



Mother and calf.

Michael Gore

Are Kenya's rhinos recovering?

by Rob Brett

After the dramatic plunge in Kenya's rhino numbers in the 1970s, specially protected rhino sanctuaries have been established around the country. How successful have these been?

It is difficult today to imagine how numerous, and how expendable black rhinos once were in most parts of Kenya. In 1902 Meinerzhagen had to shoot 17 on Nyeri ridge in three days because they were a nuisance. J. A. Hunter cleared out 1,088 more 'nuisances' for settlement in a small area of Makueni in 1946-48. Old hands still reminisce about 'those days, on a morning's drive in this area, one would be unlucky if one didn't see 14 rhinos before breakfast', or, 'those days, one didn't give them a second thought'. In those days they got in the way of development. They used to charge at trains. They were a nuisance.

More recently, particularly during the 1970s, they became worth slaughtering for their horns, almost to the point of extinction in most of Kenya's 'protected areas' like the Tsavo and Meru National Parks where they were once exceptionally numerous. Their numbers dwindled from tens of thousands to as low as a few hundreds in 15 years. Only 30 years ago, Tsavo Park alone used to support at least twice the number of black rhino that are now left in the

world today.

Although the black rhino was clearly a highly successful 'model' of a large herbivore for tens of millions of years of evolution, as is evidenced by its persistence over evolutionary time and the sheer numbers that are still remembered, it was not capable of adapting to snares, spears, dogs and guns. Its daily routine of movements within a relatively small area, returning often to favourite watering points, salt licks, or *Euphorbia* trees, made it such an easy target for man.

But a few rhinos have managed to avoid even the most determined efforts to track and kill them. Isolated in small pockets all around Kenya, they have survived against all odds with little or no protection. If one considers the attributes a rhino needs to avoid being poached, the handful of rhinos that remained in Tsavo Park in the 1980s certainly had them, probably moving continually over large areas, and being largely nocturnal. In general, the fewer rhinos there are living in a large area, the larger are their ranges, and the more they move,



Arthur Christiansen

Clockwise from the top: Favoured habitat of dense bushland makes a back-drop for this black rhino.

An immobilised black rhino is kept cool while being outfitted with a radio transmitter.

particularly if the browse is very seasonal in quality and distribution, and water supplies are irregular.

Around 1984 when Kenya started its policy of creating specially protected rhino sanctuaries, it became clear that if anyone was to do anything to save the few rhinos that remained in poached-out areas like Tsavo, it was important to decide whether to capture the remaining animals and move them to sanctuaries where they could breed with other rhinos, or whether, in the knowledge that they were keeping in touch with other rhinos and breeding successfully, to leave them where they were and protect them *in situ*.

Crucial questions to answer were: How do rhinos stay in touch with each other over such large areas? Would the males and females meet each other at the appropriate moment, for mating to take place? At what point do isolated rhinos become 'doomed', not necessarily because of the likelihood of their being poached, but because they will die out without breeding more rhinos to replace them?

It was these questions that I hoped to tackle in four years of monitoring work on Ol Ari Nyiro Ranch, in Laikipia. This 100,000 acre ranch still has free-living black rhinos that live much as they always did in



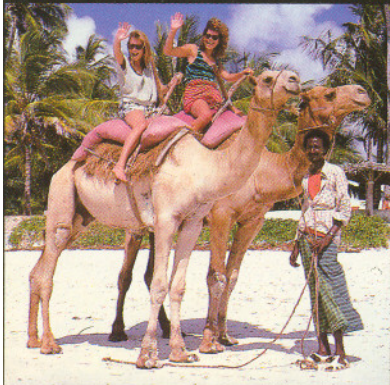
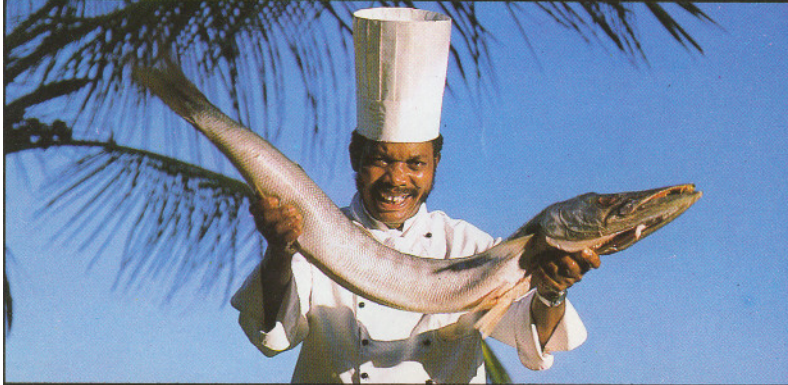
Ian Douglas-Hamilton

