Lake Victoria island. Kingdon and Spawls have named it *Trachylepis loluiensis*, the Lolui Island skink. By definition, endemics are species that are confined to a single country or habitat. Although Tanzania has over 35 species of endemic lizard whilst Kenya

has 10, (mostly chameleons), the new skink is the first species of lizard that is found only within Uganda.

The Lolui Island skink is quite unusual in a number of ways. For a start, it lives in gigantic colonies the sizes of which have never been recorded before in lizards, which are largely solitary animals. Although most colonies of this new skink contained between 10-40 individuals, the paper is illustrated with a photograph of one colony that numbers over 140 specimens. Senior author Kingdon, who discovered the skink while carrying out musical research on the mysterious and ancient Neolithic rock gongs of Lolui Island, personally counted one colony with over 1,000 individuals. No other known lizard lives in such huge colonies, which immediately begs the question, what do they eat? The authors believe

that they almost certainly live on the lake flies, *Chaoborus spp*, that breed in the waters of Lake Victoria. These flies occur in such huge numbers that when a swarm arises from the lake it looks like smoke, and when they settle on the rocks of Lolui Island they present the lizards with a copious food source.

Lake Victoria, despite its huge size, is a recent arrival. One hundred thousand years ago it did not exist, and it is no deeper than 80 m. The gradual uplift of the western wall of the Great Rift Valley created a depression in which the young lake formed, and it actually dried out just over 14,000 years ago. Since then, the nascent lake has acted as a hotbed of speciation for fish. A few species of cichlid, or mouth-breeding fish, colonised the lake from Lake Kivu and today there are over 500 species of cichlid fish in



Close-up of the new skink, *Trachylepis loluiensis*



Lake Victoria. Lolui Island itself lies far out in the lake's eastern waters, more than 35 km from the mainland, near the Kenyan border.

But where did the new skink come from? Although the shores of Lake Victoria have been fairly regularly surveyed by scientists studying the reptile fauna, the new skink has never been seen on the mainland. The rocky outcrops on the shore are all dominated by various species of Agama lizard, a distinctive reptile in which the males have vividly contrasting, brightly coloured heads and bodies. Two intriguing possibilities exist. One is that the skink is an ancient species that was originally widespread on the mainland, but has been out-competed and exterminated there by Agamas, and survives only in the protection of its isolated island habitat, where it was trapped by rising water before the Agamas reached it. The other is that the skink, under evolutionary pressure, evolved recently and rapidly from a skink ancestor, adapting to the habitat and food sources on the island, a theory that if proven could offer interesting evidence of how rapidly reptile species can change. No one knows the answers yet, although molecular sequencing of this unique species might provide some clues. In the meantime, the sinister clock of competition may be ticking. A red-headed Agama has been spotted on the island. If the Agamas



PHOTOS BY: STEVE RUSSELL

Close-up of the basking colony.

have recently arrived there, and begin to breed successfully, they may be about to displace the Lolui Island skink. Thus it becomes extremely important to monitor this beautiful creature over the next few years. It is Uganda's only known endemic lizard: it would be catastrophic if it was wiped out by an invasive species. ●

A new gregarious species of *Trachylepis* (Reptilia: Sauria: Scincidae) from Lolui Island, Lake Victoria, Uganda. African Journal of Herpetology, 2153–3660, published on 17 August 2010

STEPHEN SPAWLS was born in London but came to Kenya when he was four. He lived there for 17 years, in Meru and Nairobi, and attended St Mary's school. After graduating he worked in Ghana, Egypt, Botswana and Ethiopia. He has published five books, including a field guide to the reptiles of East Africa and, most recently, a guide to the amphibians and reptiles of Ethiopia and Eritrea. At present he lectures in science at Norwich City College in the UK, but returns to Kenya whenever he can.



Basking colony of over 150 Lolui Island skinks at Kandege Village, Lolui Island.



PHOTO BY SARAH CLYDE

Black Rhino spearheads Malawi wildlife Makeover

BY FELIX PATTON

Whether as part of the British Central African Protectorate or from 1907 as Nyasaland, or from independence in 1964, Malawi was known for its abundant array of wildlife. But all through the 1900s and especially between 1960 and 1990, a combination of uncontrolled hunting, destruction of wildlife habitat for agriculture and illegal poaching fuelled by freely available firearms decimated its wildlife. Malawi, one of the world's poorest countries, lacks capacity, resources and equipment for wildlife conservation.

But today, with several NGOs working with the Department of National Parks and Wildlife, Malawi's wildlife is

getting a makeover, starting with the reintroduction of the Black rhino.

This success story started in 1993 when a pair of Black rhinos was moved from South Africa into a 15 km² fenced sanctuary within the 538 km² Liwonde National Park. The translocation was funded by the J&B Circle of Malawi, which was founded in April 1992 and has now been renamed The Endangered Species of Malawi or ESOM. The translocation was paid for using funds from J&B London's "Care for the Rare" programme.

For the next six years the sanctuary focused on developing the Black rhino population. A first calf was born in 1996, and a second breeding pair was

translocated into a second fenced area in 1998.

Whilst 1999 saw the birth of a second rhino calf, it was also marked by an extension in the project's ambitions. The rhino sanctuaries became centres for breeding other species made scarce in Liwonde and other areas. Twenty-eight buffalo, 16 Eland, 26 Lichtenstein's hartebeest, 29 Roan antelope and 19 zebra were moved in from the Kasungu National Park, as well as 28 Sable antelope from the main area of Liwonde, to join resident populations of other wild species such as warthog and impala. The majority of the buffalo were released into the main body of the park.



PHOTO BY: PETRA CAMPBELL

Top: Successful repopulation of the magnificent Sable.
Left: One of the Black rhinos at rest in the sanctuary at Liwonde National Park.
Bottom: Giraffe at the Kuti Community Wildlife Park.



PHOTO BY: PETRA CAMPBELL

TODAY, WITH SEVERAL NGOs WORKING WITH THE DEPARTMENT OF NATIONAL PARKS AND WILDLIFE, MALAWI'S WILDLIFE IS GETTING A MAKEOVER, STARTING WITH THE REINTRODUCTION OF THE BLACK RHINO.

