

The Tsavo Elephants

By *A. M. Harthoorn*

The Ford Foundation has made a grant of £70,000 for research into the elephant problem in the Tsavo National Park in Kenya, which has become acute. In recent years the number of elephants has increased rapidly to some 15,000, and the widespread destruction of trees in the park is generally attributed to them. Are they destroying the habitat? If so, what should be done? One suggestion is to cull up to 5,000 of them. In this article, based on an interview with "Africana" and reprinted by kind permission, Dr Harthoorn of the University College, Nairobi, suggests that some of the tree destruction could be the result of excessive burning, and that until the effects of keeping fire out of the Tsavo have been studied, massive killings of elephants should not be attempted.

THERE have been many discussions about the Tsavo elephants and, looking back, I think we got ourselves into a circle—chasing our own tails, so to speak. Somebody had said that it would be necessary to crop the elephants; counts were made and various people computed the reduction number they thought necessary—the numbers which could safely be shot. Then somebody else argued about the computation figures. But we never really got out of this circle of thinking. Recently, when I was in the USA, attending the International Biological Programme and visiting the Smithsonian Institute with the opportunity of discussing these problems, the limits of our knowledge became obvious. We really know nothing about the Tsavo elephants. Only one set of circumstances is evident: a vegetation change is taking place in Tsavo National Park, and grass is replacing trees. This circumstance is partly due to elephant depredation and partly to fire. But, according to people who have knowledge of the effects of fire on vegetation, you could achieve exactly what is happening in Tsavo with fire alone—without the help of elephant, that is. By firing the grass at the right time, you get more grass; then you get hotter burns; with the hotter burn you kill off the short bush—the kind of food that rhino like—and eventually you get a complete stand of grass. That is a circle. And all your trees disappear.

Africa is burning more and more, every year. For the people who keep cattle, one way to keep them alive is to burn grass and help new grass grow. (Ultimately, of course, this method does not increase the stocking power of the land; but, for short-term increased grazing requirements, that is the way pastoralists like it.) After a while, when the grass itself has been grazed off, the bush takes over again and—according to Buechner, who made aerial reconnaissance studies recently—this is precisely what is happening north of the Tana River.

In Tsavo, we do not know how much of the present situation is due to the processes of fire and how much to elephant damage. The

few available statistics suggested that elephant diet in certain areas of Uganda comprises up to 88 per cent. grass; but they also like to browse, and undoubtedly they push over the trees in order to get at the succulent leaves more easily. But the areas in which elephant studies have been made in Uganda have an entirely different sort of grass from that in the Tsavo. We are unaware of the dietetics of the Tsavo elephant. It has been suggested that they starve out the rhino, but it is unlikely that elephant compete with rhino for food. The rhino live on short bush—four, five and six feet high, say—whereas I have never seen an elephant seeking that kind of food. Moreover, the basic rhino food is not trees, which the elephant may push down. But fires going continually through the territory will prevent the reseedling of bush; and young bush is much more susceptible to the effects of fire than are the older and larger trees.

I believe, therefore, that until we have studied the effects of keeping fire out of the Tsavo National Park, we should delay any decisions to kill up to 5,000 elephant, as has been suggested.

First we must build adequate fire-breaks. Unfortunately we do not even know the best methods of building fire-breaks in this type of country. Certainly, bulldozers could be used and I have heard it suggested that herbicides should be sprayed when the grass is green; then the sprayed strip should be ignited, with perhaps some back-burning. Half our trouble is that we have put off research into problems on which we require even basic, elementary knowledge.

Until we have carried out basic research in the Park, such as constructing exclosures, we can only speculate on the prospective effects of fire and elephant. By making exclosures small parts of the Park are fenced off or excluded, for instance from elephants alone, from fire alone, or from fire and elephants. Other areas may similarly be protected from antelope and even from rodents. Only in this way can we find out which factors have the principle impact on the vegetation. The areas excluded from fires should be burnt at varying intervals, yearly, or once in two or three years and at different seasons, in order to gauge the effect on grass, bush and trees.

Even in areas where there is no major problem basic research should wherever possible be carried out. Simple shelters are usually sufficient for laboratory investigations as a basis for intensive work on the animal populations, and more general work can be carried out throughout the area. If we undertake research now we shall be better equipped to deal with emergencies when they arise later on.

For this we must first state our problems clearly and elucidate them to scientists overseas. But we should also re-think some of the traditions of the National Parks. We should cease to regard them as inviolate sanctuaries, where no animal may be killed even in the interests of research.

