

Above: A black rhino in the montane forest of the Aberdares salient, an area which has always been a good place to see rhino (see footnote 10). Perhaps this photograph illustrates why some experts are dubious about de-horning. In thick bush like this poachers might kill a rhino before realising it had no horn. See Dr. Western's article on page 34.

Experts and amateurs alike fall out over the concept of dehorning rhinos — perhaps because we do not know enough about it. Here a well-known scientist expresses his own view that we should try to test dehorning now, to help us make well informed decisions in the future.

Every visitor to a Kenyan National Park is greeted by a black rhino — the metal one on the entrance gate. Nowadays, that may be his only chance to see a black rhino.

Just a few years ago, visitors to many of the National Parks could expect to find live rhinos within the park boundaries. However, there is a great demand for rhino horn in Eastern countries, where it fetches astronomical prices (currently \$600 U.S. per kilo wholesale) for use as aphrodisiacs, medicines and dagger handles. The result has been extensive poaching; and this poaching has decimated the rhino population in Kenya, as elsewhere. Today there are 1000-1200 black rhinos in all of Kenya, a reduction of more than 90% from ten years ago.¹

Some experts estimate that rhinos could become extinct in Kenya within as little as five years, if poaching continues at present rates. This alarming situation has not gone unnoticed. The rhino is now protected by an international treaty that bars the import or export of parts or products from certain endangered species.²

Conservation groups have also been active. The World Wildlife Fund and the International Union for Conservation of Nature and Natural Resources have spearheaded a campaign to save the rhino. In Kenya, their activities have been coordinated by the Kenya Rhino Action Group, in cooperation with the Kenyan Government. In addition to participating

A female black rhino with her calf in the Masai Mara National Reserve, Kenya. This area has lost some rhinos in the last 12 months in spite of the anti-poaching patrol based near Keekorok Lodge inside the Reserve.



Department, pre-occupied with many other duties, can control grazing in their Natural Reserve. Nor is there any particular need to do so, if it is not overgrazed. So, everyday at 10 a.m. 250 sharp hooves click along the grid of paths from the farms to the *Kalunya*, and everyday at 4.30 p.m. they return. Cattle are grazers, they barely taste the forest plants as they pass. But they push past each other and trample back the edges of the paths, and they don't hold with right-angles so they cut sensible diagonal shortcuts straight from home to grazing. And then it rains, nearly every day. The proper forest floor can soak up unlimited rain, but the hoof-hardened paths collect pools and turn to mud. The cattle churn through the mud and sink to their elbows. They don't like it, and prefer to push through the undergrowth around the worst bits. So the 1½ metre path becomes five, six metres wide and over your wellington-tops in sloppy mud. Then the herdboys direct the cattle onto another cleaner path, and the whole process begins again. Large trees are left standing like islands in seas of mud, but with their roots choked in the stagnant goo they begin to die back and fall. The forest stinks like a badly managed farmyard.

Here is a situation which is to no one's advantage – its bad for the cattle, bad for the tourists and biologists (and hence the Forestry Department's revenue) and above all bad for the forest. How can it be changed? One way would be to forbid grazing in the *Kalunya*; but why should only one of the user groups suffer, especially since there is a desperate shortage of land in the location, and the grazing itself does no harm? To keep out the cattle would cost a lot of manpower and worsen the already rather sullen relationship between the Forest Department and its neighbours who feel usurped from a traditional resource.

I think it might be possible to manage the problem but only after consultation and in cooperation with the cattle owners.

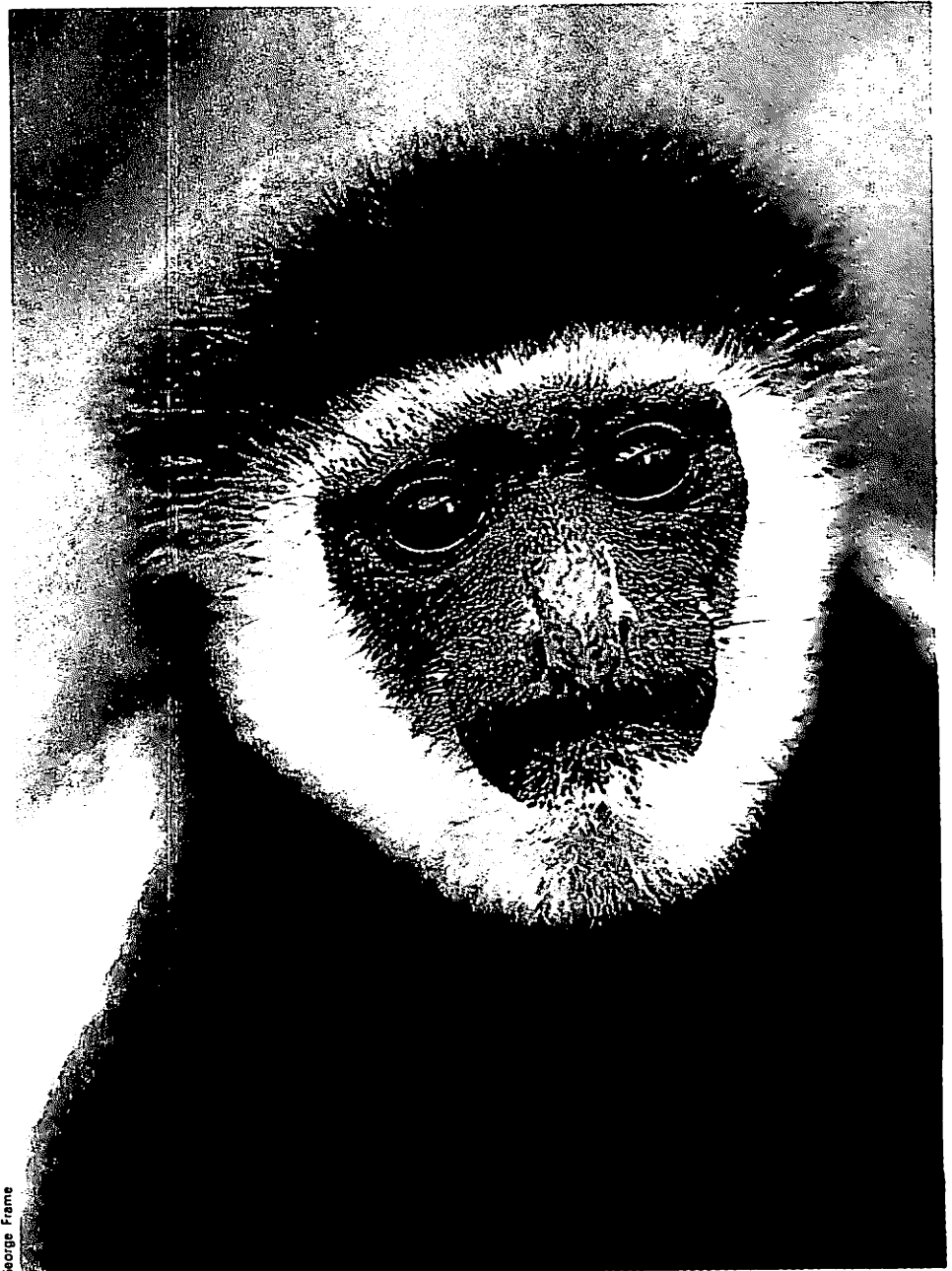
One rather revolutionary suggestion would be to use the grazing for young stock and dry cows which are not needed at home everyday, and leave them at the grassland for a week at a time (between dipping), allowing herders to camp with them overnight. Another possibility would be to use the grassland for a plantation of mixed indigenous hardwoods, so eliminating its attractiveness for grazers. That might mean de-gazetting part of the Nature Reserve, which seems a rather paradoxical way of protecting a forest. Whatever plan was adopted, its result would need to be assessed ecologically, so that it could be changed if it doesn't work.

The problem of multiple use is faced in Amboseli, and the Kakamega forest is another of many places in increasingly crowded Kenya where it arises. The first step is to acknowledge that conflicts exist, and that high-handed, authoritarian "solutions" are not appropriate, nor in the long run, successful.



Tim Campbell
Kakamega forest tree-tops.

Colobus monkeys are one of the many creatures to be found in Kakamega forest.



