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SWARA is a quarterly magazine owned and published by the East African Wildlife Society, a non-profit making organisation formed in 1961 following the amalgamation of the Wildlife Societies of Kenya and Tanzania themselves both founded in 1956. It is the Society’s policy to conserve wildlife and its habitat in all its forms as a regional and international resource.

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FRONTLINES | EDITOR’S LETTER

It’s taken us a while but some things improve in the waiting. We believe that is true of the new EAWLS website (eawildlife.org), which is up and running with features we have long hoped to bring to our members and to concerned conservationists the world over. Please take a look.

So what’s in it for EAWLS members and for the world at large?

We’ve been monitoring the number of people visiting the site in recent times and it’s been disappointing. If you visited the old site you’ll notice at once that the new one is much more user-friendly and active, with regular news updates and the chance to vote on topical issues (currently bushmeat – are you for or against legalising it?)

It’s got an easy Feedback form for you to make comments and space for you to submit your photographs. It features an Advocacy section so you can be regularly updated on how the Voice of Conservation in East Africa is being heard across a range of conservation topics.

Now it only takes a few clicks to join or rejoin EAWLS or to make a donation. Just click on the Join Us button and you can pay with your credit card. No more mailed cheques or complicated transfers. Kenyan and UK members can still pay with M-Pesa though.

And, thanks to several benefactors and a lot of work by Assistant Editor Samuel Maina and database expert Duncan Muthiani, EAWLS members can now access almost four decades of SWARA and its antecedents. A couple of clicks and you can see, for instance, how many articles on Hirola SWARA has carried over the years. Not many is the answer, which is why this pretty creature is on the cover page as we look at the threats facing several species. Thanks to the Tanzania Natural Resource Forum, we lay out in a dispassionate way what the controversy over the Serengeti Highway is all about. Make your own mind up with help from experts on the ground.

The SWARA archives are, for now, open to members only and are a Who’s Who of conservation writing over many years. We hope this might encourage people to join EAWLS because our voice is only as strong as our membership.

We need to pay tribute here to those who helped us transform dusty old magazines into digital files: David Gulden, a far-sighted benefactor, and Nature Kenya for all the hard work in digitising the material. Finally special thanks to Rupert Watson and the George Drew Foundation. Rupert was a prime mover and thinker behind this and we are indebted to his unobtrusive and enlightened philanthropy.

Our aim is to make our case for sound and enlightened governance of our natural heritage heard in all the right places. Just by visiting the website you will ensure EAWLS’ prominence when people go searching for regional wildlife information. And if you have a Facebook account, you can click the Like button on any article you find on the website to ensure that other people linked to Facebook see it too. There’s also an EAWLS Twitter account. We are using these 21st century tools because the need for strong and effective advocacy on environmental and conservation issues has never been more crucial.

Finally, the magazine SWARA itself has seen some changes as part of our continuing commitment to make it more accessible, readable and effective. You’ll notice the On Safari section has made a comeback because SWARA lives at the intersection of tourism and conservation. Designer George “Jojo” Okello has worked hard to give the publication a brighter feel. There’s a news roundup too, which will be a regular feature. As those old shop signs used to say, if you like what we do, tell your friends. If you don’t, tell us.

Andy Hill
swaraeditor@gmail.com

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

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Peter Muhoro Muthia, Mark & Anne Simpkin, Stephen Muhindi Mirimi, Zak Kangi Mwangi, Brian Haworth, Dr. Romulus Abila, Tabitha Wangui Warutere, Nishi Raja, Stella Deane, Ian Kipkoech Martin, Ian Deshmukh, De La Kethulle Gladys, Shazaad Kasmani, Doris Viktoria Schuale

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THE NETHERLANDS
Roland Smeets

BELGIUM
Rene Van Esbeeck

NORWAY
Sturla Bang
Dear SWARA,

I have been an EAWLS supporter for many years and enjoy reading SWARA magazine. I admit this is a somewhat random enquiry, possibly beyond the remit of EAWLS, but having drawn a blank elsewhere, we wondered if you or anyone in your office could perhaps give us some guidance.

We come out from the UK to East Africa every year for a couple of months in February as we are involved with a small agricultural project based in Kenya. We travel around and camp in the region quite extensively with an old Land Cruiser that we keep in Kenya. We enjoy camping, which we have been doing for years, even when we came out only for a couple of weeks and had to hire 4WDs. We used to camp in some wonderful wild campsites in National Parks and Reserves, enabling us to enjoy the wildlife from a more natural perspective. However, the extortionate entrance fees for overseas visitors like us now make regular visits an impossibility. Over the years it has become increasingly difficult to find alternative, pleasant campsites that are reasonably secure and not sited beside busy roads etc. We don’t need ‘facilities’ but, coming from deepest rural Devon, yearn for peace and tranquility when camping in Africa! It is our great regret we cannot qualify for resident’s park fees, which are entirely reasonable and we would be pleased to pay during our annual visits. We feel quite marginalised although we realise there are too few people like us, who are not residents but come out regularly, to make exceptions. Nowadays of course, it is rare to come across any wildlife outside protected areas.

If you happen to have any suggestions of how we might find out about private campsites - perhaps people who offer homestays, and might allow camping on their farms - we would really appreciate if you could email them to us!

Kind regards,
Richard and Posy Stockman
(Any suggestions? - Ed.)

Dear SWARA,

More articles (SWARA 2011-01), please, from Fred Burchell/Bryan Harris (possibly on the merits of the human race breeding itself into extinction before it manages to extinguish all other life forms?).

Thank you for a much-improved issue of SWARA.

Yours sincerely,
Felicity von Kaufmann
PO Box 5498 Eldoret 30100
(See SWARA 2011-01)

Dear SWARA

20th January 2011

AMBOSELI NATIONAL PARK

In common with others who have the future of Amboseli at heart, I was relieved to read in Swara 2010:04 (Frontlines) that the issue of the administration of the Park has been resolved at last and that the District Council is not going to get its hands on the whole area again, as it did in 1961 with such disastrous results.

However, poor old Amboseli is not out of the woods yet, nor will it be until the landowners themselves derive financial benefit from the tourists entering their land. Ever since the unofficial committee we formed in May 1955, when the leading elders from the Kisongo Masai took a prominent part in the running of the National Reserve, and ever since that committee was disbanded in 1961, the people who legally own the land have not been allowed any effective part in the administration of the sanctuary and have derived little, if any direct financial benefit from it.

It is the only area in Kenya’s history where the undisputed owners of the land were evicted in 1974, in order to create a National Park. Ten years before that, the Kajiado District Council, as it was then, summarily annexed a 400 acre plot at Ol Tukai and proceeded to give a concession to build two main hotels on it. Ever since then, the council have taken the not inconsiderable rent from those hotels without any direct financial benefit to the legal owners of the land. The result of all this was a predictable response from the landowners and one that was perfectly understandable in the circumstances. They realised it was the wildlife that was responsible for the loss of their land, so they reasoned that the sooner the wildlife was disposed of, the sooner they would get their land back. So, against all their principles, the Maasai began poisoning and spearing the wildlife.

Until the landowners receive a substantial benefit from this land which they consider was stolen from them, the wildlife will be in jeopardy and will continue to suffer and decline as it has done ever since. For the past 50 years, with the one exception of elephants, Amboseli’s wildlife has been declining, both in numbers and particularly in variety of species. It is now nothing more than a shadow of its former self.

If the Kenya government and the wildlife authorities are serious in their desire to keep Amboseli as a wildlife sanctuary and tourist destination, radical reform of the status of the whole area is required. First and foremost, the administration of the National Park must be turned over to a Trust or a Limited Company where the landowners are represented as the majority trustees or shareholders. Other trustees or shareholders will be those with a vested interest, such as the Kenya Wildlife Service, the Hotels and the Amboseli Trust for Elephants. The reasoning for such an organisation, and detailed suggestions as to how it might be set up and operated, are contained in a recently published book Amboseli – A Miracle too Far?

If these measures are not taken as a matter of urgency, the wildlife will decline further and instead of visiting the National Park, tourists will go, in ever increasing numbers, to the small local community-run wildlife areas such as Eselenkei, Elerai, Kimana and others which will increasingly be formed by the Maasai outside the National Park boundaries. Is this what the wildlife authorities want?

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Dear SWARA,

Kenya has proudly been endorsed as one of the world’s top destinations for viewing wildlife. This fascination with animals and the search for adventure attracts hundreds of thousands of visitors annually: where during peak season, parks are essentially transformed into hectic amusement parks. It is at these moments that human/wildlife contact is at its most intense and conservation measures need to be employed by everyone.

Before your next visit to any of Kenya’s magnificent national parks, please consider some of the following tips to help safeguard and conserve this great national heritage:

• National parks are the last sanctuary for all natural wonders of Kenya and it is in all of our best interests to protect and preserve their natural habitat. Do not litter in the park, simply take back any rubbish with you when you leave. Some national parks may not offer rubbish bins inside the park because they might attract wildlife: in that case, it would be better to keep the rubbish in your vehicle until the next Kenya Wildlife Service gate where garbage cans are available. It may be in the best interest as well for tour companies and self-drive individuals to carry small waste bags in their vehicles: passengers will definitely recognise your efforts to keep the park clean.

• Be extremely careful with fire, cigarettes and matches. If you are camping, use a designated fireplace if there is one or dig a hole to make the fire in. Remember to always extinguish the fire with some water before leaving or retiring to your tent for the night.

• Plants and wildlife in parks are strictly protected, so try to be very careful when walking or driving so that you don’t damage the precious flora and fauna. Always stay on the park tracks and roads as vehicles venturing off can cause damage to native plants and increase soil erosion. Drive carefully and observe the speed limit. Native animals in general, cannot judge the movement of a vehicle and may be killed or injured as a result.

• Animals may possibly look docile from the comfort of your vehicle or lodge. However, to help reduce the human/wildlife conflict, do not play with or feed the wildlife. The animals may respond aggressively and human food is usually harmful to animals. Trying to get the attention of animals by enticing, calling, harassing or crowding around should be avoided as this puts a great strain on their natural behaviour.

• If you happen to come across an injured animal (outside the natural selection process) do not attempt to touch or move it. Injured animals may bite you in their distressed state. The best action you could take is to make a note of the time, location and landmarks and report the full details to the nearest KWS ranger for further intervention.

Although this list is not exhaustive, if you follow the above general tips and share this knowledge, your safari experience will become more natural, and enjoyable. It also essentially gets you directly involved as an ambassador of conservation. Our little help here does go a long way.

Shazaad Kasmani
shazaad.kasmani@googlemail.com
Africans' dependence upon wood for fuel poses serious threats to wildlife habitats. Households in countries such as Kenya, Rwanda, and Tanzania are up to 90% dependent on wood as a source of energy. With growing populations and rising poverty levels in many African countries, the use of wood, particularly in the form of charcoal, is a major cause of vegetation degradation and deforestation. This use of fuelwood and charcoal has already destroyed substantial areas of wildlife habitats and led to species extinction.

Several African states have addressed this crisis by adopting more energy-efficient production and use of wood for fuel. Some have introduced policies and legislation aimed at sustainable production and use of charcoal through proper management and planning of supply sources, together with rational trade and marketing infrastructures and efficient usage. But these measures have had little positive impact on threats to important wildlife habitats on land or at sea.

Some African countries, concerned about the potential threat of charcoal use to forests, have launched programmes in the last two decades to encourage the substitution of charcoal with other fuels, particularly liquefied petroleum gas (LPG) and kerosene, through subsidies and provision of equipment to households. However, these programmes have not had much success, partly because of the low rate at which households adopt new cooking devices.

Globally, the use of wood for fuel is also steadily increasing by 3-4% annually, in line with population growth. Due to global concerns about climate change, there is growing interest in making a drastic shift to "green economies", however defined. Already, in making a drastic shift to "green change, there is growing interest.

With the shift to green economies, some industrialised countries are already negotiating with African countries to commit large areas of land for growing crops to produce energy. Such crops include jatropha or fast-growing tree species (See SWARA 2009:4). Often, there are major conflicts of interest over land to be committed to energy production. This shift to biofuel production introduces a new threat, which must be addressed by relevant policies from African countries. In the previous edition of SWARA (2011:01), EAWLS Executive Director Nigel Hunter highlighted a disputed application by a foreign company to lease 50,000 hectares of indigenous Dakatcha woodlands for cultivating jatropha as a biofuel project near Malindi on the Kenyan coast. But this is just one of several proposed projects with the potential to degrade and destroy wildlife habitats. Similar applications have been advanced in Tanzania, Mozambique, Zimbabwe and other countries in Africa.

African countries have to seriously address the emerging competition for land for different uses such as food, fibre and fuel. This has come into focus in the last few years as the "scramble for land" (not least sparsely populated forests and woodlands, which are important wildlife habitats) by international and national commercial interests. The International Food Policy Research Institute (IFPRI) has, for example, calculated that between 2006 and late 2009, 15-20 million hectares of land in "poor countries" had been sold or were under negotiation for sale to foreign buyers – much of this in Africa and much for forest plantations.

The biofuel development trend is already a matter of great concern and policy dialogue in African countries. The United Nations Food and Agriculture Organisation (FAO) has raised concerns that competition for land between agriculture and biofuel production has led to increased food insecurity in developing countries. These are important issues to be addressed in continental dialogue and action programmes such as the NEPAD/ African Union Comprehensive African Agriculture Development Programme (CAADP).

There is need for African countries to review their wood energy policies in line with the shift to green economies. But in Africa there is neither sufficient capacity to analyse the regional implications, problems and opportunities associated with fuelwood policies nor the national and regional policies and resources in place to address them. There is an urgent need to build the capacities of African countries to analyse and to effectively contribute to the ongoing policy dialogue on these issues at national, regional, and global negotiations including those of the United Nations Non-Legally Binding Instrument on Forests (NLBI) and the various emerging instruments under the United Nations Framework Convention on Climate Change (UNFCCC).

In this regard, it is most encouraging that the African Forest Forum (AFF) has, in its short time in existence since 2007, taken tangible action to strengthen the capacity of African countries to contribute effectively at existing regional bodies and to analyse and provide advice on technical and policy aspects of biofuel production. Such sound policy analyses may be a saviour for threatened wildlife habitats in Africa.

Fredrick Owino
Chairman - EAWLS
This edition of SWARA covers threats to species and habitats. Certainly with human population growth, land encroachment, soil erosion, the uncertainties of climate change and the failure to reduce poverty, our biodiversity, and therefore our environment, are under real pressure.

