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Monitoring Africa's Megafauna

A Kenyan ecologist updates the conservation picture for elephants and rhinos

BY DAVID WESTERN

During the fifteenth century about 16 million people lived in Africa, only twice as many as inhabit New York City today. Distributed over an area three times the size of the United States, they were concentrated along the Mediterranean coast and in isolated West African kingdoms. The rest of the Dark Continent was unknown and forbidding, more a place for wild animals than for humans.

At that time, to judge from past ranges and current undisturbed populations, elephants numbered 10 million and rhinos more than one million. Even a hundred years ago explorers threading their way along trade routes into the interior regularly encountered rhinos, which blundered back and forth through chains of panic-stricken porters. In the 1940s the colonial government of Kenya hired John Hunter to shoot more than a thousand black rhinos so 50,000 acres of land could be opened to agriculture.

All that has changed. Today Africa is young, ambitious, and on the move. Its human population of nearly 500 million is doubling every 25 years and most of the people are striving to raise their standard of living.

Inevitably, wildlife is in peril. In 1976 biologist Iain Douglas-Hamilton conducted the first continental survey of elephants and found the species' range greatly reduced. His estimates for West Africa, where human density was five times the continental average of 35 people per square

mile, showed a 90-percent decline in elephants. A comparable census of African rhinos, conducted in 1981 by rhino specialist Kes Hillman, revealed that since 1970 more than 90 percent of those animals had been killed.

Downward spiraling has been the trend for all large African mammals; but the rates of loss vary erratically among species and across the continent. This disparity has caused a controversy among conservationists: Is the demise of Africa's wildlife a foregone conclusion or can species be salvaged in reasonable numbers?

No other animals illustrate the issues as clearly as the elephants and the rhinos. They have much in common: great size, wide distribution, habitat flexibility, and valuable defense organs — tusks and horns — that support ancient international carving and pharmaceutical commerce. These attributes make the creatures conspicuous and easy to monitor and, thus, for concerned conservationists, harbingers of doom. Yet here the similarities end, as recent censuses and studies reveal.

In 1982 the IUCN (International Union for Conservation of Nature and Natural Resources) established the African Elephant and Rhino Specialist Group (AERSG), of which I was chairman until earlier this year. The group consists of more than 50 scientists and conservationists who have the unenviable task of evaluating the status and needs of these two animal forms over the entire continent. The results of their surveys show the differing situations of elephants and rhinos as well as the problems of generalizing from such big, economically important species.

THE COLLAPSE OF THE BLACK RHINO is well documented. This two-horned species once ranged over much of Africa south of the Sahara, perhaps outnumbering the white rhino four to one. But in the past 25 years black rhinos have been victims not of habitat loss or human competition — for all rhinos can and have coexisted with humans almost everywhere except in the most settled arable lands — but of relentless hunting for a single product: their horns. Fewer than 15,000 black rhinos survived in 1981; a 1984 AERSG survey suggests their numbers have fallen below 9,000. In Kenya's Tsavo National Park alone there were 8,500 black rhinos in 1970; now there are 150. Nationwide the population has dwin-

Above: Over the past 25 years, thousands of black rhinos have been killed for their horns, one horn fetching as much as $10,000. A 1984 survey of black rhinos indicates their numbers have dwindled to only 9,000.
Left: As part of a national rescue plan, Kenyan park rangers move a tranquilized black rhino to a sanctuary.

dled from 20,000 in 1970 to fewer than 600. And the total population of northern white rhinos in Kenya has plummeted from well more than 1,000 to about 20.

Nearly all those rhinos were killed illegally to supply the world market with about four and a half tons of horn annually, down from almost nine tons during the 1970s. Fifty percent of the horn, taken primarily from rhinos in the northern half of Africa and exported from Khartoum, Sudan, enters Yemen Arab Republic despite its 1982 ban on imports of rhino horn. The Yemenis fashion the horn into ornate bejewelled dagger handles, expensive and highly prized symbols of wealth and manhood.