George Frame

RHINOS; **What shall we do?**

by Faith Halter

in these international programmes, the Kenyan Government has developed a national rhino programme which concentrates on security needs.

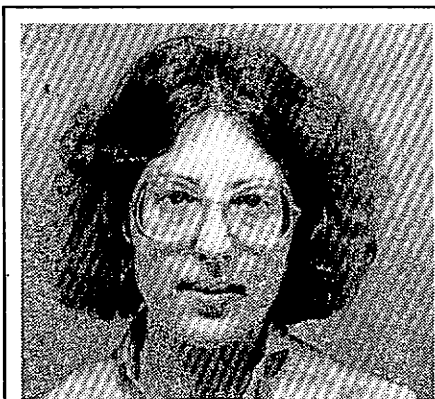
The surest way to save black rhinos would be to eliminate the lucrative market for their horns, but this tactic alone will not suffice. Despite the significant achievements of international and domestic efforts, there are so few rhinos left in Kenya that attempts to stop the trade in rhino horn and related poaching may not succeed in time to save them. Therefore, the issue of how best to manage the rhino populations remaining here has become crucial. There are several management approaches available to the Kenyan Government. This article will analyze the following options: doing nothing; translocation; dehorning; establishing breeding sanctuaries; and posting armed guards.

Doing nothing is not an acceptable solution.

Naturally, the shrinking number of rhinos is only one of numerous problems demanding the attention of Kenya's Wildlife Conservation and Management Department. Whenever wildlife managers have limited money or staff to cope with many pressing issues, they must consider the option of doing nothing in some cases; cutting their losses and giving up on a particular problem because it is hopeless or because it is not as worthwhile as some other project. In the case of the black rhino, no one seems to have seriously considered this option. Why? One reason is that the rhino is the last surviving member of a family which first appeared 60 million years ago, and had 34 different species. It is now unique in the animal world. If the rhino were to become extinct, it is most unlikely that any similar animal would evolve.

Striking as they are, these facts alone might not be enough to save the rhino; there are many species whose existence is threatened by human development. However, few of them have captured people's imaginations in the same way as the black rhino. It is one of the "big five" of African game animals. People are fascinated by the rhino's incredible appearance (some would say ugliness) and size. During recent years, as various

organizations have taken up its cause, the black rhino has become a symbol of the worldwide conservation movement. To lose it now could have serious consequences beyond the loss of this one species.



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Translocation - the main option?

The management option which has received the most attention is translocation, capturing rhinos and moving them to a new site. This is usually done to remove rhinos from an area that has become unsuitable, either because of human settlement or heavy poaching. This is a difficult job requiring great skill and careful planning. If carried out carelessly then there is an unacceptable risk of killing the rhinos instead of saving them.

The first step in a translocation is to find the rhinos to be moved. This can be quite a challenge, since they usually live in areas with dense vegetation. The most effective way to locate rhinos is to block off small areas and conduct a systematic ground search, preferably with an aircraft overhead to help spot animals which the ground search has flushed.

Ground searches are very effective, and safe for both rhinos and searchers if conducted properly especially if carried out by people with local knowledge in conjunction with trained observers. Although the idea of an aerial survey may seem attractive at first, experience has shown that aerial searches are much less effective at locating rhinos; in fact a small amount of ground work by really skilled observers can save hours of flying and avoid tying up other men who must stand by to capture once an animal is located. For example, during a translocation project near the Abedares National Park in 1979, the warden was unable to spot three rhino from a light aircraft, even after passing twice over an area where two rangers were signaling to him, with their car parked in the direction of the rhinos. In cases where a search is conducted from the air, the best results are obtained when an experienced bush pilot and an experienced observer fly together.

Tranquilization needs care.

Once the searchers locate a rhino, they dart it with a tranquilizer. The Wildlife Conservation and Management Department often does this from a helicopter, though it sometimes uses ground vehicles. There are many variables that determine the success of a darting operation. These include proper calculation of the dosage, whether the dart enters the rhino at a spot where the tranquilizer will quickly take effect, the condition of the rhino, and the skill of both the pilot (or driver) and the darter. After it has been darted, a rhino will usually run a distance of between $\frac{1}{2}$ mile



1. These numbers are the estimates of the Kenya Wildlife Conservation and Management Department. Some professionals believe that the Department's figures are optimistic, perhaps even double the actual number of rhino remaining in Kenya.

2. Convention on International Trade in Endangered Species (1973). Kenya is a member of this treaty.

...RHINOS

and 2 ½ miles. If all goes well, the rhino should stop within one mile, and go down after swaying for a few minutes. If the rhino runs much farther than that, there are likely to be complications due to stress or incomplete tranquilization. It is vitally important not to lose sight of a darted rhino, because it is in a very vulnerable state; but equally important not to chase it or head it off. One advantage of a helicopter is that after darting the pilot can usually hover high enough above the ground to avoid disturbing the rhino any further but still keep it in view.

After the rhino has succumbed to the tranquilizer, the actual translocation can begin. Rangers put the darted rhino on a sledge, tie it down securely, and winch it onto the back of a waiting vehicle. What they do next depends on the time it will take to reach the rhino's new home.³ Since an adult rhino may weigh 1-1 ¼ tons it is unsafe to tranquilize a rhino heavily for more than two hours. If it lies in one position for longer than that, the pressure from its body weight can

damage the radial nerves in its legs. If the translocation site is near the place where the rhino was darted, it is best to release it as soon as possible. Often, it will be taken directly to its new home, and released after receiving an antidote for the tranquilizer provided the new home has not already got too great a population and the balance between cows and bulls is acceptable. In this situation, a rhino will usually adjust with little trouble, assuming that the new site is enclosed so that it can not return to its old home. If the translocation site is more than a few hours from the darting site, the darted rhino will travel in the vehicle to a nearby holding pen, where it will receive an antidote and then recover from the effects of the tranquilizer for several days. Towards the end of this period, the rhino's food will be placed inside a large box within its enclosure. Once it has recovered, the rhino will be transferred to its dining box for transport to the translocation site.⁴

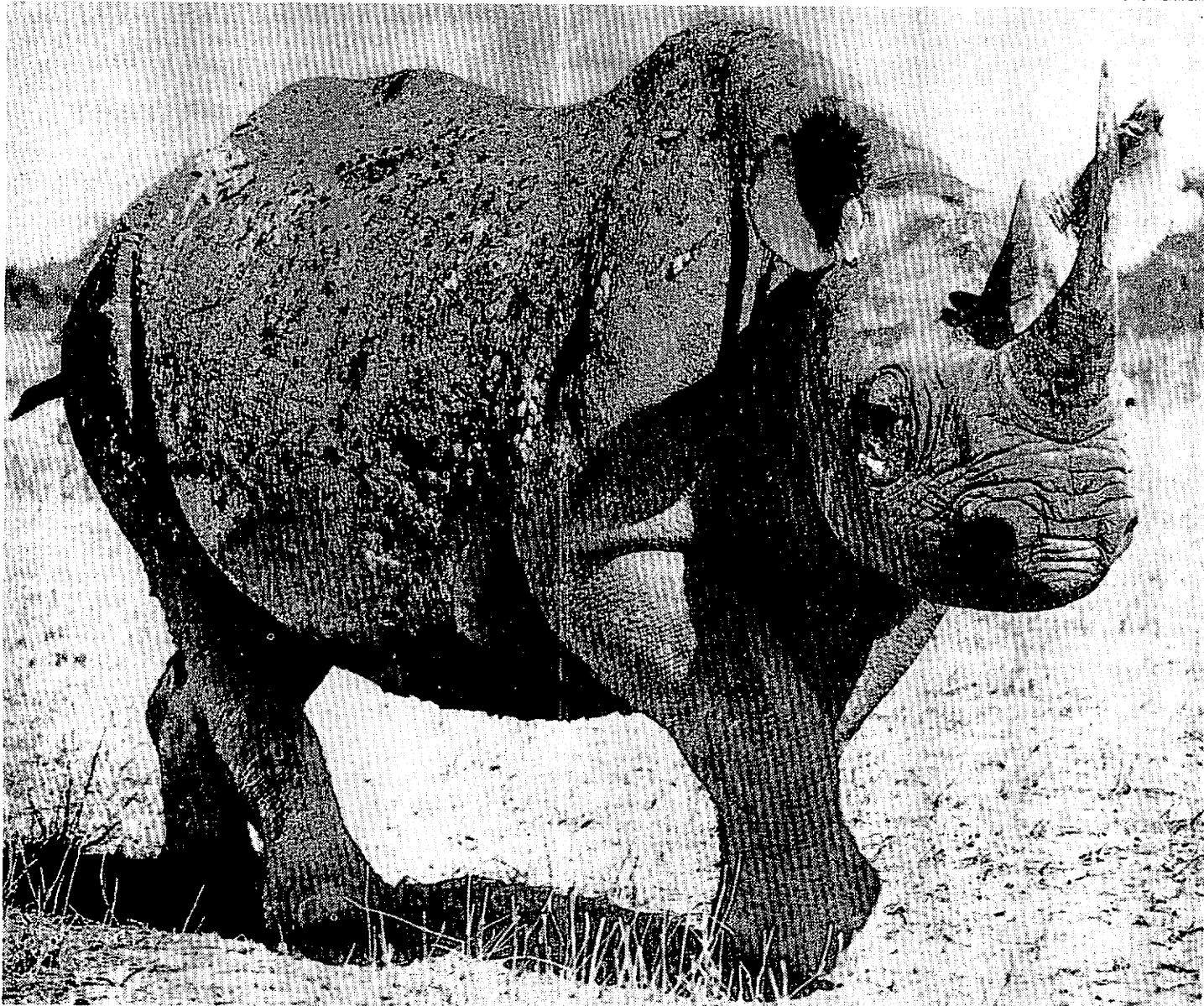
How safe?