In Kenya, the new constitution addresses this concern in Article 42, which reads as follows:

“Every person has a right to a clean and healthy environment which includes the right –
(a) To have the environment protected for the benefit of present and future generations through legislative and other measures particularly those contemplated in article 69; and
(b) To have obligations relating to the environment fulfilled under article 70.

It is also worth quoting article 69 (1) (a):

“The State shall ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources and ensure the equitable sharing of accruing benefits.”

So how best can this be achieved? The answer again lies in the constitution. Article 60 sets out the principles of a land policy and calls for implementation of this article through a national land policy instrument under the control and achievement of the National Land Commission. The national policy is already in place and section 3.4 embodies land use planning principles, sustainable production principles and environmental management principles. In essence, we are going back to using land use planning as the key instrument to achieve what has been enshrined in the constitution.

Given this scenario, it is vital that true recognition be given to the fact that multisectoral development can only take place if anchored in a national land use plan. If a country wants wildlife-related tourism as well as agriculture as part of its national development objectives, then land resources must be given where wildlife has priority and similarly with agriculture. This zoning must then be linked to a level playing field. Zoning will not succeed if the subsidies provided by governments favour one sector more than another. This approach inevitably leads to sectoral expansion rather than sectoral productivity. This is clearly demonstrated by the encroachment of agriculture into marginal areas. The bottom line then is that good and technically sound land use planning must underpin national economic development goals. In the case of Kenya, this will be a challenge because Kenya has lost its capability to undertake such land use planning.

The second point I wish to emphasise is that the constitution challenges the idea that conservation and development should go hand-in-hand as equal partners. This concept has been misused to say that if we give one area a conservation priority, we do not need to worry about environmental considerations in another area. The fundamental truth is that all development benefits and becomes more sustainable, if sound environmental management is applied. Put another way, environmental considerations should be the foundation on which development is built.

Put these two elements together and we should be on our way to underpinning the obligations contained in Kenya’s new constitution.

Nigel Hunter
Executive Director
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HOW ‘GREEN’ ARE YOUR ROSES?

When you stop to buy flowers on Mother’s Day or Valentine’s Day, do you wonder about the ecological health of the place they come from? University of Leicester ecologist Dr. David Harper warns that those flowers may ‘bleed Kenya’s Lake Naivasha dry’. Harper says that very few farmers sending flowers to Europe show concern or an eagerness to pioneer sustainable practices.

Whereas European vendors and buyers are increasingly showing concern for ‘fair trade’ when they sell and buy flowers, very few ask how environmentally sustainable the flower trade is. Few ponder the fact that the trade amounts to exporting water from a country already suffering from acute water shortages. This is alarming given that 70% of roses sold in European supermarkets come from Kenya, the majority from Naivasha, and are largely without ecological certification.

Harper, who has been researching wetland conservation at Lake Naivasha for more than 30 years, says, "Over the past 20 years, Lake Naivasha has been seriously degraded by over-abstraction of water. The blame has invariably been put onto flower farmers, who use irrigation to grow the roses that adorn the vases in our homes - especially on Valentine’s Day and Mother’s Day". Harper, together with social scientist Dr. Caroline Upton and PhD student Ed Morrison, will be conducting a feasibility study for a project to address key issues of sustainability in the whole lake basin with key local partner organisations. This study will be funded by Swiss Coop, Switzerland's largest supermarket - considered a leader on sustainability issues among supermarkets in Europe.

TWO OR ONE AFRICAN ELEPHANT SPECIES

The debate as to whether the African Savannah elephant (Loxodonta africana) and the African Forest elephant (Loxodonta cyclotis) are two distinct species just got hotter. A scientific paper published in the peer-reviewed open-access PLoS Biology journal in December 2010 is responsible for this new heat as it proposes that these two are distinct species.

Authorized by Nadin Rohland and eight others, the paper proposes that, based on DNA studies they conducted, the African Forest elephant is a distinct species and not a subspecies of the African elephant, often typified by the Savannah subspecies. But before the ink could dry on this rather heavy technical paper, other scientists were already punching holes in the argument.

First, the DNA samples used in the study were taken from only three elephants. Also, the authors provide for a 5.2 million years range (between 1.9 and 7.1 million years ago) for when the species separated, which scientist considers extremely vague.

The authors only looked at DNA, thus overlooking other arguments that have populated this debate over the years. Importantly, they ignored the fact that the two ‘species’ still interbreed and produce fertile young – considered the ultimate test of being of the same species. It appears the debate is far from over.
AFRICA’S FIRST DEDICATED ELEPHANT UNDERPASS OPEN FOR BUSINESS

At 6:47 p.m. on January 1, 2011, an adult elephant named Tony emerged from Africa’s first dedicated elephant underpass to become the first to cross the Nanyuki-Meru Road through a newly opened tunnel. By this brave act, Tony and his company of two young males marked a historic milestone in re-establishing a genetic link between two distinct populations of elephants in Mount Kenya National Park and the Ngare Ndare Forest/Lewa Wildlife Conservancy area, which has seen heavy development.

The 4.5m-high (15ft) tunnel conceived by the Kenya Wildlife Service, Kisima Farm, Marania Farm, the Bill Woodley Mt. Kenya Trust, Ngare Ndare Forest Trust and Lewa Wildlife Conservancy and built at a cost of $250,000 provided by donors opened on Christmas Day last year. A few days later, Tony and the boys walked through it, making the ambitious project a success.

The underpass, and a 14km (9 mile) fenced-in wildlife corridor that surrounds it, cost a total of $1 million and enable elephants to move from the high Mount Kenya Forests (with 2,000 elephants) to the lower Laikipia/Samburu plains (7,500 elephants) and back in search of food and mates, thus not only increasing their survival chances but also enriching their gene pool.

UGANDAN JOURNALIST WINS FIRST UNEP YOUNG ENVIRONMENTAL JOURNALIST AWARD

Patricia Okoed-Bukumunhe, a Ugandan radio journalist with 13 years of broadcasting experience, became the first winner of the prestigious UNEP Young Environmental Journalist Award, outclassing more than 100 entrants. She received the award at a ceremony on February 21 during the opening of the UNEP Governing Council/Global Ministerial Environment Forum in Nairobi.

Okoed-Bukumunhe submitted a radio entry describing the far-reaching effects of climate change in Uganda, including the impact of increasingly erratic weather on Uganda’s coffee industry and the fact that melting snow on the peaks of the Rwenzori Mountains could damage the country’s tourism industry. The report also showed how climate change is putting increasing pressure on water supplies to Uganda’s homes and agriculture, and even raising fears of a potential border dispute.

Okoed-Bukumunhe works as a news editor and anchor at Uganda’s private Capital Radio, is a freelance journalist with Radio France Internationale and has worked with ORF radio in Austria as a freelance producer. Her main interests are environment, health and women’s issues.

As part of her prize, Okoed-Bukumunhe will take part in a professional exchange visit to the US, following a specially designed “green itinerary”. She will travel across the country, interacting with environmental experts, environmental journalists, scientists and public figures.
The Serengeti highway controversy—A layman’s guide

Wildebeest crossing the existing main road in the Serengeti western corridor.
The proposed 385 km Serengeti road has caused a considerable amount of controversy in conservation circles; the greatest concern is that the wildebeest migration, one of the most graphic wildlife spectacles in the world, will be disrupted, with severe effects for the rest of the Serengeti ecosystem.

An international day of protest against the road has been called. The international media has seized upon the issue with bleak predictions that a natural heritage will be wrecked.

**SO WHAT IS IT ALL ABOUT?**

The current public road through the Serengeti and Ngorongoro is a 200 km stretch of murrum, from the eastern gate of Ngorongoro Conservation Area west through the short grass plains near Naabi Hill, to Seronera and then out of Serengeti National Park at Fort Ikoma towards Mugumu and Natta (see map). In order to relieve growing pressure on this road, and to provide better road services to remote communities in Natron and Loliondo, as well as to the west of the Serengeti, two contiguous proposals are under development.

1) The first proposal is the upgrading of the Mto wa Mbu to Loliondo road (ML).
2) The second, and more controversial, is the “Natta-Mugumu-Tabora-Kleins Camp-Loliondo Road” (NMKL), which would involve a 54 km stretch through the northern Serengeti. The initial plan involved upgrading the entire road to bitumen standard, according to a 2007 feasibility study by Tanzania National Roads Agency (TANROADS), although the government has since said that the section running through the park would remain unpaved. It is understood that road survey work is being finalised.

There has been sustained pressure from within and outside Tanzania for an alternative set of road options to ensure that the Serengeti ecosystem remains undamaged by the road currently routed through an important dry season grazing area for the wildebeest migration. Given these concerns, many have been asking, Why put a road here?

**ROADS ARE OFTEN CONTROVERSIAL**

Tanzania is a large country, with a burgeoning population and a historically underdeveloped transport infrastructure, not least roads. The World Bank’s Tanzania Country Profile (2009) states that the nation still has some of the poorest infrastructure in the world - a serious impediment to any development. Currently, only 6% of the country’s roads are paved and it is clear that Tanzania needs well-planned roads to enhance livelihoods, social welfare, economic development and trade. Yet it is also well established that better roads are not always a recipe for good. A large body of literature documents the environmentally and socially harmful impacts of road building, particularly in remote or wilderness areas that have previously been cut off from the wider world. In this regard, over the last three decades, analysis tools and best practices have been developed and put in place by many countries, Tanzania included, to ensure that roads are planned and constructed in a socio-economically rational way, with due consultation, to do the least harm. In addition to careful economic planning, a strategic environmental impact assessment (SEA) and an environment and social impact assessment (ESIA) form part of the road development process under Tanzanian Law. (see box 1)

**THE SERENGETI AND THE ROAD PLANNING PROCESS IN TANZANIA**

There are several national documents that set out plans for major road building over the next couple of years: one is the Transport
Sector Investment Programme, funded directly by a range of different donors, with significant contributions from the Tanzanian government. Another is the government’s Medium-Term Public Investment Plan (MPIP) for 2010-2012, which contains a major road development component. These plans identify 21 much needed road projects for over 3,500 km of newly paved, or repaved, road.

The $480 million Natta – Mto wa Mbu road is not listed in these documents nor does it feature in the Arusha Regional Roads Plan. However, it is listed as one of 32 road upgrading projects in the ruling Chama Cha Mapinduzi’s 2010-2015 manifesto. The absence of the road from these official documents strongly suggests that the road is very unlikely to be built using existing conventional bilateral or multilateral donor arrangements. This does not mean that funds could not be sourced from outside the expected funding framework, and it is understood that the President’s Office is actively seeking funds from abroad. It is clear that these and other districts do need improved roads. However what is not clear is if the proposal that is now being pursued by the government is the most economically efficient and socio-environmentally sound option.

It is worth noting that the MPIP lays out six conditions that must be satisfied for any public investment: at best the Serengeti road proposal may currently satisfy only three conditions (pending submission of an environmental impact assessment (EIA) that needs to be subsequently approved by the Minister of Environment at the recommendation of the National Environment Management Council - NEMC). It is not clear that the required detailed economic feasibility study has been carried out, or that the required minimum Economic Rate of Return of 10% has been properly demonstrated. So quite apart from substantial environmental concerns that are likely to be raised in forthcoming EIAs for each section of the road, the economic justification, according to the government’s own stipulations, has not yet been clearly demonstrated.

The irony of the proposed Serengeti Road project is that in reality, Tanzania

• A SEA enables governments to assess the likely high-level environmental impacts of major policies, laws and/or development programmes. SEAs set the decision-making context for subsequent project-based ESIs.
• An ESIA examines all likely social and environmental impacts as well as outlining possible impacts resulting from a proposed project.

CONSERVATION
has some excellent planning frameworks, advanced legislation and improved institutions – not least in relation to environmental management and road development. Although it is clear that the decision to build most roads is not always contingent on the findings of their ESIAs (an example is the Makuyuni – Karatu Road that passes by Lake Manyara), nor are the necessary mitigation and monitoring measures always compellingly implemented, nevertheless the process can – and does – work as demonstrated by the recent controversial postponement of the Lake Natron soda factory by the Minister of Environment, as recommended by the NEMC.

Tanzania has a well-established set of EIA practices under the 2004 National Environment Act and its regulations (2005). Full EIs are a prerequisite for each road project that involves major new works, upgrading and alignment. EISs for these projects can be substantial undertakings – they often take years to complete. In the case of an ecosystem as complex as the Serengeti National Park and the surrounding rural populated areas, the NEMC may require a long period of monitoring in order to gain a greater understanding of the baseline ecological state around the proposed road and to carry out research into the wider ecological impacts on people and livelihoods.

While a copy of the final EIA for the NMKL road is not yet publicly available at the time of writing, the experts who prepared the EIA will certainly consider

The EIA process in Tanzania has a number of required steps:

1. Registration – submission of a project brief with the NEMC before construction or even final project planning, including an environmental brief prepared by a consultant under contract to the project developer.
2. The Council accepts the project brief, and determines whether an EIA will be required, or the Council makes a request for more information.
3. The project developer prepares a complete Terms of Reference (TOR) for the EIA.
4. The TOR is reviewed by the Council and revised as necessary before approval of the EIA process.
5. The EIA is commissioned by the proponent, but must be carried out by licensed EIA practitioners within Tanzania (from the NEMC’s body of registered environmental experts).
6. The EIA is submitted to the Council and reviewed, with particular attention paid to severity of environmental impacts in sensitive areas, and mitigations and alternatives are suggested.
7. Determination by the Council, including a public consultation process: the need for mitigations or alternatives to the project is stipulated as necessary. Recommendation made accordingly to the Minister.
While it is clear that there are likely to be significant benefits from improved road access for rural communities in the Serengeti ecosystem, these benefits are likely to be accompanied – and perhaps overshadowed in some instances – by significant known, and as yet unknown, risks.

The southeastern periphery of the Serengeti ecosystem, close to Lake Eyasi.

The following issues as required by Tanzanian law:

- All the scenarios for the development of the road – from low use (800 vehicles per day) to high use (3,000 per day);
- Alternatives to the original project proposal: connecting Musoma and the northwest via alternative routes that avoid the Serengeti, such as the proposed southern route (bearing in mind that the Mto wa Mbu-Loliondo road could form part of an alternative scenario);
- Ways of reducing the impact of any of the project components or any of its alternatives, such as speed bumps, restricting traffic numbers and road access periods.
- Consulting stakeholders is a crucial part of the process, drawing in all parties with concerns or special expertise in the areas in question. This process should certainly include the top ecological and socioeconomic experts with experience in the area, local government and communities, the Tanzania Wildlife Research Institute, the tourism industry and any other interested parties. The aim is to cast the net as widely as possible.