The fence between the two sanctuaries was removed in 2000 to enable better grazing. With dedicated security, all species in the sanctuary area were able to breed, and populations grew rapidly to become the source of the 'Malawi Makeover' with the main area of Liwonde National Park being an early recipient of Sable antelope, impala, warthog and buffalo in 2003, and again in 2008 along with Eland, hartebeest and zebra.

In 2007, the species that could be found in the Liwonde Sanctuary (with the numbers released to other reserves

in parenthesis) were 114 (+22) buffalo, 68 (+6) Eland, 69 (+ 16) zebra, 75 (+21) hartebeest, 38 (+0) Roan and 300 (+329) Sable antelopes.

Another beneficiary of the makeover was the 691 km² Majete Wildlife Reserve. In 2003, the African Parks Foundation agreed to take responsibility for rehabilitating, developing and managing Majete. Hunters had decimated the wildlife population-Black rhino, buffalo, Eland, Impala, zebra, hartebeest and Lion had been eliminated by 1985. The elephant population of near 300 in 1987 was hunted to extinction during



PHOTOS BY: PETRA CAMPBELL

Top: An elephant family moves through Liwonde National Park.

Bottom: Kudu mother and calf in Liwonde National Park

Facing Page

Top Left: The River Shire is home to many hippos in Liwonde National Park.

Bottom Left: Crocodiles basking on the banks of the Shire river in Liwonde National Park.

Top Right: Zebras are breeding well in the game reintroduction sanctuary in Majete Wildlife Reserve.





PHOTOS BY: PETRA CAMPBELL

the closing years of Mozambique's civil war, with the last elephant shot in 1992. Sable antelopes were gone by 1998 and populations of kudu, Warthog, Waterbuck and Hippo were significantly reduced.

Having secured the area, African Parks constructed a 140 km² game reintroduction sanctuary within Majete. In 2003, the sanctuary received two Black rhinos plus Sable antelope, Impala, Warthog and buffalo from Liwonde followed by 70 elephants, zebra and hartebeest in 2006. The elephant population grew to 82 in 2008. That year, 62 more elephants were moved to Majete plus further animals including purchases from game ranches in Zambia and South Africa. Since 2003, over 3,000 animals have been introduced into Majete while the increased security has also led to growing numbers of Greater kudu.

Once there is sufficient game, Lion, Leopard and Cheetah will be reintroduced to Majete while, with the completion of a 160-km electrified perimeter fence in 2008, the sanctuary fence will eventually be removed allowing the wildlife free access to all parts of the reserve. Mwabvi Wildlife Reserve, in the southwest, is the smallest

national park in Malawi at just 137 km². In 2007 the government and director of National Parks and Wildlife entered into an agreement with Project African Wilderness Trust (PAW) to take on conservation work and development in the reserve. It had long been neglected and the ecosystem was out of balance.

Eland, Spotted hyena, some elephants, plus many other locally extinct species. A habitat evaluation will be used as a guideline for any reintroductions and a 2.6 m-high game fence, with a five-strand offset solar-powered electrification, will be erected around the entire reserve to protect the animals.

WHILST 1999 SAW THE BIRTH OF A SECOND RHINO CALF, IT WAS ALSO MARKED BY AN EXTENSION IN THE PROJECT'S AMBITIONS. THE RHINO SANCTUARIES BECAME CENTRES FOR BREEDING OTHER SPECIES MADE SCARCE IN LIWONDE AND OTHER AREAS.

Many wildlife species had disappeared and some deforestation had taken place.

The existing populations of Sable antelope, buffalo, Greater kudu, Impala, Nyala and Bushbuck will be supplemented with Black rhino, Blue wildebeest, zebra, Lion, Cheetah, Leopard,

One of PAW's Mwabvi conservation projects is the Predator Breeding Programme. A breeding pair of white Lions was introduced in May 2010 as the foundation of the programme in collaboration with other protected species breeding organisations. The Lions



Male nyala in the game reintroduction sanctuary in Majete Wildlife Reserve.

carry the white recessive gene, with their fathers being pure white lions and their mothers a normal brown lion. This will increase the genetic pool of the white lion population worldwide. They will soon be joined by two pure white females.

Other species to be introduced will include the black leopard, cheetah, wild dog, serval and hyena. Some predators will be made available for sale internationally under very strict controls. White Bengal and Siberian tigers will also be bred as part of an international breeding programme to help increase the very endangered world tiger population.

In 2007, the Liwonde Rhino Sanctuary supplied 68 sable antelopes to the 960 km² Vwaza Wildlife Reserve. Recent wild dog sightings suggest they may be recolonising the reserve from Zambia.

Vwaza has been earmarked as a possible site for black rhino reintroduction as has Kasungu National Park, the second largest in Malawi at 2,316 km² and still supporting a greater variety of large mammals than any of the

country's other protected areas. A wildlife reintroduction sanctuary is planned with the long-term objective of bringing back the black rhino. Kasungu NP was once the best place to see this species in Malawi.

Situated near Salima, the Kuti Community Wildlife Park represents the natural bush, forests, grass and wetlands, which dominated the Lake Malawi flat plains a few generations ago. The former government-owned, 3,000-ha cattle farm was taken over by the Wildlife Producers and Hunters Association of Malawi some 10 years ago in order to rehabilitate wildlife populations and educate the local community about the responsible use of natural resources by creating employment and income-earning opportunities.

Giraffe, zebra, nyala, sable antelope, impalas, warthog and ostrich have been reintroduced while naturally occurring game such as kudu, duiker, bushbuck, genet cats, civet cats, bush pig and numerous bird species have multiplied in the protected environment. More game

introductions are planned when funds are available. Kuti is a model for other such community projects to be developed in the country to obtain a financial benefit from wildlife for local people.

Malawi is readily accessible, especially by air via Nairobi, and has an excellent road network that makes visiting these conservation areas easy. With low gate fees and simple but good accommodation, it is an inexpensive option for wildlife enthusiasts. Following the reintroductions, the game viewing experience is rewarding and as the 'Malawi Makeover' continues, it will get even better. ●

FELIX PATTON, a rhino ecologist assisting with rhino monitoring at Solio Game Reserve, Kenya, and his techno-savvy partner, **Petra Campbell**, spent two weeks on a self-planned, self-drive safari in Malawi.