The process described so far has become standardized and is generally very safe for the rhino if conducted

properly. The tricky part comes after the rhino travels from a holding pen to a distant translocation site. If a rhino is released in a strange area, especially one that already has a significant rhino population, it may take a long time to adjust. If it is just released suddenly, it could die from shock, disease, or a fight with another rhino. Serious fighting is likely to result between current residents and newcomers who are released without adequate preparation, because they will not have had an opportunity to become familiar with each other and to establish hierarchies. Where several rhino are being translocated to a place that already has a fairly dense population, the acclimatization method that seems to work best is to house the translocated rhinos in separate room-sized pens built around a central enclosure. Once they start to become accustomed to each other, their keepers can let small groups of them mix in the central enclosure. When the newcomers are fairly comfortable with each other and with residents of the area which have visited their pens, it is usually safe to release them, one at a time. It is usually best to release them within one month, before

Black rhino in Amboseli National Park, Kenya.

Frants Hartmann





Black rhino with calf in the Ngorongoro carter, Tanzania.

problems such as inadequate diet, disease, or excessive tameness develop. In places where the population density is high, this operation will be more successful if only females are translocated.

Black rhino translocations have worked well when carefully planned and executed. The experiences of South Africa are a good example. People are most familiar with the South African Natal Parks Board's highly successful programme of translocating white rhino.⁵ However, during the last twenty years, the Parks Board has also carried out several translocation programmes for black rhino, in conjunction with other conservation authorities. The programmes have served two purposes: to protect rhinos subject to pressures from human settlement or poaching; and to reintroduce them to parts of their former range. In at least one case, translocation was necessary to relieve overcrowding. Black rhinos have been translocated both from within South Africa and from other countries. Over the 12 year period from 1961-72, the South African authorities translocated 56 black rhinos, with an overall success rate of 79%. During early efforts a substantial percentage of



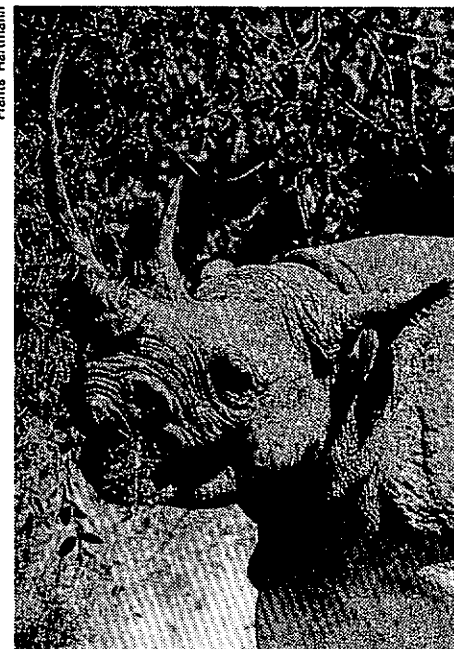
An early translocation of rhino (funded by the East African Wild Life Society).

animals released died (4 out of 15 in one case), usually from fights with resident rhinos. However, as the game departments refined their acclimatization techniques, which are now like those described here, they were able to conduct translocations without any injury to the rhinos.

In Kenya, translocation results have been mixed. In 1959, the Kenya Game Department established the first Game Capture Unit in Africa when it was ordered to clear rhinos and other dangerous animals from two proposed settlement areas.⁶ Since the 1960s, the Game Capture Unit (now part of the Anti-Poaching Unit) has translocated more than 100 rhinos from settlement areas or areas where large numbers were being poached. Some translocated rhinos died after they were released in their new habitats without adequate preparation. However, many of the translocations conducted by the Wildlife Conservation and Management Department have been successful. This has been especially true where the Department has translocated rhinos to nearby private game ranches with tight security.⁷ One ranch which originally had no black rhinos, now has a considerable population and it is likely that in the future, when safe rhino sanctuaries have been established, such ranches could provide a means of restocking.

The Wildlife Conservation and Management Department is now carrying out a plan to translocate black rhinos from sites which are unsuitable, either because of human settlement or heavy poaching, and concentrate them in safer areas. Eventually, the Department intends to establish permanent rhino conservation and management zones within selected National Parks and Reserves.⁸ For this programme to be successful, it is essential that the Department complete a thorough population survey and detailed plans for rhino sanctuaries with adequate security.

Frans Hartmann



Black rhino are browsers (eating bushes) whilst white rhino prefer grass.



3. Here again skill and careful preparation are essential. Once the rhino is down the ideal is for the capture team leader to be first there – when possible by landing nearby and running in. He will have to secure the rhino's legs with specially made adjustable padded straps, interconnected by chains of the correct length. A properly equipped unit will have ramps to fit their lorry or trailer so that the winching up is quick and painless. In rough country it may be necessary to have a grader standing by together with a tractor and trailer so that even if the rhino runs into bad ground it can still be reached quickly. *Ed.*

4. It may be necessary to feed a rhino in its holding pen for some time whilst it calms and lames down. This will vary from animal to animal and in some cases it may be as much as two months. Even then it is essential to proceed slowly and accustom the animal first to stationary feeding boxes then to boxes on a stationary lorry, later to boxes with the lorry engine running followed by a trial run on the vehicle.

If the actual journey is a long one then watering, feeding and rests en route are very important as is the manner in which the lorry is driven! *Ed.*

5. By the end of October 1980, the Natal Parks Board had translocated a total of 2,402 white rhinos. The problems in translocating white rhinos and black rhinos are somewhat different. The two species react differently to some drugs. Also, white rhino are easier to manage than black rhino because they are more gregarious and sometimes more tame.

6. The Department wanted to avoid the events of sixteen years ago, when over 1000 black rhinos were shot to clear areas for settlement schemes that were never fully developed.

7. The ranches are not named here for security reasons.

8. Last year, the Wildlife Conservation and Management Department completed detailed planning for a pilot rhino sanctuary scheme in one of the National Parks. However, the Department has not yet begun to implement this plan.