UNDERSTANDING THE LIKELY IMPACTS OF THE ROAD

While it is clear that there are likely to be significant benefits from improved road access for rural communities in the Serengeti ecosystem, these benefits are likely to be accompanied – and perhaps overshadowed in some instances – by significant known, and as yet unknown, risks.

So what is known about the adverse ecological and social impacts of road building in wilderness and remote rural
areas? Much has been written, including papers on the ecological impact of roads in Tanzania and complementary literature on socio-economic issues that have a bearing on the Serengeti road proposal. Experience shows that often the ecological and social impacts of a major project may interact and result in outcomes that might not otherwise have been anticipated – the unknown. It is difficult to predict scientifically the exact consequences of the road development on the Serengeti and on surrounding rural communities, but an assessment of the mostly likely key negative impacts can be provisionally attempted.

There are many ecological issues that are likely to arise from the road construction and its use, and a long-term study as part of an EIA should investigate them. But some major issues arising from road traffic and construction are immediately identifiable. The main ecological concern is for the wildebeest migration – not only because of its value as one of the last great terrestrial migrations on the planet, but because it drives the nature of the entire ecosystem both inside and outside of the park.

If the long- or short-term effects of the road dramatically affect the wildebeest migration, this will certainly change much of the nature of the Serengeti ecosystem. The migration is intimately linked with fire frequency (hotter and more frequent fires would be expected), ecological states such as the distribution of short grass plains and woodlands, predator populations and a host of other ecosystem characteristics.

• Road developments anywhere in the world lead to habitat fragmentation into smaller, less resilient ecological units. Low-level traffic – with attendant roadkill, road accidents and dust – may not have a large impact. However, the much higher level traffic expected to occur in the future – up to several thousand vehicles a day – will begin to prevent movement of wildlife and divide the ecosystem into northern and southern units.

• The presence of a million wildebeest on or near the road for six months of the year will increase pressure to fence the entire road, as has happened in other parks around the world, and this would completely prevent the migration from reaching its northern, dry-season refuge and the southern short grass plains; it is predicted that the population would drop by at least 30%.

Improved access and reduced travel time along the route is likely to draw immigrants into more remote areas.

• In pastoralist and other remote areas, this process is likely to lead to more land being converted from rangeland to cropland, drawing in agriculturalists attracted by the fertile land and improved access to markets.

• As farming increases, there will be a trend over a period of 10 – 20 years towards dividing once communal rangelands into plots, leading to the fragmentation of wet and dry season livestock grazing areas.

• This process has been seen repeatedly throughout the rangelands of East Africa. The fragmentation of land is often associated with land loss and insecurity as poorer households, previously reliant on communal

A maintained section of the Mto wa Mbu-Loliondo road, south of Engaruka.
rangelands and related social support systems, lose their land and drift to urban areas and/or become indentured.

- With increased immigration, the quality of social services in localised areas will come under pressure, as resource-strapped local governments struggle to provide education, health and water for a burgeoning population.
- Finally, local communities may struggle to retain control over, and sustainably manage, their natural resource endowment, as the improved access results in new value chains and competition over wildlife and rangelands driven by more powerful or well-connected outsiders.

It is clear that there is a great deal of uncertainty about the overall benefits and risks of the proposed road. Part of this is because it appears that key elements of the government’s own roads planning process have been omitted (the economic feasibility and justification) or not yet officially submitted (the EIAs).

Part of the uncertainty also stems from the sheer complexity of the linked socio-ecological nature of the Serengeti ecosystem, and the amount of time and resources needed to sufficiently understand the full impacts of major infrastructure developments over the longer term.

Finally, part of the uncertainty arises from the fact that Tanzanian planning and infrastructure development practices could be improved further, as Strategic Environmental Impact Assessment (SEA) is not yet being used enough to inform higher level and long-term development planning as the law stipulates.

Yet the planning process in Tanzania provides the opportunity for the environmental and social risks of the proposed road to be clearly identified. It provides for alternatives and mitigations to be proposed and a balance found between safeguarding the country’s globally valued natural heritage and its pressing development needs.

The environmental planning and management instruments that have been wisely put in place by the Tanzanian government need to be fully supported and implemented to avoid large, complex and unintended fallout for people and the environment in the future.

The Tanzania Natural Resource Forum (TNRF) is a network based in Arusha that seeks to improve policy and practice on conservation through improved governance and accountability in relation to Tanzania’s natural resources. It seeks to build bridges between local communities’ needs and laws and policies governing use of natural resources.

www.tnrf.org
There are many ecological issues that are likely to arise from the road’s construction and use. Even assuming that the adverse impacts of the road’s construction are fully mitigated, there are likely to be at least four major issues arising from its use and the projected subsequent increase in traffic:

### Key ecological impacts

<table>
<thead>
<tr>
<th>Key ecological impacts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in habitat around road, promoting invasive species.</td>
<td>Road developments are involved in the spread of invasive species. Parthenium is an invasive plant that is already appearing in Tanzania (a species that has reduced grazing lands in Ethiopia by 50% in the past decade) and it would be increasingly spread into the pastoral lands and the protected areas. (See pg. 22 this issue)</td>
</tr>
<tr>
<td>Road accidents and roadkills</td>
<td>In an 18-month study in Mikumi National Park (bisected by a tarmac road in the same way as the NMKL proposal), there were 24 major vehicle accidents due to wildlife, and two drivers were killed. Most of the wildebeest migration uses the potentially affected part of the Serengeti National Park June-December; this would mean over one million wildebeest on or near the road for six months of the year, and the impact of road accidents on human life and wild populations is likely to be higher than in the Mikumi study.</td>
</tr>
<tr>
<td>Habitat fragmentation and dividing of populations</td>
<td>This is considered by many scientific authors to be the largest impact of road projects worldwide, though it is often difficult to quantify and predict. It is also the major concern of authors who discuss the impact of this road project. It is known that ecological changes surrounding the immediate road area, the roadkill and disturbance of traffic will all contribute to exclusion of wildlife. If the road is eventually fenced it will prevent the migration from using both the dry season refuge of the north (with access to the Mara River and the Maasai Mara) and the short grass plains in the south. The population would be split, and numbers would decline drastically.</td>
</tr>
<tr>
<td>Aesthetics and wilderness character</td>
<td>One of the outstanding values of the Serengeti is its wilderness character, and the lack of disturbance in the majority of the system. There are concerns that the presence of an upgraded, commercial road will reduce the attractiveness of the Serengeti as a tourist destination.</td>
</tr>
</tbody>
</table>

The significant benefits from improved access and reduced travel time along the route of the road for rural communities in the Serengeti ecosystem are likely to be accompanied by adverse social impacts. These are likely to be driven by increased immigration into more remote areas of people seeking to benefit from natural resources, made much more accessible by the new road.

### Key social impacts

<table>
<thead>
<tr>
<th>Key social impacts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalated land conversion from rangeland to cropland</td>
<td>With improved access to markets and increased immigration of farmers seeking fertile land that previously has been difficult to access. This results in a decline within pastoralist livelihoods.</td>
</tr>
<tr>
<td>Escalated land division and fragmentation</td>
<td>Increased demand and profitability of farmland results in the fragmentation of rangelands and the continuity of the ecosystem, with wet and dry livestock and wildlife grazing systems increasingly disrupted. As seen elsewhere in the region, this will precipitate a rush to fence land for ranching so as to exclude immigrants.</td>
</tr>
<tr>
<td>Land loss and land insecurity</td>
<td>Increased accessibility of previously remote but high value wilderness areas and potential farmland leads to land loss and land insecurity for local communities. Poor households who are most dependent on communal rangeland access will be affected the worst.</td>
</tr>
<tr>
<td>Increased demand on social services – education, health and water</td>
<td>Immigration reduces the quality of service provision in the medium term, with poor households suffering the most.</td>
</tr>
<tr>
<td>Loss of control over natural resources</td>
<td>Improved access results in new value chains and competition over wildlife forests and their products by more powerful or well-connected outsiders. In addition large investments may overshadow community-based and controlled tourism ventures.</td>
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</tbody>
</table>
Silent invader may threaten biggest wildlife migration on planet

BY ARNE WITT

They may look benign. But the foreign weeds growing in abundance along parts of the Mara River and some Maasai Mara Game Reserve (MMGR) tracks may pose the most serious threat to a fabled ecosystem already under attack from poaching, land conversion, fencing, disease and fires.

So serious is the outbreak of Parthenium (*Parthenium hysterophorus*) that the annual migration of millions of animals across the Serengeti – an event worth millions of dollars in tourism revenues and jobs – may be at risk.

In his book "Serengeti Shall not Die," Bernhard Grzimek and his son Michael said of the vast Serengeti plains, "... when 50 years from now, a Lion walks into the red dawn and roars resoundingly, it will mean something to people and quicken their hearts, whether they are bolsheviks or democrats, or whether they speak English, German, Russian or Swahili. They will stand in quiet awe as, for the first time in their lives, they watch twenty thousand Zebras wander across the endless plains."

But unless action is immediately taken to eradicate known infestations in the MMGR, it is not unrealistic to expect a drastic reduction in wildlife populations in the long term as the Parthenium population rapidly expands. It is therefore possible for a little green plant to transform one of the greatest wildlife spectacles on earth, something that Grzimek and his son Michael would surely never have thought possible.

The movement of thousands of grazing animals means that the grasslands are often highly disturbed, thereby facilitating the invasion of this noxious weed. The displacement of palatable species means that in time the available forage for wildebeest, zebra, gazelle and other animals will rapidly diminish. Ecoclimatic modelling has indicated that conditions in the Serengeti ecosystem are highly suitable for this weed, so we should all be very concerned.

In fact, the government of Kenya considers Parthenium to be so serious a threat that it declared it a noxious weed under the Suppression of Noxious Weeds Act (Chapter 325) in April 2010.

But it is not the only foreign plant to threaten havoc. Invasive alien plants (IAPs) pose a serious threat to food security, biodiversity, water resources, human...
and animal health and economic development all over Kenya. Invasive plant species such as Water Hyacinth (*Eichhornia crassipes*), Lantana (*Lantana camara*), Mathenge (*Prosopis juliflora*), Witchweed (*Striga hermonthica*), various Cacti (*Opuntia species*), Chromolaena (*Chromolaena odorata*) and others are all present in Kenya and have already invaded thousands of hectares of water bodies, as well as valuable areas of land including water catchments, farmland and protected areas.

Parthenium is a species of fast-growing herb that was probably accidentally introduced to Kenya and has become established in and around Nairobi, Athi River and Naivasha. It is fairly abundant around Busia and other parts of western Kenya. During a survey in the Maasai Mara late last year, a number of Parthenium infestations were discovered which, if left unchecked, could threaten the continued annual migration of millions of animals.

In the Arusha Manifesto, the late Tanzanian President Julius Nyerere had this to say about the importance of wildlife: “The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures amid the wild places they inhabit are not only important as a resource of wonder and inspiration but are an integral part of our natural resources and our future livelihood and well being.”

This abundance of wildlife still exists today, with the massive migration of 1.5 million wildebeest, 500,000 Thomson’s gazelles and 200,000 zebra. The Serengeti ecosystem is known the world over because it hosts the largest wildlife migration known to man and is regarded as one of the 10 natural travel wonders of the world, a must-see for most wildlife enthusiasts. The ecosystem hosts approximately 70 large mammal species and some 500 different bird species in highly diverse habitats ranging from riverine forests, swamps, grasslands, and woodlands.

Parthenium gained notoriety in Australia, India and Ethiopia, where it was also accidentally introduced with what many would consider disastrous consequences. The weed can grow from seed to maturity in 4 - 6 weeks and a single plant can produce 10,000 - 25,000 seeds (studies in India have estimated a seed bank of 200,000 seeds/m² in

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**Parthenium hysterophorus can be recognized by its deeply lobed, pale-green leaves and white to creamy-white star-shaped flowers.**

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**10 - 25 Thousand**

No. of seeds a single Parthenium plant can produce

**4 - 6**

No. of weeks the Parthenium plant needs to grow from seed to maturity

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So serious is the outbreak of Parthenium (*Parthenium hysterophorus*) that the annual migration of millions of animals across the Serengeti – an event worth millions of dollars in tourism revenues and jobs – may be at risk.
Parthenium has invaded more than 2 million hectares since it was accidentally introduced to Ethiopia in the 1980s, impacting human and animal health, biodiversity and agriculture.

As for the current Parthenium infestation in the Maasai Mara, the CAB International (CABI) has received funds from the Australian High Commission to map the infestations, initiate management efforts and create awareness amongst management, staff and local communities on impacts and control.

Parthenium has invaded more than 2 million hectares since it was accidentally introduced to Ethiopia in the 1980s, impacting human and animal health, biodiversity and agriculture. It is known to be allelopathic - it produces chemicals which inhibit the growth of other plants.

This means that if it invades natural pasture, it can reduce carrying capacities by up to 90%. A 1992 survey in Australia, where the plant is particularly invasive, revealed that over 17,000 km² of land was invaded and that an additional 45,000 cattle could have been marketed in the absence of Parthenium, resulting in a net annual loss of revenue of AUS5-17 million. The plant is also toxic, which means that livestock will not eat it in any significant quantities unless they are starving or stressed, with fatal consequences. Ingestion of even small quantities of the plant is known to make the meat and milk of livestock distasteful.

These inhibitory chemicals also have a drastic impact on crop production. If allowed to grow unchecked, Parthenium can reduce yields of crops such as sorghum by up to 97%. The pollen of Parthenium is also allelopathic, which means that contamination of crops by wind-carried pollen could also reduce yields in uninfested croplands. The weed also has impacts on human health, causing respiratory ailments and severe dermatitis, so it is clearly not a plant anyone would want on their land. This combination of ill effects on people and their livelihoods has resulted in mass abandonment of farms in India and other places where areas are overcome by Parthenium plants, making the continuation of livelihood support and cash income impossible, as well as causing extreme discomfort and disease.

Parthenium is not the only invasive plant that may disrupt the annual wildebeest migration. Chromolaena odorata, a scrambling perennial shrub native to Central and South America, has been found on the edge of the MMGR and it is only a matter of time before it makes its presence felt, probably sooner rather than later considering that one mature plant can produce up to one million seeds per year. The plant contains a range of secondary chemicals, which make it unpalatable to vertebrate herbivores, and the high nitrate levels in young foliage can cause livestock deaths. In South Africa, it has reduced pasture carrying capacities from approximately 6 ha. per livestock unit (LSU) to more than 15 ha. per LSU. Like Parthenium, Chromolaena is also allelopathic, resulting in it rapidly becoming dominant in native vegetation.