It is now suggested that there may be a pattern of "self-regulation" in the elephant's reproduction cycle. In Uganda it has been found that, in areas where the elephants were dense, there was less reproduc-

tion than in areas where they were less dense. This seems to suggest that when elephant density gets beyond a certain point, regulating factors come into operation. One would expect this, for the pattern occurs in artificial colonies which have been studied—as in the case of rats, for instance. This is another reason why I think the Tsavo cropping programme should be delayed. We must not set about altering behaviour patterns until they have been studied and a norm observed.

Problems of Killing and Afterwards

We must remember that at least part of the overcrowding in Tsavo (and many other areas in East and Central Africa) is because elephant have been astute enough to seek sanctuary in the parks from hunting. Unless the elephant cropping is done with care and with knowledge based on trial and observation, we may find that the elephant will escape out of the park and create a problem of entirely different dimensions. Killing the elephant with drugs such as M.99 would offer certain advantages such as a completely painless death, while obviating the danger of wounded elephants escaping and remaining at large. From a helicopter for instance one man could inject several hundred elephant in one day while he could hardly hope to kill as many animals using a heavy rifle; especially as the latter would entail landing beside each shot animal to make certain that it was dead and would not get up later to endanger human life as a wounded beast. The effect of large scale cropping on the habits of the parks elephant is unpredictable and might make them savage.

But the biggest problem might be the disposal of the carcasses. You cannot shoot 5,000 elephant and leave the carcasses lying around. Even if the meat were made available for human consumption, this sort of haulage proposition is enormous, and the disturbance factor on the elephant herds incalculable. We could not wait for the predator population to build up, and the experience of the drought-stricken National Parks area in 1961 showed us that normal numbers of predators cannot cope with artificial situations of this kind.

What we must do to further research is set aside a corner of each National Park in order that scientists may build up a store of knowledge about the animals.

The elephant, for instance, is one of the most adaptable animals in Africa; but the idea that wild animals are always healthy in their own surroundings, under normal conditions, was disproved long ago—even before we began finding cases of muscular dystrophy among some of our apparently-healthy game populations, such as the rare Hunter's antelope. In the Kruger National Park, a veterinarian discovered that the hippopotamus suffer from bilharzia.

I personally do not wish to kill any animal; but I do wish to assist research programmes. It may be that immobilisation techniques available to us would suffice, for—under immobilisation—an animal can be weighed, tagged, measured, photographed and have a diagnosis

made upon it. Then it can be released. I believe that we shall have to begin giving some animals identification marks, for instance, in order to study how the herds move; where they move to out of the park. Until we have such accurate, scientific information, it is my belief that we should not embark on large-scale cropping programmes like that proposed for Tsavo. We should be in possession of machinery for routine checks—not the mere sporadic flow of accidental information—to gain knowledge of the way that epizootic diseases move around. The compilation of basic knowledge—on animal ecology and vegetation—will take us a long way on the road to finding solutions. And those solutions will be important to humans as well.

SUMMARY

To sum up: we should study the effects of fire on the vegetation of Tsavo National Park. If we could keep fires out of the National Park for one or two years—and if it is true that the damage is due in part to elephant and in part to fire—we reduce the problem so that drastic action becomes less urgent. This should give us a breathing space so that we have an interval of a few years during which the full extent of the problem can be assessed objectively. It is almost certain that control of the elephant will have to be effected. But if we carry out at least part of the preliminary investigations before any large-scale cropping scheme is embarked upon, we should have a clear idea of what we are trying to do and how to set about it.

Simultaneously, we should press for the setting-up of a full-scale research programme. If our problems in wildlife are stated succinctly, I feel certain we may be able to interest international agencies in helping find solutions. We have good laboratory facilities to offer, Nairobi makes an excellent centre for research and I believe we could attract a major influx of scientists. Meanwhile, we should set aside corners of national parks in the interests of science and we should remember that the target must be the care of and survival of species, not every individual of those species. I regard it as important that we should attract veterinarians—their work may be important not only in dealing with the wild animal populations, but also in the interests of humans.

And, finally, perhaps, we should recognise that when a country sets up a National Parks system and the boundaries of the parks become clearly defined—the safety of animals being limited by those boundaries—then work to find out the nutritional state of those animals becomes urgent. We must know their disease states and their normal balances. As soon as we set up sanctuary areas, we interfere with those balances. We are really erecting “shooting fences” behind which the animals are safe and allowing the possibility of their being shot the minute their heads appear outside the “fences”. Thus, when we interfere with balances, we must interfere properly, in the interests of the animals themselves.