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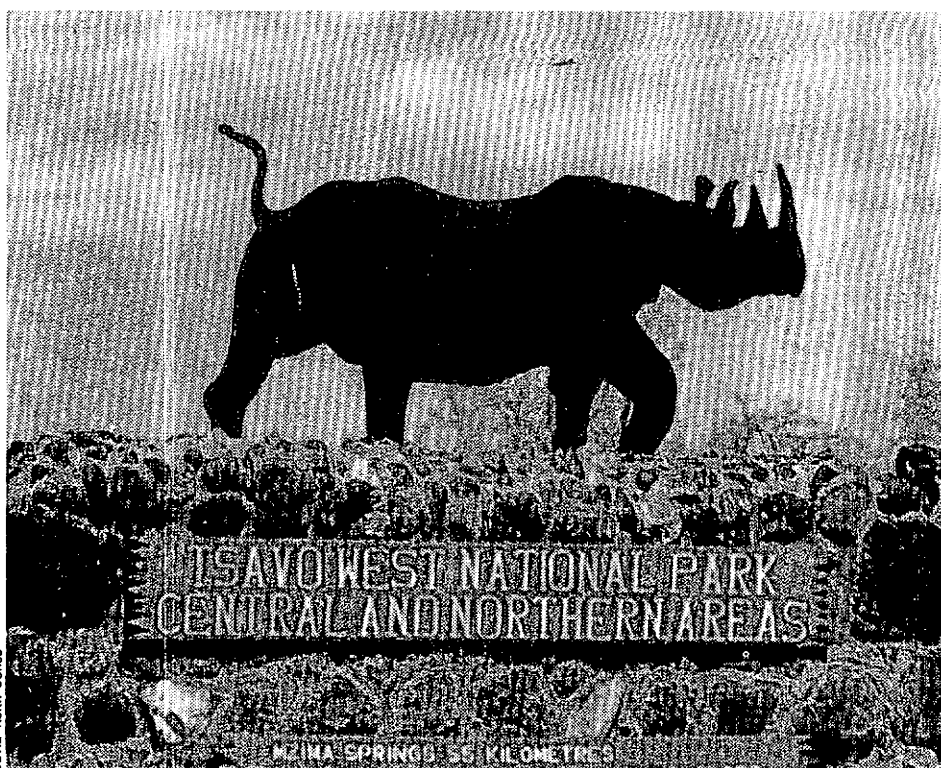
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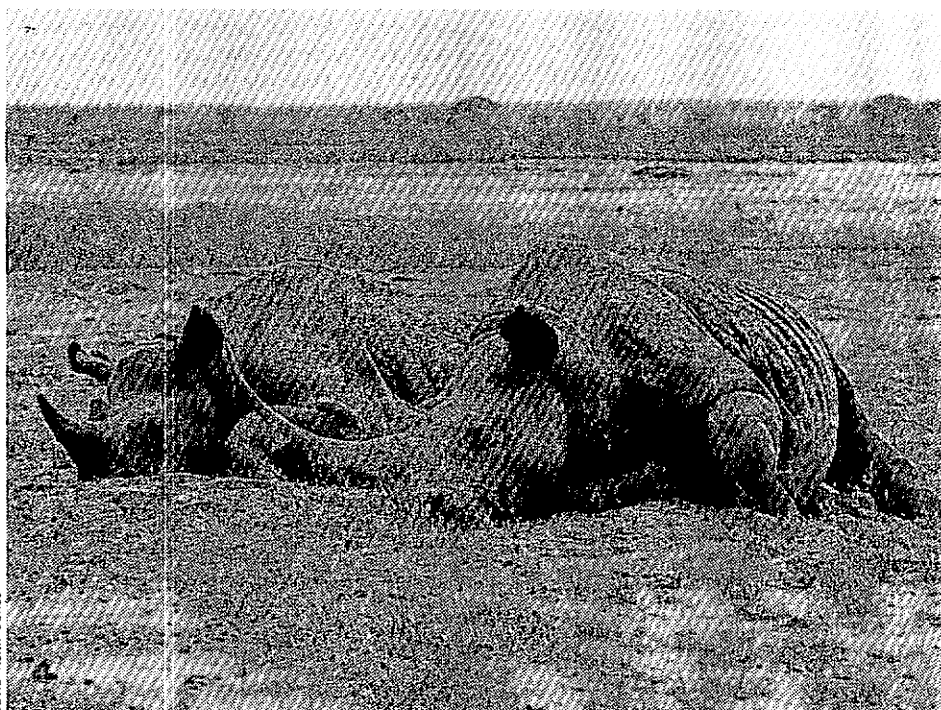
"Every visitor to a Kenyan National Park is greeted by a black rhino — the metal one on the entrance gate."

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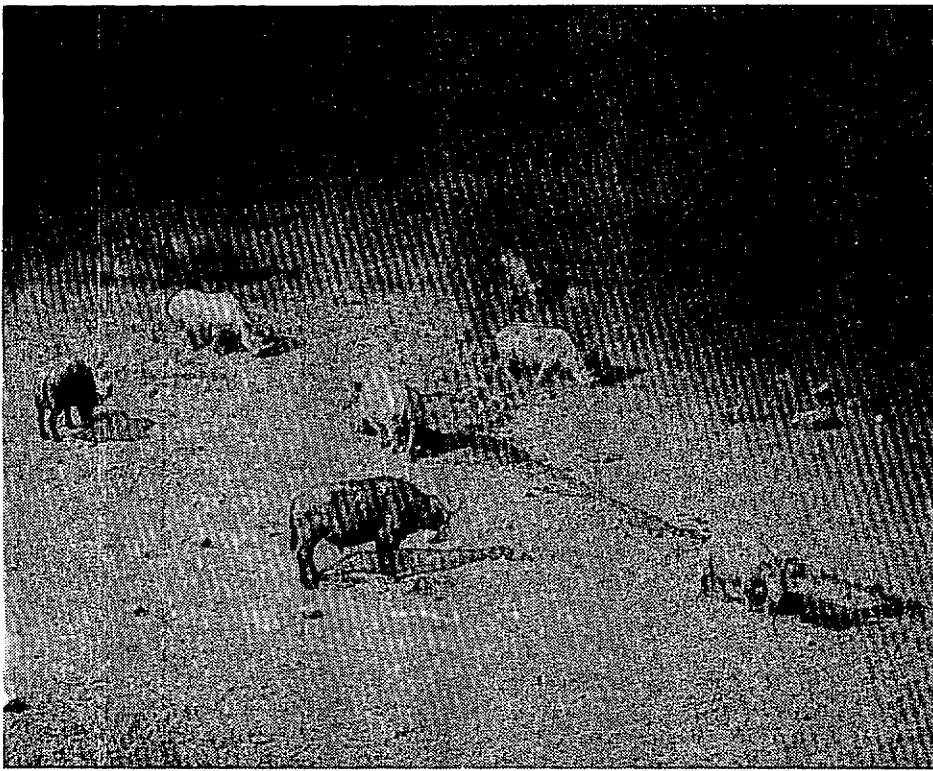
Nearly everyone interviewed for this article agreed that it is a good idea to remove rhinos from areas subject to heavy poaching, provided that the Wildlife Conservation and Management Department is sufficiently careful." By concentrating the translocated rhino in relatively safe areas and establishing management zones, the Department should be able to protect them more effectively from poaching, and the public will have more opportunities to view them.

Some conservationists object to a major translocation programme because they believe that we need more information about questions such as optimal rhino density.¹⁰ Partly because black rhinos travel alone and live in dense bush, we still lack surprisingly basic information about them.¹¹ Some people fear that concentrating a substantial number of rhinos in one area may result in harm to them that we could not foresee because of ignorance about their habits and needs. While it would certainly be desirable to have

Black rhino in Amboseli National Park, Kenya.



David Keith Jones



David Keith Jones

Black rhino at the Treetops waterhole in the Salient of the Aberdares National Park near Nyeri, Kenya; September, 1981. This is clearly an exceptional area for rhino since they have always been plentiful there – see footnote 14. Nowadays the forest lodges afford visitors their best chance of seeing wild rhinos.

more knowledge about rhinos, it could take 2 or 3 years to obtain reliable new data on questions such as optimal population density. The Kenyan Government can not afford to delay any longer. The success of South Africa's and Zimbabwe's programmes, as well as some of the translocations to private game ranches in Kenya, argue strongly in favor of actively pursuing similar projects here.

What about de-horning?

The next option for managing rhinos is more drastic – removing their horns.

Conservationists began to consider this approach more than 25 years ago. After all, some people have argued, the horns are the reason for poaching rhinos, and so if we removed their horns, there would be little incentive to kill them. Some professionals think this idea merits further consideration. However, no one has ever tried it in the wild, and so no one is sure what to expect. The two main questions are: would the operation have to be repeated periodically; and how would loss of their horns affect the rhinos?

A recent photograph of a black rhino and calf in Amboseli National Park, Kenya.