dense bush on the sides of impenetrable rocky gorges, the last substantial remnant of a continuous black rhino population which previously spread across the Laikipia plateau to Mount Kenya. Due to the effective anti-poaching work of the general manager of the ranch, Colin Francombe, and his security patrols, and the custodianship of owner Kuki Gallmann, over 40 rhinos still remain.

Since most of the remaining rhinos in Kenya are found in their favoured habitat of dense bushland or forest, where they are seldom seen, it is often difficult to know what is happening to a population; for example, to determine whether there is

successful breeding, or whether there are occasional undetected instances of poaching. The Laikipia project was largely conceived with the idea of developing the methods necessary to monitor rhino movements without seeing them, and training up the personnel necessary for monitoring in other areas of Kenya.

These methods included identifying and ageing rhinos from the wrinkle marks and measurements of their tracks, and monitoring their breeding state from hormone levels measured in urine samples collected in the bush. The object was to obtain as much information about a 'natural' rhino population for comparison with rhinos living in the

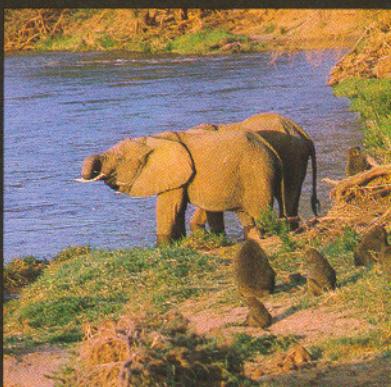


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... rhinos

relatively artificial conditions in ring-fenced sanctuaries. For any rhino population, it is essential to monitor total numbers, sexes, approximate ages, births, deaths, and matings, in order to judge how effective conservation measures are.

The Laikipia rhinos proved to be unusual in that there were almost twice as many males as females, and so breeding relative to the total number of rhinos on the ranch was poor. The rhinos were widely spread over half of the ranch area of 400 square kilometres, and several ranged very widely, often going on dangerous excursions over the ranch boundary where the likelihood of being killed by Pokot poachers was very high indeed.

Rhinos certainly have less perception of the boundaries of protected areas than do elephants, and some of these wandering rhinos appeared oblivious to the grave danger they were in when they wandered off the ranch (see box). It is likely that these wanderers, mostly males, were going off in search of non-existent females, or perhaps returning to areas where they were born.

For the future of the Laikipia rhinos, it will be essential to build barriers on the ranch boundaries to prevent them from wandering off. This is one of several rhino projects for which Michael Werikhe is walking across the USA this year. If the rhinos continue to stray from Ol Ari Nyiro ranch, more will be poached, and the rhinos will thin out on the ranch so much that breeding will suffer further, and the population will not replace itself.

In normal rhino society, although there are clearly dominant male rhinos which occupy large home ranges overlapping the ranges of several females, other subordinate males cohabit the same areas without conflict, presumably as long as it is understood who is 'boss'. But as the density of rhinos in an area drops, individual large males have less chance to exert their authority and monopolise matings with female rhinos moving within their range. Here the number of 'sneaky' matings from other males in the area increases, and it is more of a lottery which male manages to track up an adult female on heat, and perhaps mate, if the male is persistent in the face of a female's usually aggressive reaction to his advances.

