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East AFRICAN WILDLIFE Society



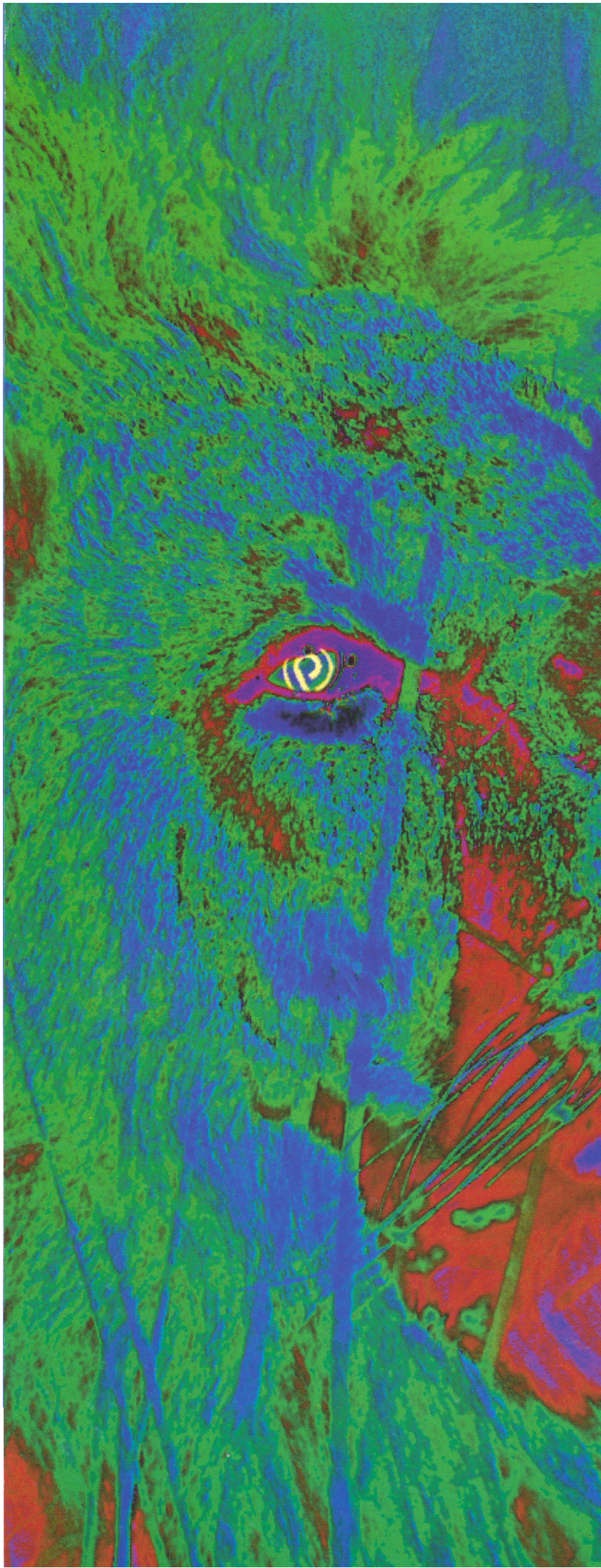
1995

JULY/AUG

VOL.18 NO.4

Inside:

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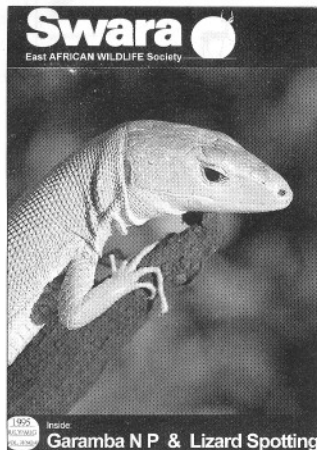
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Cover photo: Green keel-bellied lizard, *Gastropholis prasina*. Known from only a handful of specimens (mostly collected by James Ashe at Watamu).

by Stephen Spawls.

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The Impala antelope is the symbol of the East African Wild Life Society. Swara (sometimes pronounced Swala) is the Swahili word for antelope.

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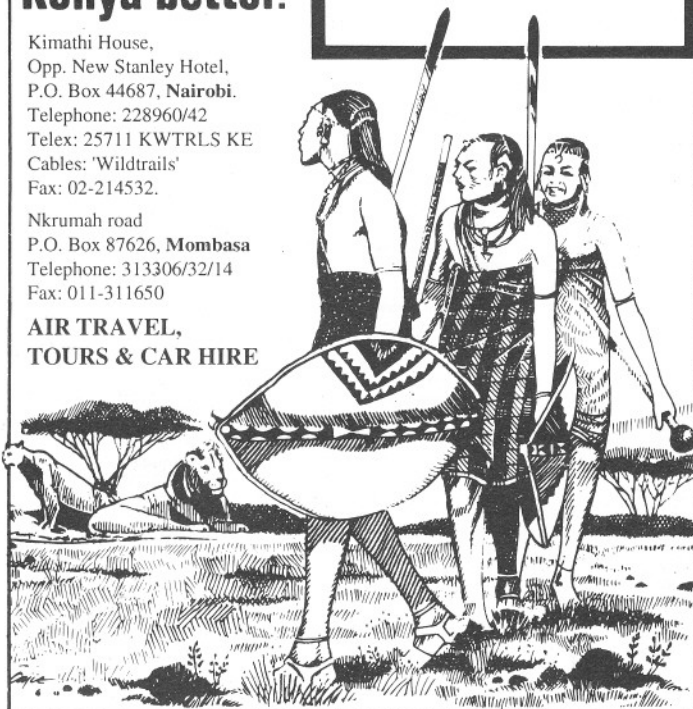
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# Wildlife Utilization in African Drylands

By Dr Theuri J. Njoka, Chairman of the East African Wild Life Society

THE AFRICAN DRYLANDS COVER about two-thirds of the continent. Drylands are defined as areas receiving between 100-800 millimetres of rainfall annually. The UN Conference on desertification held in Nairobi in 1977 estimated that 75 million people inhabit the sub-Saharan drylands<sup>1</sup>.

The majority of this sub-Sahara population (62%) practice rainfed agriculture in the ecological zone (between 500-800 millimetres rainfall). Another 23% of the population depend on animal-based livelihoods, while only 15% depend on urban-based livelihoods.

The sustainability of these livelihoods in drylands is threatened by rapid environmental degradation as a result of over-cultivation, overgrazing, deforestation, impoverishment and insecurity. In addition, over 10 million square kilometres of African Savanna is infested with tsetse fly which transmits the deadly trypanosomiasis disease to domestic animals.

The high cost of rehabilitating the degraded drylands for livestock production is prohibitive. It is estimated that about 36,000 square kilometres of rangelands are degraded every year worldwide, and so far an estimated area of 6.85 million square kilometres is experiencing severe desertification impacts in Africa. At the cost of US \$5,000 per square kilometre, it will cost not less than US \$35 billion to reclaim the degraded drylands for livestock production<sup>1</sup>.

It is against this background that we should seriously examine sustainable wildlife utilization in degraded drylands in sub-Sahara Africa. The wildlife species inhabiting the drylands are indigenous and well-adapted to cope with climate variability and frequent droughts. The tsetse infestation in these areas does not pose a threat to these animals as it does to domestic animals. Furthermore, wildlife utilize more primary production compared to the narrow forage utilization spectrum of domestic animals. The gross financial return from wildlife is not limited to biological productivity since non-consumptive uses are not dependent on animal numbers per se.

Wildlife has co-existed with domestic animals and it is appropriate that the full range of benefits from this resource should be exploited. Game ranching, game farming, sport hunting, ecotourism and the harvesting of wildlife for meat have not been fully exploited as alternative land use options.

In Kenya, ecotourism is an important non-consumptive use of wildlife especially in protected areas and in national parks. In Amboseli National Park, for example, the annual gross financial return from ecotourism yields US \$1,500 per hectare<sup>2</sup>. This is far more profitable than livestock production in these areas, where US \$2 -3 per hectare is estimated. In order to strengthen the pastoral economies which are facing threats from degradation of the natural resource base, the community wildlife utilization schemes in southern Africa may have the answer. In Zimbabwe, for example, the Campfire Wildlife Management System has improved household incomes for participating communities by as much as one third<sup>2</sup>.

A comparative assessment of wildlife and livestock as a multiple use option of rangeland in southern Africa indicates that many ranches are switching from livestock to wildlife. In the south east low veld in Zimbabwe, livestock constitute 68% of the total biomass, while wildlife biomass constitutes 32%. However, the proportion of the financial returns from cattle production accounts for only 36% while that from wildlife utilization accounts for 64% of the total financial returns<sup>2</sup>.

For communities and land owners to realise the full range of economic benefits to be gained from wildlife, national policies must be enacted to promote diversified utilization of wildlife outside protected areas. Furthermore, rural communities who have all along tolerated the negative aspects of living with wildlife must participate effectively in the sharing of benefits from wildlife.


The challenge to ensure that the full range of benefits of wildlife in drylands accrue to the majority of the rural poor and not to elite or well-connected individuals will, in the long term, determine the survival of wildlife within and without protected areas.

85% of the sub-Saharan population of 75 million people depend on livelihoods threatened by environmental degradation.

The East African Wild Life Society fully supports the promotion of community-based wildlife associations to ensure equitable distribution of benefits from a diversified wildlife utilization programme in drylands.

<sup>1</sup>. Desertification: Its causes and consequences. UNCOD. 1977. Pergamon Press.

<sup>2</sup>. Kiss, Agis (Ed.). Living with wildlife. World Bank Technical Paper, No. 130. 1992.

  
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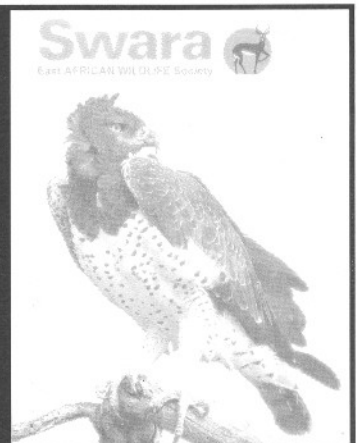
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See Society Highlights on page 14 for an explanation of the new rates.

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	Kshs	US\$	Stg.£	US\$	C\$
Surface	10,000/=	280	190	300	490
Airmail	N/A	320	195	350	555

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Project Focus

### Save the Rhino Fund

Initiated in a spirited attempt to bring the rhino back from the brink of extinction, the fund is primarily for fencing Kenya's rhino sanctuaries.

Other projects have included research, translocations and monitoring.

### The African Elefund

Started in response to declining elephant numbers the Elefund has involved active lobbying, research and elephant census as well as equipping anti-poaching teams.

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# Cheetah Cubs - on their own

Story and photos by Peter Davey



*Left; Three cheetah cubs spitting and hissing in defense at the aggressive approach of a strange male.*

*Cubs separate from their mothers between 17 and 23 months of age.*

**T**HREE THREE YOUNG CHEETAH IN KENYA'S MASAI MARA Game Reserve, suffered a rude awakening on this morning, at the sudden intrusion into their young lives of a large strange male.

The whole of their previous existence (and they are about two years old) had been governed and guided by their ever watchful mother, who taught them, fed them, played with them . . . all for the moment when they would have to survive on their own.

On this day, however, she totally ignored them, even rejected them, behaving in a totally new way . . . calling in a high pitched squeaky whistle, and wandering apparently aimlessly over the plains.

They were not to know that she had come into season again, and was advertising the fact!

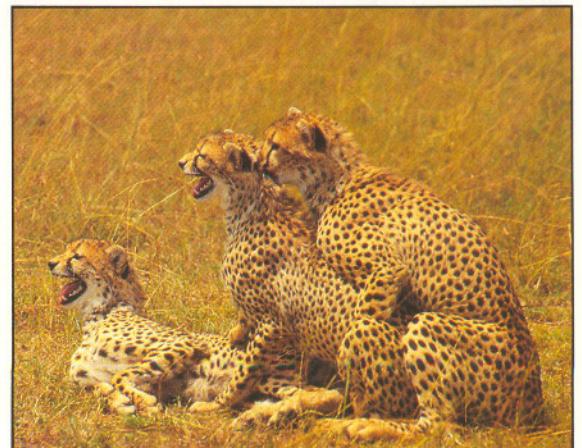
It worked and we witnessed the arrival of a large lone male. We did not see the final outcome of this new union, but did watch, for some six hours, the interaction between the new male (who may well have been their father) and the three youngsters.

Whenever they made any attempt to approach their mother, they were treated to snarling growling rushes from the big male, and as they had never before been treated in this manner, the shock and fright were very evident.

They made no attempt to run (and neither did the male physically strike or bite them) but on each occasion when he ran at them, they rolled over backwards, spitting and calling with terrified high pitched squeaks . . .