Thanks largely to the work of Esmond Bradley Martin, a vice-chairman of the AERSG, we know that most of the horn originating in southern Africa reaches Asia after traveling various trade routes through Singapore, Taiwan, and Hong Kong. Contrary to popular opinion, rhino horn is not consumed principally as an aphrodiasiac. Small amounts are used for that purpose but only in parts of India.

On the retail market a rhino horn fetches from $3,000 to $10,000. The lower figure is the price in Yemen, where the entire horn is manufactured into a single product; the higher figure covers the costs of numerous carvings and pharmaceutical preparations made from one horn in Asia. At the local level, the poacher in Africa receives perhaps $40 per horn, but the average yearly salary there is only $300.

Rhinos are endangered by cultural whim. Slow to reproduce, largely solitary, and easy to kill, they pose little threat to humans and do not compete with livestock. Yet these same factors make them highly vulnerable to extermination. Elephants migrate to safety when harassed but rhinos seldom do. These unlovable antediluvian beasts seem to have been programmed for a simpler world. And they elicit not a fraction of the concern engendered by the highly social, endearing elephants, which cast a public shadow obscuring the rhinos' more pressing problems.

THE AFRICAN ELEPHANT is still numerous and its populations almost certainly fluctuated during historical times. Despite undeniable losses and international hullabaloo over carnage in Uganda, Kenya, and Sudan, the species exceeded one and a quarter-million animals in 1979; some authorities claim it topped three million. These numbers are matched by few other large mammals and underscore the elephant's resilience to human disturbance. Indeed, ivory trade statistics and the reports of nineteenth-century naturalists indicate that Africa probably has more elephants now than it had 100 years ago, when Arab caravans scoured the interior for slaves and elephants alike.

The status of and threats to the African elephant are as uncertain and debated as the case for the rhinos is plain and neglected. One school of thought is championed by Ian Parker, a wildlife and ivory trade expert. He holds that habitat loss caused by human expansion fully explains the past and inevitable future demise of elephants in all but well-protected reserves; ivory commerce, far from threatening the African elephant, could be sustained entirely by natural mortality.