In places where the density of rhinos is much higher, such as Solio Ranch Game Reserve or Nairobi National Park, dominant males moving within a smaller area have more control over females which are coming on heat, and can spend the necessary few days on the tail of whichever females are 'imminent', so that no chance of a mating is missed. This ensures that most females are mated at the first opportunity, usually over a year after the birth of the previous calf, and calving rates are high.

However, as we have been seeing recently on Solio and in Nairobi Park, female rhinos can sometimes breed almost 'too' quickly, by mating again very early

Requiem for Mainda

by Kuki Gallmann (An extract from my diary)

Laikipia, 24 November, 1989

Today Mainda, one of our male black rhino, has been speared to death by a Pokot tribesman, just inside the ranch boundary, on the Kutua hills. When I heard the news on the radio, I just could not believe it. This is the first incident of poaching in about ten years.

Mainda was the first rhino Rob Brett had immobilised and outfitted with a radio transmitter, back in 1987, on a breathless July day, a fine young male who kept going out of the boundary looking for a female.

Batteries do not last forever. Another radio was fixed when the first one eventually stopped working. It sent signals that allowed Rob to locate him, asleep below some lelecha bush during the day, or trotting off out of Ol Ari Nyiro in his restless search for a companion. Our anti-poaching team went after him several times, far into the hills, and pushed him back again and again to where he was safe.

And why should Mainda have known of man-made boundaries to safety? No fence, no ditch mark that environment. The hills look the same, the food is still there along the slopes of the Makutan Gorge where he was born. Perhaps a female waits, yet unclaimed by the dominant males of Ol Ari Nyiro, which do not let him breed. In his drowsy existence, which follows ancient patterns, why should he know that all other free-ranging rhino in Laikipia have been killed long ago? That danger, born of hunger, ignorance and greed, lurks in wait where our protection cannot reach?

Ol Ari Nyiro is now an island. Surrounded by settlement where little wilderness has been left: perhaps a shy, nocturnal hare? a scared dik dik? a clever duiker which has managed to escape the snare? a cunning scuttling snake? the birds free as the wind, and which, like the wind, know no boundary?

I can so well see what happened.

Mainda trots about, sniffing high, intoxicated with the fresh scent of growing things, tender sprouts of new leaves, euphorbia, spiky and sweet. The heat makes him drowsy. The welcoming shade of a lelecha bush waits for his noon rest. He stops, unaware that someone carefully, slowly, step by step, parting with trembling hands the crackling shrubs, is prowling towards him. The wind carries no smell of danger: the hunter knows better.

In a flash of incomprehensible pain, the spear is deep into his side.

Twice, it was the dart of the friendly gun which made him, after a brief sharp pain, dizzy, comatose and oblivious. Buried deep in the foggy memory of his life experiences, are hushed human voices, the busy shadows of people work-

ing around him, inserting needles into his thick hide, drops into his half-open eyes to keep them moist, pouring water on his back and head to keep him cool. Fixing an annoying little device to his ear, which will allow that pale young human to find him always, asleep in the thick bush in the heat of the day. Soon it was over and he was free again.

Now it is somehow different. There is not the noise of the small red plane circling above to check on him, the pain gets sharper, deeper, tearing away at his tender intestines, cutting through veins and arteries, reaching down to the life core of his being.

Instinctively he turns and runs back to the familiar land, covered in sanseveria and aloe, of his native country, up slopes of rolling stones and thick green eucalyptus, where friendly humans dressed in green follow him every day, and the one with the shiny antenna which always finds him. Blood pours out of his body, weakening his trot. Urgent, hostile steps pursue him, running, uncaring now about making any noise; the sharp stench of humans, which means danger, fills his nostrils; whispers, closer, much closer... They stop suddenly. He has gone back too far into the protected area where no poacher dares to come. Dizziness comes finally in the dark of night, a red flash blots his sight, he dives crashing into a last bush. Then silence.