24 hours later we found them again . . . no sign of mother and new boyfriend . . . totally on their own . . . for them the real world had started. 🐾

*Below; Still defensive and confused, the cubs don't want to leave the proximity of their mother.*



# Clean up on

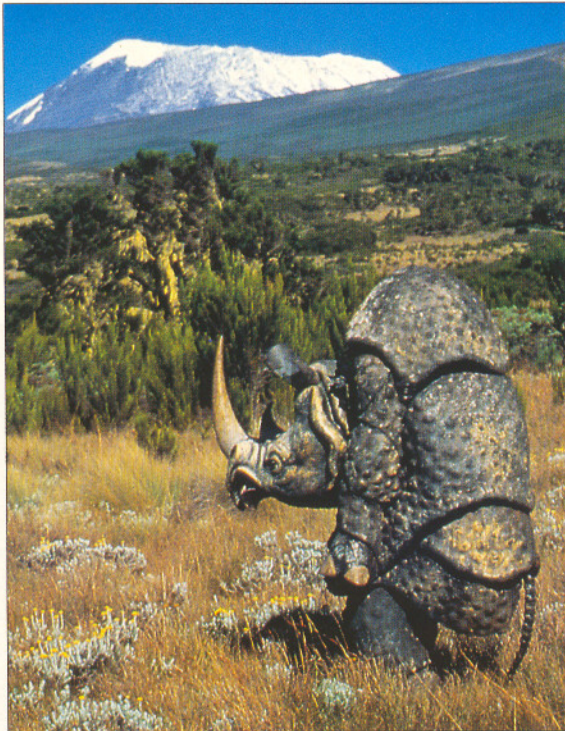


*Above; Top Hut at 15,700 feet. 300 kilogrammes worth of rubbish later it was clean . . .*



*Right; On the Naro Moru Route on the western side of Mount Kenya, volunteers walk towards Mackinder's Camp.*

# A rubber rhino climbs



*Above; At each of the many stops along the walk route, curious people followed the rhino to discover more.*

*Left; The rubber rhino on its way up Mount Kilimanjaro.*

# Mount Kenya

*Story and photos by Nikunj Shah  
and Divyesh Upadhyaya*

**M**AN HAS ALWAYS SEEN mountains as symbols of power and landmarks of strength. They have been used to sell everything from insurance to cold lagers. Climbing to the summit is considered the ultimate challenge and has its own thrill of achievement.

Mount Kenya is the second highest in Africa, standing at 17,058 feet, it is not more than a mile south of the equator. Over the years it has proved to be a popular and demanding climb and attracts several thousand visitors every year. One of its primary attractions is the varied terrain which gives rise to some spectacular scenery and exhilarating climbs. On its lower slopes are dense tropical and bamboo forests which rise up to 10,500 feet. This region has a fair number of wild animals and coming across a herd of buffalo on an early morning trek is no rare occurrence. Between 10,500 and 14,500 feet is the alpine zone. Its curvaceous ridges and gently sloping valleys are characterised by tussock grass, senecia and giant lobelia trees. These areas offer

some of the best views of the main peaks and of the extensive plains beneath. Above this region is the peak area with several permanent glaciers and snow fields. The third highest peak, Point Lenana (16,355 feet) is accessible to any fit walker. The two higher peaks, Batian and Nelion can only be reached by technical climbs.

However, the irresistible appeal of this mountain and the lure of its challenge has had some deteriorating effects on the more popular routes. The natural splendour has been defaced by eager 'I have climbed' visitors who have no care for the environment. Substantial amounts of garbage have accumulated on most of the access routes and in and around the campsites and huts. The problem is a more serious one in the Mount Kenya National Park than in the other national parks - primarily due to the altitude factor. The tougher the climb becomes, the less a climber wishes to carry and there is a common tendency to leave behind all the 'unnecessary weight'. Most of this waste is solid and non-biodegradable and when left on the ground

*continued on following page*

# Kilimanjaro

*Story and photos by  
David Stirling*

Whose  
Wildlife  
is it,  
Anyway?

**I**T MUST BE REMEMBERED THAT national parks and reserves make up a minute percentage of Africa's land mass and it is not surprising that 80% of wild animals in Africa roam outside these areas amongst local people. Rapidly expanding human populations combined with pressures to practice conventional agriculture has meant that rural communities have turned wild habitats into ploughed croplands. This change in land use has severely affected areas around national parks and, in some cases, has led to environmental degradation, social decline, poverty and starvation amongst local communities who live with wildlife on their doorsteps.

For the past 20 years the majority of international conservation efforts to protect endangered species like the rhino, elephant, and more recently the tiger, have neglected to involve the real guardians of wildlife - the local people. Without their support, wildlife has little chance of survival in its natural state.

With all this in mind, Save the Rhino International, one of the UK's leading campaigners, decided to put together a unique fund-raising concept to highlight the people/wildlife conflict in areas of Kenya and Tanzania. The ingredients were eight walkers and a 30 lb, eight foot high rubber rhino costume! The challenge was to walk the rhino from Mombasa at sea level to the top of Mount Kilimanjaro, Africa's highest point. The expedition would last for a month and cover 300 kilometres to the base of the mountain before climbing to 19,340 feet.

The walk passed alongside Tsavo National Park which, at 20,807 square kilometres, is one of Africa's largest national parks. Rural communities who live on the boundary of the park have rarely seen the positive effects of wildlife and thus one of the primary objectives of our expedition was to identify the negative impact wildlife has on its human neighbours and find out why there is a lack of emotional ownership amongst local people in regard to their wildlife.

*continued on page 13*

## Clean up on Mount Kenya

retards the growth of flora in addition to being an eyesore. The garbage situation is currently one of the main problems facing Mount Kenya. Ulf Carlsson, chairman of the Mountain Club of Kenya observes, 'It is such a shame to see all the litter along the paths and around the campsites on the mountain. Let the mountain bring a change in you but you must not change the mountain!'

The problem has necessitated the organization of regular clean-up exercises in order to bring down the accumulated garbage. One such initiative in July 1993 yielded more than half a tonne of litter from the Naro Moru side and around the peak areas.

### 'Let the mountain bring a change in you but you must not change the mountain!'

There are three main tourist routes on the mountain. The Naro Moru and Sirimon routes are to an extent taken care of by Naro Moru River Lodge and Mountain Rock Hotel respectively as they own and manage the huts on these routes. The third, the Chogoria route, has of recent proved to be more popular with visitors. It has, at the lower

heights, arguably some of the best scenery on the mountain. The huts on this route, owned by the Mountain Club, have maximum room for eight people and are not commonly used except for cooking. Most visitors use tents for accommodation and as a result the garbage problem has been accelerated on this route. Another area of concern is the Austrian Hut. It is located among the boulders and scree at 15,700 feet and is used as a base by climbers attempting the higher peaks. The hut is also used as a resting point by trackers attempting the Lenana peak from all three routes and is hence one of the most frequented huts on the mountain. Due to the adverse conditions that exist at this height, climbers often discard most of their litter inside this hut. During a previous clean-up, a substantial proportion of the total litter collected originated from the Austrian Hut.

The Chogoria route, Austrian Hut and the main peak are some of the regions targeted for a clean-up project planned for July 1995. The exercise, supported by the Mountain Club, is projected to last for a period of 12 to 13 days and will be carried out by a similar number of climbers.

Even though such projects are a welcome initiative and do go a long way in helping to keep the mountain clean, are they really a permanent solution to the problem? As per Bongo Woodly, the warden at the Mount Kenya National Park, 'As long as there are visitors to this mountain there will always be the problem of garbage on the mountain and regular clean-ups are the primary solution'.

This is a view shared by many regular climbers. Several attempts have been made, in the form of brochures and sign posts at strategic locations on the mountain, to educate and inform visitors of the situation and to try and ensure that they do not contribute further to it, but most of these have been in vain.

One possible solution is suggested by a well known adventurer, the director of Savage Wilderness Safaris, Mark Savage. His proposal draws a parallel with what is currently being done on the Himalayan ranges. Here all visitors are required to pay an 'environmental deposit' to ensure that they return with what they take up. On Mount Kenya this could be in the form of a garbage bag to be purchased at the park gate by all visitors. The purchase price would be refundable on exit upon production of the bag filled with litter from the items the visitor took up. Even if the tourist were to consider it not worth the effort to bring back this litter, his guide or porter would certainly do so as this would be additional income to him. It is a solution that tackles the problem right at its root and should be given consideration at least on a test basis to judge its viability.

Clean-up projects would not be the final, but just part of the continuous effort required. The primary aim should be to create an awareness of the problem to the visitors who hold the prime responsibility to keep the mountain clean.

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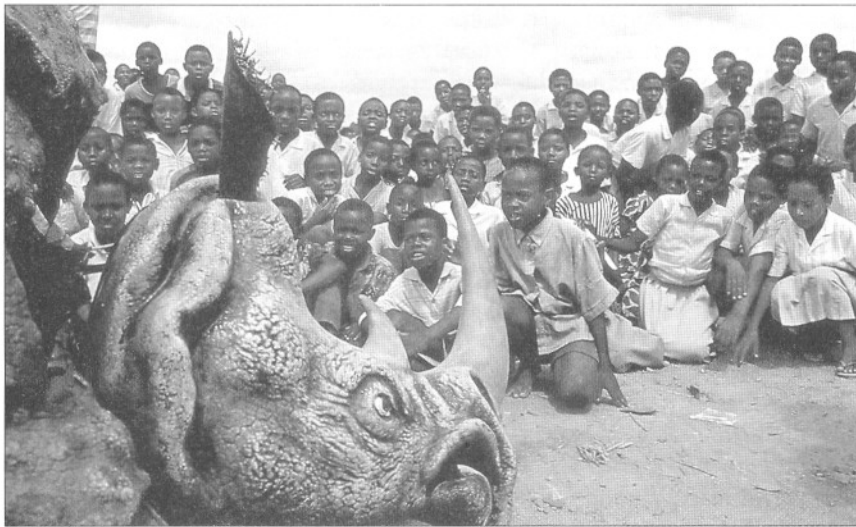


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## A rubber rhino, Kilimanjaro & local schools

The highlight of this strange walking entourage was the rhino costume and even though people kept a safe distance, the crowds that gathered behind us to join the walk were proof that we had captured their interest. Up and down the road people talked excitedly about the two-legged rhino and although we would never underestimate the effectiveness of bush telegraph, the Wildlife Clubs of Kenya (Mombasa branch) must take a lot of the credit as they worked tirelessly all along the route promoting the rhino climb.

At Voi it seemed that the whole town came out to welcome us and Michael Werikhe, who was walking with us that day, was heard to comment that not since the railway was opened through Voi town had a crowd this big got together.



**'Half expecting to come up against disgruntled farmers and uninterested villagers, we were pleasantly surprised and filled with hope by the sheer resilience of these communities whom, over the years, have learned to adapt to the current situation. Wild animals, particularly buffalo and elephant, are destroying their crops yet there is still a healthy respect for these offenders'**

*Above; School children surround the rhino costume as the walk and its conservation message is explained.*

Over the next few days we spent a lot of time visiting primary schools which were situated in wildlife problem areas around Voi. The arrival of the rhino at these schools caused great consternation amongst the children and their parents. The

welcomes we received were unforgettable. Quite apart from undertaking this enormous physical challenge, a large proportion of our work was to highlight a more practical conservation message which will regard the rights of those who have to live with wild animals.

Education has a large part to play in this practical conservation approach. Key primary schools along the walk route were chosen to benefit from the expedition and all these schools are situated where wildlife and, in particular, elephant and buffalo have become increasing pests. Further interviews and discussions with children and their parents revealed just how little they knew about the wildlife. Further conservation education amongst schools must be backed up by regular visits to the park for both children and parents.

Our walk through Tsavo West towards the border town of Taveta was a lonely one and with the school children left far behind we turned our concentration to the mountain ahead. Mount Kilimanjaro has to be one of the most awe-inspiring sights you can see in Africa with its snow-capped summit rising out of the blanket of cloud that envelops it. The short rains arrived late and although we wished them on for the sake of the farmers, for our own sakes we hoped that they might stay away for another week. As it turned out the sun shone almost every day of the ascent and in the afternoon of the sixth day we all successfully reached Uhuru peak at 19,340 feet.

The rhino climb touched the hearts and imaginations of a broad cross section of people in Kenya last year and I hope that we can capitalise on this, encouraging other NGOs and ourselves to work more closely with rural communities when it comes to practical wildlife issues.

Since the climb I have returned to Kenya with £75,000 (funds raised to date) to start the building work at the five primary schools. Michael Werikhe offered his help and the following day (!) he had a *fundhi* (workman) prepared to work on all the schools. Marvelling at the speed and efficiency of these two men, I drove the walk route and visited all five schools with the news that the climb had been successfully completed and work was to begin in late February. With the help of people from the local communities, in quarrying and carrying stones, by June new classrooms were completed at two of the schools and three more were finished by the end of the month. In one location there had been no rain and so there was no water (needed for the floors), the closest source was three kilometres away and a lorry was needed for transportation. Such unforeseen factors caused some delay and point to the great need within some rural communities for basic infrastructure and attendant education and health care. It is now these concerns that hold the key to the survival of wildlife and its areas and it is these concerns that need support, not just from international communities but from Africa's own, resource-full, urban communities. #

# SOCIETY *highlights*

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If you cannot renew in advance, please renew upon receipt of the first reminder, we will save 60% of the account.

Please act now to avoid a second reminder. You can also use the membership application form in *Swara* to renew.