Michael Gore/Nature Photographers

Rhino horn, unlike the horn of cows or deer, does not contain any bone. It is an outgrowth of skin consisting of a compacted mass of agglutinated fibres called keratin. It has a slightly concave base which fits over part of the nasal bones. The horn is held in place by the thick skin surrounding it, and not by any attachment to the skull.

Opinions differ on whether it would be possible to permanently inhibit growth of a rhino's horn, perhaps by cauterizing the area around the base. If the horn did continue to grow after it was removed,¹² then a dehorning programme would have to be repeated periodically, since rhino horn is so valuable that poachers will kill for even a small piece of it. The effect on rhinos of removing their horns is also uncertain. They use their horns for defence, and also for the fighting between male and female that precedes mating. Sometimes they use their horns for digging up minerals. Perhaps mating behaviour would not be seriously affected if the horns were removed from all the rhinos in an area, so that none would be at a special disadvantage when fighting among themselves. It is unclear whether rhinos without their horns would be attacked more by predators, but there is a danger that mother rhinos would have difficulty in defending their calves.¹³



9. Some professionals believe that if the Department uses well-trained personnel and up-to-date equipment, it should lose only 1% of the rhinos it translocates.

10. Today black rhinos are considered to have a normal population density of less than one rhino per square kilometre. Certainly this is the highest density to be found anywhere in present day Africa – and then only in one or two very well protected places. However some professionals believe that if the habitat is appropriate rhinos could comfortably exist at higher densities than this. Reports from earlier this century, when black rhinos were more numerous, indicate much higher densities than one would find today. Listen to Meinertzhagen writing in his Kenya Diary for December, 1902 at Nyeri:

"The number of rhino here is incredible. We and our men have in the last few days been compelled to kill 17, and yet the country is teeming with them. Barlow and I yesterday evening found 3 across our path when we were returning home. We shouted at them, but they only got excited and refused to budge. I had an 8 bore rifle with me and at 30 yards bombarded the nearest beast. I missed him, but the roar of the cannon sent him flying for miles with all his companions. We saw 21 different rhino today."

11. Current studies of black rhino translocated by the Natal Parks Board in South Africa will eventually provide us with more information. In Pilanesberg Game Reserve in Bophuthatswana, Dr. A.K. Hillman is conducting the first detailed studies on the behavior of black rhinos after their release. Dr. Anthony Hall Martin is conducting more general studies of black rhino released in Kruger National Park.

12. One person interviewed estimates that rhino horn might regrow as quickly as two to four inches per year.

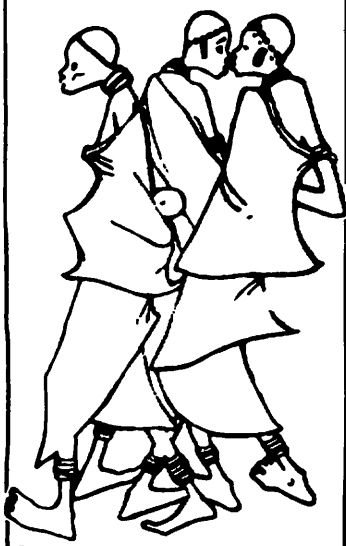
13. It should be possible to research relevant information on dehorning by following up the history of known rhinos which for one reason or another have lost their horns. *Ed.*

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Another question which is hard to answer is how the public would react to a large-scale programme to remove rhino horns. As many readers of *SWARA* magazine know, public opinion can have a substantial effect on game management policies. Public reaction must be a concern for Kenya because of the importance of tourism here. Some wardens are concerned about how tourists would respond to the sight of rhinos with holes where their horns ought to be. A more serious issue is how the general public would react to the news that Kenya was removing the horns from some of its rhinos. The Government would need to educate the public about the reasons for this action, to help avoid a severe outcry in Kenya and abroad. One might think that Kenya could forestall a negative reaction to dehorning by not publicizing it, but this would not be a feasible solution because a dehorning project must have publicity to succeed. If poachers are not aware that a rhino population no longer has horns, they will continue to attack it. This is another reason why the Wildlife Conservation and Management Department would have to remove the horns of ALL rhinos in the same area. Otherwise, poachers would still hunt them. One could not even assume that poachers would only kill rhinos that did retain their horns, since it would often be difficult in thick bush to see whether a particular rhino was horned or hornless.

These last few points raise another important difficulty. In order to conduct a useful experiment in dehorning, the Department would have to devise some way to measure its effectiveness. It would probably not be feasible to dehorn just half the rhinos in an area, for the reasons just stated. Yet if there were no control group near by, how could the Department determine whether any reduction in poaching was due to some factor other than dehorning?

Despite these potential problems, some of the people interviewed thought that it might be a good idea to try dehorning rhinos in one area;¹⁴ provided, as in the case of translocation, that the Wildlife Conservation and Management Department proceeded with great care and skill. However, the Director of the Wildlife Conservation and Management Department, in agreement with other members of the Ministry of Environment and Natural Resources, has taken a firm stand against dehorning. Aside from all the technical obstacles, the Department objects strongly to the artificiality of this solution. Kenya is not alone in its reaction; the idea of dehorning has been proposed to several governments which are trying to save their rhino populations, and none of them has shown much enthusiasm.

Breeding sanctuaries

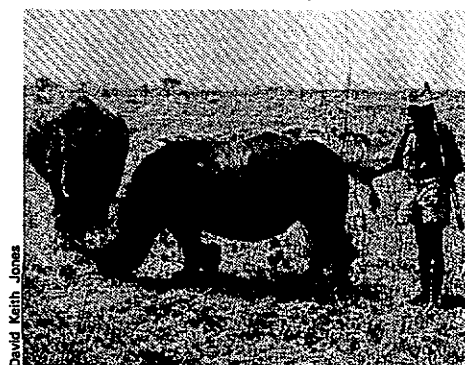
Another possible approach to rhino management would be to establish special breeding centres. This was successful in the case of the Arabian oryx, which existed in dangerously small numbers a few years ago. Some animals were sent to the southwestern United States, where they lived in a secure area similar to their native habitat. The oryx bred well, and they have now been reintroduced in Saudi Arabia and Oman.¹⁵ It is not clear whether this strategy would be as effective in the case of the black rhino. For one thing, we would be dealing with a larger time scale, since rhinos only breed every 2½ to 5 years. The major attraction of such a plan would be security from poaching.

To some extent, the sites to which rhinos are translocated function as breeding sanctuaries. Concentrating rhinos at viable population densities in protected areas encourages more active breeding. Rhinos have an acute sense of smell, and they communicate with each other and orient themselves in their territories primarily through scent marks. When a population becomes exceptionally small, the rhinos may only infrequently find each others' markings, and so the chance of encounters between females in estrus and potential breeding partners is greatly reduced. The private game ranch referred to earlier demonstrates the breeding benefits of a good translocation programme, backed up by adequate security precautions.

Even if further study showed that special breeding sanctuaries were not a particularly good option, there is another type of breeding experiment that may prove very valuable. Geneticists are developing methods to preserve animal genes for long periods of time.¹⁶ Perhaps it will soon be possible to establish storage banks for endangered species, or even to fertilize an ovum in a test tube, and then implant it in a member of that species or a related species. If these techniques become available, the rhino will certainly be an early candidate for a space in the gene storage bank.

In extreme cases, where standard security measures are not adequate to protect rhinos, a game department will occasionally take the drastic step of assigning them bodyguards. The Kenya Wildlife Conservation and Management

White rhino being guarded by rangers in Meru National Park, Kenya.



Department has done this for the white rhinos at Meru National Park. These rhinos, which were translocated from South Africa, are so rare that they are kept in a large enclosure with a guard.¹⁷ On the occasions when one has escaped, rangers have immediately gone out to search for it. Tanzania tried a similar tactic under much more difficult circumstances in Ngorongoro Crater, where the black rhinos roam freely. Such measures are quite effective,¹⁸ but they are nearly always impractical because of their drain on manpower. Still, the Kenya Wildlife Conservation and Management Department could try this for black rhinos in a particularly dire situation for a limited period of time.

Choosing the best option.

We have now reviewed the options for managing Kenya's black rhino population. The question still remains, "Which options should be implemented?"