Only later, in the morning, when all the blood and his poor wasted life have gone, they come and they surround him, the small humans, silent, subdued, like people who are sad, who have lost a battle. They come with all their gear to help and save. They have tracked his blood spoor up steep valleys and hills, they found him, they call him softly. Too late. He is dead.

Laikipia, 27 November, 1989

Our anti-poaching unit captured the man who killed Mainda. An extraordinary achievement, which took them three days and three nights of searching. They tracked him back; his spear identified him. He is now in jail, one rhino has gone, the world goes on as before.

Laikipia, 15 December, 1989

Today I drove up to the Kutua to check on the proposed site for the stone wall that we must build to prevent other rhinos from going out into dangerous area.

The place looks the same, but for the new scar made by the twisting red road we cut through miles of murram soil up and down steep cliffs, to allow the security people to reach as soon as possible that wild remote area of Ol Ari Nyiro.

The place looks the same, but, in African style, it now has the name of the most memorable event which took place within its barren and dramatic cliffs. That area in the Kutua is now called Mainda.

after the last birth. This means that a calf is pushed away by the mother upon the arrival of the new-born when it is too young to look after itself very well (just over two years old). These calves usually rejoin their mothers later, but for the time they have been rejected at this age, they lose condition, look a bit lost, and often team up with other young rhinos in a similar predicament. On Solio one young female pushed out too early formed an unlikely friendship with a large adult white rhino, spending long periods standing in the middle of grass plains grazed short by white rhinos, perhaps wondering where the browse was. It is hard to complain about high breeding

rates in rhinos though, especially if all the calves do eventually come through to maturity in good shape.

Apart from providing complete protection for rhinos, Kenya's policy of building rhino sanctuaries was aimed at breeding up rhino numbers as fast as possible in these areas. Two rhino conservation areas, Nairobi National Park and Solio Ranch Game Reserve, have shown how successfully rhinos can breed and grow in numbers within small areas. Both areas are now called sanctuaries, but were stocked with rhinos long before the term was coined. Their respective success is due to the foresight of the board of the former Kenya National Parks, and of the

... rhinos

owners of Solio Ranch, Mr and Mrs Parfet.

Between June 1963 and March 1968, Nairobi National Park was stocked with at least 27 rhinos moved in by John King from the Darajani/Kiboko areas, the Nyeri forest, and the Athi and Kapiti plains. There were then about six resident rhinos in the park, and counts by Patrick Hamilton in August 1968 confirmed the presence of between 27 and 33 rhinos. A further 10-14 rhinos were introduced between 1978 and 1980 from the Nyeri forest and Mt. Kenya.

Considering the numbers that were introduced, the population has in fact taken a very long time to breed up to the present total of just under 60 rhinos, increasing at only three per cent over that time. There has undoubtedly been some loss of rhinos to poaching and wandering out of Nairobi Park since 1968. However the rhinos in the park now are breeding very well indeed, almost every adult female with a calf at foot. Last year, six baby rhinos had been born in the park by November.

Nairobi park is one of the few areas in Kenya where one can almost be guaranteed to see rhinos, particularly in the open Athi Basin at the south-east corner of the park. The population can now support limited transfers to stock other parks and sanctuaries. This not only benefits the recipient areas, but it also ensures that the number of rhinos in Nairobi Park never reaches a carrying capacity where either the rhino's food reserves are adversely affected, the breeding output is reduced by over-population, or the rhinos start to wander out of the park in dangerous numbers.

The ring-fenced Solio Ranch Game Reserve was stocked with 23 rhinos between 1970 and 1980, which, like most of the original Nairobi Park rhinos, came from many different areas of Kenya, including the Tsavo region, the Nyeri forest and the ranchland surrounding Solio. Even in 1980, the rhinos numbered more than 30, and from then on the population grew at an astonishing

12 per cent per annum (15 per cent annual recruitment) to over 80 rhinos by 1987. It became obvious that there was a dangerous over-population which was depleting the browse in the reserve, especially the favoured rhino browse of whistling thorn, *Acacia drepanolobium*. (I have always wondered whether black rhinos enjoy the mouthful of ants they get when they bite through an acacia gall).