## Ugandan Branch Officials

**New officials for the Society's Ugandan Branch** have been elected and are as follows:

Chairperson - Dr Mary Okwakol  
Treasurer - Mr Andrew Cavell  
Vice Treasurer - Mr Alex Muhwezi  
Committee - Mr Robert Law  
- Mr Jimmy Kiberu  
- Mr Ray Victorine

## New Representatives

**The Society would like to welcome two new representatives** to our worldwide list. Dr James Dinsmore, Director of Sinai Wildlife Projects, has joined us from Egypt and Mr Robby Bolleyn has joined us from Belgium.

## Swara Transport

### DHL and Ethiopian Airlines

We would like to take this opportunity to extend our sincere appreciation to DHL and Ethiopian Airlines for transporting *Swara* free of charge to our members in Uganda and Ethiopia over the past year. This support has enabled the Society to redirect some of the funds saved for use in wildlife conservation projects.

## Can You Help Us?

**The East African Wild Life Society is looking for contacts** through which to sell the following products around the world:

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## LETTER FROM THE DIRECTOR

### New Membership Rates

The East African Wild Life Society marks its 40<sup>th</sup> year of conservation in 1996.

The Society is very grateful for all your support over the years as members and contributors to our projects. We hope that you will all continue your subscriptions for membership.

Since 1992 we have seen the Kenya shilling fluctuate inconsistently and dramatically against the major hard currencies. Between February 1993 and June 1993, within a quarter of the year, the Kenya shilling had depreciated by 128% against the dollar! The immediate response was a dramatic increase in the country's inflation rate and cost of services. Between 1992 and 1994, the cost of servicing our members went up by more than 200% on account of price increases of paper and postage of *Swara* magazine.

At the beginning of this year the Kenya shilling showed signs of recovery by strengthening against the major world currencies. And although the inflation rate has come down to a single digit figure, the costs of servicing our members has not improved.

On the other hand, strengthening of the Kenya shilling has brought new problems. As you may know, a big proportion of our supporters are from overseas; paying in hard currency. Consequently, the strengthening of the Kenya shilling also had a negative impact by reducing the Society's revenue by 40%, thus affecting not only the cost of services we offer to our members but also reducing the amount of funds available for wildlife conservation projects.

It is for this reason that membership subscription rates (which have actually not been reviewed for over two years) were adjusted upwards at a meeting of the Council on 6<sup>th</sup> June 1995.

I am pleased, however, to inform our members that despite the increase, the new rates are much within the range of other similar organizations. We hope you will continue to stay with the Society and support our work as we continue to play a leading role in influencing policy as well as giving financial aid to the many projects submitted to us every year. Your continued membership is the backbone to continued action of the conservation efforts in East Africa.

Yours faithfully,

Nehemiah K. Rotich.  
Chief Executive



# LETTERS

---

## Can Kenya Help Tanzania Over Hunting?

Fiona Alexander.  
Sable Valley Wildlife  
Sanctuary,  
P.O. Box 890,  
Ukunda,  
Kenya.

My old friend IJPL writes in his usual perceptive and aesthetic fashion of the Sheikhs hunting in Loliondo (by the way I presume we are discussing Loliondo, I do not know of a Loilondo in northern Tanzania!). (*Swara* March/April 1995. Vol.18 No.2)

Reading the article took me back to 1987, when in March and April we in Kenya faced an identical farce. The Arabs were hunting just over the northern boundary of the Masai Mara. I have the file before me as I write now, every single press cutting, telex and photograph.

IJPL writes that the Tanzanian outcry is running out of steam because 'it is just the usual course of events: people are so used to corruption and to devastation, are so accustomed to the brazenness and hypocrisy of politicians and civil servants that they give up, do not persevere.'

Here in Kenya we did not allow that to happen: spearheaded by the EAWLS, and *The Weekly Review*, there was a relentless bombardment of letters to the press by the private sector, daily press leaders, and eventually the international magazine *Newsweek* published an item. The turning point was reached when Members of Parliament made daily, vociferous issue of the scandal, refusing to accept the Minister's explanation that it was all in the interests of 'culling'. Eventually, the Arabs were quietly got out of the country. No questions were ever publicly answered, no credible explanations offered, no personalities identified, but there were personnel changes in ministerial and wildlife circles.

IJPL conjectures that the local communities are probably deriving no benefit from the exercise. I beg to differ - they are probably eating more meat than they've ever enjoyed before, there will be handouts being flung in every direction, business in the *duka* (shop), some jobs, and at the end of the

'long term' - ten years is mentioned, there could be left a little school and a dispensary bearing that well-known green symbol. And to boot, no more devastation of the shambas, no more being chased by buffalo on the way to the spring. Those are immediate, tangible and visible benefits. I doubt that the local population will bother to quantify what might have been their gain had the area been managed as a controlled hunting block in the acceptable manner.

Of course, long ere the ten years - or even two years - is up, there will be no game left in the Loliondo area, and the august hunters will be given permission to move elsewhere. So it is important to help those Tanzanians who care to win this struggle.

IJPL indicates that one of the prime reasons for the present scandal in Loliondo is probably that 'there is not one competent authority to oversee conservation and hunting as part of conservation'. In 1987 in Kenya, all our wildlife eggs lay in one basket, the WCMD - so that is not the easy answer.

There is no easy answer. There is an easy reason: Greed and Corruption. And it seems there is little or nothing that can be done to eradicate it, all that is left is to continue to battle it, and possibly win a delaying action. In other countries of the world venality is possibly less obvious, is more subtly camouflaged. Here in East Africa, the pawns of iniquity are our wildlife and forests, items of such emotive aesthetic poignancy and power that we are outraged, inflamed and tortured.

I would like to urge that the Society once again takes up the cudgels, on behalf this time of our Tanzanian friends and their nation's wildlife, and that IJPL's article is seen as the opening salvo of a persistent offensive, until the Arabs are once again sent packing.

## Solio Ranch Replies To Eland Menace

D.H.F. Bristow.  
General Manager,  
Solio Ranch,  
P.O. Box 2,  
Naro Moru,  
Kenya.

I would like to comment on James K. Wambugu's letter in your March/April 1995 edition. This letter blames Solio Ranch for game damage caused to crops by eland.

This problem, which is not unique to this area, must be looked at in its proper context.

Private land owners make a decision as to whether or not they keep game. It would be very easy to decide to wipe out the game and solve any problems in doing so.

Any ranch which carries game has large game related costs: cattle have to be sprayed more often against tick borne diseases - the single biggest direct cost - tick populations are maintained by the game; loss of grazing which could otherwise be utilised by

keeping more cattle; continuous maintenance of fences which are constantly damaged by the game, and security costs to prevent what is after all a national asset being poached out of existence!

Once animals leave our boundaries they are no longer our responsibility and game damage issues should be addressed to the KWS.

Finally the return from this game to the farmer is minimal under present legislation.

I do not believe that the few eland that leave Solio are responsible for the total failure of a maize crop. This is after all a marginal rainfall area.

What is Mr Wambugu's conservation philosophy?

I HAD NEVER BEFORE VISITED the Usambara Mountains of north eastern Tanzania but had often heard about them and their interesting ecology, characterised by a high number of endemic species of birds, plants and insects. Although the western Usambaras are heavily populated and cultivated, the eastern end still has significant stands of forest interspersed with a few tea plantations.

The opportunity arose to visit the eastern Usambaras at the beginning of May when passing through Tanzania in the company of a couple of bird enthusiasts. The most accessible place in this region is Amani, 35 kilometres off the Tanga - Moshi road and only about 50 kilometres from Tanga. The roads are mostly in first class condition and it is only for the last 10 kilometres or so that one needs a four-wheel drive vehicle to negotiate the tight hairpin bends - the forest is mostly in a wet condition due to the high coastal rainfall.

Research at Amani was started in 1902 by the German colonists when they also set aside a large portion of the surrounding area as a botanical garden. Reputedly the second largest in the world, the gardens still exist in a rambling and overgrown form with faded and mostly unreadable tags nailed to a selection of trees. The World Conservation Union (IUCN) is continuing agro-forestry research in the region and there is also an important medical research centre located in Amani which runs a comfortable rest house in a postwar colonial type building complete with fireplace and library.

Amani has a safe and friendly feel about it and as many of the birds are forest fringe species, 'birding' around the village is quite rewarding.

The main interest for us however lay in the forest. We took a path that led straight into the forest from the back of the IUCN compound. I remember being struck immediately by the wealth of life everywhere. The ground is moist and damp with a thick humus layer of leaves and sticks covering everything. Poking around in this and disturbing it exposed all kinds of insect life with grubs and beetles and centipedes scurrying and wriggling in all directions.

Ferns grow everywhere and are of all different shapes and sizes, some small and delicate with fronds just a few inches long and others big and bold 30 feet high with fronds 8 feet long, while still others are quite aloe-like in appearance. Orchids cling to massive tree trunks and drip off overhanging limbs. It all requires a great deal of 'oohing' and 'aahing', a botanist's paradise.

As we walked along butterflies flew by us from all directions, we had several sightings of blue monkeys and the forest canopy was alive with the songs of birds. Bird watching here is a sure way to

give yourself a neck ache as nearly everything goes on in the canopy high above your head. Craning back your head and trying to bring your binoculars to bear is a continuous strain. As we carried on, struggling to identify some unfamiliar birds, we saw some of the more common bulbuls, starlings and mousebirds. We also saw Tropical Boubou, Brown-hooded Kingfisher, Silvery-cheeked Hornbill and Collared Sunbird. In addition we did get excited over a couple of specials such as the Green-headed Oriole and the Banded Green Sunbird. We were disappointed not to see the Amani Sunbird and to leave one or two birds unidentified.

At one point we came out onto farmland freshly cleared, with planting just beginning, which really impressed upon us the need to conserve wonderful habitats such as these. We returned and took another trail heading up the hillside, quite steeply at times. In places we waded through a mass of waist high ferns, climbed over huge moss covered logs with multi-coloured fungi attached and scrambled up slippery slopes with the aid of dangling lianas as thick as your arm. It all contributed towards a challenging walk which was a lot of fun.

We eventually came to the top of the hill which, thankfully, was fairly open and exposed so that we could see out over the surrounding mountains and forests. A thickset falcon exploded out of a cedar tree which we decided was a Peregrine, and a pair of Verreaux Eagles circled nearby which attracted the attention of an Augur Buzzard who rose to harass them.

After sitting at the top admiring the view for a while we headed back down and arrived at Amani about three and a half hours after setting out. The whole morning had been a thoroughly interesting and challenging experience and is something that I highly recommend to anyone who has a few days to spare. Perhaps the only improvement would have been to have a knowledgeable guide along to identify some of the more interesting bird and plant species. I suggested this to a Finnish advisor at the IUCN mission and he informed us that he hoped this service would be available by the end of the year.

These forests of the Usambaras need our support to help combat the encroaching cultivation which the local authorities are struggling to deal with. One way we can do this is simply to visit them and show an interest which is heartening for those involved. Make the effort and go there - you won't be disappointed.

'Orchids  
cling to  
massive  
tree trunks

*Right; Craning our necks back so that we could see all the life going on in the overhead canopy.*

*Centre; One of the many butterflies in the Usambara Mountains.*

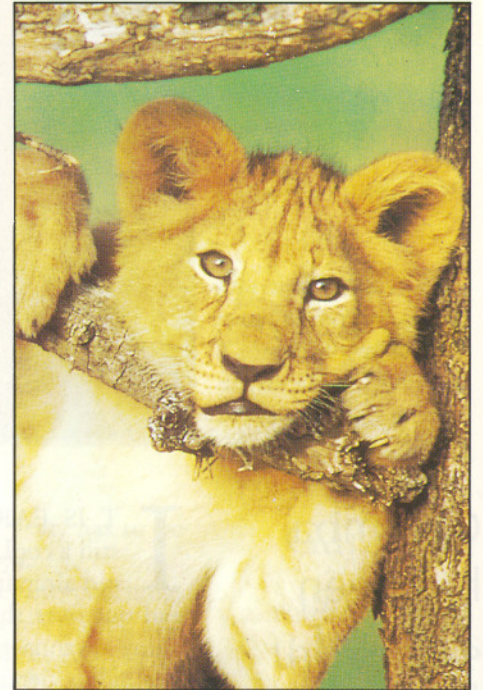
*Bottom; Scene within the depths of the forest.*



and drip off overhanging limbs'



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# Garamba National Park

Story and photos by Kes Hillman Smith



Garamba has been a World Heritage Site since 1981.

IT IS EARLY MORNING. THERE IS still a cool, damp tang in the air. The little old aircraft roars into life. We take off and head out over the seemingly endless expanses of rolling savanna grasslands, rivers, and clumps of trees hiding perennial freshwater springs. Groups of elephants and buffalos scatter the landscape. It never ceases to give me a thrill, even after ten years. It is never quite the same. The grass grows, matures, burns and sprouts again. The mosaic patterns of long old grass and fresher green patches change. It is wild, free and unpopulated.