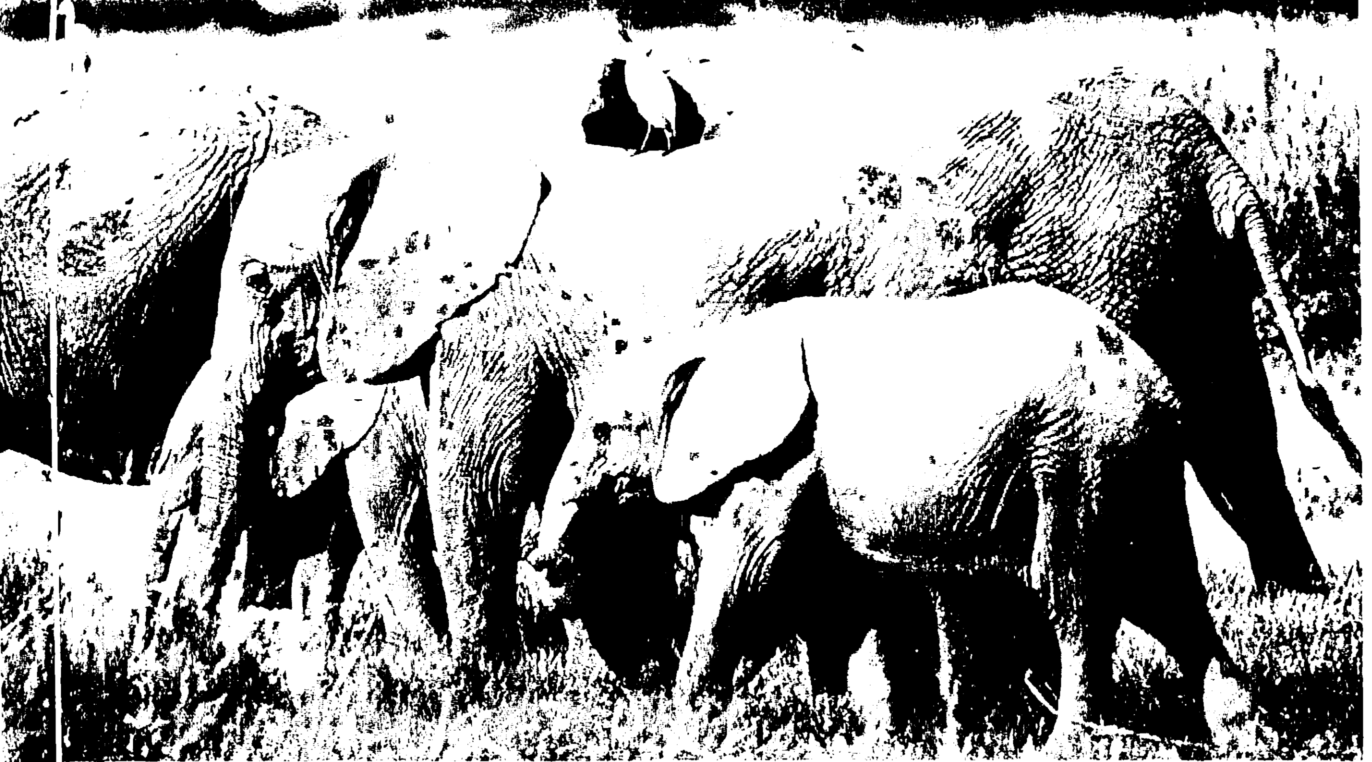
Opposing him is Iain Douglas-Hamilton, who claims that the ivory business is crooked and almost solely responsi-

ble for the catastrophic decline in elephants over the past 15 years. Douglas-Hamilton calls this period the Kalashnikov Revolution, after a Soviet rifle, because military expenditures in Africa increased ninefold and automatic weapons became widely available. He believes that if the ivory rush is not checked it will soon exterminate the elephant. [For more information on the controversy see "The Ivory Wars," *AK*, February/March 1980.]

After reviewing censuses and trade data recently collected by AERSG and Wildlife Conservation International of the New York Zoological Society, I think both factors are at work; their importance varies with place and time. Over most of Africa, elephants are retreating. In parts of Tanzania their decline is in direct proportion to human expansion. But in Sudan, Central African Republic, and Somalia the animals are disappearing faster than the habitat. And in a few exceptional places—among them Zimbabwe and Mozambique—elephant populations are increasing.

The Western world hollers at the eradication—partly irrationally, considering its own, dismal conservation record, and partly with good reason. Africa is the last wildlife frontier, the most appealing and awesome remnant of Earth's natural estate. In a century far more conservation conscious than the previous one, protest is warranted, for the demise of rhinos and elephants is occurring much faster than simple displacement can explain. Nine-tenths of Uganda's elephants were slaughtered during the late 1970s; two-thirds of those in Kenya were killed between 1970 and 1977 and perhaps a similar amount in Sudan since 1978. Ninety-five percent of Africa's rhinos were eradicated from 1970 to 1983. These losses smack of crass commercialism reminiscent of North America's bison hunts.

From an economic standpoint, Africa is squandering its elephants and may soon regret it. Sound management tech-



niques for this species run counter to those for many other animals—beef cattle for example. Among elephants, the older the better. Barring mishap or disease, their tusks grow throughout their lives. If mature animals were harvested or allowed to die of natural causes, they would yield the heaviest and most-valuable ivory. Sustained yield would be more than double the 1,100 tons taken annually. That figure represents tusks from 100,000 elephants and a retail market value of $50 million.