In parts of Ethiopia, the landscape is dominated by Parthenium, reducing pasture production by more than 90% in some areas.
vegetation and significantly increasing fire intensities because of its dry stems and oil-rich leaves. This is the same weed, albeit another biotype, that invaded Hluhluwe-Imfolozi Game Reserve in South Africa and cost the government more than $10 million to reduce to manageable levels. It was also declared a ‘national disaster’ in Swaziland.

However, all need not be doom and gloom if a concerted effort is made at local, national, and regional levels to manage these and other noxious weeds. Regionally it is imperative that we work closely with our neighbours, as invasive species do not respect borders. At a national level, we need to develop and strengthen existing policies, including inter alia the development of a National Invasive Species Strategy and Action Plan, and the establishment of an Invasive Alien Species Coordination Unit. We should make a concerted effort to create awareness about threats posed by invasive species and, last but not least, build capacity in invasive species management. Most importantly, we need to find significant resources to fund invasive species management in perpetuity.

As for the current Parthenium infestation in the Maasai Mara, the CAB International (CABI) has received funds from the Australian High Commission to map the infestations, initiate management efforts and create awareness amongst management, staff and local communities on impacts and control. CABI will be working closely with the Kenya Wildlife Service (KWS), which has committed itself to the management of invasive species in all protected areas in Kenya, the Narok County Council, International Union for Conservation of Nature (IUCN) (ESARO) and others to ensure the success of the project.

However, additional funds will be required in the long term for follow-up operations if we want to eradicate Parthenium from the Maasai Mara, as there will be a significant seed bank, which will take three to five years to deplete.

In the longer term, it is imperative that Kenyan authorities consider the importation and release of host-specific biocontrol agents to reduce the further spread of Parthenium throughout the region. Agents have been released in Australia and are about to be released in Ethiopia and South Africa as part of an integrated management plan. In the short term, every effort should be made to make Kenyans aware of what the plant looks like and its potential impact, and to stress that it should be removed wherever it is found. Unless a concerted effort is made to combat these silent invaders, most of our landscapes will become green deserts, devoid of life.

ARNE WITT has been working in the field of invasion biology for the past 18 years firstly for CSIRO (Australia) then for Queensland Department of Natural Resources and Mines. He worked as a researcher for the Weeds Research Division (Plant Protection Research Institute, Agricultural Research Council, South Africa), and was appointed as division manager in 2004. In 2007 he took up a position with CABI Africa in Nairobi as coordinator of Invasive Species.

Calling all Maasai Mara lodge owners!

I understand that KWS is going to drive a move to get all invasive and potentially invasive species removed from Protected Areas (PA).

It is imperative that we gain the support of all lodge owners – they need to know why this is being done. I am obviously also concerned about the ability of those involved to identify native and exotic species, especially invasives.

I was wondering if all major lodge owners would be willing to contribute to an Invasive Plant Identification Guide – this would not only help them but also PA managers, rangers, and others.

Is there a forum whereby we could approach lodge owners?

Arne Witt

Downloadable resources on Parthenium weed:

http://www.oired.vt.edu/ipmcrsp/Publications/

Meetings&Workshops/IPMAnnualMeet2008/

Posters/Distribution%20as%20Mgt%20Control-Parthenium.pdf

Africa’s rhinos are facing a new surge of poaching that is forcing a rethink about how to protect them across the continent. Many spokesmen for their protection say the wave of illicit killing is unprecedented. Helicopters, night vision goggles and expert marksmen are all being used as the price of illicit rhino ivory overtakes that of an equivalent weight of gold.

Despite their fierce appearance, rhinos have a wide geographic range, can tolerate many different habitats and pose very little competition to domestic livestock, especially the Black rhinos that browse rather than graze like their White sister species. There is no doubt that without human pressures, they would be multiplying, instead of facing the threat of extermination, as they do today.

Prior to the 1970s, the African continent was full of rhinos. Black rhinos (including all four subspecies) were estimated to number over 70,000 individuals. In just a short time, poaching changed this. During the 1970s and 1980s, poaching became an epidemic and by 1993, the Black rhino population had plummeted to just 2,475 individuals, a 96% decrease. The West African subspecies was completely eradicated, leaving only three remaining subspecies on the continent. The Northern White rhinos, though difficult to estimate due to their home range in the Democratic Republic of Congo (DRC), were thought to number 2,360 individuals. By 2007, this number had decreased to only four individuals, a 99.8% decrease.

The Serengeti ecosystem, once home to between 500 and 700 Eastern Black rhino, saw a harrowing decline; in the Serengeti National Park only two individuals remained by 1978. Similarly in Kenya, populations saw a massive decline and several animals from Tsavo were moved to South Africa to save them from poaching and to alleviate the human pressure that was causing their decline.

Over the past year, poaching has become more evident than ever, from South Africa and Zimbabwe to Kenya and Tanzania. Poaching has startled security officials and awakened politicians. Park authorities across the continent are re-evaluating their management schemes and organisations are doing their best to support these efforts.

David Mabunda, chief executive officer of South African National Parks (SANParks), said early this year that 2010 “will always be remembered as one of the worst years for conservation in the Republic of South Africa because of the ruthless assault on our rhino population”. He said that in 2010 South Africa lost 333 rhinos with 162 suspected poachers being arrested.

Similarly in Kenya, poachers have targeted protected areas with the highest security. Authorities have realised that their fences are not impenetrable and that pressures from Chinese workers, now based locally while constructing superhighways, is helping drive demand for rhino horn (see SWARA 2009:03).

John Pameri, head of security and chief ranger at Lewa Wildlife
The WWF (World Wildlife Fund), in collaboration with the International Union for Conservation of Nature (IUCN), upheld a study released in 1983 by Hoffmann-La Roche, a pharmaceutical firm, that found no evidence that rhino horns had any medicinal value.

Conservancy in Kenya, observed, “This is the first time we have seen such a rise in poaching. We’ve never seen anything on this scale.”

Tanzania has been on edge ever since the arrival from South Africa in May 2010 of five rhinos that were repatriated to Serengeti as part of an effort to recreate a stronghold population in the area, an ecosystem indigenous to the Eastern Black rhino. Prior to the release of the five, security was heightened, rangers trained and a new Serengeti Rhino Protection Unit of highly skilled rangers was put in place. But the National Park was not immune to illegal hunting. At the end of December 2010, one of the five was shot down and brutally hacked, solely for its horns.

Tanzania’s President Jakaya Kikwete, who had been present in the Serengeti National Park for the arrival of the rhinos, was appalled by the incident. Dr. Markus Borner, the Frankfurt Zoological Society’s (FZS) programme director for Africa, highlighted the president’s concern, saying, “TANAPA (Tanzania National Parks Authority) and the police, under the personal direction of President Kikwete, have moved fast and effectively to apprehend the suspects.” Borner’s hope is that this incident will be a wake-up call for all wildlife agencies in Tanzania.

Tanzania is not alone – poaching in Namibia, Kenya, South Africa and Zimbabwe continues to rise as well. One kilogramme (2.2 pounds) of horn is now being purchased for over $60,000, a rate shockingly higher than that paid for a kilogramme of gold. The players receiving the majority of the profit are not the locals who are sought out to do the killing. “We must educate our people from an early age about the importance of rhinos so that they do not succumb to any amount of payment that encourages them to assist in poaching rhinos. We never find the ones demanding these resources to be the ones doing the poaching. Unfortunately, it is our locals who are paid to poach,” stated Ephantus Mugo, environmental education officer for the Laikipia Wildlife Forum. There is little doubt that security must be heightened and education expanded and improved.

The horns are not sought for use as an aphrodisiac, as many believe. They are traditionally used to cure fevers, high blood pressure and other ailments. They were once prized as good luck charms and used as dagger handles in Yemen and Oman, a demand that has declined in recent years. Apart from antique and medicinal uses, the rhino and its horn face no other demands from human populations.

Several research studies have been carried out to address the inherent “powers” rhino horn is believed to hold. The WWF (World Wildlife Fund), in collaboration with the International Union for...
Conservation of Nature (IUCN), upheld a study released in 1983 by Hoffmann-La Roche, a pharmaceutical firm, that found no evidence for any medicinal value in rhino horns.

Dr. Arne Schiotz, director of conservation for WWF, reported bluntly, “This proves that rhino horn is of no use to anyone except the original owner. You would get the same effect from chewing your own fingernails.” The study was later confirmed again by the Zoological Society of London, which found no proven medicinal uses for the horn. Even in China, at the Chinese University of Hong Kong in 1990, a study found no evidence to prove the horn has any curative properties.

The past year has tested security measures across the continent and has forced authorities to increase their efforts. Richard Moller, chief conservation officer at Lewa, stated that, “The demand and price for rhino horn is staggering. As a result, no rhino sanctuary, not even one with the manpower and resources of the Lewa Wildlife Conservancy, is immune from poaching.” Poaching has become an incredibly sophisticated operation, with hunters using shotguns, some enhanced with silencers, VHF detection devices and night vision equipment. The most professional marksmen even use helicopters to get in and out quickly. A CITES (Convention on International Trade in Endangered Species) report, published in 2009 found that “AK-47 assault rifles and .303 calibre rifles have been the most commonly used weapons but recently, heavier calibre arms (e.g. .375s and .458s) are now being used.”

VHF radios, GPS and satellites have helped to increase security. Fencing has proven to be mainly ineffective, except where rhinos live in a small sanctuary within a reserve. Intelligence and ground patrols can be effective if properly managed and ongoing training provided. The necessity for ongoing anti-poaching efforts in regions where rhinos are based is crucial. Support from local governments is critical and assistance from outside donors often helpful. Protecting rhino populations for years to come is in no way an inexpensive undertaking. Yet it is clear that if the efforts are carried out half-heartedly, they will fail.

Despite all efforts to increase security, enhance training regimes, establish additional security outposts, and keep strong positive relationships with local communities, there are still outlying risks associated with hosting rhinos. It is clearly the responsibility of those hosting rhinos to do all that they can to reduce the risk, but it is also incumbent upon authorities, in nations where demand for rhino horn is high, to educate their communities and stop the demand.

Translocating, repatriating, reintroducing, introducing and restocking areas are expensive undertakings. Fischer and Lindenmayer (2000) explored several similar efforts that incurred great costs. The California
The success of rhinos for years to come will depend on collaboration. Governments must decide to protect wild lands rather than allow development to overtake them, thus sustaining suitable habitats.

Rhino relocations have become common to safeguard rhinos from disease, political instability and environmental problems. In late 2009, the last four Northern White rhinos with breeding capabilities were relocated to Ol Pejeta Reserve in Kenya from their previous home in the Dvur Králové Czech Zoo (SWARA 2010:01). Richard Vigne, chief executive officer of Ol Pejeta, said this was truly the last hope for this species’ survival. Northern White rhinos are thought extinct in the wild, so these individuals in captivity hold the key to survival.

Similarly, the Serengeti Rhino Repatriation Project will no doubt be a costly initiative as it brings 32 rhinos from South Africa back to the Serengeti ecosystem. The hopes here go beyond tourists’ demands to see the “Big Five”. The overarching goal is to create a stronghold population for the Eastern Black rhino in their indigenous habitat.

Though risky, rhino relocations have proven to be highly successful in the past. In the early 1900s, Southern White rhinos had declined to a population of just over 20 individuals, all in South Africa. Successful efforts to encourage breeding and relocate the Southern White rhinos to their indigenous habitats increased the population to over 17,500 individuals.

“The Big Five” refers to the most prized trophies for hunters – elephant, leopard, buffalo, lion and rhino. Surprisingly enough, all of these are still sought out by marksmen across the globe. White rhino trophy hunting is priced between $50,000 and $150,000 while Black rhino trophy hunting costs between $250,000 and $350,000. For those who are just interested in the sport of shooting a rhino, “green hunting” is available at a much lower cost ($8,000 for White rhino and $20,000 for Black). This type of hunting involves shooting a rhino with a dart gun, having your photo taken next to it and then giving it an antidote to wake it up.

It is difficult to know whether saving one species will save many. If efforts can generate large amounts of funding that in turn help preserve the ecosystems where these animals exist, it may be well worth the marketing angle of just saving one species. For instance, if we were to focus on the conservation of the Hornbill, it could mean that we would also help save many critical forest habitats. And if we “save the rhino”, it would be a clear sign that we have also solved dire security threats.

But who are we to point fingers at? Those demanding rhino horn in Asia? Those poaching the rhinos in Africa? Governments lacking environmental and education curriculums?

The success of rhinos for years to come will depend on collaboration. Governments must decide to protect wild lands rather than allow development to overtake them, thus sustaining suitable habitats. Authorities must work to protect and manage these areas and keep them safe for animals and for tourists. Institutions must provide adequate education, both to professionals and to the general public.

Richard Emslie, scientific officer of IUCN’s African Rhino Specialist Group, observed that, “where there is political will, dedicated conservation programmes and good law enforcement, rhino numbers have increased in both Africa and Asia.”

One of five rhinos transferred to the Serengeti in May 2010.

Laura Hartstone is a former park ranger of Arizona State and is currently acquiring a MSc in Wildlife, Biodiversity and Ecosystem Health with the University of Edinburgh. Laura spends much of her time in the Serengeti and writes and photographs for international publications, including SWARA.
Counting teams in Hulugo.
They came, they saw, they counted

BY DR JULIET KING, IAN CRAIG, DR. SAM ANDANJE AND DR. CHARLES MUSYOKI

It was the most intensive survey of the critically endangered Hirola (*Beatragus hunteri*) since the mid-1990s: four light aircraft checking every square kilometre of more than 12,000 km² for eight days in a remote part of northern Kenya bordering Somalia.

It was hot, hard and bumpy. But the result was worth it, even if it underlines in the sparsest of terms and figures the threat facing the survival of this beautiful species.

Only 245 Hirola were counted from the air. While this is likely to be a slight undercount, we believe there aren’t any other large herds or significant concentrations of Hirola remaining in their natural range.

For the Northern Rangelands Trust (NRT) and Kenya Wildlife Service (KWS) this survey highlights the urgent plight of this species and the need for direct conservation intervention beyond what is being done already: Hirola numbers are unlikely to recover naturally without direct intervention.

As the only existing member of its genus, extinction of the Hirola would be the first case of the loss of a mammalian genus on the African mainland since the evolution of modern man.

The survey covered areas from the Somali border in the east to the Tana River in the west and the Boni forest in the south. It was a collaboration between NRT, KWS and Ishaqbini Hirola Community Conservancy (IHCC).