The Rhinos of Malawi

Black rhinos once inhabited most of Malawi with a \$ 40 game licence required to shoot one. By 1932, Black rhinos were generally uncommon but found in the Kota-Kota and Ngara districts and around the Nyika Plateau. There were just two populations in 1988 of 10 to 20 individuals in Kasungu National Park, only found in the far west and thought to have crossed the border from Zambia, and six or seven in Mwabvi Reserve that might have crossed from Mozambique. The last rhino was killed in Malawi in 1990.

The Malawi-South Africa Wildlife Project

In the early 1990s, this bilateral conservation project was started to assist Malawi in acquiring Black rhino and reintroducing them and five other scarce species to a breeding sanctuary in Liwonde National Park for later redistribution to other conservation areas in Malawi.

Three male-female pairs were introduced between 1993 and 2000. The rhino was declared a protected species soon after it was reintroduced, giving it management priority and ensuring adequate protection. Six calves have been born. One male and a pregnant female have died.

The 49 km² fenced sanctuary in the Mvuu area has an estimated carrying capacity of only 16 individuals. Extending the sanctuary is unlikely as it would hinder the movement of elephants in the park. A 250 km perimeter fence has been constructed and the sanctuary fence could be taken down allowing rhinos to access the entire area.

Visitors can access the sanctuary through game drives organised by Central African Wilderness Safaris who manage the nearby Mvuu Lodge and Camp and make an important contribution to the running costs of the sanctuary.

A 140 km² sanctuary was constructed in the 691 km² Majete Game Reserve in 2003. Two Liwonde rhinos were introduced in 2003 and six from South Africa in 2007. The first calf was born in July 2008. Today there are two males, five females and five calves. The reserve's electrified perimeter fence will allow for the sanctuary fence to be removed and the rhino population to grow substantially.

The long-term objective is to build existing populations and undertake reintroductions to Kasungu and Mwabvi reserve and possibly introduce new populations in Lengwe National Park and Vwaza Marsh Wildlife Reserve.

For further information on the organisations mentioned, see their websites:

Endangered Species of Malawi (ESOM) - <http://www.rhino.malawi.net>

African Parks Foundation (APF) - <http://www.african-parks.org>

Project African Wilderness (PAW) - <http://www.projectafricanwilderness.org>

Kuti Community Wildlife Ranch - <http://www.kuti-malawi.org>



SPOTLIGHT





The Porini concept:

Is this the way to save the Mara?

BY BRYAN HARRIS



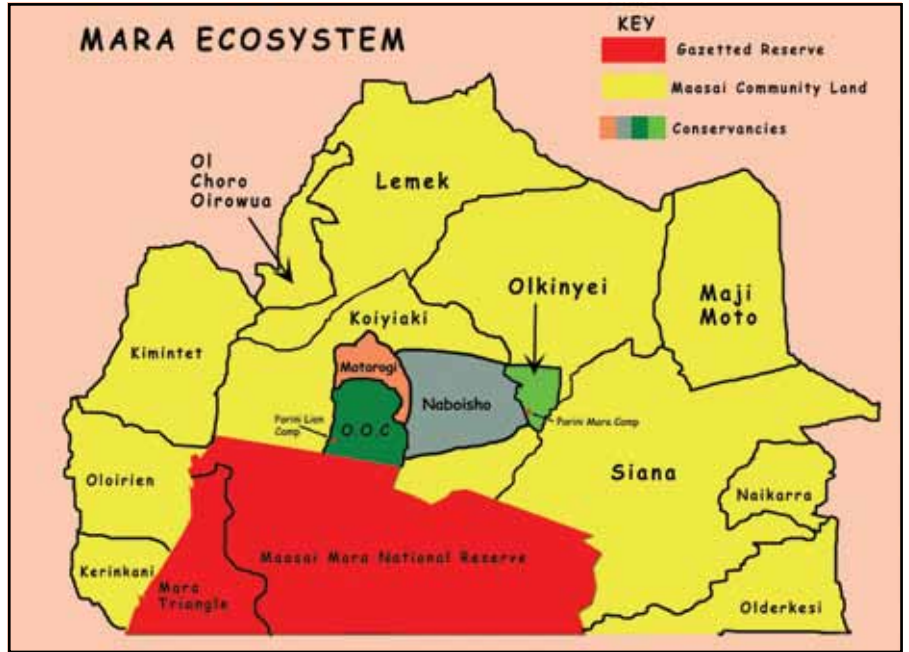
Ol Kinyei Walk



Every tourist knows that the Maasai Mara is one of the greatest places in Africa to view wildlife, and this reputation got a boost when UNESCO added it to its list of World Heritage sites a couple of years ago. At almost 1,700 km², it is big but its size is eclipsed by numerous reserves and national parks throughout Kenya. The combined East and West Tsavo National Park, for example, is over 12 times larger. So, it cannot just be size that counts, but quality-or at least that used to be the case.

The decline in the Mara's quality is a hot debate right now. The question is whether the Mara's wilderness character is unsustainable because of growing visitor numbers, the spread of camps and lodges in and around the reserve and the prevalence of off-road tyre tracks pretty much everywhere you look. These developments are progressively degrading the reserve, with some even arguing that the damage already done is irreversible. Whether that assertion is true or not, everyone with influence still wants a piece of the Mara action and there seems to be no solution in sight. Or is there?

Recent experience suggests that the key might well lie in communally based conservancies. The gazetted Maasai Mara National Reserve consists of the Mara Triangle in the northwestern part of the game reserve, which is under



The northern Mara ecosystem appears to be several times larger than the Maasai Mara National Reserve.

MAP COURTESY OF GAMEWATCHERS SAFARIS

the authority of the Trans Mara County Council and managed for the council by a not-for-profit company, the Mara Conservancy; the remainder of the reserve is controlled by Narok County Council. While the management of the reserve, under the two councils, has responsibility for security, controlling poaching, maintaining roads and monitoring the effects of tourism,

crucially it has not attempted to restrict the numbers of visitors.

It is important to remember that beyond the gazetted game reserve lie vast tracts of Maasai communal land, which form a vital part of the Mara ecosystem and are an important dispersal area for all the wildlife species for which the Mara is justifiably famous. In recent years, this land has been divided into thousands of



PHOTOS BY CHARLIE GRIEVES-COOK

Wildebeest migration on the plains in Ol Kinyei Conservancy.



Top: Staff at Porini Mara Camp, Ol Kinyei Conservancy.