When I first came to the 4,900 kilometre square Garamba National Park in 1980, with the venerable Major Ian Grimwood and his equally venerable Land Rover, it had the appearance of past sophistication and current deterioration. Although it did

not show on the surface, the poaching was rife. In 1976 an aerial count made by the FAO gave estimates of  $490 \pm 270$  rhinos and  $22,670 \pm 11,790$  elephants.<sup>1</sup> By 1984 there were only 15 rhinos, and the elephant numbers dropped as low as 4,500.<sup>2</sup>

But the rhinos are unique. They are the last known wild population of the northern white rhinoceros (*Ceratotherium simum cottoni*), a different sub-species from the white rhinos found south of the Zambezi river (*C. s. simum*). Their populations once ranged from West Nile Province of Uganda, through Southern Sudan and the northern edge of Zaire to the Central African Republic and Chad. They are adapted to the high rainfall, lightly bushed, seasonally long grass savannas of this sudano-guinean savanna belt. Even in 1980, hundreds remained in Sudan. Now there is only a slight possibility that a few may still exist in Southern National Park or elsewhere in Sudan. In captivity there are five in the Czech Republic and four in the USA, down from 12 captive in 1983. Garamba has the only confirmed and conserved wild group.

Our visit in 1980 was part of a survey of rhinos throughout Africa. The rhinos were not only unique, but they represented rich ecosystems and wild and wonderful parts of Africa that were apparently almost forgotten by the international conservation organisations. The conservation of northern white rhinos was given highest priority by the IUCN African Rhino Group.

Garamba has a long established infrastructure, with a staff of some 250 people, though at that time they had received no salaries for six months. There

<sup>1</sup> Savidge, J.M. Woodford M.H. and Croze H. (1976) Report on a mission to Zaire, FAO W/K1593 KEN/71/526 - ZAI/70/001

<sup>2</sup> Hillman Smith K. (1989a) Ecosystem Resource Inventory, Garamba National Park. Internal document. IUCN/WWF/FZS/IUCN.





Left; Buffalo crossing one of the many water courses in the park. An example of Valley Grassland habitat bordered by Edge Savanna Grassland with *Kegelia africana* trees.

Opposite top; Guards on patrol in the early morning.

Credit: Fraser Smith

Opposite bottom; A small mixed group of *Kobus kob* with an approaching rainstorm in the early wet season.

were no vehicles, fuel, equipment, uniforms or rations, and hence no patrolling except to go and shoot your own meat. Poaching was, as could be expected, widespread. So, despite recommendations that the rhinos should be taken into captivity for their safety, it was decided that a project would be funded to rehabilitate this national park and conserve its unique ecosystem. It proved to be the right decision. That project started in March 1984 in cooperation with the Institut Zaïrois pour la Conservation de la Nature (IZCN), the government agency for conservation of protected areas in Zaire. It was funded mainly by WWF, Frankfurt Zoological Society (FZS) and UNESCO, with IUCN as coordinator.

But how do you go about re-building a whole national park from rock bottom, in almost the exact centre of Africa? An immense amount of motivation, effort, patience, tolerance, and the ability to laugh at crazy situations has to go into the practical logistics of anti-poaching, supplies, development, maintenance, information collection, strategy development, monitoring and it all needs the continual support of fund-raising. Everything seems to take several times as long to achieve as it might elsewhere.

The roads are challenging. What was once planned as the great trans-African Route Royale runs past Garamba, but these days it is a series of pot-holes and broken bridges. Along some of the roads in Zaire are pot-holes so deep that a lorry and container driving in may just disappear below the edges of the road. At times there are hold-ups of several weeks while a backlog of trucks take turns at pulling and digging each other through these holes. There are no telephones or public transport and, near Garamba, no shops. All vehicle and

aircraft fuel, 250 drums of it per year, has to be trucked in from Mombasa in Kenya.

Vehicles are essential for the anti-poaching, logistical support, infrastructure development, and for the monitoring and research of the ecosystem. Over time they have been purchased, shipped and driven up. But all spare parts have to be brought in by air or road. Uniforms, boots, tents and equipment for 250 people have to be regularly purchased, transported and issued. The coarse grass wears them away very rapidly. Ten tonnes of rice in husk and four tonnes of beans, plus palm oil and salt have to be bought each year and transported over the local roads, stored and then de-husked in order to maintain the patrolling strategy. The rice, bought from a local market, is painstakingly measured by the cupful or plastic washing-up bowlful. Communication is by radio, mail by the amazing flight network, using Cessna 206s, that the missionaries have developed to serve their widespread missions. The missions and their associated dispensaries, hospitals and schools are one of the few things that continue to work in the currently depressed economy of Zaire; . . . the missions, and Garamba.

There were riots in Zaire in 1991, and evacuations of major government cooperation projects, but Haut Zaire has been relatively calm. WWF maintained its commitment and now supports most of the running of the entire park. The rhino population doubled in eight years from 1983. The elephants (*Loxodonta africana*), which are an intergrade between savanna and forest forms, had increased to  $8,883 \pm 3,109$  in 1993 and the buffalos (*Synceros caffer brachyceros*), which are a mix of the black Cape buffalo type and the red, short-horned forest types, numbered  $31,163 \pm 15,458$ .<sup>3</sup> Garamba

continued on page 21

**Garamba is one of the oldest national parks in Africa, created in 1938.**



## The northern white rhinos and their survival

*Top left; Two sub-adult female northern white rhinos.*

Credit: Fraser Smith.

*Top right; Part of a group of 600 elephants photographed from the air during the 1993 count.*



Rhino monitoring is based on individual recognition. Each animal is identified by means of horn shapes and ear and tail marks, coupled with age and sex. Nose wrinkles are used at close quarters. Individuals differ considerably in behaviour, temperament and parameters such as reproductive rates.

As the population grew and the ranges, particularly of sub-adults, expanded, we found it was necessary to attach radio collars to aid the monitoring and protection. This enabled us, among other things to ear mark sub-adults who are otherwise difficult to identify once they have left their mothers. It has also helped us to discover an extended family system among the rhinos, whereby the offspring of any one female have loose ties to her own group with her latest calf and all linked groups may make long distance synchronous movements when the female does. The rhino monitoring is a vital part of their protection, as the main form of surveillance in the rhino area, and a check on population dynamics.

The rhinos increased initially at a growth

rate of 9.7% per annum. They compensate for being at low density (0.03/km<sup>2</sup> within their range) by having larger home ranges than those recorded for white rhinos anywhere else in Africa (255 km<sup>2</sup> on average). In this way we have found all fully adult males contributing to the breeding. The finding has also refuted the fear expressed when rhino poaching was at its height in East Africa, that rhinos being such sedentary, range-orientated creatures would have trouble finding mates and therefore cease breeding when reduced to very low numbers.

Might so small a population suffer from inbreeding depression in the future? This question has arisen, though the healthy rate of increase of southern white rhinos after reduction to similar numbers is an encouraging example. To investigate the genetic variability and the paternal contribution we took a series of small skin samples from the rhinos using the remote biopsy dart techniques developed by Dr William Karesh<sup>7</sup>. These are being analysed in a cooperative project with the Department of Molecular Biology at the National Museums of Kenya.

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and surrounding reserves are also the last refuge for giraffes in Zaire, (*Giraffa camelopardalis congoensis*) (346 ± 413). There are Roan antelope, and in total 138 species of mammals.

These numerous mammals include 38 species of bats, according to Verschuren, who studied them in the 1950s. In practical terms this can have its disadvantages, however. While the different species live in different habitat niches, several of them inhabit buildings, in their thousands. Bat guano is very corrosive and the smell is over-powering. Bat proofing a building is a major exercise, that they will manage to circumvent after a while. When we first came the secretary/accountant of the park used to sit at his desk in the main building, with a large colourful umbrella over him and his papers. Now we struggle to protect new-fangled computers from old-fashioned bats!

The picturesque, undulating long grass savannas grow at an enormous rate, and during the late wet season completely engulf people, vehicles and animals to all but the tops of elephants heads. Dominated by *Loudetia arundinacea* and six *Hypparhenia* species, with a scattering of *Urelytrum giganteum*, which is as its name suggests, the grass grows 2-3 metres tall. Roads have been made as strategically necessary throughout the park and over 600 kilometres have to be kept open each year, by three passes each of tractor and mower. Mowers need to be of very heavy duty and require frequent repair. River crossings have been built, both to get into the park across the Dungu River, and to cross some of the perennially flowing rivers that dissect the grasslands.

Aircraft are vital for logistics, anti-poaching and monitoring. FZS continues to maintain a Cessna 206 for the project and a private Piper PA12 does the rhino monitoring and some of the anti-poaching reconnaissance. They also have to be maintained, far from support.

At present the economic state of Zaire is such that even salaries and medical support for the guards cannot be provided nationally. It is all having to be found from international funds, largely at the moment from the International Rhino Foundation. The average monthly wage of the guards throughout the period 1984-1993 has been US \$4, though this is increased by bonuses for results. Through all difficult times, however, the guards have remained loyal to conservation. Ultimately it all depends on people. Medical care means a lot in motivating them, and as well as buying medicines, we sometimes find ourselves flying urgent cases to hospital or delivering babies!

But it is all well worth the effort. This beautiful, faunally rich and historically important expanse of Africa has been rescued from near disaster to its

wildlife populations. The southern section of the park has one of the highest elephant densities in Africa (3.85/km<sup>2</sup>). In the early wet season they still form huge, spectacular aggregations of several hundred elephants. As a flagship species the rhinos in situ conservation as part of an ecosystem has also benefitted all the other animal and plant species, the National Park and the IZCN.

The practical side of conservation and anti-poaching is Fraser's responsibility, and has been those of other colleagues who have run the project. I had to find out how many rhinos still remained alive at the beginning of the project, and was tasked by the Director of the Wildlife Department to establish and maintain ecological and rhino monitoring and guide research projects within established priorities. Some of this early work was supported by the Kenya Rhino Action Group, the Fauna and Flora Preservation Society and the Wildlife Conservation Fund. Later the monitoring and research was supported by WWF with contributions also from US Fish and Wildlife Service and Save the Rhino International.

Systematic aerial sample counts provide regular information on the status of the main mammals, the distribution and condition of vegetation types, and distribution and quantity of human land use and poaching. Species specific counts have been made, for example flying along all the twists and turns of the rivers, counting hippos and working out how many might have been underwater at the time. Detailed information is collected standardly at ground level on vegetation, the effects of fires, large mammals, birds and the climate. Poaching and anti-poaching is monitored through recordings made by the patrols themselves.

The southern half of the park is a sweeping expanse of undulating long grass savanna cut by numerous watercourses all with flowing water throughout the year. They drain into the Garamba, Aka and Dungu rivers that form the central division and western and southern boundaries respectively. Relict gallery forest lines some of the tributaries and clusters around the eternal springs. Towards the peripheries and the north are increasing densities of bush, dominated by *Piliostigma thoningii* and *Combretum collinum*, *Grewia mollis*, *Terminalia*, *Albizia* and *Crossopteryx febrifuga* in differing proportions depending on whether it is in the process of encroaching or retreating. Further north this becomes woodland and the ground rises with rocky hills to the Zaire/Nile watershed.

Sudan forms the northern boundary of the park, while to the east, west and south it is surrounded by three Hunting Reserves, totalling 7,527 kilometres square. The chronic civil war in Sudan has long been a source of arms and poaching and while the project and IZCN together succeeded in

**'The rhinos have proved that they can increase at a rate equal to that recorded for southern white rhinos, given protection'**

<sup>3</sup> Smith K., F. Smith, Mbayma A., Monungu L., J. Watkin, E. de Merode, Amube N., Eza K. (1993) Garamba National Park, General Aerial Count, May 1993. Report to IZCN, WWF, FZS, IUCN, UNESCO.

reducing the bulk of this, minor meat poaching, largely of buffalo continued in the north, and probably continued to have a certain compressing effect on the elephants. The south has been virtually free of poaching and is the refuge for the rhinos and the majority of the elephants. The effect of the elephants combined with regular hot fires fuelled by the high grass biomass has long maintained the south of the park as a grassland, with only sparse tree cover. Our transects have shown widespread woody regrowth from old rootstocks each year throughout the grassland, but research has also shown how the elephants select them. The reserves are more densely wooded than the park, with a mosaic of medium to dense tree-bush savanna,

## 'Immigrant gold miners and, since 1991, an estimated 50,000 Sudanese refugees have increased the poaching pressure'

woodland, gallery forest and open bushed grassland. As the elephant population has increased it has demonstrated marked movements into the reserves at night to use the woody vegetation, especially in the dry season.<sup>4</sup> Associated with this is a certain

amount of crop raiding, which, although limited in extent, is viewed as important by those who suffer from it.

The reserves are a complex mix of habitats needed for full support of some wildlife species, of some human-wildlife conflicts, of natural resources that the local population have the right to use and of those that they use illegally. The people who live in and around the reserves are also the main source of poaching. Subsistence offtake by the local people is tolerable to the system, but the immigrant gold miners and, since 1991, an influx of what has been estimated at as many as 50,000 Sudanese refugees to the area has increased the poaching pressure. Although these people are beyond the reserve boundaries and most are settled as farmers, there are inevitable links to the Sudanese civil war with arms availability and demands from there for meat. There has long been a need for development of the project to involve the human communities in the conservation, both through managing the reserves to enable them to benefit from the controlled use of natural resources and the presence of the park, and through tackling the causes of the poaching problem at source in cooperation with the people. This was curtailed by financial sanctions on Zaire after 1991, but the need is all the more pressing now to support the necessary fortress approach to anti-poaching within the park.