It was funded by the United States Fish & Wildlife Service and USAID-Kenia, and involved three two-seater and one four-seater aircraft, counting teams, ground crews and Geographic Information Systems (GIS) experts.

Based in the small town of Masalani north of Ishaqbini Conservancy, the survey covered varied habitats from dry, coastal forest, open grasslands and Acacia bushland. Counting in thick bush and forest was a challenge, which required hours of concentration and low, slow flights. In more open habitats, Hirola were easily visible.

The intense heat (the aircraft thermometer reached 43°C one day) and dry conditions meant that counting was also limited to mornings from first light to 11 a.m., and evenings from 4 p.m. until dusk in the hope that Hirola would more likely be grazing in open areas at these times. Counting teams waited out the heat of the day wherever we could find enough shade and as close to our survey blocks as possible, with fuel delivered to strategic airstrips across the landscape.

On one occasion this meant spending time in the border town of Hulugo in the company of a heavily armed KWS operations team and the Kenyan army. This gave us an insight to the very real security threat posed...
by the region’s proximity to Somalia. Since NRT has been involved in Hirola conservation through its support to the Ishaqbini Conservancy, it has become evident that despite the success of the conservancy in curbing poaching and introducing grazing management, which has led to the recovery of grasslands, the resident Hirola population is not increasing.

The achievement of the conservancy in setting aside a core conservation area of 4,000 acres specifically for Hirola has come with an unintended consequence; predator populations have also increased and Hirola are a preferred prey - Hirola carcasses are the most frequently reported in the conservancy. Conservancy rangers reported almost 15% of the known Hirola population in Ishaqbini was lost to predation last year, mainly by lions and wild dogs.

Elsewhere in the range, the continued demise of Hirola is not so obvious but what was apparent during the survey was that Hirola were found where livestock were not: it may be that Hirola are being displaced into less and less favourable habitats. The survey found only three areas with significant numbers of Hirola: Ishaqbini Conservancy; Gababa, south of Arawale National Reserve, and the grasslands along the edge of the Boni forest.

Aside from these areas, only small, scattered herds of Hirola were found,
isolated from each other by great expanses of dry bushland overgrazed by large herds of livestock. The alarmingly small numbers and scattered herds found during this survey show that the viability of this species outside the core areas of Ishaqbini and possibly Gababa is very unlikely.

What has emerged is that time is of the essence if we are to save the Hirola. While further research is, of course, necessary to better understand the complexity of ecosystem changes, which have led to the Hirola’s demise, we believe proactive conservation management beyond what is already being done is essential at this time.

Hirola are now, most likely, at the critical stage in which Black rhinos found themselves 20 years ago, yet there is very little recognition of their plight either nationally or internationally.

Through the KWS Hirola Management Committee, a review of the national strategy for the conservation of this species is under way; this will outline the priorities for conservation of the species both within its natural range and the introduced population in Tsavo East. An immediate priority is the development of a predator-proof sanctuary within Ishaqbini to secure a breeding population, sourcing herds from both the core Ishaqbini population and outlying areas.

If we can remove the effects of predation, poaching and competition with livestock, we believe this will allow Hirola numbers to rapidly increase within the sanctuary and these can eventually be released to boost existing populations elsewhere in the range. The sanctuary will be owned and managed by the local community through Ishaqbini, with close support provided by NRT, KWS and other experts. KWS is also looking to develop a predator-proof sanctuary for the introduced Hirola in Tsavo East.

The development of tourism in Ishaqbini is also sorely needed to provide direct benefits from conservation to the community, and to build in a certain level of financial sustainability for the
successes made in Ishaqbini are not undermined because of the exclusion of its neighbours. There has been recent progress with the registration of Ndera Community Conservancy under the umbrella of NRT. The combined efforts of Ishaqbini and Ndera will, we hope, secure a future for Hirola as well as the unique riparian forest along the Tana that is home to the Tana Mangabey and Tana River Red Colobus, both endangered species.

JULIET KING is Research & Monitoring Coordinator for the Northern Rangelands Trust (NRT). She has 12 years conservation experience in Kenya and a broad knowledge of Kenyan conservation issues as well as contemporary skills in community conservation.

IAN CRAIG is the Chief Executive Officer for the NRT. He was a founding board member of both Namunyak Wildlife Conservation Trust and Il Ngwesi Group Ranch in 1995, and NRT in 2004. Ian currently serves on the KWS Board.

SAM ANDANJE is a Senior Scientist with the KWS and completed his PhD on Hirola in 2002. He has been involved in Hirola conservation since the 1990s.

CHARLES MUSYOKI is a Senior Scientist in the KWS Department of Species Conservation & Management. He is a member of the IUCN Antelope Specialist Group and the National Hirola Management Committee.

conservancy. Recently, a well-known tourism operator visited Ishaqbini and remarked, “there are many of my guests and safari contacts who will jump at the opportunity to visit Ishaqbini once it becomes accessible and there is somewhere comfortable to stay. The birdlife alone warrants a visit, and together with the abundant wildlife close by, there is no doubt that this spot will definitely hold its own against the best safari locations in Africa.”

Finally, engagement with the Pokomo communities living along the Tana River, particularly those bordering the Tana River National Primate Reserve, has always been seen as necessary to ensure the long-term conservation of Hirola. Game-meat poaching emanating from this community was, early on, identified as a threat in Ishaqbini. However, support for conservation by this community is needed to ensure the
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In the Jan – Mar 2008 SWARA article “On the Trail of the Mountain Bongo”, we were given an interesting insight into the field expeditions of the Bongo Surveillance Project (BSP) team, led by Mike Prettejohn. It had been a widely held view that the Mountain Bongo (*Tragelaphus euryceros isaaci*), if not extinct already in the wild, was likely – at best – to be on the verge of extinction.

But over the last five years, the BSP team has discovered Bongo surviving in small isolated groups on Mt. Kenya, Eburu, in the Mau and the Aberdares. This Eastern Bongo subspecies occurs only in Kenya. With concern rising over loss of habitat and poaching, it is good news that Bongo have been traced, but how long will they survive?
The Mountain Bongo (Tragelaphus eurycerus isaaci) or Eastern Bongo is a critically endangered antelope subspecies endemic to Kenyan montane forests. It is the largest and heaviest African forest-dwelling antelope, weighing up to 400 kg. Its colour is bright chestnut-red, becoming darker with age, and it has 12-14 transverse narrow white stripes on the shoulders, flanks and hindquarters. Both sexes have massive spiral horns with light yellowish tips that measure up to one metre in length, and are usually thinner, longer and more parallel in the females. Adult males can be solitary while females and young used to form large groups that could have been useful in the communal defence of the young ones.

Bongo populations have declined in the last decade. Currently there are approximately 100 Bongo left, mostly restricted to the Aberdares Mountains in Kenya. The dramatic decline of these populations, it is said, has been due to a combination of hunting, disease and habitat loss.

Prettejohn has studied Bongo for more than 60 years. He has lived close to these high Kenyan forests for most of this time, and has developed an immense knowledge and passion for both the species and the preservation of its habitat.

The species has undergone a drastic decline over the last four decades. Exact numbers are currently not known, but inferential figures suggest there may be fewer than 100 individuals remaining, mainly confined to the Aberdares, where three small groups, each comprising 6-15 animals, are being monitored. There is also a small group of some 12 animals surviving in the southeast of Mt Kenya, the same on Eburu (once contingent with the Mau) and a similar group in the southwest Mau forest.

In July 2010, a milestone workshop was held in Nyeri, Kenya, coordinated by IUCN/Species Survival Commission and the Kenya Wildlife Service (KWS). The workshop was attended by the various stakeholders from Kenya and overseas. Following this workshop a strategy was developed to increase the groups of Bongo in the wild through a meta-population plan for captive and wild populations, to promote the species recovery by maximising genetic diversity. There are also plans to repopulate other areas such as the Cherengani mountain range and other areas of the Mau and eastern Mt Kenya, areas where Bongo were plentiful in recent times and where there still exists some prime forest cover and ample food plants.

With this objective in mind, the BSP team has continued to gather data about these wild subpopulations. Prettejohn and his team of expert trackers have led field expeditions to all of the above areas. Bongo evidence has been collected from all these areas with the exceptions of Cherengani, Londiani Crater and east Mt. Kenya, thus, leading us to believe that no Bongo currently exist in these three locations, although the habitat is entirely suitable in all. Vital scientific data has been collected from the expeditions, and has started to form a baseline of information about Bongo existence, habitat utilisation, and threats to Bongo conservation.

No conservation plans can be possible without the goodwill of the communities. To this end, the BSP also runs an outreach conservation education programme, which includes nine schools selected for their proximity to the Bongo groups identified. Bongo Wildlife Clubs have been set up and are sponsored by the BSP. Over 700 children have visited various national parks, such as the Aberdares, Hell’s Gate, and education centres in the last four years. The estimated outreach through the schools is around 10,000 people. A number of projects have been initiated within the schools, involving alternative energy sources, such as solar; cooking devices with better use of firewood and alternative fuels. Tree nurseries and various agricultural projects, including fish ponds, have also been created and tree planting encouraged. All these initiatives have helped the schools and communities become more sustainable. They also have the potential to generate alternative income for the pupils and their families.

Understanding the current distribution of the few remaining Bongo populations is crucial for an ongoing multi-phase recovery plan. Fresh dung samples for the mucus have been collected from all the above areas where Bongo still exist. With modern technology, and effective training, the teams in the field have collected data to
enable scientists to assess the presence and abundance of this forest-dwelling antelope. To enhance the reliability of pellet counts and tracks, other methodologies have been used in the analysis such as camera trap images, and DNA processing.

The BSP team has collected 331 wild Bongo dung samples during their tracking expeditions and also now has 61 samples from the captive Bongo population located at Mt Kenya. The aim is to conduct a comprehensive molecular DNA analysis with the aid of ‘markers’. The American Museum of Natural History, under the guidance of George Amato in collaboration with the Rare Species Conservatory Foundation (RSCF), is developing Bongo primers to facilitate microsatellite analysis. Some of the samples have also been shipped to the Evolutionary Biology Centre at Uppsala University of Sweden where scientist Henrik Svenegren will do some of the analysis. The team’s research is collated by Adam Mwangi, a co-researcher in the BSP.

The DNA processing (first study 2007/2008) using faecal mucus has been key to establishing the identification of Bongo. By analysing dung mucus it has been possible to establish the presence of this elusive animal in four of the montane forests in Kenya. With the exciting new development in 2011 of the Bongo-specific primers and markers, this analysis will assess their sexes, relationships and genetic variations, leading to more accurate density figures and relationship data, with loss of genes or otherwise. Understanding relatedness information is fundamental to the Bongo recovery effort, because the genetic variation across wild and captive Bongo groups and genetic similarity between the fragmented wild populations, are presently unknown. Since Bongo antelope have been maintained in captivity (with an international studbook) since the 1970s there exists pedigree information for captive animals but no independent analysis to determine how much genetic variation exists. Captive Bongo may have genes that have long disappeared from the wild or vice versa - only a comparative genetics assessment can tell.

The Bongo’s sustainable recovery in the wild hinges upon practical management decisions that conserve both genetic diversity and integrity. Genetics can guide reintroductions and translocations, designed to boost numbers and genetic diversity, by helping to determine which animals compliment existing subpopulations, or which subpopulations can be mixed or integrated. An immediate goal is to assess which Bongo are of the greatest genetic and demographic value to the overall recovery effort, and prioritise actions that preserve existing diversity and maximise conservation yield across populations.

It will be essential to validate the field observations and to input this habitat knowledge into distribution models. This knowledge of both wild and captive populations is essential to support the meta-population plan to increase Bongo populations and in order to promote the species recovery by maximising genetic diversity.

Key partners that have been involved in this process include the KWS, the University of Nairobi, International Livestock Research Institute (ILRI) that facilitated the study, Rare Species Conservatory Foundation, Kenyan-Swiss bilateral institution CETRAD (Centre for Training and Integrated Research in ASAL Development), the African Fund for Endangered Wildlife (AFEW), Rhino Ark, Eden Wildlife Trust, Tusk, Woburn Safari Park and the Rufford Foundation.

It has been an amazingly steep learning curve for the BSP “On the Trail of the Mountain Bongo”. This journey required persistence and determination and has led to a groundbreaking scientific study that is grabbing attention worldwide.

**JULIETTE SHEARS** is a BSP UK volunteer coordinator and fundraiser.
Night moves with a camera

It's now so dark that I cannot make out the camera camouflaged at the edge of the clearing. So I switch on my night viewer and observe, through the eyepiece, the world shining in unnatural, electronic green light.

It's not long before the first visitor emerges from the shelter of the bushes to graze on tender grass. The small duiker cannot see me but I can, thanks to 21st century electronics, see it, and I feel a bit like a predator, silently observing without being seen.

The duiker moves warily towards the camera and when it is in an ideal position I press the radio control button, illuminating the night with the flash from the camera.

There's always something mysterious and exciting about preparing a night “trap” and waiting silently for what emerges from the dark, never sure what might come out of the bushes.

You need a little technical support and a lot of patience, but the fun is guaranteed.

You need a small radio control mechanism to trigger the shutter, a night viewer so you can see without being seen, and patience. Sooner or later, joy in some form comes out of the dark.

Paolo Torchio
www.paolotorchio.net
TOP LEFT: The camera trap positioned and covered with a camouflaged net.

TOP: A male bushbuck caught on camera.

BELOW: Two beautiful Black-fronted duikers captured by the camera.
TOP LEFT: The best background is always before total darkness.

BELOW LEFT: Confrontation between two duikers.

TOP: Sometimes you bite off more than you can chew! A buffalo in the bushes.

BELOW: A Common duiker and a Black fronted-duiker in the same shot.
The cat that wouldn't eat the rat
Giant Rats

The biggest weigh up to one kg. Mostly nocturnal, the rat digs a burrow in the shape of a long deep gallery, with several entrances. The terminal chamber is furnished with a bed of vegetables. Several lateral chambers are used to store food and also odd stolen materials like coins and small brilliant objects, transported inside the cheek pouches.

The rats diet is purely vegetarian. The period of gestation is 42 days and the litter usually consists of two to four young. Very docile and tame in captivity, the Giant Rat makes a charming pet.

These Giant rats seem to live peacefully with a Civet cat, and even share a hole.

(Source: Larger mammals of Africa)
The majestic Kerio River is just a trickle most of the year.
KENYA’S GROUNDBREAKING Trans-Rift Trail

BY PAULA KAHUMBU

Just when you thought you knew Kenya and all its conservation challenges and opportunities, you discover something deliciously new. The North Rift Valley has very few protected areas and is best known for campsites around Lake Baringo, and the flamingoes and hot springs in Lake Bogoria. For this reason, few tourists come here and the area has received little promotion. But all of that is about to change.