Bottom: Topi at sunset.

small parcels or plots which have been allocated to individual Maasai families, who hold the titles. In many cases this has brought about a change of use from traditional pasture to crop cultivation as well as the development of large-scale wheat farms that have resulted in a loss of wildlife habitat followed by significant decreases in wildlife populations. If these changes are taken to extremes, these dispersal areas are likely to continue

shrinking and eventually to disappear together with the buffer zones that presently separate wilderness from cultivated lands.

I am going to concentrate on one such area: the northern Mara ecosystem. Judging from the simple map in front of me (see pp. 50), it appears to be several times larger than the Maasai Mara National Reserve and within it, two conservancies have already been

created with probably more to come. The two are Ol Kinyei and Olare Orok where Gamewatchers Safaris, headed by Jake Grieves-Cook, together with other conservation-minded safari operators joined in supporting Maasai families who have set aside large tracts of communal land exclusively for wildlife. Both conservancies comprise many individual family plots, and the concept of a community-owned wildlife conservancy funded by eco-tourism follows the formula already tried and tested with the Porini Amboseli Camp at the Selenkay Conservancy bordering Amboseli Park. The concept involves an agreement with representatives of the families occupying the designated area to pool their individual holdings in order to create a wildlife habitat within which human habitation, the grazing of livestock and cultivation of crops is suspended for an agreed period of time, ideally 15 years, in exchange for financial considerations and other benefits for the Maasai landowners and community as a whole.

The first conservancy in the northern Mara ecosystem was established by Gamewatchers in 2005 in an area called





Nature walk with Maasai escorts.

THE CONSERVANCIES WHERE THE PORINI CAMPS ARE LOCATED ARE MAKING A GENUINE CONTRIBUTION TO CONSERVATION OF WILDLIFE HABITAT AND PROVIDING TRUE BENEFITS FOR THE COMMUNITY LANDOWNERS AND A LOW-IMPACT MODEL OF TOURISM.

Ol Kinyei on 9,800 acres of communal land owned by 85 families. Only a single camp was allowed here. Porini Mara Camp, which is located on the Laetoli, a permanent stream fed by a spring inside the Ol Kinyei Conservancy, consists of six tents capable of sleeping a maximum of 12 visitors, easily adhering to a rule-of-thumb ratio of one tent per 700 acres that Grieves-Cook considers to be the minimum ecological yardstick. Porini is a Swahili word meaning 'in the wilds' and the name has become a generic, linking all four camps presently within Gamewatchers' portfolio, including the most recent addition at Ol Pejeta near

Nanyuki. Porini Mara Camp provides employment for 30 staff of whom 27 are Maasai, selected from the family owners in a process that reflects individual holdings within the conservancy. The same rule applies to the division of the annual fee paid by Porini for the lease of the land which is based on acreage of the plots owned by the community. Other benefits enjoyed by the families are support for schools and water supplies as well as individual training of game rangers, trackers, drivers, guides and camp staff.

Flicking through the visitors' book, I was struck by the number of comments that dwelt on the fact that the camp is so

eco-friendly that, were it to be completely dismantled (and with the odd shower of rain afterwards), within days one would be hard pressed to find any trace of a human presence because there are no hard standings or permanent structures of any kind, reflecting a stated policy with regards to the management of water, land, energy, solid waste and sewerage that the camp staff adheres to with commendable efficiency. The system works because it is fully supported by the community for the simple reason that it provides a standard of living for the beneficiaries (families and staff members) that cannot be equalled by any other means. David Githaiga, the manager and one of only three non-Maasai staff at the camp, told me that it is "responsible tourism" whereby the tourists enjoy a genuine wilderness experience, the community prospers and the habitat is regenerated.

All well and good but how does it sit with visitors who have to foot the bill? Basically, it comes down to strict restrictions placed on the number of tents, which by extension equals visitor numbers which, in turn, means that



into the communal pot in exchange for revenues derived from tourism as well as benefits of employment etc, based on the successful models already established at Ol Kinyei and Selenkay. Again, a strictly limited number of safari vehicles roam the conservancy. At Olare Orok and the adjacent 12,000 acre Motorogi Conservancy there are five small camps, limited to less than 100 beds between them, set up by "Tourism Partners" who have joined with Gamewatchers to fund the leases of the parcels of land making up the two conservancies. Moreover, the new use to which the land has been put has resurrected the savannah and bush within the Olare Orok and Motorogi Conservancies just as it has at Ol Kinyei.

So, is the creation of strictly controlled, community-owned wildlife conservancies the answer to the ills that currently beset the Mara? The answer is probably yes and while there is now a trend towards such conservancies surrounding the reserve, the Porini difference is in the detail and the execution. The conservancies where the Porini Camps are located are making a genuine contribution to conservation of wildlife habitat and providing true benefits for the community landowners and a low-impact model of tourism. But there are certainly a number of camps which, while claiming to be ecologically sound, operate within such tiny land areas as to be unfit for any real conservation. Substantial wildlife conservancies on private ranches, Lewa for example, pre-date Porini but Gamewatchers has an unassailable claim to have pioneered the concept on Maasai communal land and it is this initiative that may well turn out to be the salvation of the Mara ecosystem. ●

BRYAN HARRIS arrived in Kenya in 1948 to join his father, who was with the Royal Air Force at Eastleigh aerodrome. He attended St Mary's school in Nairobi and, after serving in the Kenya Regiment, completed a degree at Durham University in the UK. Most of his working life was spent with a British development agency which took him to many countries around the world. He has lived permanently in Nairobi since 1991.

the number of safari vehicles in the conservancy is kept to a maximum of three at any one time. But the crux of the matter is that visitors are offered an unspoilt wilderness, devoid of tourist buses, lion jams or any other traffic because Gamewatchers has exclusive access to the conservancy over which it exercises strict control. A five-year moratorium on livestock grazing, settlement and cultivation has also resulted in major habitat regeneration within Ol Kinyei Conservancy that in turn has lured back all manner of plains game and predators: there may be up to 30 lions living semi-permanently in the conservancy and the ones we saw were in prime condition. So am I a fan? Yes indeed.