At least for now, the idea of doing nothing at all is not a serious option. In addition to the biological arguments, the value of the black rhino as a tourist attraction and the degree of public concern about its fate make this approach unacceptable.

Translocation, the option the Wildlife Conservation and Management Department is now implementing, clearly seems to be the most important. It is a proven management tool. Removing black rhinos from areas where there is heavy poaching and concentrating them in protected areas will provide several benefits: better protection of the rhinos; more opportunities for people to see them; and higher breeding rates. Translocation is attractive for administrative reasons as well. There is already a considerable fund of experience in the Wildlife Conservation and Management Department, which can be bolstered if necessary by expertise from elsewhere. Also, once the rhinos are settled in their

new habitat, their maintenance should not place any extraordinary demands on the Department. (It is important to remember, however, that the ultimate success of these efforts will depend partly on the Department's ability to protect rhinos in designated high security areas.)

It is difficult to evaluate the option of dehorning.¹⁴ It does not seem practical as a long-term management policy. Even if it is possible to permanently inhibit the growth of rhino horns, the idea of doing this on a regular basis for future generations of rhino is unappealing from an administrative and aesthetic viewpoint, to say nothing of the possible biological and moral issues involved. In light of these problems, and the constraints of limited resources and time, The Wildlife Conservation and Management Department's decision to pursue other, more viable options seems sensible.

The possibility of breeding centres certainly deserve further study. However, right now it is probably best to concentrate on translocation efforts, as opposed to establishing sanctuaries devoted solely to breeding purposes. Translocation projects should encourage breeding, and they will provide other benefits as well. They would also cost less than any breeding project designed to remove rhinos from their natural habitat and then reintroduce them later. Furthermore, the Department may be able to apply special breeding techniques, such as artificial insemination, to the rhinos in protected management areas. Perhaps scientific research will eventually provide a means of preserving the essential genetic components of rhinos, as well as other endangered species; though this would be a poor substitute for maintaining them in the wild.

Assignment of armed guards is another option which would be impractical as a regular management policy. However, the Department could use it in conjunction with any of the other approaches in an emergency situation.

Action is needed now.

One thing that seems very clear is that the Kenya Government must implement its translocation programme, and any other management options it chooses, very soon – and implement them well – if they are to be effective. Otherwise, the option of doing nothing may indeed make the most sense. Over the past few years, the Government and both international and local organizations have devoted much time, effort, and expense to reviewing the options for conserving Kenya's black rhino population. They can no longer afford to merely study this problem. If the rhino population continues to decline at the current rate, and the Government does not successfully act to mitigate the losses, the time will come when it is no longer feasible to try to save black rhino in the wild here.

The Wildlife Conservation and Management Department has received a special allocation of K.Sh. 5,000,000/– (\$500,000 U.S.) this year for its rhino programme. If the Department executes its current management plan quickly and efficiently, it could make a significant difference to the status of black rhino in Kenya. Given the constraints on the Department's resources, especially its personnel resources, it is probably not realistic to expect that it would be able to do more than this without outside assistance.¹⁹ However, such an effort, combined with continued vigilance against poaching and the trade in rhino horn, would help to ensure that the symbol on the gates of the Kenyan National Parks remains present in the flesh.

See also our Editorial on page 7.

14. See also Dr. David Western's article on dehorning elsewhere in this issue. *Ed.*

15. See *SWARA* Vol. 4, No. 6 (Nov/Dec 1981). *Ed.*

16. See "Preserving the genome of endangered species" by J.C. Daniel in *SWARA* Vol. 4, No. 3 (May/June 1981). *Ed.*

17. There are now six white rhinos at Meru, which are less than the number needed for a viable population. The Natal Parks Board has offered to donate an additional forty rhinos to the Kenyan Government; but there maybe political reasons inhibiting the acceptance of this offer.

18. Of course, the effectiveness depends largely on the integrity and diligence of the rangers who serve as guards. There have been charges that the game rangers working in Ngorongoro Crater were responsible for some of the poaching that occurred there. (See "Rhino Poaching in Ngorongoro" by W.D. Meiliari in *SWARA* Vol. 4, No. 5 (Sep/Oct 1981). One's outrage at this possibility may be tempered somewhat by the realization that game rangers often receive very low salaries, and so the temptation to sell some rhino horn can be great. This problem is compounded by the fact that after risking his life to apprehend poachers, a ranger may testify at the prosecution, only to hear the court give the poacher a short jail sentence and a fine that is much less than the poacher's financial profit from his offence.

19. Some experts doubt whether the Department will even be able to complete its translocation programme unless it obtains additional training for its staff, as well as more money and personnel.

Consultants

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Book Reviews

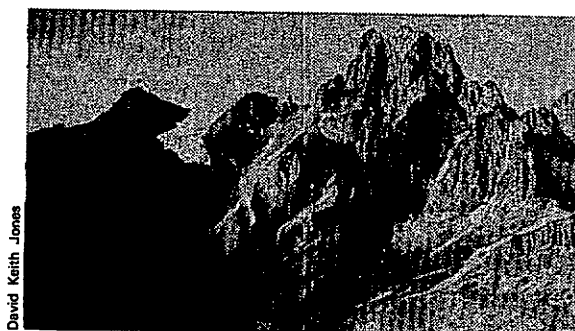
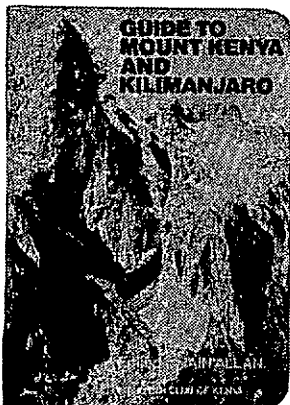
GUIDE TO MOUNT KENYA AND KILIMANJARO.

Edited by Iain Allan.

Mountain Club of Kenya, P.O. Box Nairobi, Kenya.

Plastic covered paper back; 4 1/4" x 6"; 284 pages; photographs, maps and diagrams.

This completely revised third edition of the guide book to Mts. Kenya and Kilimanjaro was overdue even before the



David Keith Jones

An aerial view of the north face of Mount Kenya, one of the many illustrations in the new guide book.

plants and unusual animals were explained during the last decade. This excellent new guide book, which includes all this new information in a fresh format, has been produced by a team of volunteers from the Mountain Club of Kenya, lead by Iain Allan.

No longer do we have the old 'guide book' but a pocket-sized, plastic-covered 'guide'. Indeed, reading the guide is rather like consulting a knowledgeable local mountaineer for advice on clothing and routes. Also the very readable sections on geology, glaciology and natural history enable the walker to positively appreciate the beautiful mountain scenery.

The cover illustration is a beautiful colour photograph of the soaring peaks

frequently with little mountaineering experience - who each year attempt to reach the highest points of these mountains accessible to walkers. The book significantly opens with a chapter on mountain medicine which should be read by every prospective visitor. The unique equatorial glaciers, climate and plants have also attracted international interest, as reflected in the immensely interesting chapters on glaciers, climate, flora, fauna and geology. Subsequent chapters deal separately with access, transport, huts, porters, permits, accident procedure, walking and climbing routes, and finally the origins of place names on each of the two mountains.

A balanced selection of 24 black and white photographs, unfortunately not always well printed, give the reader an idea of the dramatic views one sees on these wild mountains. The sketch maps are useful for navigation in the peak areas.

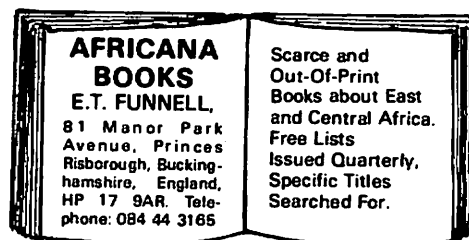
Twice have I been stranded in two Tarn Hut with sick companions, the second edition being my only solace. Despite its slightly increased weight, this new guide will now be my favourite book on future trips up Mount Kenya. Iain Allan and the Mountain Club of Kenya are to be congratulated on producing a first rate guide of full international standard.