Fifteen rhinos were moved out of Solio in late 1987 to stock the new Lake Nakuru rhino sanctuary, and at least 10 have been moved to rhino sanctuaries on other private ranches since then. What is interesting is that the over-population of rhinos on Solio had a marked negative effect on the browse reserves, but little or no effect on the breeding rate. This has remained very high, with at least five rhinos born every year since 1987.

Apart from the good rhino habitat, the other important factor in the success of rhinos at Solio has been the general lack of disturbance to the rhinos; in short, a lot of peace and quiet. In order to hold the numbers below carrying capacity and allow the browse to recover, at least 15 more black rhinos will be moved out of Solio in the next few months to supply other rhino sanctuaries.

Four rhino births have been recorded in Lake Nakuru rhino sanctuary since the introduction of 17 black rhinos in 1987. Three females and one male were recently moved in from Nairobi Park, correcting the bias in sex ratio towards males. If the female rhinos at Nakuru start to breed as often as the Solio and Nairobi females, Nakuru will soon become another 'showcase' area for black rhinos. More white rhinos will be introduced into Nakuru Park from Solio Ranch in 1991 to start a breeding herd. White rhinos are highly visible, and should improve further the rhino-viewing at Nakuru Park.

Other rhino sanctuaries stand a good chance of duplicating the success of the Solio and Nairobi rhinos. The Ngulia rhino sanctuary in Tsavo West has recently been enlarged to over 70 square kilometres, and, when more rhinos are introduced next year,

this sanctuary will have the best hope of starting the restocking of the dense bushland in the surrounding areas of Tsavo West Park. The Ngulia sanctuary fence is designed purely to contain rhinos in one area for breeding, while the security is dependent on anti-poaching cover over a much wider area. Once the rhinos have bred and increased in numbers in the area, the fence can be opened up and the rhinos released to slowly restock the surrounding area, and breed with the few 'wild' rhinos that still live in the vicinity.

The Ngare Sergoi rhino sanctuary on Lewa Downs ranch has already proved a big success in breeding rhinos, with only a slight hiccup because of the lack of a competent breeding male over the last two years. Ol Pejeta Game Sanctuary is now being stocked with at least 20 black rhinos, has rhino habitat very similar to that of Solio, and could eventually hold up to 100 rhinos.

Of the fenced rhino sanctuaries built since 1984, many owe their existence and success to the fund-raising efforts of many donor organisations, and the personal contributions of private landowners. There has also been successful co-operation between the then Wildlife Conservation and Management Department (WCMD), the private land owners, donor organisations and NGOs in several rhino conservation projects in Kenya since 1984, largely orchestrated by WCMD officer, Peter Jenkins.

There are still a number of isolated, non-breeding, unprotected rhinos that need to be captured and brought into sanctuaries, not just for their own protection but for their potential contribution to breeding more rhinos, particularly if they are females or come from a rhino area from which there has been little genetic contribution to secure rhino populations. For example, there is one lonely female rhino which for the last five years has been living on a forested hill, completely surrounded by settlement, in Tharaka, Meru District.

Many of the rhinos living outside sanctuaries such as this female are difficult and very costly to capture. If a helicopter is necessary, the cost of capturing and moving

White rhinos guarded by a Ranger in Meru National Park (soon after wiped-out by poachers).



David Keith Jones

one rhino to a sanctuary may now fall in the region of \$15,000 per animal. Funds for translocating such 'doomed' animals are badly needed, and it is hoped that some will result from Michael Werikhe's walk. Because of high capture and translocation costs, and the limited funds available for the purpose, it is even more important to assess the cost-effectiveness of such rescue operations besides the satisfaction and accomplishment of saving an individual rhino.