We had intended to travel cross-country to the sister Porini Lion Camp in the Olare Orok Conservancy some 30km away but overnight rain quickly put paid to the idea, forcing us to take the longer

route through the Mara National Reserve, entering at Sekenani Gate and exiting at the Talek Gate. When we explained that the re-routing was a case of *force majeure* (or words to that effect) and that we were travelling to Olare Orok Conservancy, the friendly gate staff waved us through without charge. It was a fortuitous diversion because we noticed at once the marked contrast between the lush grassland and general well-being of Ol Kinyei Conservancy and the adverse conditions in the reserve. We were back to the familiar stubble grass, off-road tyre tracks and a look of general wear-and-tear that has become the hallmark of the Mara, at least at certain times of the year.

Porini Lion Camp is just four years old and sleeps a maximum of 20 people in 10 tents, still well within the 700 acres per tent criterion. The 22,000 acres that comprise the Olare Orok conservancy are owned by 156 families who have placed their individual land holdings

The newest conservancy with which Gamewatchers is involved, the Mara Naboisho Conservancy that will 'link' Ol Kinyei and Olare Orok, is scheduled to open as this issue of SWARA goes to press.



PHOTOS BY: CHRISTOPHER DUTTON

Flesh-eating hippos sighted in the Maasai Mara

BY CHRISTOPHER DUTTON & AMANDA SUBALUSKY

The crocodiles were gorging on a single wildebeest carcass when we watched two hippos not only join in but take over the feast.

We were privileged to watch these giant herbivores pull pieces off the wildebeest and eat them—a rare sight that was first scientifically documented in 1996.

The hippo, the fourth largest mammal in the world, eats up to 68 kg of grass, mostly at night, a few aquatic plants and occasionally carrion.

But this was a front-row seat at a carnivorous meal.

It was in the Maasai Mara National Reserve (MMNR) during the annual migration of wildebeest that occurs every year between July and November.

On September 29, 2009, beginning at 16:50, we observed three, large, adult Nile crocodiles (*Crocodylus niloticus*) feeding on a single wildebeest carcass lodged on a rock outcrop in the middle of the Mara River, approximately 20 km

north of Tanzania. There were several other large adult crocodiles within five metres of the carcass.

Approximately 10 metres downstream of the carcass was a herd of 30 hippos and two of them approached the carcass and began pushing the

We watched one of the hippos chewing on meat torn from the head. A large adult crocodile approached the lower portion of the carcass and began to bite into its leg. But several other hippos from the herd downstream then approached and continually pushed the large adult

WE WERE PRIVILEGED TO WATCH THESE GIANT HERBIVORES PULL PIECES OFF THE WILDEBEEST AND EAT THEM – A RARE SIGHT THAT WAS FIRST SCIENTIFICALLY DOCUMENTED IN 1996.

crocodiles away from it. One of the hippos then stood up, partially out of water, and appeared to nuzzle the carcass. The same two hippos then moved to the front of the wildebeest carcass and began feeding on the upper portion by biting into its head.

crocodiles away as the two primary hippos continued to feed on the carcass.

As large adult crocodiles attempted to return to the carcass, adult hippos from the large herd downstream moved upstream and denied them access. The



Top Left: A hippo approaches the wildebeest carcass and begins to nuzzle it.

Top: A hippo chewing on meat torn from the head of the wildebeest carcass.

Bottom: Crocodile biting the leg of the wildebeest carcass as two hippos bite into the head of the same wildebeest carcass.

carnivorous tendencies of hippos were first scientifically documented in 1996 by field biologist Joseph P. Dudley (1996, pp. 486-487). Dudley recorded observing a male hippo killing an ungulate and then eating some of the meat in Hwange National Park, Zimbabwe. Dudley (1998, pp.58-59) hypothesised that the “behaviour may have been attributable to nutritional stress caused by severe drought conditions.”

This episode of carnivory by hippos was observed while the MMNR was in the midst of a serious drought, and sufficient grazing lands for hippos were increasingly in conflict with land used by Maasai communities for their cattle.

Within the Reserve, there is anecdotal evidence that hippos have previously been observed killing and consuming Thomson’s gazelles (Herndon, 2002) and video was shot by a BBC film crew of hippos killing and consuming a zebra (“Trek: Spy on the Wildebeest”, 2007). Several other instances of carnivorous habits in hippos have been mentioned including in a recent report from Northern Tanzania (Singita Game Reserves, 2009). There have also been unconfirmed reports of hippos killing cows in Ethiopia (IUCN Hippo Specialist Group, 2002).

It is possible that the huge number of animal deaths during the wildebeest migration may give hippos a taste for meat but also that the loss of available grazing land has affected their diet. ●

CHRISTOPHER DUTTON and **AMANDA SUBALUSKY** worked as research associates with the Global Water for Sustainability Consortium (GLOWS - www.globalwaters.net) in the Mara River Basin from May, 2008 through July, 2010. They are continuing to study the Mara River as graduate students at Yale University. Follow their work at: maraadventure.blogspot.com.



Kenyan refuse collectors under poison cloud

BY MARIA HALL

“God, it’s such an ugly bird,” my classmate mutters. I have to agree. Standing beside a wildebeest carcass is a Lappet-faced Vulture, one of five species of vultures found in the Maasai Mara. It is a truly unsightly bird with a large, naked, bright red head and scowling, dark eyes. Its thick feathers are jet black, unlike the surrounding Ruppell’s and White-backed Vultures that have tan-and-white bodies. The lone Lappet-faced is the most hideous in an already unattractive crowd of scavenger birds.

But it is a species at risk. The “garbage collectors” of the ecosystem are under threat from factors as diverse as changing land use patterns to poisons aimed at carnivores. But perhaps their most vulnerable facet is their reputation, often ill-deserved.

In Kenya and all over the world, these unsightly vultures have long had a tumultuous relationship with humans. People over the centuries have worshipped, feared and exploited them. Biologists have realised the ecological importance of these creatures, but this

understanding has not reached everyone, especially those in rural, pastoral regions. Today in Kenya, all vultures are threatened by farmers using toxic pesticides to exterminate predators such as lions and hyenas because they kill livestock. Vultures that scavenge on the poison-laced carcasses also die-quickly. If this continues on a large scale, the Maasai Mara will no longer contain these scavengers, and the beautiful plains will pile high with ugly carcasses rotting in the hot sun, promoting the spread of disease and carrion flies.