Clare Shorter.

second edition, printed in 1971, became unavailable. This was the result of rapid developments on these two East African peaks. Mountains themselves rarely change, but on these particular tropical ranges glaciers have retreated, numbers of visiting tourists have increased annually, huts were built, new climbing routes were 'put up', and the mysteries behind mountain ailments, gigantic

of Mt. Kenya on which 17 new routes of international stature have been climbed. Altogether 80 routes on Mt. Kenya and over 20 routes on Kilimanjaro are described, some with refreshingly clear topographical diagrams. Serious climbers will be interested in the changed grades of difficulty given to some of the routes.

However this book is mainly directed towards the thousands of people -



SWIFT AND ENDURING.

George and Lory Frame.

E.P. Dutton, New York.

Hard back; 8 1/2"; 242 pages; 24 black & white photographs; drawings; map.

More and more zoologists are following the footsteps of Van Lawick-Goodall and Douglas-Hamilton in producing a general interest book about their studies, as well as a technical report.

George and Lory Frame spent four years in the Serengeti National Park (1973-1977) studying the cheetah and wild dogs (hunting dogs, *Lycaon pictus*) of the area. This book is about their work. George has written the chapter on cheetah, whilst Lory has written about the wild dogs. It would have been neater if the two topics had been covered in two separate sections rather than having the chapters mixed up together.

The subjects I found interesting and the styles readable; but 230 pages of what is effectively a diary of observations is not easily digested.

Two events described in the book stand out in my mind: the Hopalong

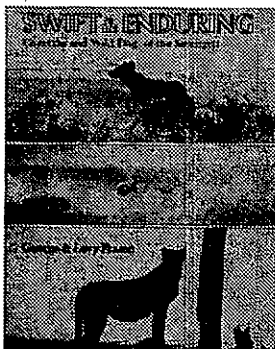
pack of wild dogs travelling at least 40 miles to obtain a meal and returning to their pups who had been alone and unfed in the den for 24 hours; and the sad spectacle of Tomoko, the cheetah, who had returned to her lair to find that her five cubs were missing, spending three days searching for them before giving up and moving away.

Each chapter is headed by a delightful drawing of a relevant subject by Lory. Many could have been printed larger to greater effect. Having seen a number of George's excellent colour photographs published elsewhere I would have been

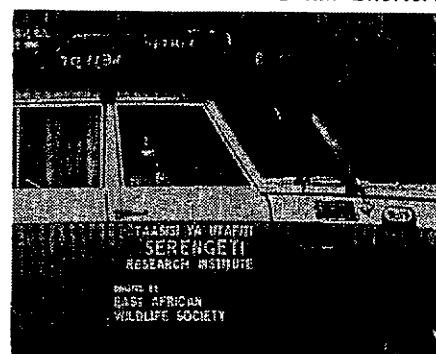
pleased to find some in this book; however only black and white were used. They are not printed on separate glossy paper but on the same matt paper as the text which does not achieve a high standard of reproduction. But it was good to see a picture of the study vehicle used by the Frames clearly showing that it had been donated by the East African Wild Life Society!

In sum this is a full length book about the study of cheetah and wild dogs, with attractive black and white illustrations.

Brian Shorter.



Lory Frame at work in the Serengeti, recording the behaviour of wild dogs. The vehicle used for the Frames' research was donated by the East African Wild Life Society.

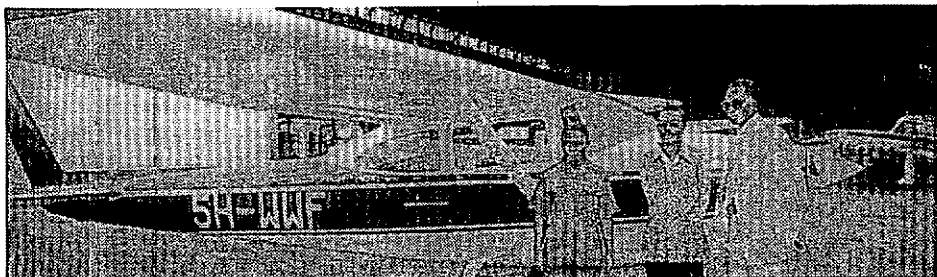


Tanzanian aircraft repair.

The Society is to pay for the complete overhaul of instruments on an anti-poaching aircraft from Tanzania. It could not be repaired in Dar Es Salaam due to lack of spares.

Following an appeal from the Tanzanian authorities (who had no foreign exchange available) EAWLS has agreed to fund the repair which will be carried out in Nairobi at an estimated cost of K.Shs.50,000/00 (U.S.\$5,000).

The aircraft is used for anti-poaching work in Tanzania's 50,000 sq. km. Sealous Reserve and in the 13,000 sq. km. Rungwa/Kaizigo area.



The Society's Administrative Officer, Mr. N.K. arap Rotich, met Mr. Bahari Mbano, Assistant Director for Tanzania's Wildlife Division, at Nairobi's Wilson Airport to arrange for the repairs.

Thanks to Carolyn

We are sorry to say goodbye to Carolyn Ford Eagle who has been very active in helping the Society in the last three years. She has given freely of her time as a member of Council and as a member of the Management Committee.

The Society has benefited in many ways from Carolyn's work; she organised the very successful 25th Anniversary Dinner held in October last year as well as the enjoyable week-end at Lake Baringo. And she has given a lot of help with *SWARA* magazine, particularly with our *Safari World* pages.

Thank you Carolyn and good luck in Botswana.

Society Shop.

The long process of regaining control of the Society's shop, following the failure of the Wildlife Shop Ltd. which did not honour its agreement with the Society, is almost completed.

We hope to re-open a small kiosk to serve our members towards the end of June.

Christmas cards and 1983 Calendars.

We shall be publishing both Christmas cards and Calendars much earlier this year in order to make them available to overseas members. Please see our preliminary announcement on page 2. Full details and order forms will be included in the next issue of *SWARA*.

Predictably our brief report on the possibility of leopard hunting being re-opened (page 23 of *SWARA* Vol. 4, No. 5 Sep/Oct 1981) has provided more mail than any other issue mentioned in *SWARA* in the last 12 months. Two letters on this subject are published on page 36.

Surely it is too simplistic to take a moral stand against hunting or shooting wild animals and leave it at that.

Patrick Hamilton's study clearly shows that the translocation of leopards does not work; but nevertheless leopards can be extremely destructive and dangerous in settled areas. Hamilton is inexorably pushed (by the results of his

research) into recommending that leopards which cause damage to stock should be shot. There is no space here to summarise this evidence; but it is conclusive.

If the leopard is to be shot then a) why should it be immoral to sell a licence to kill it? and b) why should the skin be thrown away? In a world where domestic stock are carefully reared for slaughter it is difficult to justify an ideology which says it is immoral to exploit wild animals.

Farmers can be relied upon to ensure that cattle, sheep, pigs and goats do not become extinct even though they kill them for profit. Similarly in many areas hunters have shown that they will conserve a species in order to hunt it.

Some conservationists are clearly concerned for the welfare of individual wild animals. But is this really a tenable philosophy? Why should we be more concerned with the life of an individual leopard than that of the antelope (or goat) he eats for breakfast? Surely the real purpose of conservation today is to preserve habitats and species – something that can be done by good management; and good management may sometimes involve killing individual animals.

Unfortunately Hamilton's study also highlights some cases of gross mismanagement by Kenya's Wildlife Conservation and Management Department – particularly in connection with the translocation of leopards. This adds emphasis to our suggestion (below) that the Department should not hesitate to call on independent experts to assist with the translocation of rhinos. It also adds emphasis to the proviso that hunting can only re-open if it is honestly and effectively controlled.

Conserving black rhino remains one of the most urgent and intractable problems facing the wildlife authorities in Africa.

Although there has been enormous world-wide publicity of the rhino's predicament there has not been a consensus of opinion on what should be done and so the various conservation bodies have been rather ineffective.

In this issue of *SWARA* we take a long look at the various options. Faith Halter's analysis is not merely her own opinion; she has arrived at her conclusions after much research and consultations with many experts.

The following points seem more than clear:

1. Urgent action is needed now.
2. Translocations from dangerous areas to really safe sanctuaries is the most effective solution.
3. Translocation is a difficult task which must be carried out with great skill to avoid serious risk to the rhinos involved. The authorities should not hesitate to supplement their own staff with outside help for such difficult exercises. Several of the world's most experienced translocation experts live in Kenya and the Wildlife Conservation and Management Department should make every effort to benefit from their advice and help.
4. Translocation is very expensive; the various conservation organisations, including the EAWLS, should do everything possible to find substantial funds to assist the Department with its translocation programme.
5. Safe sanctuaries will be essential. Here again we should be helping with substantial funds.
6. We still do not know whether or not de-horning works. A project should be set up somewhere in Africa (not necessarily in Kenya) to test it and to follow up the history of known rhinos which have lost their horns.