Of the 400 black rhinos alive in Kenya today, 300 are now located in 11 relatively secure areas: 130 within the ring-fenced rhino sanctuaries, 140 in areas which are partly fenced (e.g. Nairobi National Park), and the remaining 30 in open parks and reserves (Masai Mara National Reserve, Amboseli National Park). The rhino populations in these 11 areas have grown at 5 per cent in the last four years, and if security and fencing are maintained, and the rhinos are correctly managed to avoid over-population, there is every chance of doubling that rate of increase to 10 per cent, the present rate in Nairobi Park and Solio Ranch.

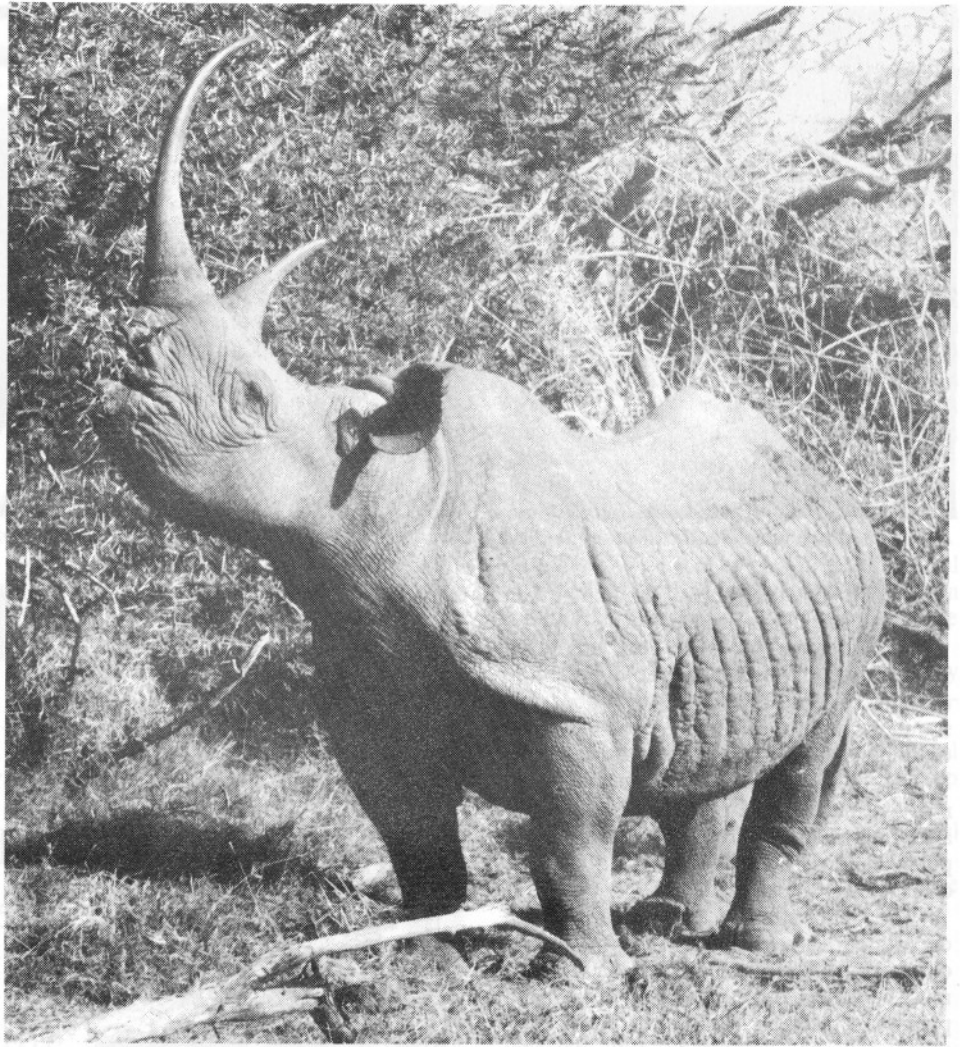
The long-term future of the black rhino in Kenya will depend on the restocking of rhinos in unrestricted parks and reserves, and the present programme can only be judged a success when this has been achieved. It is only these large unconfined areas which are capable of holding the thousands of rhinos which are genetically self-sufficient for hundreds of years, requiring only protection from poaching and little if any management.