Vultures are not charismatic or sexy like so many carnivores found throughout the Mara region, but the role these birds play in the ecosystem is critical to the overall health of the environment. While soaring on thermals that can carry them many kilometres a day, vultures use their keen eyesight to spot predator kills and carcasses. Within minutes, a group of vultures can strip a full-grown wildebeest carcass of meat and organs. Evolution over millions of years has allowed vultures to fill this job of nature's janitor perfectly. All vultures have strong beaks that tear through skin and tendons, and in some cases, bone. Usually the first vultures to arrive at a carcass are White-backed Vultures, then Ruppell's Vultures—two species of Gyps vultures that are tricky to tell apart due to the fact that both birds are similar in size and coloration. Lappet-faced Vultures are more cautious than other species. This much larger bird feeds primarily on bones thanks to its large, powerful beak. Hooded Vultures are smaller compared to these other vultures and, unlike the

others, they have thin, delicate-looking beaks for getting the very last bits of meat off bones. White-headed Vultures are rare and elusive, and are surprisingly delicate eaters, being careful not to get their white-and-blue heads bloody.

Vultures keep Kenya's Maasai Mara clean and disease-free by consuming over 70% of carcasses, according to a study conducted by Dr. David Houston of the University of Glasgow. Hyenas and jackals travel to where food is near, but vultures are highly nomadic. Where vultures travel is still largely a mystery, but it is being examined. (see SWARA 2003:09)

For centuries, people have integrated vultures into culture. These distinct birds have earned respect and importance especially in religions.

Ancient Egyptians believed vultures were linked to maternity and love because their wide wings provided protection for infants. The goddess *Mut* of the New Kingdom was the goddess of motherhood, and her name was a variation of the ancient Egyptian word for vulture, "*mwt*". She was represented as a woman with the head of a vulture and was at the centre of one of the most popular festivals of the time.

In Tibet, dead people are often dismembered and fed to vultures in a practice known as 'sky burial'. The vultures consume everything, helping decompose a body in a region where firewood is not abundant. The birds are highly respected because of their service. A few years ago, a Chinese soldier shot a vulture and was stoned to death by Tibetans, an event that highlighted not just political tensions, but the veneration Tibetans have for these birds.

Contemporary views of vultures are more negative due to lack of understanding. Farmers worldwide have persecuted vultures they believe kill and consume livestock, despite the fact that vultures lack the strength and precision needed to take down prey. In cartoons and movies, vultures are sneering, ugly cowards associated with the bad guys. Remember Disney's classic film "*Snow White and the Seven Dwarfs*"? The Evil



PHOTOS BY: MUNIR VIRANI

Left Page: African White-backed Vulture on shrub.

Top: Ruppell's Vulture taking off.

Bottom: Lappet-faced Vulture in flight.



The endangered Egyptian Vulture.

THE PRIMARY KILLER OF VULTURES IN KENYA IN RECENT YEARS HAS BEEN THE DEADLY CARBAMATE-BASED PESTICIDE SOLD IN SHOPS AS FURADAN. MANUFACTURED IN THE UNITED STATES, THIS CHEMICAL IS INTENDED TO KILL NEMATODES AND BEETLES THAT EAT CROPS.

Witch had a pair of Lappet-faced Vultures follow her.

Vultures in East Africa are threatened by a number of factors, including habitat loss through human encroachment, exploitation and, most significantly, poisoning. Land use is a challenge in Kenya. Since independence in 1963, the nation’s population has exploded from two million to 42 million people, and as a result, there have been rapid changes in land usage. In the Mara region, the Maasai now own land individually after centuries of viewing land as a common asset. Land is often subdivided and leased to farm wheat or maize. Agriculture and cattle grazing put pressure on areas where vultures forage, since the birds depend on ungulates that require wide, open expanses of land. Exploitation is a problem that many might not think of in terms of vultures. More charismatic

animals like tigers and elephants are the poster creatures for overexploitation.

The primary killer of vultures in Kenya in recent years has been the deadly carbamate-based pesticide sold in shops as Furadan (See SWARA 2009:04). Manufactured in the United States, this chemical is intended to kill nematodes and beetles that eat crops. It is used on rice, corn and alfalfa. Even in small quantities, the chemical blocks neural transmissions, putting people who come in contact with it in danger. In Africa it is being used to exterminate “nuisance” predators, namely lions and hyenas that occasionally take down livestock. In regions where poaching is still an issue, poachers target vultures and poison them to stop the birds from attracting authorities towards an illegally hunted animal. The carcasses are sprinkled with the poison, and all animals that come to

feed are killed almost instantly. In 2004 the largest case of vulture poisoning was recorded in Athi River, with 187 birds found dead at one carcass. Regarded as the most toxic chemical to birds, this poison destroys any species that scavenges, such as hyenas, vultures, Marabou Storks, Bateleur Eagles, jackals and Tawny Eagles.

Vultures in Kenya are at a tipping point. These long-lived, slow maturing birds cannot afford years of continued Furadan use. According to Kenya’s Ministry of Agriculture and the Pest Control Products Board, Furadan is “a safe pesticide” whose “benefits outweigh the harm”. The product website claims that proper use of the poison “does not create a risk to human health, wildlife, or the environment, and we will continue to promote its responsible use”. Organisations such as the United States Environmental Protection Agency, the World Wildlife Fund, WildlifeDirect, the Peregrine Fund and the National Museums of Kenya have joined the effort to ban the chemical entirely. This has proven to be a battle and if it is not successful soon, there may be very few or even no vultures soaring over the Mara in a matter of years.

The Lappet-faced Vulture we have been watching turns and stares at us for a moment before snapping at the White-backed Vulture standing beside it. It seems too full to harass the White-backed any further. The annual migration of wildebeest has started, and the vultures are busy tidying the landscape.

Approximately 100,000 of the one million or so wildebeests on the move will die of natural causes during this migration. Only a healthy population of vultures can handle that clean-up job. The alternative is too awful to contemplate. ●

MARIA HALL is a junior at St. Lawrence University, studying Conservation Biology, Anthropology and African Studies. Maria developed her love for wildlife in the woods and on the waters of her home state of Maine. She has worked as a naturalist on a whale watch and a trail worker for the Maine Conservation Corps. Studying wildlife conservation in Kenya during the summer of 2010 is the highlight of her education.

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THE INTERNATIONAL YEAR OF BIODIVERSITY-SOME OF KENYA'S.



This is a Mwanza Flat-headed Rock Agama lizard in the Maasai Mara. This spectacular creature is found in the Mara and further south into Tanzania and west around Lake Victoria. This is a male in full breeding colours. The males defend territories and advertise their virility to wannabe interlopers through their bright colours.