William Kimosop, chief game warden of Bogoria National Reserve, has just fulfilled his lifelong dream of opening up the Trans-Rift Trail to hikers, a special breed of local and international tourists. The trail is the original path used by Africa’s great explorers as they searched for the source of the Nile hundreds of years ago. Back then, as today, this trail was a foot highway used by local communities for trading between both sides of the Great Rift Valley. The trail bisects the Rift Valley from east to west, passing through some of Kenya’s most spectacular countryside. Kimosop has christened it “The Trans-Rift Trail”.

“For the last 15 years I have been thinking of how I can use this old treasure to create a new and unique tourist attraction that will propel the North Rift into the list of Kenya’s top tourist destinations,” he told me while on a recent visit to Lake Bogoria. I was immediately grabbed by his idea and we hatched a plan then and there to launch the trail in February 2011.

Getting there is easy. We drove to the Mogotio Equator Tourist Centre and met our guides who directed us to the Nyalilpuch outpost at the top of the Mochongoi escarpment. We marvelled at the view of Lake Bogoria that Bishop James Hannington so famously reported was “the most beautiful sight in Africa.” From that vantage point you can almost see the entire length of the shimmering lake of so many colours. In the morning we set off, scaling down the escarpment to the picturesque Lake Bogoria Fig Tree camp. The route was rocky but well-worn. It skirted the shores of Lake Bogoria past numerous fumaroles and flocks of noisy flamingoes. At the fresh water springs, we took a short lunch stop and cooled off in the tranquil pools before proceeding to Emsos. On the first day we did less than 15 km and were deceived into thinking it was going to be easy the rest of the way.

The trail is the original path used by Africa’s great explorers as they searched for the source of the Nile hundreds of years ago.
Emsos village is truly an African paradise. This is an oasis of fresh water in the boiling hot, dry, stony Rift Valley floor. Apart from a few tin-roofed mud huts, there are only three shops in the village, and a barbershop that is operated on a generator. The generator was originally bought to air World Cup soccer: now it runs the electric hair clipper at 20 shillings per cut. Bananas, sukuma wiki and papaya grow luxuriantly between houses and the colourfully dressed women silently wash their clothes in the stream. The spot is enchanting. A hot spring gushes fresh water into a small swimming pool, sending warm rivulets through the village and right past our campsite. Our tents were erected among gigantic bird-filled fig trees, but it was so warm at night we could have slept under the stars.

While we camped, cooked and walked around the village, the community watched us politely. As one elder put it, with tears in his eyes, "we never believed that we’d see the day when William’s dream would become reality". Indeed, this may be one of Kenya’s most authentic eco-community conservation projects. The aim of the Trans-Rift Trail is to put money directly into the local community by renting space for camps, buying as much as possible locally, and engaging the community directly in tourism. We had fresh tilapia harvested the same day from one man’s fish farm (it was his first harvest), and meat, eggs and fresh vegetables provided by villagers.

Every morning we decamped and set off as early as possible after a briefing about what attractions to expect along the next section of the trail. The trail is just a narrow footpath in places, and a wider bush track in others. Each section has a name - the honey trail, Kudu trail, Hannington trail – and the path took us from village to village. En route we rubbed shoulders with locals carrying goods, or just walking to get to the next village. The hike is not about speed, it’s about experiencing life as it was generations ago in this remote part of Kenya, and walking with locals on an ancient trading route. We stopped in villages to buy drinks and tea, and to meet the elders who were just as thrilled to meet us as we were to be there. We took time to visit schools along the route and chatted to children about their ambitions. Inevitably the headmasters would stop the classes for the students
and teachers to meet the trekkers, ask questions and, of course, sing for us.

Hiking in this northern part of Kenya is tough. The distances we covered each day may not have been huge but the terrain was rough and tough on the legs because we were always going either uphill or downhill. But it was the heat that slowed us down most and heat exhaustion badly affected one of our members.

Legs ached but it really was worth it. The landscape we crossed was spectacular, especially the Hannington trail along the stunning flamingo-lined shores of Lake Bogoria and up the slopes of the Tugen Hills. I particularly loved Maji Moto, a swimming pool-sized natural hot spring of crystal clear blue water. Sitting under a natural hot waterfall is one of those experiences you must have before you die. Equally memorable were the extraordinarily gracious and beautiful people we met. It’s easy to take our lives and opportunities in cities like Nairobi for granted and to forget the struggle faced by individuals in this remote and cut-off part of Kenya. No power, no water, no road!

Carefully chosen by Kimosop, all of our campsites had fresh drinking water, pools or streams to soak in, plenty of firewood, spectacular views and, importantly, vehicle access. The vehicles brought us our camping gear, food and, importantly, cold beers. Most nights we slept by rivers or springs under magical starry skies, nodding off to the sounds of a million frogs and toads.

To prepare the community for tourism, Kimosop has trained 90 local guides in camping, hiking, ecology and first aid. Some guides have special talents: for example, Jackson does animal tracking over rocks, others specialise in archaeology, wildlife, and birds. The one physically challenged guide is the radio controller who keeps track of the trekkers and monitors their progress. Involving young local guides was a deliberate attempt to ensure that the community not only benefits from the business but manages it. Kimosop has purposefully ensured that all sectors of the community are part of this initiative. The women sell food, crafts, honey and provide homestays. The youth are trained and employed as guides. Even the oldest members of the community benefit, and the elders are enlisted to flag off the trekkers each day. On this inaugural trip each elder received the Kenyan flag from me, and then waved us off in the morning after giving us the name of the next elder to look for. To prepare for the future, Kimosop has enlisted school children as rangers responsible for monitoring wildlife and reporting to him.

From a cultural perspective, the trip was fascinating. This is the land of the
Kip and the Kap. Place names all have meanings: Kapkelelwa – land of croton; Kisok – a natural salt lick; Kapsabet – land of the porcupine; Kurumbopsoo – buffalo wallows; Kaplel – place of the jackals. The communities may not fully recognise the significance of the trail as a cultural heritage because they are isolated out here and to them life is normal, living from nature is nothing special. But having lost so much wildlife over the years, they do recognise the importance of the remaining wildlife assets and have created three conservancies to protect forests and wild land habitats for the Greater Kudu. These conservancies -- Irong, Chuine and Morop -- were created as community areas to protect the dispersal and breeding area for this shy and now rare antelope. None of these protected areas are on Kenya’s tourist map yet.

One of the toughest parts was the hike up the Tugen Hills, which had to be done in a single day. We learned a painful lesson about the Tugen people here, and discovered the longest kilometre in the world! At the bottom of the hills, we were told that it was only one kilometre to the top. It seemed unreasonable but we were so tired and eager to get to the end of the day’s hike that we were willing to believe anything from our incredible and, until now, reliable guides. After an hour of hiking, we were told that the place we were aiming for was still a kilometre away. Finally, after a particularly tough section of near vertical climbing on rocks, we realised we were not even half-way up. Asked why he was deceiving us, our guide Nickson was surprised at how upset we were – he explained that it was the guides’ way of encouraging us and motivating us. In Tugen culture, you never say that the destination is far away, but instead, to encourage travellers, you always tell them that it is near. Our one kilometre was more than 12 km in the end!

At the top of the Tugen Hills we met Mzee John Chelimo, the chairman of the community forest association that manages 11 forests that were formerly under the government. Now, the forest rules and laws are initiated and enforced by the community. These forests are fiercely protected for their assets including rainfall, microclimate, wood resources, grazing and herbal medicine.

We spent two days in the Tugen Hills to recuperate and prepare for the second half of the journey, which would include scaling the impressive Keiyo escarpment, still just a misty horizon. At 8,000 feet, the Sacho forest chills were a welcome change. We visited God’s Window, one of the most memorable viewpoints overlooking Lake Baringo. We breathed in the fresh cool air, and gently explored the cliffs and hills, taking in the magnificent views, and enjoying the abundant local fresh fruit.

We descended to the Kerio Valley in one day and slept under the stars on a sand island. At daybreak the rising sun slowly revealed the towering golden Keiyo escarpment. The route went up the ridges through forests and farms and the views in all directions were extraordinary. On this section we were joined by Ester, one of three female guides and a lover of plants. She showed me a warm fuzzy herb whose leaves when crushed give...
The Trans-Rift Trail can be hiked in sections from any direction. There are different levels of difficulty, making it possible for people of all levels of fitness and age to enjoy it. Some sections can be done on bicycle or even in a wheelchair. There are multiple side trails to explore.

For more information or to arrange your own expedition, contact Betty at the Equator Visitor Center in Mogotio 0721 294 341 or email William Kimosop on greatriftoutdoors@gmail.com. Visit our blog http://GreatRiftValley.wildlifedirect.org.

DR. PAULA KAHUMBU works tirelessly to protect Kenya’s wildlife and wild places. She is the Executive Director of WildlifeDirect, the online blogging platform for conservationists, and the Kenya Land Conservation Trust. She also volunteers as Chairman of the Friends of Nairobi National Park, FONNAP.
CIVET CATS, SAND AND STARS: COMMUNITY CONSERVATION IN THE TANA DELTA

BY STORM STANLEY

*Fish Eagle keeps watch above the oasis on Ungwanda Bay.*
The boatman manoeuvres a motorised canoe into an inlet. It is still cool at 6.30 a.m. and the tidal creek is pale blue, coiling through mangroves to a receding point in the distance. We are surrounded by mangrove forests. There are eight varieties, according to our guide and ranger Kazungu, who has lived in this area for over 20 years. Flashes of bright vermilion wings and coral-coloured beaks sparkle in the waves of green as Carmine Bee-eaters and Mangrove Kingfishers catch insects and fish. Our boat ride takes less than 20 minutes, and then we are dropped off with Kazungu. We are in the Tana River Delta Conservation area, a joint initiative between local people and the private sector owners of the Delta Dunes lodge.

In 1997, a parcel of 150,000 acres (60,700 ha) of land below the fresh water zone - including riverine forest, grasslands, woodlands, bush land, lakes, salt water creeks, mangroves and dunes - was formally handed over to the inhabitants of the Lower Tana Delta for conservation. In December 2005, the Lower Tana Delta Conservation Trust (LTDCT) was registered to ensure official custodianship by the local community. The LTDCT holds a 20% share in the Delta Dunes Lodge. The European Union loaned the LTDCT several million shillings to pay for their interest in the lodge and provided funding for a community lodge, recognising the importance of boosting this economically peripheral area while at the same time sustaining the Delta ecosystem.

We remove our shoes and sink into soft mud as we squelch across the mudflats. Fresh tracks crisscross in front of us – Civet cats, buffalo, bushbuck, leopard, baboon and pelican. We can also see older elephant tracks. The mudflats give way to a crescent of sand dunes. Hidden in the dunes and surrounded by Doum palms, Dwarf palms, Screw pines and trailing Ipomoea is a dinky oasis, only two metres across yet a vital source of fresh water for wildlife and birdlife. Fishermen used to rely on it too, but due to some of the less savoury habits, particularly of baboons, they have been encouraged to use their own small wells, dug a few metres away and kept covered to deter wildlife.

Offshore, to one side of us, dolphins leap in shimmering swells while on the other, Tana River bushbuck forage in the brush and grasses, which have colonised the dunes. This is one of the only places along the Kenyan coast where the critically endangered Dugong have been seen. Half an hour into our walk, we come across a pair of fresh lion prints in the sand just above the high-tide mark - iconic and perfect indentations. Kazungu comments that the lions were likely to have been hunting on the beach at dawn only an hour earlier. We follow their tracks along the shore for a kilometre before they disappear; I imagine that they are watching us, camouflaged in the sand dunes.

Half an hour later, we arrive back at our starting point: the Delta Dunes Lodge situated high on a promontory. Where we are now was once the main mouth of the Tana River, which begins its journey in head springs on Mt Kenya and in the Aberdares, and stretches some 1,000 km in length. The river arcs to the northeast through arid and semi-arid lands, before coursing southwards to meet the sea. Like many delta casualty stories, Tana River Delta has been adversely affected by human intervention. The Kenyan government sanctioned the building of hydroelectric dams near Mwea -- first Kindaruma (1968), then Kamburu (1975), Gitaru (1978), Masinga (1981) and most recently Kiambere (1988). This changed the main course of the river, so that the new mouth is at Kipini, 26 km further northeast. In 1988, the Pokomo damned the main channel, Kalota Brook, for fresh water irrigation, entirely blocking the complex system of channels and

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Distributaries to the south. As a result, the Orma pastoralists have had their dry-season grazing further diminished. Deltas have delicately balanced ecosystems. The Tana Delta is a vast wetland complex characterised by high species richness and a variety of eco-regions. There are more than 350 species of birds, over 20 kinds of wildlife, 24 reptiles, 16 amphibians, untold marine life and crustaceans, and several rare or endangered species in each of these groups. Additionally, 300 plant taxa exist here. For at least three centuries people have been fishing here, harvesting mangoes and grazing their cattle. With their lives in balance, the indigenous Orma and the Pokomo have lived alongside each other in harmony. An important cycle in the Delta’s natural rhythm is the twice annual flooding, which takes place in April/May and November. Changes and disruptions to this finely tuned floodplain ecosystem result in challenges for all of the inhabitants.

There has been much discussion about plans for the cultivation of sugar cane and biofuel in the Delta. However, the conversion of virgin land to farmland not only affects people’s lives and nature’s balance, it also poses a severe threat to

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1 IUCN website; (2003)
biodiversity. In order for human and non-human species to survive, ecosystems – dynamic, self-organising systems humans have evolved within – must remain healthy. How does this fit with the intentions of the government to meet its 2030 vision by opening up this fragile area to large-scale agriculture? To answer this question, we decide to seek out the community members themselves.

The first community we visit are the Orma pastoralists at Darge Galge village. Their eco-friendly homes resemble beehives: they are conical in shape and made of grass thatch readily available from the surrounding marshes. A dozen huts lie on one side of a deep but dried-out furrow, a dozen more on the other. Prior to the dams being constructed, the houses lay on opposite banks of one of the Tana River’s tributaries, but the water ceased to flow here two decades ago. Since then the women in the village have had to walk two kilometres every day to get water from the nearest source.