When poaching tactics changed to a more aggressive approach in 1994, cooperative action with the local army was necessary and successful in combatting the effect. Although their direct action is no longer necessary, excellent relations are maintained and they support the IZCN forces with training and back-up as necessary.

But while the challenges increased, due to national economics and poaching in the north, financial support was forced to decrease due to the world recession and loss of donor partners.

Tourism has not so far been a major financial support, partly because one of the beauties of the place, its remote wildness, also means that it is not the easiest place to visit. But the potential is tremendous, as Garamba is also home to the unique Elephant Domestication Centre of Africa. Begun in 1901 at the command of King Leopold of the Belgians, the story of this little known but major undertaking is amazing.<sup>5,6</sup> At times 50 or more elephants were working in transport, agriculture and forestry. Three adult domestic elephants still exist. To operate fully the Centre needs to be the subject of a project in itself, but the existing Garamba Project has demonstrated that it is very feasible to capture and domesticate young elephants using modern methods. While not without its controversy, it is believed that the value of a few domesticated elephants to the conservation of their kin and the rest of the park is worth it. In other areas the same argument is applied to culling and sale of products. To ride an elephant through these wide savannas and to approach close to wild elephants and the last northern white rhinos, is an experience of a lifetime. Immortalised recently in one of Alan Roots' films, this attraction may increase. Already safari operators from Kenya and South Africa have begun bringing specialised groups to Garamba.

The long term support of conservation organisations, particularly WWF to Garamba has been and is wonderful, but the annual budget for the whole park is low compared with other areas and is currently lower than it was in the past, at a time when it is needed more. There is a need to move forward and outward with a more comprehensive approach to the management and monitoring needs, in order to achieve adequate long term conservation of this unique park and the last wild northern white rhinos, northern savanna giraffe and major elephant populations. Long term solutions and partner supporters are being sought, to maintain the value of the investment that has been made in the conservation of this challenging but wonderful National Park and its unique fauna. Garamba has been a real success story. We hope it can continue to be. ❧

<sup>4</sup> Hillman Smith A.K.K., E.de Merode, A.Nicholas, B.Buls, N.Ndey, (1995) Factors affecting elephant distribution and conservation at Garamba National Park and surrounding reserves. *Pachyderm*, in press.

<sup>5</sup> Hillman Smith Kes (1992) The elephant domestication Centre of Africa. 152-154, In *Elephants*, Ed: J.Shoshani, Publ. Weldon Owen/Simon & Schuster.

<sup>6</sup> Watson R. The domestic elephants of Garamba National Park. *Swara*.

<sup>7</sup> Karesh W.B., F.Smith & H.Frazier-Taylor (1987) A remote method for obtaining skin biopsy samples, *Conservation Biology* 1.(3) 261-262.



# Film reviews

**The Impossible Elephants**  
**River of Fire and Ice**  
By Alan Root

THE TWO LATEST FILMS TO BE SPUN from the web of Alan Root and Bruce Davidson were previewed at the National Museum of Kenya in May, to the great appreciation of Nairobi's residents who flocked to watch them. We were not disappointed as each revealed a fascinating story, superbly narrated by Brian Cox.

The first film, *The Impossible Elephants*, is set in Garamba, a large national park in north eastern Zaire. This is the only known place in the world where there is a wild population of the northern white rhino (See pages 18-21 of this *Swara* issue) and the only place in Africa (except recently Botswana) where one can ride on an elephant! The idea of domesticating elephants was introduced from India in 1879 with the ambitious march of Indian elephants to Africa. Unfortunately, those that survived the journey itself died within eighteen months anyway. In 1900 the first training of African elephants in Zaire began with the aid of experienced mahouts. Alan Root has made liberal use of black and white footage from this time to show the capture and training of young wild elephants at Gangala, just south of Garamba's park boundary. This gives the viewer a full account of the story of the domestic elephants and Garamba National Park. The quality of the original film is good and emphasizes the contrast between then, when the elephants worked hard but led active and varied lives, and the recent past, when they were not utilized and their numbers were allowed to dwindle to only three.

The film has come just as the park is beginning to promote the elephants for tourism and re-invest in them fully. Today the remaining elephants take visitors through the park for an unnerving close encounter with its wildlife. On elephant back one can see over the tall grasses of Garamba and even reach within one foot of other animals to watch them behave naturally, not under the stressful circumstances induced by vehicles.

Views of the still large wild elephant herds in the park and of the Gangala elephants marching in a line across the horizon of a sunset are images that tell of a very special place where a few members of one species can help conserve the rest.

Overall, *The Impossible Elephants*, is about the history of the park and the role it can play in the future and as such is rather different from the second of the new films.

*River of Fire and Ice* is spectacular for both its consistently startling photography and the almost mystical way in which the ecosystem of the Virunga



National Park is gradually revealed. Virunga National Park was originally called Albert National Park and was the first national park actually gazetted in Africa. Sweeping aerial shots reveal the vastness of the Ituri Forest and Lake Edward; they take in the rugged peaks of the majestic and remote Virunga range and the moving masses of lava that continue to spill sporadically from these mountains. We are led across 100 miles from the southern Rwenzori Mountains to the home of the mountain gorillas in Virunga. Altogether work on the film was spread over seven years and it is clear why from the patience needed to capture some of the scenes; an inquisitive group of gorillas playing together, gently poking a chameleon, a silverback beating his chest to warn a neighbouring dominant male to stay away; a hungry civet cat attempting to eat a reluctant cobra. Other tension-filled scenes reveal a dark secret of the Virungas; on their hillsides there are some hollows where carbon dioxide is released from the volcanic activities below ground. Before the sun and wind can disperse the noxious blanket that forms each day, any creature that enters the area, tempted by the lush grass (mostly ungrazed) and unfortunate carcasses, can be dead within seconds. A monitor lizard's attempts to escape the pit of vapours and his close brush with death keeps the viewer in horrible suspense and wonder at the instinct (or the reasoning power) that enables him to survive.

Once again Alan Root has given us an insight into fascinating yet little known areas of the world we live in, and he has achieved it in his inimitable style that informs, impresses and above all, entertains.

By Louisa Lockwood

*Above; Visitors to Garamba National Park take a ride on Lwiro, one of the domestic elephants, and are able to approach a group of northern white rhinos.*

Credit: Kes and Fraser Smith/WWF

# The Great African Dung

*Right; A pile of steaming fresh elephant dung in Amboseli National Park.*



Iain and Oria Douglas-Hamilton/ The Elephant Photo Library

A look at one of the techniques used more and more frequently to count elephants and other animals in forests.

**W**ILDLIFE MANAGEMENT OFTEN involves manipulating animal populations to ensure that numbers remain stable, increase, or go down, depending upon the management goals set out for the species in question. This means that an accurate means of assessing year-to-year changes in animal numbers is needed. Numbers are monitored by aerial surveys in many parts of eastern and southern Africa. The ability to count animals quickly and effectively over large areas has been a major contribution to wildlife ecology in the open habitats of the continent. In contrast, counting methods for forest animals have lagged behind those developed for the savannas. But in the last few years there has been an explosion of interest in the African forests. At the same time, the ivory trade controversy highlighted the need to learn more about the elephants of the great central African forest block. These two developments have spurred the development of methods for counting animals and especially elephants in forest.

The great problem in counting terrestrial mammals in the forest is of course visibility. Another is noise: moving quietly through the undergrowth is difficult, and cutting straight transects - which the statisticians require if one's estimates are to have any validity - creates such a din one sees few animals.

Therefore biologists had to think of indirect means of counting forest mammals, such as tracks, nests and dung. Tracks are not a very reliable measure of animal numbers because they depend so much upon the movement of animals: males may travel further than females each day, and in certain months animals may walk further in search of food. Nests are a good index for apes because chimpanzees and gorillas make one nest per night. If you can adjust for the infants which sleep with their mothers and you can calculate how quickly a nest rots, then you can calculate the numbers of apes. This is what Caroline Tutin and Michel Fernandez did during their pioneering ape survey of the Gabonese Forests.

One can use other signs, depending upon the species of interest, such as burrows, calls or dung. In fact dung counts have long been the most common indirect census method for animals living in thick vegetation. For example, dung counts have been used for censusing rabbits in New Zealand, ungulates in New Zealand, USA and the UK, and for wallabies in Australia. So it was inevitable that biologists turned to dung counts when they needed to census elephants living in forests. Dung counts were first used in Uganda, in the Budongo Forest, as a measure of elephant abundance. Later, they were

# Rush

by *Richard Barnes*

used to estimate elephant numbers in the forests of the Ivory Coast and Ghana. Then in the mid-80s dung was counted on a larger scale in the central African forests, first in Central African Republic, and then in Gabon. Later, pilot dung surveys were conducted elsewhere in central Africa to get a preliminary idea of the abundance of elephants that remained in the great forests. Soon the dung counting habit spread back across the continent to East Africa. Today elephant dung-piles are being inventoried, categorised, and counted right across the African continent. Indeed, the contagion has even leapt the Indian Ocean: the dung counting method's suitability for Indian elephants was evaluated on behalf of the IUCN Asian Elephant Specialist Group by Shanthini Dawson. She then travelled across south-east Asia as far as Sabah and Viet Nam, making converts to the dung counting cause wherever she went.


Dung-piles are usually counted by walking along straight lines or transects. Mixing the results with some mathematical mumbo-jumbo enables one to calculate the number of dung-piles per square kilometre. If dung counts are done regularly at the same time each year, then the year-to-year or place-to-place changes in dung abundance can be used as a measure of elephant trends. However, much of wildlife management is politics, and faeces carry little weight with politicians and civil servants. Therefore it is often necessary to calculate the number of elephants for political rather than biological reasons. The surveyor must find out how often an elephant defecates per day in the study area, and the rate of decay of the average dung-pile. Having obtained these figures, and if some assumptions are made, they can be combined with the estimated number of dung-piles to calculate the number of elephants.

There are many people who find it difficult to believe that dung counts can have any meaning. But in theory if you know how often an animal defecates, and if you can work out the time the average dung-pile takes to disappear, then by counting the number of dung-piles there is no reason why you should not come up with an estimate of the number of animals in your study area. There is in fact increasing evidence that dung counts can give good estimates of animal numbers. The first people to show this with elephants were Hugo Jachmann and Richard Bell. They compared the results of a dung count in Kasungu National Park (Malawi) with those from an aerial survey. They were disappointed to find a big difference, but once they had identified the source of error they tried again. This

time the estimate from the dung count corresponded quite well with that from the aerial count. A few years later, when in Burkina Faso, Hugo Jachmann carried out another experiment to compare census methods. He found that the dung count gave a more accurate elephant estimate than a count from a vehicle, a count on foot, or even an aerial sample count. He pointed out that this was because when you fly transects you count only a relatively small number of elephants. But when you are counting dung-piles you count hundreds, and the more objects that are recorded in your transects, the better your final estimate.

Turning to forests, my colleague John Hart has been studying forest antelopes in the Ituri Forest in eastern Zaire. He and Stanley Koster compared dung counts of forest duikers with the numbers they caught during net hunts and found a fair correspondence. As for elephants, Shanthini Dawson conducted a series of dung counts in the open forests of a reserve in Southern India and obtained an elephant estimate similar to that obtained by R. Sukumar from counts of the elephants themselves.

Aerial surveys have the disadvantage that they depend upon the availability of aircraft, spares, fuel and pilots. Often funds for operating aircraft are lacking. In some countries aircraft are simply not available, or the security situation does not allow the use of small aircraft. Thus for many wardens an aerial survey is something they can only dream about. On the other hand, any warden can conduct regular dung censuses in his study area if he so desires, because little is needed in the way of equipment for a dung census, except shoe-leather and sweat. At the beginning he will need some advice on the placement of transects, and he may also need some advice on analysing the results, but there are many people willing to help in this regard. Thus dung counts are something which any warden can do.

I think we can truly say that the day of the dung count has now arrived. I believe that dung counts, a cheap and effective means of assessing animal abundance, will be used even more frequently than today. They will be used not just for elephant but for other mammals too, and they will become increasingly common in open habitats as well as forest. Game wardens and wildlife biologists will find an increasing proportion of their training courses spent learning the techniques of surveying elephant dung. Indeed, no wildlife biologist working in the field today can consider himself educated unless he has spent a year or two steeped in elephant excrement. 

There are now more people working in elephant manure than ever before. You could say that dung is a growth industry.

# Weird & Rather Wonderful

Story by Stephen Spawls and Alex Duff-Mackay

Photos by Stephen Spawls

Lizards are the most numerous, the most obvious and in many ways the most diverse living order of reptiles.

THERE ARE ROUGHLY 3,500 SPECIES of lizards worldwide, compared with about 2,500 snake species, 230-odd chelonians (turtles and tortoises), 22 species of crocodile and one tuatara, the strange reptile from New Zealand that resembles a lizard but occupies an order of its own.