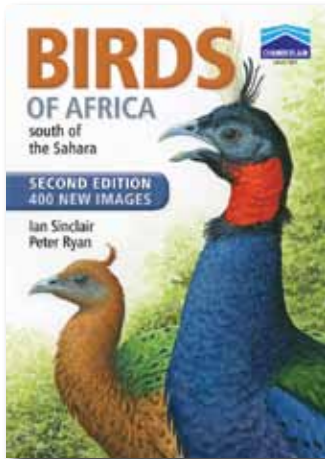
This is a Death's Head hawkmoth caterpillar (Sphingidae). The adult is a large brown and yellow hawkmoth that has the most unusual habit of entering bee hives to steal honey. The caterpillars of some hawkmoth species can grow quite large and are voracious 'eating machines' that consume plants and grow fast.



The Kori Bustard can be seen sombrely stalking across the plains in many parts of East Africa. The males adopt hilarious postures as part of their mating rituals and their calls are a characteristic part of the rainy season. The Kori Bustard is the heaviest flying bird on the planet.

Praying mantis are common visitors to gardens in East Africa. They are the gardeners' friend as they gobble up many different kinds of insect pests. Their characteristic steely stare is produced by the effect of the fovea in their eyes that functions like a pupil in mammals' eyes and ensures that they can see and catch prey effectively.





Birds of Africa South of the Sahara: A Comprehensive Illustrated Field Guide – second edition

Author: Ian Sinclair;
Peter Ryan ISBN:
9781770076235
Format: paperback
Pages: 766

As a continent-wide guide, this book is of great value as it contains all of sub-

Saharan Africa's birds in one volume. The authors are to be congratulated for this latest revision, and the artists commended for taking on this daunting task. The layout is very user-friendly.

But the book is a great disappointment if you are looking for faithful representations of East African birds. Its portrayal of many species in our region is sadly misleading and inaccurate. I suspect that people from other regions with an in-depth knowledge of the birds of their areas will state much the same. Cisticola and Greenbul identification will not be greatly assisted by the standard of artwork, which varies between exaggeratedly bright, strong colours and very washed out images. Some birds' shapes are grossly distorted and many stances are hideously depicted. Birds that should be well known to the artists—for example Ruff and Redshank—are amongst the worst depictions I have ever seen. Most of the body of the book is devoted to the artwork. Of the three artists, two have been painting birds for many decades but their work has not shown the required improvement and cannot compete with younger artists, whose drawings are in many recent bird books.

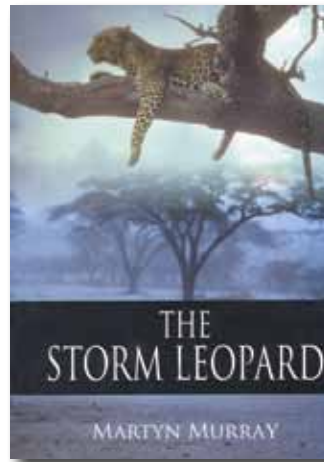
The reader need only look at images of common large birds to see how bad they are, before investigating the small birds. Randomly selected pages show very poor editing:

- Pages 596-7: The text correctly states that the female of the Marsh Tchagra has a white supercilium, whilst Anchieta's Tchagra has identical sexes, and yet the female Marsh is illustrated with the Anchieta's.
- Page 677: Golden-backed Weavers with black, not red eyes.

On my last birding excursion in central Kenya, a couple arrived with this work and had to keep borrowing our *Stevenson & Fanshawe* and *Zimmermann & Turner* to see more accurate renditions. Nowadays ornithologists are far more discerning, and the day of the "instant" book is finished. We have gone through decades of such sub-standard productions, and now the discerning public demands more for its money.

Despite the poor illustrations, I would urge people interested in the continent's avifauna to purchase this book. If we all got together and sent the authors a list of the corrections it needs the third edition could be a vast improvement.

Reviewed by: **BRIAN FINCH** a kenyan ornithologist, co-author of *The Birds of East Africa* and *The Birds of the Horn of Africa*, and a reptiles and butterflies specialist.



The Storm Leopard
Martyn Murray
ISBN 978-184995-004-06
Whittles Publishing
258 pages

Wildlife professional Martyn Murray meets Kenyan old-timer. Old-timer says Africa, as a wilderness, is finished. "You mark my words. They will all disappear one day. Every single wild place." Murray

drives from Cape Town to the Serengeti in a twin-cab Isuzu to test the old-timer's theory.

That's the story-line. What it doesn't tell you is that this is as much a spiritual journey as a scientific one. Martyn is a wildlife consultant with a string of degrees, but this journey is as much about personal discovery as about science.

"Go back to Africa without a project. Go back to Africa with no purpose other than to know, to feel, to understand. Go back to meet the man I once was and question his assumptions," he says.

That's the books's framework. It's a deeply personal story that may not be to the liking of many an armchair conservationist, although I suspect it will delight as many as it disappoints. There are good stories in its 24 chapters, as you'd expect from a cross-continent safari, and interesting photographs too. It's neither a nature book nor a travel book but a blend of both. To find his conclusion you need only read the final chapter, "The Last Kopje."

But then you'd miss the pleasure, and possibly the point, of this entertaining read which seems to reaffirm the mantra that "The journey is the destination."

Reviewed by: **ANDY HILL** editor of *SWARA Magazine*.