Until this is done arguments for and against de-horning will continue fruitlessly; and if it does work then we are now wasting valuable time.

The long term solution for rhinos is to bring to an end the trade in rhino products in the middle and far east. But this will take time and until it is achieved the protection of rhinos in Africa should be one of our major conservation projects.



Kakamega forest

Kakamega forest, 25 miles north of Kisumu,
is unique in Kenya for it is west African in character and
contains many species not found elsewhere in this country.
A centre of controversy for years the forest has been used
as a study area by scientists, exploited for its timber and
even threatened with a sugar factory.

by Thelma Rowell

Dr. Thelma E. Rowell is a Professor at the University of California who has been working on primate research for many years. She has studied both captive primates in California and wild primates in Kenya (see *Military Monkeys* in *SWARA* Volume 3, Number 2) and has recently been working in Kakamega forest.

The Kakamega Forest Station is the head office for Kenya's biggest working indigenous forest; in its nursery over two million seedling trees are being prepared for the next planting season. Behind the office, the forest was selectively felled about thirty-five years ago, not very long after the station was established. The foresters then did some experimental "enrichment planting" with exotic hardwood species, especially on an east-west cut, half way between the forest station and one of those curious patches of grassland which occur in the middle of the Kakamega forest. Felling had stopped just short of this grassland and a Nature Reserve was declared to include it and the surrounding forest. In those days, I suppose, a treeless space was more noteworthy in Western Province than it is now. The boundary of the reserve was marked with piles of stones rather like graves – one can be seen about 50 metres from the grassland on the main path between it and the station. A second east-west cut runs in the gazetted reserve just south of the grassland.

Some inspired forester had a series of north-south cuts made between this latter cut and the forest station, at fifty or a hundred metres apart; the whole system is completed by a track which runs just inside the southern boundary of the forest, to form a grid of paths which gives the naturalist access to about half a square kilometre of the regenerating forest.

It is in this small patch of forest with its grid of paths that nearly all specimens described from "the Kakamega Forest" have been carried out, including our own studies of the monkeys, yet most of it isn't even a gazetted Nature Reserve, although lots of people call it one.

In some ways, this little patch is model for "Land of many uses". The Forestry Department follows the growth of some trees in it for research purposes; every year the Department uses a small area as a mine for forest soil, containing the mycorrhiza that will enable their annual crop of seedlings to grow strongly; understory plants (*Brillantaisia* and *Dracaena*) are cut for poles to support the shades for the seedlings. The forestry workers are usually careful not to damage tree saplings while cutting, and the undergrowth quickly regenerates.

The Forestry Department maintains a small resthouse at the station which usually has at least one party of bird-watchers or other biologists staying in it, and can also make a base for larger parties of students or the occasional convoy of tourists. All these people can gain easy access to the forest via the path system, which the Forestry Department maintains, and the visitors provide some income to the department from room rent and camping charges.

The local people whose land borders the forest use its products too: they get grass for thatching from the *Kalunya* and they graze their cattle there; they collect firewood, vines for tying, bark and moss for medicine and poles for building. They also hunt ground game – duikers with dogs and guinea-fowl by setting traps.

Naturalists use the forest for work and recreation. Although larger ground animals are rare, because of the hunting, tree-living animals are abundant. Most of the trees, including the introduced species, produce fruit eaten by monkeys, fruit-eating birds and bats. Snakes, despite the reputation of Kakamega, are rare. Working all day on the paths, we see one snake a month, on average, and even real herpetologists are usually disappointed. Snakes seemed to be more common five years ago, but they have been enthusiastically collected, and it is unlikely that animals so high in the food chain can withstand much predation themselves. Insects, especially butterflies, are spectacular and diverse, and I was glad when a former forester forbade indiscriminate bug-hunting.

Watching all these uses of the forest happening side by side, I am impressed by how productive and how robust the plant community can be. For example, the quantity of firewood produced as a byproduct by mature trees is especially impressive – particularly when the wood is raining down all around you when a strong wind gusts through the forest. I have seen an estimate of ten tonnes per hectare per year of large firewood – a byproduct which I think has not usually been taken into account when comparing the productivity of indigenous forest and exotic plantations.

Grass from the *Kalunya* grassland is also used to thatch the shades for the seedlings.

When a farmer cuts a sapling for building it is heartbreaking to the naturalist who has been watching it grow and planning how it will fill the gap in the canopy; even more so because so many times, having cut the tree, the farmer apparently forgets it and leaves it for the beetles to finish after all. The forest can take a lot of that sort of punishment, however, and has probably nothing to fear from its neighbours' building activities – though extracting poles for sale is another matter. At the moment there seems to be only one man who does that at all regularly. Of course this forest patch is protected by the Forest Department, in theory. In practice, they are too busy and have too few guards to be completely effective – and the guards work a civil service five and a half day week which is most convenient to wood-poachers. You can see the effect of human activity in the forest as a gradient of increasing "secondariness" as you get near human habitation. The forest workers quarters have a stronger effect than the farms, probably because there is a greater density of cooking fires there. None-the-less, right outside the back doors of workers and farmers there is real closed canopy forest, even if the canopy is a bit low near their homes.

A couple of ways in which the forest is used conflict seriously with the other uses. The first, indiscriminate collecting of animals and plants, can diminish the diversity of the community and hence its value for research and recreation. The area is too small and too accessible to collectors, no matter how worthy their ultimate objectives. As previously mentioned, the snakes seem to have already suffered. The effect on other species is difficult to predict, and some may be quite resilient – who can say what predation pressure the goliath beetle population can withstand? Hunting for the pot has exactly the same effect as collecting.

The second discordant use is, paradoxically, not an intentional use at all. As I said, the *Kalunya* is used for grazing. In fact I would stake my binoculars that the Kakamega "natural" grasslands with their beautiful classic edging ecotone, are man-made and man-maintained traditional grazing grounds. There seems to be no way the Forestry

Swara

East AFRICAN WILDLIFE Society



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Inside:

MURLE HUNTERS, FINDING GAME, RHINOS

and news from World Wildlife Fund

Cover photograph:
Black rhino in Amboseli National
Park.

Frants Hartmann.

Swara



The Magazine of the East African Wild Life Society

Volume 5 Number 2

Mar/Apr 1982

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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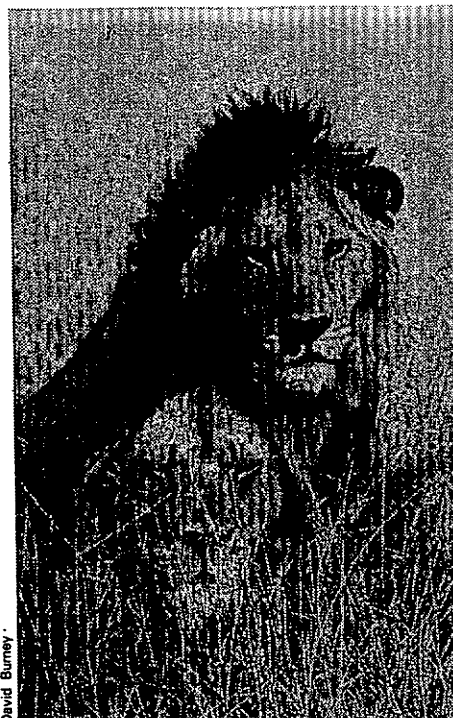
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David Burney

How to see more game.

Tips from a research scientist who has spent several years observing wildlife.



Conserving rhinos.

In spite of much talk, many meetings and considerable fund raising, experts still disagree on how rhinos should be conserved. Here we try to arrive at a consensus and urge prompt action.



Frants Hartmann

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Kakamega forest.

For years conservationists have lobbied for the preservation of this unique forest. Here a scientist who has worked there presents a balanced view.

Murle Hunters.

An anthropologist argues that Sudan's Murle Hunters are part of the natural ecology and pleads for the preservation of their life-style.