Our present list - we are working on a guide to the reptiles of Kenya - indicates that there are about 98 species of lizards known from the country. It isn't possible to be exact, and no doubt this number will soon pass 100, because new range extensions are often being made and new species described. In 1991, a Zimbabwean doctor, Colin Tilbury, described a new species of chameleon from Mount Marsabit and a Czech herpetologist is at present describing a new species of chameleon from the vicinity of Eldama Ravine. Animal checklists, especially with poorly-studied creatures such as lizards, must be regarded as fluid!

Lizards occur throughout Kenya, from the intertidal coral cliffs of the coast where Bouton's skink (*Cryptoblepharus boutonii*) forages for crustaceans, to the high moorland of Mount Kenya and the Aberdares, where the variable skink (*Mabuya varia*) hides in the grass tussocks overnight to escape being frozen. Lizards occupy virtually all available habitats, although they tend to be most numerous in dry, open country and are rarer in forest. In the coastal forest, where it is warm, there are plenty but in high African forests, few lizards occur, and those that do tend to be found in clearings, where they can get the sunlight they need. Kenya's lizards also vary considerably in size. The biggest is the Nile or water monitor (*Varanus niloticus*) which grows to nearly three metres in length, the smallest is the Cape dwarf gecko (*Lygodactylus capensis*), which is six centimetres long as an adult - hatchlings are less than two centimetres!

Despite stories and legends to the contrary, no African lizards are venomous. The only two venomous lizards, the Gila monster (*Heloderma suspectum*) and beaded lizard (*Heloderma horridum*)

occur in the southern United States and Mexico. All lizards are ectotherms (the old term was 'cold-blooded'), meaning that they obtain their body heat from their surroundings. Lizards found at high altitude get this heat by basking in the sun. At lower altitudes the air is warm enough. Hence there are no nocturnal lizards at high altitude. Most lizards have four legs (but some have two and some have none) and many species can shed their tail when it is seized and then grow another. Most eat insects.

Of the 20-odd lizard families, representatives of eight are found in Kenya. Those families found here are the geckoes, the skinks, the lacertids ('typical lizards'), the cordylid (plated and girdled) lizards, the agamas, the chameleons, the worm lizards and the monitor lizards.

## The Geckoes

There are 34 species of gecko found in Kenya, making them the largest family in terms of species numbers. Most are slow, nocturnal animals, although one group, the dwarf geckoes, *Lygodactylus* species are quick-moving and active by day. Coast residents will have often seen these attractive little yellow and blue/grey geckoes darting around on walls and trees in the sunlight and the Kenya dwarf gecko (*Lygodactylus keniensis*) is widespread across much of northern Kenya. The nocturnal geckoes tend to have very large eyes, with pupils that close to pinpricks in bright light. Unlike most lizards, they have no eyelids, and lick their eyes clean with their fleshy tongues. Their skin is soft with granular and sometimes tubercular scales, and on their feet many species have flat scale pads called scansors, covered with tiny hairs that stick in minute cracks. This helps them to stick to seemingly smooth surfaces - some species can run up walls, climb vertical glass and cling upside-down to ceilings. The smooth-skinned, ghostly white lizards seen around lamps in lowland Kenya, catching moths and mosquitoes, are tropical house geckoes (*Hemidactylus mabouia*). This species is widespread throughout

lowland Africa and the east coast of central and south America. The genus *Hemidactylus* (literally meaning 'half-toe', as the flat pad only extends halfway down each toe) is partial to dry country, rocky and semi-desert, and on the Somali coast has undergone a remarkable radiation, with 18-odd species occurring in north east Somalia. Some eight of these gecko species reach northern and north eastern Kenya and form part of the Somali-Maasai fauna, a distinctive group of animals confined to dry north eastern Africa. A similar radiation of geckoes of the genus *Pachydactylus* (this means thick-toe!) has occurred in south western Africa, but only a single species of the genus, Bibron's thick-toed gecko (*Pachydactylus bibronii*) reaches Kenya, and is found in the Ologesaille area.



Right; Tropical house gecko, *Hemidactylus mabouia*.



Above; Striped skink, *Mabuya striata*.

### The Skinks

About 22 species of skink are found in Kenya. They are all diurnal, smooth-bodied lizards. Most have relatively small limbs, some have greatly reduced limbs and live partially underground, and others have no limbs at all and slide like snakes. The family includes the striped skink (*Mabuya striata*) probably Kenya's most visible highland lizard. The striped skink is almost commensal with man and can often be seen living on Nairobi's stone buildings. Unusually among lizards, striped skinks give live birth (most lizards lay eggs). Other well-known Kenyan skinks include the huge short-necked skink (*Mabuya brevicollis*), typical of the dry country, and the blue-tailed or five-lined skink (*Mabuya quinquetaeniata*). Only juveniles and females have the blue-tail, and it acts as a warning to predators that these lizards taste horrible! In extreme western Kenya, around Kakamega, the curious serpentiform skink (*Eumecia anchietae*) is found, its tiny limb buds are useless and it moves through the grass like a snake.

### The Lacertids

The so-called 'typical lizards' or lacertids, widespread and common in southern Europe, are represented in Kenya by a mere 10 species. Most are fast moving, diurnal, highly visible little lizards. Usually striped brown and yellow, and belonging to the genera *Nucras* or *Heliobolis* they are found in savanna country, watching nervously and darting away into holes at any sign of danger. One of Kenya's rarest and most beautiful lizards is a lacertid, the green keel-bellied lizard (*Gastropholis prasina*). It occurs in the scrub and forest of the coastal strip, where it lives up in the tree canopy, moving through the branches with the aid of its long tail, catching prey with its bright red tongue. Captive specimens give the impression of being genuinely intelligent, unlike most other lizards. Another spectacular lacertid is the southern long-tailed lizard (*Latastia longicaudata*), widespread in dry country Kenya, and probably the fastest small lizard in Africa.



Above; Southern long-tailed lizard, *Latastia longicaudata*.



Top left; The yellow-throated plated lizard, *Gerrhosaurus flavigularis*.

### The Agamas

The larger agamas are among the brightest and most spectacular Kenyan lizards, although some of the smaller species are more cryptically coloured. Agamas are fast-moving, diurnal lizards, with big heads, thin necks and hard scales, some have little whorls and clusters of spiky scales on their heads and necks, and some have prominent fang-like teeth at the front of the upper jaw. Eight species of agama are known from Kenya at present. Agamas have proved a headache to taxonomists, there are more than 300 species, all found in the old world but the number of genera is uncertain, as is the relationship between various genera! At present all Kenyan agamas belong to the genus *Agama*. Some Kenyan species rarely grow larger than 15 centimetres, but two reach lengths of 35 centimetres or more. They mostly inhabit dry, rocky or open country. Adult males of several species are spectacularly coloured and indulge in social behaviour. The vivid colours of the males attract females, the males then display, often by bobbing up and down, so they appear to be doing press-ups. The mature males will form territories and defend them, chasing rival males away. Male red-headed agamas (*Agama agama*) are called rainbow lizards in West Africa. The males have bright red heads, blue bodies and banded tails. The females and juveniles are duller, brown and grey, speckled with red and green. Red-headed agamas are common at the coast and in most rocky areas of lowland Kenya, they will also climb trees and move readily onto buildings. Visitors to Meru Mulika or the Tsavo lodges will have seen these vivid lizards scrambling around the walls and feeding on ants, their favourite food. But the visitor to the Amboseli lodges does not see red-headed agamas, for there are no rocky hills near the lodges, hence the agamas can't get to the lodge! In the highlands, the blue-headed tree agama (*Agama atricollis*) occurs. The males of this species are spectacularly marked, with bright blue-green heads and a yellow vertebral stripe. They can be seen on the big trees in the highland towns of Kenya, and are still found on the trees and roundabouts along Uhuru highway in Nairobi.

### The Cordylids

Only five species of cordylid lizard occur in Kenya although this family has speciated extensively in southern Africa. Kenya has no flat lizards and only one species of girdled lizard, the tropical girdled lizard (*Cordylus tropidostemum*) found in rocky country along the southern border, from south east of Olorgesaille to the coast. However, three species of plated lizard occur in Kenya. The tawny or great plated lizard (*Gerrhosaurus major*) is the third biggest lizard in the country, smaller only than the two monitor lizards. The great plated lizard is well known along the coast, the big males with their red throats are to be seen sunbathing on walls and rock outcrops, and living in holes and cracks in the coral rag inland. The diet of the great plated lizard includes leaves, flowers and fruit, unusually for a lizard, and it has also been known to eat other lizards. The yellow-throated plated lizard (*Gerrhosaurus flavigularis*) is widespread in grassland and moist savanna, up to 2,000 metres altitude. It resembles a striped snake, with its long body, black and yellow stripes and serpentine motion, and has startled many a walker in Kenya.



Above; The red-headed agama, *Agama agama*.



Right; The graceful chameleon, *Chameleo gracilis*.

## The Chameleons

Even those who dislike most reptiles often have a soft spot for chameleons. These slow moving, diurnal, tree-dwelling lizards are so unlike other African lizards that many scientists are unsure where to place them, at present they are in the Infraorder Iguania. Among their unusual characteristics are their toes and prehensile tails designed for a life of gripping branches, their independently moving, revolvable eyes, set in little turrets, and their long tongues, designed to shoot and stick to their insect prey. They are social lizards too, both males and females hold and defend territory and indulge in ritual combat. Chameleons have their headquarters in Africa and Madagascar, although one species reaches Europe and another is found in Asia. In most of Africa, they are greatly feared, a common superstition is that they bring bad luck.

Three genera of chameleons occur in Africa, and representatives of all three occur in Kenya. There are 12 species of typical chameleon (genus *Chameleo*), two species of leaf or pygmy chameleon (genus *Rhampholeon*) and two species of dwarf chameleon (genus *Bradypodion*, it means 'slow-foot!'). The dwarf chameleons are a genus that has radiated dramatically in South Africa, with some 13 species scattered along the southern and eastern seaboard, almost every hill range and high forest has its own species! The two Kenyan species occur in the Taita Hills (Kilimanjaro two-horned chameleon, *Bradypodion tavetanum*) and the Shimba Hills (Usambara soft-horned chameleon, *Bradypodion tenue*). Kenya's two species of leaf chameleons are the Kenyan leaf chameleon (*Rhampholeon kerstenii*) and the bearded leaf chameleon (*Rhampholeon brevicaudata*), both occur in scrub along the coast where they sit motionless in grass and shrubs and hope not to be seen. Kenya's 'typical' chameleons can be split into 3 main groups, they are: i) large non-horned savanna dwellers, ii) horned forest and woodland species iii) small high-altitude non-horned species. Those who live at the coast will be familiar with one of the big savanna dwellers, the flap-necked chameleon (*Chameleo dilepis*) common in shrubs and small trees all along the coast and in most of the eastern savanna as well. In northern Kenya, the graceful chameleon (*Chameleo gracilis*) is widespread and occurs across the savannas of the Sahel to Senegal.

Jackson's chameleon (*Chameleo jacksonii*) can be found in the mid-altitude forest along the eastern edge of the Rift Valley in central Kenya and around Mount Kenya. They still occur in most suburbs of the capital where a few big trees remain, and there is a thriving population in the forest area of Nairobi National Park. A typical forest chameleon, Jackson's chameleon is one of the easternmost representatives of a group of big, horned chameleons whose distribution is centred around the forests and high altitude woodland of west and central Africa.

In the Kenya highlands there occurs a group of small chameleons that were all originally believed

to belong to one species, the side-striped chameleon (*Chameleo bitaeniatus*). This was, in effect a superspecies, and the group has now been split into a number of species, four of which occur within Kenya alone, with more in high altitude areas in surrounding countries. The most familiar of these little chameleons is Von Hohnel's chameleon (*Chameleo hohneli*). This species is known from Limuru and Tigoni and thence northwards, at altitudes mostly over 1,600 metres; there are a few colonies that exist at lower altitude, for example the one just south of Wilson airport! Von Hohnel's chameleon also occurs on the moorlands of the Aberdare mountains, where it hides in small shrubs at night. Not only can it supercool, to avoid being frozen (it has antifreeze in its blood!), but it becomes active in the morning when the air temperature is only 5° centigrade, and one was seen to catch and eat an insect when its body temperature was only 7° centigrade, this is quite unusual for an ectotherm!



## Worm lizard

A single species of worm lizard, or amphisbaenian, occurs in Kenya, although some 13 species are known from Tanzania. The Voi wedge-snouted worm lizard (*Geocalamus acutus*) is found in the savannas of south east Kenya. Aesthetically the least attractive of all lizards, worm lizards resemble scaly pink worms, with heads that look like thumbnails.

## Monitors

The monitor lizards are the giants of the lizard world, and are the only lizards to possess forked tongues. Some 30 species are found in the old world, mostly in Australia. The Komodo dragon (*Varanus komodoensis*) found on the island of Komodo, in the Sunda islands east of Java, is the biggest species reaching 3.5 metres in length and over 50 kilograms in mass. Komodo dragons have been known to kill and eat humans. Four species of monitor lizard occur in Africa, two of these reach Kenya. The Nile or water monitor (*Varanus niloticus*) is Kenya's biggest lizard, reaching nearly three metres, although 60% of this is tail. Attractively marked in

Above; The white-throated savanna monitor, *Varanus albigularis*.

green and gold (although big adults become very dark, with dull yellow cross bars), they live alongside rivers and lakes. They swim like fish, with powerful sweeps of their laterally flattened tails, they can also run very quickly, and they climb well. They hunt in the water and along the rivers edge and will eat anything living smaller than themselves, they are notorious raiders of crocodile nests. Nile monitors are a tough proposition to catch, as they can bite savagely, scratch with their claws and lash with their tails.