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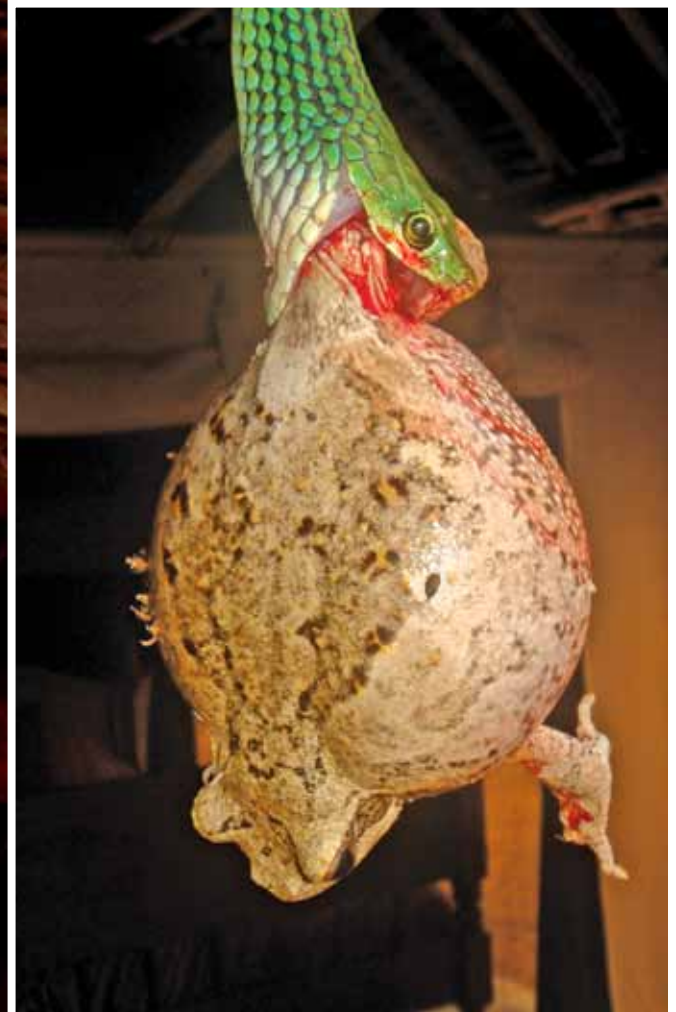
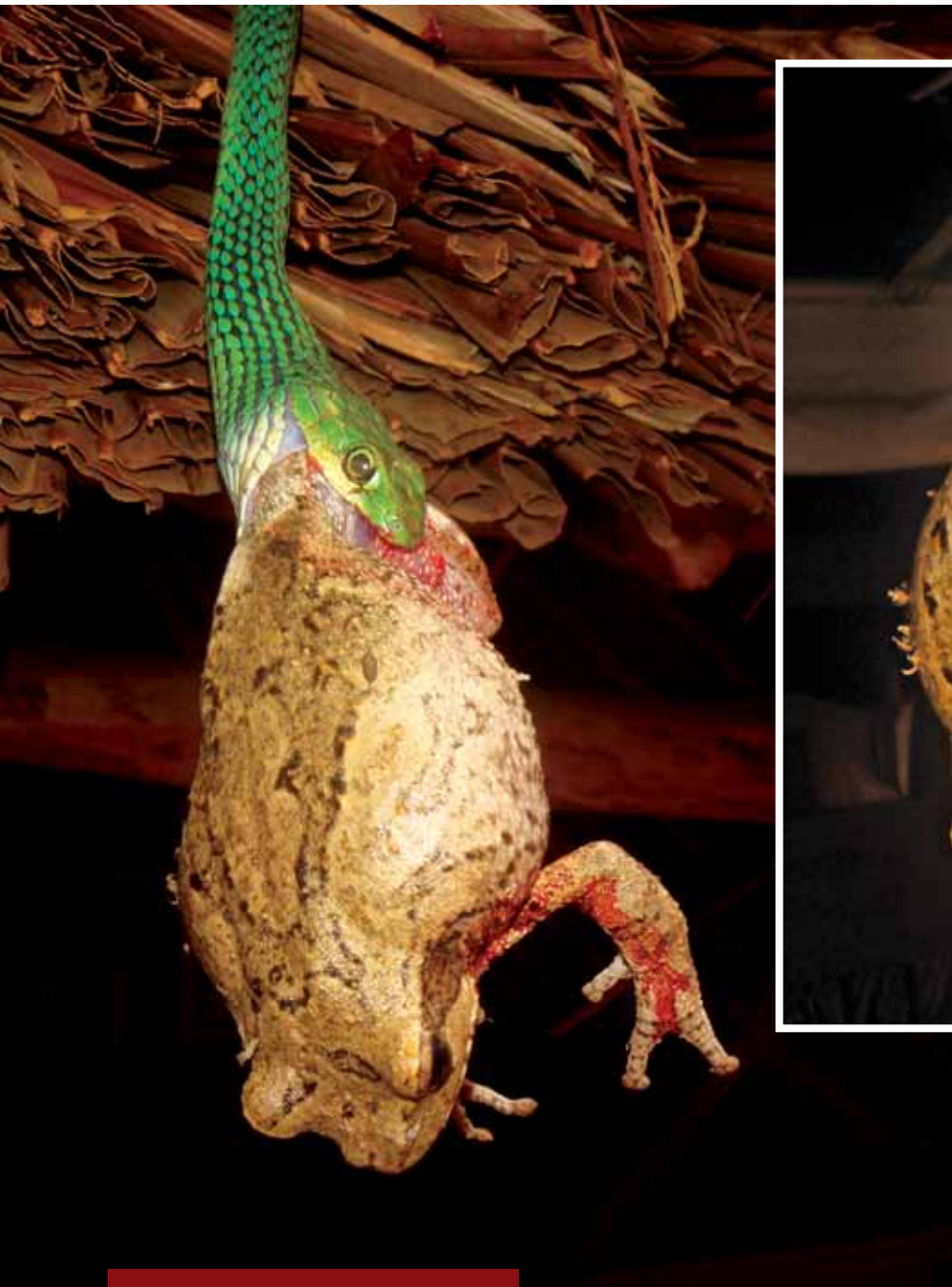
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PHOTOS BY: STEVE TROTT

Biting off more than a snake can chew

BY STEVE TROTT

This South-eastern green snake (*Philothamnus hoplogaster*) was seen with a Foam-nest tree frog (*Chiromantis xerampelina*) clutched firmly in its jaws, hanging from the *makuti* roof of a banda at Kulalu Camp on the Galana River close to Sala Gate, Tsavo East National Park.

The snake was not daunted by the size of its catch even though it was clear to see that this was one meal that was not going to go down feet first. The struggle lasted for more than one hour with the snake hauling the hapless amphibian up to the roof only to be defeated by weight and gravity, finally having to forego its

hard-fought-for meal. The frog dropped to the floor turning an ash white colour. It had suffered severe blood loss and did not recover.

The luckless snake recoiled defeated into the *makuti* as this was clearly a case of "biting off more than you can chew." ●

STEVE TROTT is the Chief Executive Officer for Watamu Marine Association.

www.watamu.biz