If managed correctly, each of the present enclosed sanctuaries could provide a continuous supply of perhaps five rhinos per sanctuary per year after building up their own numbers. Those which are not surrounded by settlement, and which adjoin larger areas of rhino habitat, could release rhinos out of their fences to colonise surrounding areas which are sufficiently protected.

The policy must continue to be to breed up rhinos as fast as possible to near capacity for a given area, but to remove surplus animals before there is any over-population that would reduce food reserves or calving rates, so that maximum breeding output is maintained.

The objectives stated above are idealistic ones, though not, I believe, over-optimistic. The long-term security of rhinos in the larger release areas, such as Tsavo, will obviously depend on a number of questions, to which this article does not have answers.

It appears that efforts to control the global rhino horn trade have had local successes, but little general influence on the demand, and in particular, the incentives to poachers in the remaining rhino areas across Africa. The drop in rhino poaching in East Africa must be mainly attributable to diminishing returns and reduced supply of horns from fewer, better protected rhinos, rather than control of the trade and reduced demand. There are still two thousand rhinos in Zimbabwe, a sufficient number with large enough populations to stimulate commercial poaching for the rhino alone as long as the Far East medicine markets continue to be



Fine-horned rhino browsing on favoured acacia.



Lone rhino living outside sanctuary is difficult and costly to capture.



New York Zoological Society

Like this rhino with a radio transmitter, they must continue to be highly protected for the present.

untouched by the public opinion which helped to curtail the ivory trade.

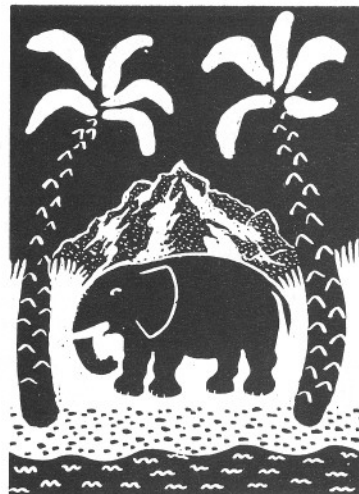
If the demand for rhino horn continues, will the pressure on rhinos ever let up? If the drop in ivory prices in East Africa does substantially reduce elephant poaching, will there be less rhino poaching as a result of its link to the latter? If rhino populations do recover, and there are enough rhinos to afford the luxury of hunting again, would public opinion and concern and the rhino charities they support allow it?



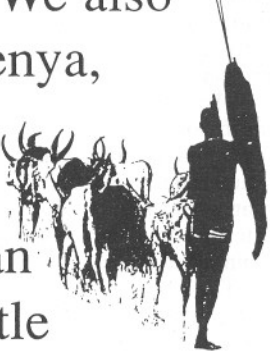

The rhino, still less any African wildlife department, cannot afford to depend forever on charity from overseas. Its conservation must be linked to sustainable revenues from parks and reserves. How many more rhino crises can be supported? Will Michael Werikhe be walking for years to come?

For the present we may have no choice but to maintain and breed rhinos in the fenced sanctuaries. But will we always have the resources to maintain the fences or the security? Will there be practical and workable means of tying tourism revenues to improving the livelihood of people in the same area, so that maintaining that revenue is realised to be more beneficial than poaching, which would then become equivalent to killing a goose that lays golden eggs?

If this comes about, then I believe there are prospects that there may once again be thousands rather than hundreds of black rhinos in Kenya. Success will only really be achieved when the sanctuaries become less important, and many fences are dismantled. Fewer rhinos will be given names, rhino studbooks would be put in storage, and there will be enough rhinos around for anecdotes to be told about how once again, rhinos have become a nuisance.

Rob Brett did a degree in Zoology at Oxford University and then spent two years in Tsavo West National Park studying naked mole-rats for a PhD from London University. He spent four years working in Laikipia on monitoring and protecting black rhino for the Gallmann Memorial Foundation (see *Swara*, January/February 1987) and the World Wildlife Fund. He is now Rhino Co-ordinator for Kenya Wildlife Service.



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