The white-throated savanna monitor (*Varanus albigularis*) is smaller and more dull-coloured than the Nile monitor. Until recently, all savanna monitors were believed to belong to a single species (*Varanus exanthematicus*) but this name has now been restricted to the smaller savanna monitors (rarely larger than one metre) that occur westwards from Ethiopia across to West Africa, and tend to have spot markings rather than cross bars. The white-throated savanna monitor occurs from Kenya south to the Cape, and reaches a length of around 1.5 metres. In colour it is a mixture of greys, browns and blacks, with irregular pale cross-bars and a heavy looking head. Like the Nile monitor, the savanna monitors will eat anything smaller than themselves including snakes and they have been observed feeding on carrion. White-throated savanna monitors occur in large numbers in parts of Kenya, especially in the dry east and north, even in such dry places as Wajir. They live in abandoned termitaria, in holes in trees, and in rock cracks, the dramatic little inselbergs of eastern Kenya all have their resident monitors. The traveller on Kenya's dry country roads has a fair chance of meeting one of these big, modern dinosaurs. Often, when encountered, they do not flee, but move off in a slow and dignified manner, perhaps fittingly as representatives of the only family of lizards known to eat humans!

### The Literature

The few comprehensive works on Africa's lizards are mostly out of print. Two classic early works are H.W. Parkers, *The Lizards of British Somaliland*, a 101 page treatise published in 1942 as a bulletin of the Museum of Comparative Zoology at Harvard (Volume 91, Number 1), and Vivian F. Fitzsimon's, *The Lizards of South Africa*, which also covers Namibia, Lesotho, Swaziland, Botswana and Zimbabwe. This was published in 1943 as memoir number 1 of the Transvaal Museum, and is 528 pages long. Norman Hedges' handy little book, *The Reptiles and Amphibians of East Africa*, published in Kenya in 1982, (Kenya Literature Bureau) illustrates a number of Kenya's more common lizards, and Bill Branch's useful guide, *Bill Branch's Field Guide to the Snakes and other Reptiles of southern Africa* (published by Struik in 1988, and available in Nairobi bookshops) illustrates nearly all the southern African lizards, a number of which are found in Kenya.

## Observing Lizards

A pair of binoculars are most useful for lizard spotting, and if you have a camera with a zoom lens, you can take good photographs as lizards can often be approached to within two metres or so before fleeing.

Our present knowledge of the distribution of Kenyan lizards is based almost entirely on specimens in collections.

In highland Kenya, most lizards are active during the hotter hours of the day, and are most likely to be seen on sunny days.

**'It is worth taking a photograph of anything unusual, or collecting it if possible, as the distribution and status of many lizard species in Kenya is poorly known, and the National Museum is always glad to receive specimens.'**

Look on exposed rocks, on the wells of buildings, on tree trunks that catch the sunlight and on open patches of ground near cover. Male agamas often like to choose the most prominent rock they can find, and can often be seen from some distance! In the lower, hotter areas, diurnal lizards may be active any time between dawn and dusk but will often bask in the early morning or towards evening. Another way to find lizards is to turn over rocks or logs lying on the ground, but do bear in mind that these are homes to a number of creatures, and should be replaced exactly where they are found. Around habitation, lizards can often be found under junk such as sheets of corrugated iron, under grass piles etc. Careful examination of tree trunks in lowland Kenya will often reveal dwarf geckoes darting around the branches. In very dry or open country, the shady patches at the bases of thorn bushes will often have a few lizard holes and the occupants will be watching nearby.

Simply walking quietly through the bush will often reveal lizards, and if you stand still or sit quietly and wait, especially in leafy areas, you may hear lizards moving around in the undergrowth. Along the banks of rivers you may see monitor lizards basking. Kopjes are good places to watch, sit high up and use your binoculars, lizards will be on the rocks.

Geckoes become active at night and move into the open. Examining big tree trunks and rocks is an excellent way to find some geckoes, and in northern and eastern Kenya a number of species will be prowling across open ground. Several gecko species will also gather around lamps after dark. During the day chameleons are difficult to find as their camouflage is excellent, but at night they tend to sleep on the outer branches of shrubs and trees, they show up white in torchlight against the dark. Remember to wear strong footwear at night, not just geckoes may be crawling across the sand!



## MWALUGANJE ELEPHANT SANCTUARY

By Susie Day

The Mwaluganje Elephant Sanctuary, at the foot of the northern boundary of the Shimba Hills, will soon be opened to the public as Kenya's first community involved game park.

For the first time in Kenya the human and wildlife conflict has been jointly solved by the local community, landowners, Kenya Wildlife Service (KWS), the Kwale County Council and local politicians in an effort to contain a normally volatile situation by establishing a wildlife sanctuary.

The essence of the project is the electric fence which protects the wildlife and the local people and surrounds a third of the park area. Through generous support from the 'Dances for Elephants' tour, essential funds were raised for part of the fence.

Only two years ago the Mwaluganje Forest Range was conceived as a conservation area both for local cultures and as a game sanctuary. The Mwaluganje Elephant Sanctuary is 60,000 square acres of indigenous hardwood forest, with age-old cycads, valleys and a meandering river prolific with birdlife. Elephants appeared from as far afield as Tsavo (due to the ivory poaching wars), and other wildlife abundant in the area a hundred years ago will be re-introduced.

The Sanctuary has been designed to keep the inherent wilderness intact, but to allow access to the entire park through a well-maintained road which enables the visitor to come as close as possible to the land, its people and wildlife and to experience fully the inspiration and awareness they instil.

The local cultures, the Duruma and the Digo, have become involved not only through the daily management and general maintenance but also through educational activities for the children in nearby schools. In the future they will share benefits from entrance fees.

Visitors will soon be able to go on arranged walks into the Mwaluganje Forest (which is a *Brachystygia* forest) and view a Digo/Duruma *kaya*, (sacred site).

Mr Onesmus Macharia, the warden of Shimba Hills National Reserve who facilitates the Sanctuary, said; 'Basically the Mwaluganje Forest adjacent to cultivated farmland had around 200 elephants inhabiting it and in conflict with the pastoralists. As the Shimba Hills National Reserve was too far from the Mwaluganje to re-direct the elephants we had a situation.

'With the creation of the Community Wildlife Service department of KWS, we thought we would encourage the landowners between the two conservation areas (Shimba Hills and Mwaluganje) to utilise the elephants as an attraction to visitors and generate money to compensate them for any loss of land/agriculture use. Through a series of education *barazas* (meetings) we sold the idea to the landowners and it was accepted as a viable project.

'We began developing the community Mwaluganje Elephant Sanctuary as an ecotourist elephant park - and we anticipate the new park will open during the second half of 1995.'

## RHINO CHARGE FOR THE ABERDARES

By Roz Clark

After a gruelling 10 hour drive off-road, through some of Kenya's wildest territory, the Rhino Charge, an annual car endurance event (held this year in the semi-desert terrain of Northern Kenya) raised Ksh 9 million (US \$170,000) for conservation.

The Rhino Ark Trust raises funds for a project to fence in the entire Aberdare Rain Forest, providing a sanctuary for indigenous wildlife and protecting the forest itself from gradual erosion. One species in particular has already seen an increase in numbers since this massive fencing project began - the black rhino.

In 1970 Kenya had a population of 20,000 black rhino. By 1990 less than two percent were still alive - only 390 black rhino survived in Kenya.

Since 1991, thanks to conservation and anti-poaching efforts, a five percent annual increase has been recorded. In the Aberdare Forest itself numbers of black rhino have risen to 60.

Since the first Rhino Charge was held in 1989, the Rhino Ark has raised money for 78 kilometres of fence as well as funding supporting services including a Kenya Wildlife Service assistant warden's house.

It is not just the rhino which is benefitting. Even with another 300 kilometres of fence to build, local farmers are seeing the results of the restriction of wildlife movement on the fringes of the forest, which in the past led to animal crop raids, damaging their sole means of livelihood.

By protecting the forest itself, vital water reserves are being safeguarded for local areas and for Nairobi's entire water system.

Thanks to its record breaking fund-raising, the Rhino Charge looks set to go from strength to strength. Before waving off competitors at this year's event, Dr Perez Olindo, Trustee of the Rhino Ark and former Rhino Charge competitor, announced that there will be a UK rhino charge, to be held next year in tandem with the Kenya event.

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# BOOK reviews

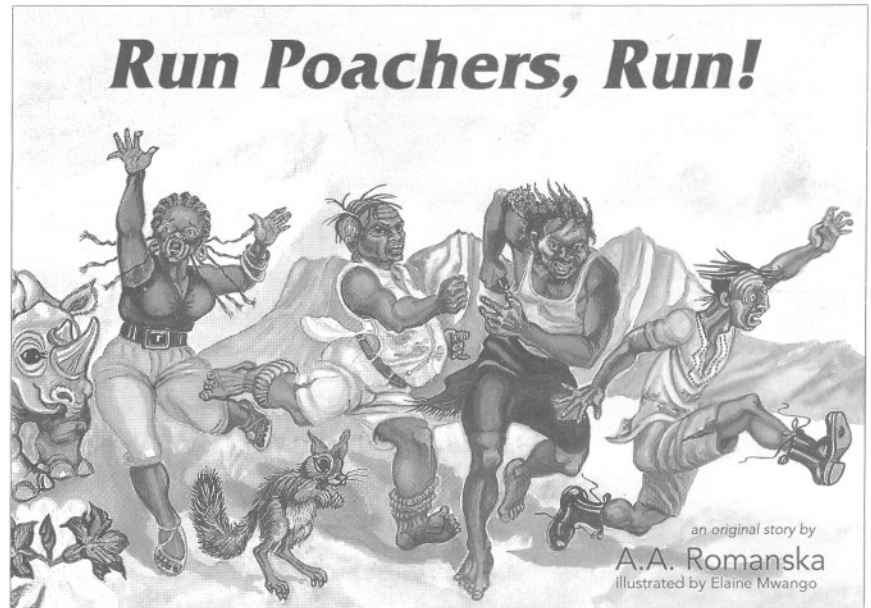
**Don't Run Rhino**  
**The Tale of Ole Saidimu and the**  
**Toothless Lion**

**Run Poachers, Run!**

*Original Stories by A.A. Romanska*

*Illustrated by Elaine Mwango*

*Published by Mount Kenya Sundries Ltd.*



Tessa Stanley-Price is at the Banda School, Nairobi.

I HAVE READ THREE BOOKS BY A.A. Romanska called *Run Poachers, Run!*, *Don't Run Rhino* and *The Tale of Ole Saidimu and the Toothless Lion*. The artist is Elaine Mwango and I think she is brilliant because her pictures are full of colour and movement. The zebras are very dainty. The countryside is lovely and green, like after the rains, and the river pictures are so good.

*Don't Run Rhino* was very sad but it was alright in the end. It was sad because Rono Rhino's family had all been killed for their horns and his animal friends are being poached for skins, tusks, feathers, etc. He decides to give his horn away but his friends have their own problems and don't want it. I liked Kali Sali the crocodile.

*The Tale of Ole Saidimu and the Toothless Lion* was much happier and it was about a boy called Kelai Ole Saidimu who had to take a trophy from his friend, the lion. Kelai took a leather thong and pulled out his friend's tooth without killing the lion. On every page there is some little creature to

look for, like dung-beetles, grass-hoppers, ladybirds, ants and lizards. It makes the pictures interesting.

*Run Poachers, Run!* was the best of all and it was about four poachers called Disgruntled Dan, Sleazy Sam, Twittering Ali and Batty Catty Marta. They try to get Rono Rhino but the animals take away their guns and an old man makes them kind and they learn to care about animals. Then they become rangers and change all their horrid names to nice ones. There is Conservation Dan, Stalwart Sam, Anti-poaching Ali and Kind, Caring Marta.

The stories all have brilliant songs, especially in *Run Poachers, Run!* - 'Poachers, if you come into the park today you're in for a big surprise' - which would go to the Teddy Bears' Picnic tune. On the last page of every story the picture shows humans being kind to the animals, even if they have been so horrid before. I like stories with happy endings.

By Tessa Stanley-Price

## WILDLIFE news Continued

### HOW THE CROCODILE HOLDS ITS BREATH

By John Webb

Scientists have discovered the gene responsible for the crocodile's ability to remain submerged for an hour or more without coming to the surface to breath. Two researchers at the Medical Research Council in Cambridge, United Kingdom, have been investigating the 'unique quirk' in their haemoglobin that enables the molecule to deliver its cargo

of oxygen to the tissues more effectively than any other animal can. The gene enables haemoglobin to bind bicarbonate ions, derived from carbon dioxide dissolved in the bloodstream, which then stimulate more oxygen to be released. This knowledge will be used to develop artificial haemoglobin for use in safe blood substitutes.

## The Guinness Guide to Nature in Danger Threatened Habitats and Species

By Noel Simon

In association with the World Conservation  
Monitoring Centre, Cambridge.