Damming the Tana resulted in water scarcity, which was further exacerbated by a prolonged drought in 2003. The government’s response was to provide famine relief. The people still receive a monthly supply of food aid – 10 kg of maize meal and five litres of oil per family – but what they really need is their water source back. Recently the area sustained heavy flooding, a consequence of riverine deforestation and sheet erosion from intensive agriculture further into the Tana River basin. Many of the Orma’s cattle died from disease after the flooding. In Africa, and among the pastoralists, cattle represent the unit of negotiation and consequently much of their communal wealth was lost. “Before 1980,” said Goricha Kuno, “the grass was rich and our cattle healthy. Now I can only afford to keep a small number of cattle, and I do not have enough to sell in times of need.”

Abaguyo Algi tells me that the community is aware of the conservancy project and pleased with the new initiatives. Discussions with the lodge owners resulted in funding being gifted by a private donor to build a nursery school, and additional sponsorship money is being sought through a guest philanthropy programme. The lodge offers training and employment and one of the community elders is a trustee of LTDCT, but the principal benefit of conservation and ecotourism (by ensuring that the ecosystem remains intact) is the compatibility with traditional livelihoods such as pastoralism and fishing.

The Pokomo agriculturalists are the predominant tribe on the lower stretches of the Tana. They cultivate rice and maize after flood waters recede and harvest mangoes and bananas. There is
a potentially lucrative trade in mangoes: 8,000 tonnes are harvested per year. However, there is a lack of affordable and reliable transportation to reach external markets, and much of the mango harvest is used for juice. Unlike monoculture crops, fruit trees are economically productive and sustainable.

At Semikaro village, a group of 20 people readily join in discussion. Habudi explains that there is a greater dependence on seasonal rains now that the main river is not close by. “There are intruders nowadays – the Giriama are settling here looking for arable land, consuming our wildlife,” he says. Gawawa comments that they are worried their small tribe will be assimilated by the more dominant Giriama, affecting ethnic diversity.

Mwanatiti, a lady in an attractive double kitenge outfit, tells me that in the 1960s elephant and eland were plentiful; there were even rhino in the area. The villagers agree that conservation is helping local employment. Delta Dunes employs 45 people. Direct benefits are returned to the Orma and Pokomo communities from bed night levies, and conservation fees paid into LTDCT and distributed by the trustees. Moreover, Delta Dunes is providing technical assistance to the LTDCT to secure funding for a mobile clinic, additional schools and a trading centre, answering some of the socio-economic needs. But although a board of trustees is in place, the community complain that there has not been an AGM for three years, fuelling distrust.

When we motor gently back on an outgoing tide, the sun has already slipped over the western horizon and the air is filled with birdsong: intricate melodies, repeated notes and descending chirrups. A flock of egrets takes flight as a crocodile slips from a sandbank into the river, Sand Pipers fossick for a last few morsels of food in the mudflats and Sooty Gulls head off purposefully to their roosts. Twilight softens the contours and the first smattering of stars, like fairy dust, are visible in the apricot sky. On hearing the boat’s vibrations, a pod of hippos pop up like corks to survey the scene and then disappear under the water again. All is well in their world. But for how much longer?

At the time of writing this article, a group of influential elites on the former committee of the Kondertu Group Ranching have signed over the rights to begin a biofuel plantation scheme in the northern Chara region. This is completely against the wishes of the Orma and Pokomo, who say there has been no stakeholder analysis. Implementation of the scheme will result in forced eviction for many of these people. Where will they go? There are no relocation plans.

One doesn’t have to look too far around our planet to note that human intervention – for human expediency – often upsets nature’s finely tuned equilibrium: the Tana Delta is an example of this fragile balance, and it too is under threat.

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Bookings for Delta Dunes Lodge can be made through Bookings@africanterritories.co.ke or visit www.deltadunes.co.ke

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**STORM STANLEY** learned the ropes of news and features photography in London’s former media centre, Fleet Street, before moving into picture-editing for Kenya’s Camerapix, the specialist elephant photo library for Save the Elephants and her own photo agency. Storm returned to journalism 10 years ago and specialises in environmental and conservation issues in East Africa. She has recently submitted her thesis in community conservation, aiming for a MSc in Environmental Decision-Making.
Breeding rhinos for the future

the artificial way

BY FELIX PATTON

Captive breeding programmes have had some spectacular successes in saving species and reintroducing them into the wild. All rhino species are at risk from poaching, disease and natural disaster. Developing captive populations is an essential safeguard to avoid extinction but breeding success has been limited. If a female rhino does not get pregnant, her uterus starts to develop irreversible problems, such as cysts and tumours. Can the failure to become pregnant be overcome?

Ultrasound technology for use in rhinoceroses has been used in well over 150 reproductive assessments in more than 70 rhinos with the result that the causes of poor captive performance are now known.

310
Number of oestrous cycles non-reproducing White rhino female in captivity can exhibit.

To date, captive reproduction in the White rhino has been poor. Despite the wealth of knowledge acquired over many decades about the husbandry and reproductive needs of captive Black and Indian rhinos, when applied to White rhinos, it has been unsuccessful. The main problem has been the absence of or erratic nature of oestrous cycle activity in over half of the females in the European and North American Species Survival Program.

White rhino females in the wild usually experience short intervals between successive births, even as little as 18 months. This indicates that pregnancy and lactation are the most common endocrine profile with possibly as few as 30 oestrous cycles per reproductive life span.

A reproducing female White rhino in captivity may produce up to nine calves. With a pregnancy of 16 months and subsequent lactation of approximately 12 months, the female exhibits only 90

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oestrous cycles during her reproductive life span. With pregnancy and lactation dominating the endocrine status, the oestrous cycle is a rare event during her reproductive life.

A non-reproducing White rhino female in captivity exhibits as many as 310 oestrous cycles. They display 90 oestrous cycles by the age of 16 years. These non-reproductive periods of 10 – 15 years in female rhinos were not previously considered problematic. Now it has been found that 16 years old is the same age at which the first signs of disease-caused alterations are detected in the genital tract.

Ultrasound technology for use in rhinoceros has been used in well over 150 reproductive assessments in more than 70 rhinos with the result that the causes of poor captive performance are now known. Female captive rhinos can develop uterine tumours, endometrial cysts and ovarian cysts. These conditions occur more often as the animals age and when they have not achieved a pregnancy. This ‘asymmetric ageing process’ of the reproductive organs can be prevented with the achievement of at least one pregnancy whether natural or by artificial means. Reproductive problems are relatively non-existent in the wild since females are either pregnant or lactating during the greater part of their reproductive life. This means that regular assessment of reproductive fitness and early breeding are essential.

With males, it has been found that unsuitable social systems impact reproductive performance, resulting in half the captive population being sub-fertile or infertile.

Well-established solutions to female infertility in domestic species and humans include artificial insemination (AI), the in vitro production of embryos by means of in vitro maturation (IVM), gamete intrafallopian transfer (GIFT), in vitro fertilisation (IVF), intracytoplasmic sperm injection (ICSI), and subsequent embryo transfer (ET) – together known as assisted reproduction technologies (ARTs). Development of these technologies for rhinos was initially slowed by the complicated structure of the reproductive organs. The main challenge to AI was to develop a special catheter to pass through the convoluted passage in the female’s cervix to deliver the sperm to the uterus.

The cervix is very firm and strongly folded. This twisty route is the reason male rhinos spend about an hour and a half having sex because they must try to fill up the cervix with sperm.

For egg collection, new equipment and concepts had to be developed to get to the ovary, some 1.5 metres inside the animal (compared to the 15 centimetres to a human ovary). A hollow needle, more than one metre long, fastened to an ultrasonic head and inserted through the rectum is used.

The needle can be viewed on an ultrasonic screen so the ovaries can be seen, enabling the intestine to be accurately punctured, the needle pushed towards the ovaries and the egg cells sucked in. The method can reliably yield many egg cells.

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

Non-surgical AI in White rhinos has been achieved using fresh or cryopreserved semen. Additionally, rhino sperm has been successfully sorted into high-purity X and Y chromosome-bearing populations. Critically small, captive rhino populations could be boosted by using only X chromosome-bearing sperm, introduced by AI, to produce female offspring, enabling accelerated population growth.

IVF, ICSI, EMBRYO TRANSFER

In domestic species and humans, IVF (in vitro fertilisation), ICSI (intracytoplasmic sperm injection) and ET (embryo transfer) are well-established techniques. Where infertile, female rhinos have a history of reproductive lesions, egg cell collection and in vitro ARTs represent the only option to preserve the female genetic material and to contribute to the diversity of a population.

For example, the Northern White rhino (Ceratotherium simum cottonii) is now believed extinct in the wild. Only eight remained in captivity and the females had mostly become infertile so could not contribute to the genetic pool. Two males and two females were recently moved to an enclosed area in Kenya in the hope that they might breed in a more open environment (see SWARA 2010:01). An alternative/additional approach could be to use ARTs to obtain eggs from any of the living females, fertilise with male sperm in the laboratory and implant resulting embryos in either Northern females or, as is more likely, Southern White females (Ceratotherium simum simum) as surrogate mothers. Current rhino embryo production techniques require refinement for consistent success.

THE CHIMERA APPROACH

The body is made up of many hundreds of different types of cells, all of which come from a pool of stem cells in the early embryo. Various types of stem cells give rise to the cells that carry out the specific functions of the body, such as skin, blood, muscle, and nerve cells.

There are three types of stem cell that can be used, each with limitations:

i) Embryonic stem cells are a primitive type of cell that can be coaxed into developing into all of the types of cells (e.g. blood/heart/brain/nerve cells, etc). In the past, they have always been derived from embryos in a process that causes the latter’s death, and this has been considered unethical.

ii) Adult stem cells bear some similarities to embryonic stem cells but are limited in flexibility, and are only capable of developing into a few of the cell types.

iii) Induced pluripotent stem cells are ordinary cells such as skin cells that are specially processed to exhibit some of the properties of embryonic stem cells without the ethical and rejection problems.

Japanese scientists have developed a method to turn adult cells, such as skin cells, into embryonic-like cells. In the future, it may (or may not) be possible to use the method to create embryonic cells from a Northern White rhino and blend them with the embryos of the Southern White rhino. The resulting embryo is a "chimera", with a mixture of cells from both. Then the hope would be that some of the resulting offspring, grown in surrogate Southern White rhino mothers, would grow up to produce the sperm and eggs of the Northern White rhino.

Scientists at Stanford University in California, USA have grown human eggs and sperm in the laboratory. The team used stem cells taken from embryos but are hoping to use skin cells in future. Once the method is proven it could be refined for rhinos as could other such scientific advances. These approaches would also permit the use of frozen cell samples from dead individuals.
Budapest Zoo. The successful use of frozen semen will enable reproduction experts to anaesthetise wild bulls, collect semen from them, and use the frozen sperm for breeding offspring in international zoos.

2009

AI White rhino born in UK
The first White rhino to be born in Britain through AI arrived at Colchester Zoo using the pioneering AI treatment developed at the IZW in Berlin.

2006

First egg cell harvest
Scientists from the IZW, Berlin, together with veterinarians from Australia, successfully collected egg cells from an infertile Black rhino. These were then matured in a test-tube and fertilised with rhino sperm but did not grow into embryos.

2008

First IVF Black Rhino Embryo
In June 2008, researchers successfully created a Black rhino embryo which was cryopreserved until the technology is developed to transfer it to an appropriate recipient.

2008

First birth from use of frozen sperm
In June 2007, scientists from the IZW, Berlin artificially inseminated the mother with cryopreserved sperm, which had been frozen for three years at minus 196 °C (minus 321 °F) in liquid nitrogen. The world’s first White rhino to be conceived using frozen sperm was born in October 2008 at Budapest Zoo.

2010

AI Indian rhino due in 2010
The artificially insemination of an Indian rhino female in June 2009, using sperm collected four years previously and cryo preserved at Cincinnati Zoo’s CREW CryoBioBank before being thawed and utilized, resulted in the birth of a male calf in October 2010. This shows that it is possible to produce offspring from behaviourally incompatible Indian rhino pairs and allow new genetic material to be introduced in captive populations globally.

Collecting and banking sperm from genetically valuable male rhinos is an important step toward prolonging the genetic life of founder animals and preserving the genetic potential of males that may otherwise never contribute to the captive population.

ARTs for rhinos have been successful but the technologies need further refinement to obtain greater consistency. With appropriate funding, the timescale should be short and a lifeline secured for those rhino populations heading rapidly towards extinction.

SPOTLIGHT

MILESTONES IN THE USE OF ARTs IN RHINOS

2004
First conception from AI performed in Artificial insemination was first successfully used to conceive a rhinoceros at Budapest Zoo, Hungary, in 2004.

2005
First rhinoceros birth from AI
The world’s first rhinoceros birth from artificial insemination occurred at Budapest Zoo in January 2005.

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First IVF Black Rhino Embryo
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The illegal trade in Kenyan owl eggs

BY SIMON THOMSETT

Nobody wanted to be pictured offering owl eggs for sale. Above is the author holding a Ground Hornbill.
While working on raptors at Naivasha, I was occasionally accosted by locals wanting to sell me owl eggs. It seemed to be an emerging fad that began somewhere towards the late 1990s. In 2001-2002, while staying in Hell’s Gate National Park and spending many idle hours chatting with both Kenya Wildlife Service (KWS) rangers and casual labourers, I heard long and convoluted stories about the power of these eggs.

I dismissed these stories as nonsense until I became aware of a trade in these eggs. This was serious as owls are vanishing quickly and are heavily persecuted because of superstitious beliefs that they are an evil omen.

Wherever I am, I ask people of the area to give me their cultural beliefs about owls. Here is a summary: if they hoot nearby, it is bad news; if they hoot on your roof, they bring very bad luck. The solution is to drive them away, to throw stones or to kill them whenever possible. But traditional Kikuyu custom has a very important twist. If you harm the owl, you bring calamity on yourself and surroundings. The owl is only an emissary of God, doing his bidding in warning you of your sins and asking you to repent of them. Sadly, however, few today heed these words and owls are widely vilified and persecuted.

I have been asked to remove owls from a promontory farmer’s roof because his wife was unable to conceive. I have witnessed numerous such incidents, which show that this belief is entrenched in the minds of all creeds and classes. But after education and reassurance people often agree it is only a superstition, until, that is, in the dead of night, an owl settles on their roof and starts hooting.

In Naivasha, people have pulled me aside and, after much preliminary evasive talk, asked if I am in need of owl eggs. What in heaven for? Slightly alarmed and confused, the dealer, furtively looking over his shoulder, tries to ease my concern. After observing me from a distance with my binoculars and taking me for a “birder,” they seem astounded to learn that my true mission is not to steal eggs for some mystical purpose. These people have told me about the power of owl eggs: how they spark when touched and how they bring great male virility and wealth. I had heard these tales from a dealer in Thika who professed to be able to lay his hands on as many owls and eggs as we wanted. We laid a trap, with KWS approval, but he failed to pitch up.