Published by Guinness Publishing Ltd.

If you want to know what the Red Data Book is, as well as such things as ICRW, RAMSHAR, ACCN, etc. in clear prose, read this book, especially pages 165-167.

ONCE IN DAR ES SALAAM AT THE International School, I heard children sing:

'I don't want a picture in a book,  
I want to know it's real;  
Want to be able to look and touch,  
to know how an animal feels;  
Don't want a land of make believe,  
thinking of what might have been;  
Want to be able to see for myself,  
to know that it's not a dream.'

This book could be the one that the children were singing about. It is about *Nature in Danger*. It has many inspiring pictures - about half of the 120 illustrations are scenes of our planet's natural habitats, the others of endangered animals. It is also full of information.

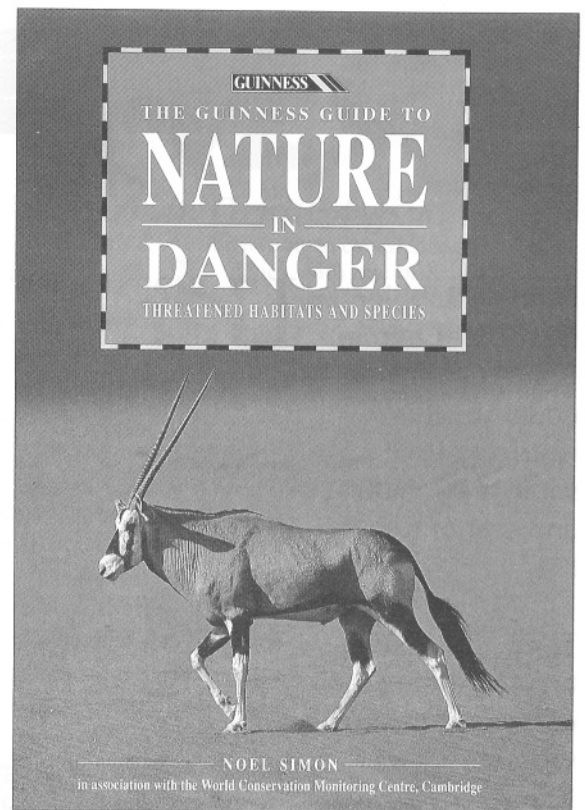
*Nature in Danger* is carefully organized. The pictures illustrate text that is divided into sections on Rainforests, Grasslands, Wetlands, Islands, Deserts, Mountains and Antarctica. Each section has a succinct overview of these important habitats, followed by more detailed descriptions of regions that illustrate the habitat.

The descriptions of each area start with useful data such as location, extent and altitude. The author then goes on to problems and conservation efforts, real or needed, in the region. Within the text are scattered boxes of shaded text that concentrate on special themes. For example, in the African Savannas section are boxes on the Serengeti Plains and Ecological Research.

After 164 pages on endangered natural habitats the author devotes 149 pages to a survey of some of the more endangered species of mammals, birds, reptiles, invertebrates and, bless him, plants. Each animal has the following information provided: its English name, generic and species name, order, family, size, range, habitat, numbers, category and type of threat to its survival and its conservation status. The section on rare plants is rare in itself; seldom in books on endangered wildlife is much information provided about plants - and plants are so important, being the basis for all habitats and animals that we and this book are concerned about. Unlike the highly organized, but not very readable information on animals, the plant section gives a readable if cursory overview of the plant kingdom with just a few examples of endangered species.

These two major sections on endangered places and wildlife are followed by four very useful appendices. First is a directory of threatened species. This lists animals by their scientific and English names and gives each species its category of threat

Note: Unfortunately, you may not find this book in your local bookshop. You may have to order it from the publishers (who also have produced other valuable guides on environmental topics). Write to : Guinness Publishing, 33 London Road, Enfield, Middlesex, EN2 6DJ.



as given in the *Red Data Book*. A fairly good glossary follows. Not all text words that might mystify you are included in the glossary, eg; rorquals, nor are phrases such as 'Age of Discovery' ever defined, but the many definitions of useful biological terms, eg; xerophyte, any reader will appreciate. A bibliography and extensive index complete the book.

This book is of large format and is obviously an attempt to be a cross between a 'coffee table' picture book and a compact reference book. To cover the globe's major habitats is no easy task. Lots of places and wildlife were left out. Some of the information will soon be out of date but much will remain useful. Noel Simon and his colleagues at the WCMC in Cambridge, England are to be commended as to their selection of material. As the author says, 'This book is not intended to be comprehensive: its purpose is to draw attention to some of the world's principal natural regions and the wildlife characteristically associated with them . . . '.

Having drawn our attention, we are left to find our own ways to do something to help conserve our planet's endangered natural habitats and species. Being aware of the places and problems is a help and this book provides lots of ideas as well as reference material. (Did you know that herds of capybara, a large South American rodent, produce over 60 kilogrammes of meat per hectare per year, which is four times as much as cattle?) If more people read and act, perhaps we can look to a future where our land won't just be 'make believe' and wildlife can still be seen and touched. Let us hope that this book won't just become something to show our grandchildren as an illustration of the 'dream' of 'what it might have been'.

By J.P. Hanby

# CALL OF THE WILD

Story by Peter Njoroge

Hinde's Babbler (*Turdoides hindei*) is a rare Kenyan endemic. It is restricted to a small area south and east of Mount Kenya.

The bird is exceptional in being the only non-forest or wetland species listed as globally threatened in the IUCN/ICBP Red Data Book.

**H**INDE'S BABBLER IS A GROUP territorial occupying an area centred around a thicket (most commonly *Lantana* thickets). Territories are located along small river valleys and inaccessible seasonal springs and swamps. Groups are composed of juveniles, immatures, sub-adults and adults in varying numbers; groups may range from two to 11 individuals. Each member of a group participates in defending the territory against intruders. Though they are characteristically silent for long periods of time, they burst into an ear-splitting call when defending their territory. This call is made in unison, one bird starts with a hicough-like call and other members of a group join in with a high-pitched 'chrr-chrr-chrr-chrr' peaking at 'chuu-chuu-chuu'. The group feeds in a cohesive group on the ground, turning over leaf litter as they hop about. During these feeding sessions one individual always keeps sentinel while perched above the ground. The birds also breed co-operatively, where other members of a group help the breeding pair in feeding young.

At present Hinde's Babbler has a very restricted range centred on Embu District. Though rare on a national scale it is locally common wherever it occurs within its range. The original range included Machakos, Sabasaba, Athi River, Oldonyo Sabuk, Meru and Muranga regions. Causes of this recent constriction in range may include agricultural development as the bird's favoured habitats turn into coffee and maize plantations.

On the other hand, rapid population increase has necessitated the splitting of large expanses of land into small holdings. These small holdings are in turn rapidly cleared of their original habitat and cultivated with food crops. Though the bird has shown an ability to re-adapt to agricultural habitat especially for feeding, it still requires the thickets or woodlands for cover and nesting sites. Furthermore, using farms for feeding exposes them to chemical poisoning.

Besides agricultural development and destruction of its habitat, inbreeding has also been suggested as a threat. This could be true, since the bird occurs in small, highly resident isolated groups confined to specific valleys. In the past, partial albinos have been reported and their occurrence has been attributed to inbreeding. However, during a study carried out in Kianyaga, Machakos and Mukurweini between July 1993 and January 1994, no albinos were observed in the 265 birds that were encountered. In fact, dispersal from one group to another was observed at Kianyaga site. In addition

to this the bird shows a wide variability in plumage - no two individuals are exactly alike. This suggests that the Hinde's Babbler population generally has a diverse genetic composition.

Another potential threat to the survival of Hinde's Babbler is the possibility of competition from the closely-related Northern Pied Babbler (*Turdoides hypoleuca*). This species occurs throughout the Hinde's Babbler range and is more successful. Resource partitioning between the two species was investigated during the course of the study. During this period competition between the two species was not apparent. Though they occupied similar habitats and sometimes their territories overlapped, they spent different amounts of time in different habitats. The ranging pattern of the two species showed that wherever their territories overlapped, the Northern Pied Babbler occupied the lower parts. Results from the biometric measurements of the two species showed that Hinde's Babbler is larger in size than the Northern Pied Babbler. This explains why Hinde's Babbler won almost all aggressive encounters between the two species.

During the study, the community living in the area were interviewed. Out of 30 people, most of them said they like birds. The reasons they gave included ecological, aesthetic, agricultural and moral benefits. Despite this, hunting of birds for the pot was widespread. All the people interviewed knew of others who ate birds and they themselves had eaten birds at one time in their lives. The Babbler group featured prominently on their list of delicious birds. However, only a few people could differentiate between Hinde's Babbler and the Northern Pied Babbler. When interviewed on whether they were willing to leave parts of their land as thickets for the sake of the Babblers most people were non-committal and only a few would not mind leaving thickets uncleared. Though the Babblers are not pests, conflicting views were expressed among the community with a few people saying that the birds were pests and should be controlled. This is unfortunate since the Babblers survive in this area by opportunistic use of available thickets that reappear when land is abandoned for various reasons. Their distribution is bound to change as a result of changes in farming activities and economic stability. This may help explain the observed extension in range at Mukurweini, Nyeri District. It was also surprising to observe that the population of Hinde's Babbler tended to decrease rather than increase immediately after the breeding season. ♀

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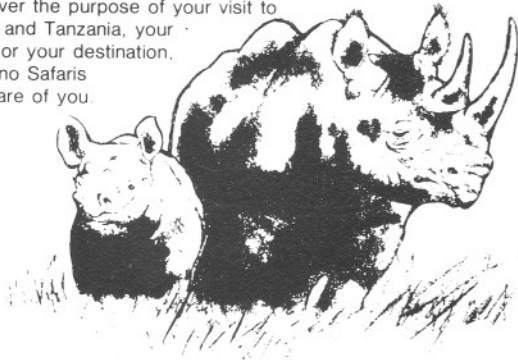


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11th floor, Fedha Towers

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Peter Davey came to Kenya in 1953, having graduated from the Royal Agricultural College, England. After 14 years in agriculture he set up his own safari company for specialised hunting and photographic safaris. In 1980 he sold it to concentrate on natural history and photography, and in the same year joined the board of Ker & Downey Safaris Ltd. as a director/shareholder. He served for 10 years on the board of the East African Wild Life Society and was Chairman for 2 years, he has also been on the board of the East African Professional Hunter's Association and several other wildlife committees. In 1982 Peter Davey became an Associate Member of the Royal Photographic Society. His photographs have been published in magazines and books worldwide, including over 70% of the pictures in the now classic *Wildflowers of East Africa*.

## **Nikunj Shah and Divyesh Upadhyaya** *page 10*

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Both Nikunj Shah and Divyesh Upadhyaya are members of the Mountain Club of Kenya, Nikunj Shah is an elected member of the committee.

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David Stirling is the founder and director of Save the Rhino International.



## **Anthony Cheffings** *page 16*

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Anthony Cheffings was born and brought up in Kenya. He spent four years in Canada at university, studying physical geography, before returning to Kenya. He is now a safari operator with Bateleur Safaris, the family company.

## **Kes Hillman Smith** *page 18*

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Kes Hillman Smith obtained a PhD in zoology from Leicester University, England, and came to East Africa in 1973 to work with Nairobi University. She has worked in Bophuthat-swana, re-introducing the black rhino; and with Iain Douglas Hamilton on the Elephant Survey. This led to the Pan-African Rhino Survey and an invitation to re-establish the IUCN African Rhino Group. The Group's highest priority was with the northern white rhino and thus the Garamba Project was begun.

## **Richard Barnes** *page 24*

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## **Stephen Spawls and Alex Duff-Mackay** *page 26*

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Stephen Spawls was brought up in Kenya. A science teacher and a herpetologist, he has also worked in Ghana, Egypt and Botswana. He has published a checklist of Kenya's snakes, an autobiography about his childhood in Kenya, *Sun, Sand and Snakes*, and is co-author (with Bill Branch) of *Dangerous Snakes of Africa*, to be published by Cassell in July. He lives in Ethiopia.

Alex Duff-Mackay has just retired from his post as curator of herpetology at the National Museum of Kenya in Nairobi. He has been associated with the museum since 1949, and worked there for 31 years. His publications include a book on the dangerous snakes of East Africa, descriptions of several new African amphibians and a major study of carpet vipers in Northern Kenya. He lives in Limuru, Kenya.

## **Peter Njoroge** *page 34*

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Peter Njoroge works in the Ornithology Department at the National Museum in Nairobi. His research on Hinde's Babbler was funded by the East African Wild Life Society.

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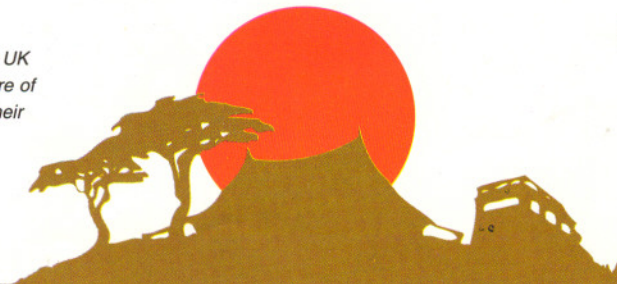


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