Bobbing about on Lake Naivasha and talking to fishermen in another boat while researching Fish Eagles in October 2010, I was taken into the confidence of one fisherman. Even before he opened his mouth, I knew that he was going to offer me owl eggs. The entire crew knew of our Fish Eagle research and one would have thought they would have taken pains to avoid us, but no.

I asked to whom they would sell the eggs. They said that part was confidential, but it was an Arab from the Kenyan coast, although there was a European on the north lake who would buy them, and living owls if offered. What would he, or they, do with the eggs? Well, that’s the part they could not understand. Apparently the eggs had great energy and were used in some magical process. The eggs they would procure for me would be of the finest quality and, importantly, they would not be touched!

Up until then I still assumed that what they really wanted to sell was live owls, for surely live owls had a value, whereas dead eggs had none? I thought I knew all the bird rehabilitators who worked with owls – all genuinely obtained birds, being looked after by good, law-abiding people. I cannot see anyone asking for owl eggs because it makes no sense at all. Annoyingly, everyone who told me this story took time to reassure me that they did not harm the owls but just took eggs. None seemed to understand that each egg taken was one live owl killed as they assumed owls (and all raptors) were like chickens.

In December 2010, I was staying at Soysambu and had talked at length with one of the house staff about my passion for raptors. After two weeks, James approached me with that furtive look I now knew so well. As he launched into his story of being able to satisfy my heart’s desire by procuring owl eggs, I decided to get him to spill as much information as possible. The eggs, found in hollows and cliff-sides, are taken cautiously lest they lose their “spark”. The first step is to pour unga (maize flour) on the eggs and cover them. Then with a cotton cloth (not rayon), the eggs are separated and lifted up above the unga. Each egg is carefully wrapped in cloth and taken away immediately to the middleman, an Indian in Nakuru, who pays an unbelievable price.

When I asked if it was legal, James replied that he was talking about valueless “evil” owls, not wildlife, so it was all OK. He thought that maybe the eggs were exported. He learned all this from a travelling owl egg merchant and, of course, had never actually taken or sold eggs in his life. He then went on to add that for two years he had searched in vain for 1951 coins as he was assured of their great value. If, he had been assured, these coins were placed in a CD player they would divulge all that you wanted to know. James is a well-educated, middle-aged man who helps out at respected institutions and is by no means easily duped. He honestly believes in this stuff although he admits the 1951 coin can’t possibly have much to say because the technology wouldn’t be compatible.

For the record, owl eggs are as inert and boring as chicken eggs, although each contains a living baby owl with a right to life. If anyone has heard of this strange custom, please demystify it by telling believers that they are wrong and breaking the law.

SIMON THOMSETT was born and raised in Kenya and has looked after raptors ever since he was a small boy. He is a Research Associate of the Zoology department, National Museums of Kenya. He specialises in raptor research, conservation and their rehabilitation.

www.eawildlife.org
For many people across the world today, their first introduction to some of the natural world’s wonders comes through watching television, though perhaps this is fast being overtaken by the Internet. Imagine posing this question to people watching television, picked at random from the furthest corners of the world: Who is the most recognisable, most familiar face of nature documentaries? Without a doubt, the unanimous answer ringing across the world would be – David Attenborough.

Sir David Attenborough is, without doubt, one of the most familiar, popular and enduring faces of natural history documentaries and filmmaking today. Born on May 8, 1926 in London, he’s both a broadcaster and naturalist. His career as the respected face and voice of natural history programmes has lasted for more than 50 years.

Like millions of others, I have watched and enjoyed his programmes. However, my introduction to his work was delayed until I travelled to the USA as a college student (we didn’t own a TV for most of my childhood and anyway, I don’t think his programmes would have made it onto Kenya’s state broadcaster, KBC, and that was the only channel available back then in rural Eldoret).

From the first programme I was hooked for life. The attention to detail, the deeply intimate view of wild creatures’ everyday lives, rare glimpses of behaviour against stunning landscapes – like millions of others, I found the documentaries, in particular the ‘Life of...’ series, absolutely captivating.

Today as a doctoral fellow with teaching as part of my fellowship requirement, I often turn to clips from Attenborough to illustrate and enliven lectures on what otherwise may seem like mundane aspects of animal and plant behaviour. Snippets from Attenborough's documentaries are now standard fare in many biology courses at colleges and schools across the world. And from my own limited experience, I can attest that students are less likely to fall asleep in class when you show them a few minutes of a natural history video!

Showing them the clips even affects their performance (though I have not measured this). Indeed it may well be that showing natural history videos in classrooms could have positive results like the now famous ‘Mozart effect’. The
Mozart effect involved softly playing classical music in classrooms which led to a marked improvement in students’ academic performances as well as a corresponding decrease in anti-social behaviour and aggression.

Watching Attenborough during the long mid-western winters helped sustain me through some rough times in college when I was desperately homesick for Kenya. And like millions of others, I came to recognise the kind, smiling face and wise, gentle voice, and looked forward to the weeks when the local Public Broadcasting Service (PBS) would air the documentaries. Attenborough became one of my all-time heroes and a major source of inspiration, as he has, no doubt, for countless others interested in nature.

After college I immediately returned to Kenya and plunged into research and conservation. One of my first projects was looking at bees and beekeeping near Tsavo. It was while in Tsavo that one of my lifelong dreams came true. I got to meet David Attenborough in person!

He was in Kenya to film portions of the ‘Life of Mammals’ series. Specifically, at Tsavo, the BBC Natural History Unit was documenting the lives of the adorable, little Elephant shrews for the ‘Insect Eaters’ episode. Attenborough flew down and the entire camp, myself included, headed out to greet him. The first evening by the campfire, I was tongue-tied, thinking, ‘Oh my god, I’m sitting here with David Attenborough!’

So many heroes disappoint us when we actually meet them. I am glad to say that this was not the case for me. Attenborough was charming and genuinely interested in what I was doing. I was collecting some fabulous bees on the flowering Acacias, and each day doubled the number of species I was finding. Attenborough found this amazing and was as thrilled as I was when I showed him the results of each day’s long, hot labours and shared the tiny glimpses I had had into these obscure insects’ incredible lives. He even asked me questions about many of the creatures that came each night to the lanterns: delicate-winged Antlions, chunky Dung beetles, eerie Camel spiders and innumerable varied moths. Our conversations by the campfire under the stars are some of my most cherished memories of that time.

Soon Attenborough had to leave, and I had to travel too. As we said farewell, Attenborough smiled at me, patted me on the shoulder and said, “Ah-ha young man, I am sure that we will meet again! Keep up the good work – the insects need you”. I carried those words with me ever since.

And of course, the great man was right. We did meet again, this time in London. Almost 10 years after our first meeting, he was part of a special dinner related to the Whitley Awards. Attenborough, along with HRH Princess Anne, is a patron of the Whitley Fund for Nature, which organises and supports the annual awards.

I walked into the beautiful room where the dinner was hosted and standing by the fireplace was David Attenborough. He smiled, grabbed my hand, placed his other hand on my shoulder and warmly greeted me. After a moment scrutinising me, he asked: “Ah-ha, and how are those bees of yours doing?” I was again speechless and deeply touched that he remembered me, a mere entomologist who had shown him a few bees nearly a decade ago.

As before, we soon found ourselves talking about a wide range of things, after I had filled him in on what I had been doing for the past decade: basically spending most of my time watching insects as he had advised me.

The conversation at dinner inevitably turned to a discussion about the current global environmental situation and in particular the crisis surrounding biodiversity. Attenborough has been a first-hand witness to the loss of species as he has travelled to many of the remote and species-rich corners of the world to film the creatures that live there.

One issue we discussed was what really matters in conservation and where limited funds should go. Today many of those working in conservation are trying to highlight the issue of interactions, processes and ecosystem services as the vital underpinning for the life support systems of our planet.

However, it remains a challenge to convince the public to invest in this. People tend to be drawn more to charismatic (and typically cute) animals. In response to this, Attenborough says: “It is that range of biodiversity that we must care for - the whole thing - rather than just one or two stars.” Coming from such a great mind and soul, it is important that we all take heed of this message and support conservationists who are actually going out and working in the field.

Another more controversial subject that Attenborough raised over dinner was that of human population growth and consumption patterns. Given the current strain on natural resources the world over; this is something that we as conservationists are going to have to start talking about. It is a sensitive subject and should be approached with reason and balance. However, as Attenborough points out, this is likely to be the one thing that makes or breaks many natural areas: more and more people simply means less and less space for wildlife.

So in sum, how did I feel after meeting one of my lifetime heroes? Humbled and inspired is my answer. I work hard because I am filled with wonder every time I spend a moment in the company of an insect. By sharing this sense of wonder and discovery with millions across the world, David Attenborough brings nature closer to each and every one of us. As he says: “An understanding of the natural world and what’s in it is a source of not only a great curiosity but great fulfillment.”

WITH THANKS

Asante to the Whitley Fund for Nature for the invitation to participate in and speak at their donor events in London late last year and for organising the dinner with Sir David Attenborough.

www.whitleyaward.org

DINO J. MARTINS is a Kenyan naturalist, artist and writer studying how insects influence both human life and the way the world works. He studies the intricate connections between insects and sustainable human enterprise. He asks that everyone spends a few minutes a day looking at an insect as a means of enlightenment and inspiration. Questions/comments about insects: insects.eanhs@gmail.com
Chameleons of Africa, An Atlas
Author: Colin Tilbury.
Published by Edition Chimaira, Frankfurt am Main.
832 pages; Hardback.

Reviewed By: Stephen Spawls

Not many people are going to take this book into the field; it weighs 1.9 kg and is the size of a big brick. Perhaps this is no wonder: it covers the 100 or so species of chameleon that occur in Africa, and includes two African species that extend into Europe, plus four extralimital endemic species; one from Socotra, one from Yemen, one from the Indian subcontinent and one from the Saudi Arabian peninsula. It does not cover the chameleons of Madagascar and the islands of the Indian Ocean. Colin Tilbury is a South African medical doctor who was born in Zambia. Chameleons are his hobby, one might say his passion; he has been studying them for 40 years, has travelled all over Africa to observe them and has personally found and described some nine new species, including Trioceros (formerly Chamaeleo) marsabitensis, the Mt Marsabit chameleon. He has been involved in the erection of three new genera of chameleons, including Kinyongia, the montane chameleons. I have been into the field with Tilbury myself; in 1996 we travelled together to the Bale Mountains in southern Ethiopia and found a new species, the first horned chameleon from Ethiopia. Tilbury later described it as Chamaeleo balebicornatus, the Bale two-horned chameleon.

The book opens with a 100-page section on chameleon systematics, zoogeography and biology, accompanied by relevant and spectacular pictures, including over 40 habitat shots. The bulk of the text, some 640 pages, is given over to descriptions of Africa’s chameleons. These descriptions are very thorough. Most are 2-3 pages of text per species, and are accompanied by a drawing of the head, dot maps in colour showing known records and several colour illustrations. The photographs are stunning.

Tough, well-bound and on glossy paper, this book is a labour of love and essential reading for all African herpetologists, although, like many Chimaira publications, it had a short print run and is hideously expensive, costing over $170. The rapidly changing pace of African reptile taxonomy – new things are being described at a steadily increasing rate – is indicated by the fact that no number of attractive features. Its compact size – although surprisingly heavy – makes it possible to carry in the field, although it should be stressed that it is not really a field guide. The image of each bird, descriptive text and distribution maps are next to each other for easy reference. It’s easy to find a bird in the book; there is a detailed list of contents, an index, and also an attractive visual index, where each bird family is represented by a photograph. And there is a section on bird photography for those who wish to emulate Buonajuti’s extraordinary photographic skills.

Even the most beautiful of books has its faults, however. Some families, such as the swifts (mainly seen in rapid flight), are not well represented. The maps are rather generalised, and the descriptive text gives only scant information on the birds’ habits. There is no mention of the birds’ songs – to me, the song is an integral part of each bird. But this is, after all, a photographic guide. The emphasis on bird families fills a need, and will be particularly valuable for those who have enjoyed the beauty of birds and now wish to learn more about them.

**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.

**FLEUR NG’WENO** is a naturalist, writer and editor. She started the Wednesday morning birdwalks for the East Africa Natural History Society – now known as Nature Kenya – in 1971, and still leads most of them today. Fleur was editor of Rainbow children’s magazine, wrote the Community Guide to Forest Conservation and the children’s book Bird with a Silver Ring and is co-author of Learning for Sustainable Living in Kenya.
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The endangered Rothschild’s giraffe has made a spectacular return home after 40 years in an unprecedented and daring ferry ride across Kenya’s Lake Baringo.

“We have been waiting for four years since we began our conservancy to see these animals return home,” said Richard Lotuliapus, chairman of the board of the Ruko Community Wildlife Conservancy where the animals will live in safety.

Originally named after Lake Baringo, one of the Great Rift’s lakes in Kenya, the Rothschild’s giraffe is one of the most endangered subspecies of giraffe in the world, with a population numbering only a few hundred.

The return was a joint operation between the Kenya Wildlife Service (KWS), Northern Rangelands Trust (NRT) and the Ruko Conservancy. Eight Rothschild’s giraffe were brought by lorry from Soysambu Conservancy and then by barge to the community-owned sanctuary on the shores of Lake Baringo.

This landmark translocation is re-establishing Rothschild’s giraffe in an area where it had disappeared. The return of the giraffe is shows the communities’ commitment to conservation and will boost tourism revenue to the local people.

“We have a huge number of visitors every year who come to see Lake Baringo’s magnificent birdlife and experience the tranquility of the lake so having these giraffe back in their native home gives tourists yet another reason to come and experience it for themselves” said Ross Withey, owner of Samatian Island Lodge, Ruko conservancy’s tourism partner.

The space and security for giraffe on community land will provide a long-term future for the species beyond the confines of fenced sanctuaries which today hold all the remaining Rothschild’s giraffe. This operation was made possible through generous support from Ernie Burgess and Tusk Trust, Born Free Foundation, Samatian Island Lodge and the Giraffe Conservation Fund.

ELODIE SAMPÉRÉ

ELODIE SAMPÉRÉ has served as NRT’s Head of Conservation Marketing since January 2010. Elodie earned a BA in Political Science and Philosophy and a Master’s Degree in International Affairs from George Washington University. Prior to joining the Northern Rangelands Trust, Elodie served as the Director of Marketing for the African Wildlife Foundation for seven years. Elodie also works for the Lewa Wildlife Conservancy and the Ol Pejeta Conservancy, dividing her time between all three organisations.

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