Instead, hunters in countries such as Sudan use automatic weapons, indiscriminately shooting all the animals in a herd, including young females and juveniles. This method reduced tusk weights by half in five years to an average of 11 pounds each. Such a practice diminishes the species' reproductive rate as well as ivory yield. If the end product contributed a reasonable fraction of its value to the peasant who suffers from crop-raiding elephants or wound up in the national coffers, the poaching blitz would be understandable, if overzealous. But much of the ivory is used by wealthy entrepreneurs to export their assets.

There is, in short, no clear link between the rates at which Africa's largest mammals are disappearing and the rate at which its human population is increasing. Rather, there exists a free-for-all—a losing situation for the animals and the economy.

Free-trade advocates vehemently deny it, but supply and demand for ivory *are* closely linked. Losses of elephants and rhinos coincide throughout Africa; poachers simultaneously hunt these species, and others, for profit. The evidence shows that rhinos are threatened more by commerce than by human expansion. Surely the same applies to elephants. The traders themselves tacitly acknowledge their role by raising prices at the slightest hint of restrictions and lowering them during an ivory glut.

African elephants have fared better than rhinos, but habitat destruction and demand for ivory continue to pressure their populations, squeezing the animals into reserves, which have limited resources.

On the other hand it is as unreasonable to claim that all ivory merchants are crooks and totally responsible for the fate of elephants as it is to dismiss large-scale extermination as inevitable. Between African hunters and Asian carvers there are as many links as occur between Costa Rican cattle ranchers and North American hamburger consumers. Ivory carving is an ancient Oriental art. Because the ivory supply has not diminished significantly over the years, many of the Asian artisans and their clients are unaware of the elephants' precarious fate. Likewise most North Americans do not realize that with each chomp on a hamburger they nibble away at Costa Rica's tropical forests and threaten the iridescent green-and-red quetzal, often called the most beautiful bird in the Western Hemisphere.

IN 1973 A TREATY titled the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was drawn up. The first major attempt to conserve endangered and threatened species by regulating international trade in live animals, plants, and their products, CITES has been ratified by 87 countries. One of its notable successes has been prohibiting trade in Africa's spotted cats. But for elephants and rhinos, CITES has failed.

Commerce in rhino horn is banned among party members; however, more than four tons of horn is traded every year, coming almost exclusively from convention countries and sold openly in Yemen, Singapore, Taiwan, South Korea, Macao, and Brunei—all nonsignatory nations. CITES

ostensibly limits the ivory trade by licensing and monitoring consignments. Yet 80 percent of the ivory leaving Africa has been poached, much of it in national parks. Illegal ivory is legitimized by profiteering government officials in countries such as Zaire, Central African Republic, and Burundi; the last named doesn't even have any elephants. Other CITES signatories, particularly Japan, knowingly accept this ivory, often in flagrant disregard of admonishments from the CITES secretariat.

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Considering the failure of international trade regulations and the dire threats to all rhinos and many elephant populations, what is the outlook for these species? The responsibility rests with the African countries, the majority of which have already established impressive networks of national parks and reserves—commitments to conservation unmatched anywhere else.

More than a quarter-million elephants and most of the rhinos inhabit the 430,000 square miles of Africa's 360 conservation areas. If priority were given to bolstering protection in these reserves, the continent's megafauna could survive in relative abundance. Many African governments take this pragmatic stance, recognizing the impossiblility of conserving all wildlife. Kenya and Uganda recently curbed the poaching sprees that threatened their wildlife herds, and Zambia is trying to protect the Luangwa Valley, its elephant-and-rhino showcase. International support has been crucial to the success of Africa's conservation programs.

In years to come, progressive erosion and fragmentation of wildlife populations will create a host of new problems, especially for elephants. Small isolated parks will face localized extinction, disease, inbreeding, and population compression. The only antidotes are sophisticated research and management—neither of which is cheap. Kenya plans to consolidate its remaining 600 rhinos, a quarter of them on private ranches, in safe sanctuaries and to shift surplus stock from healthy populations to former rhino habitats. Improved zoo technology, including immobilization and artificial insemination, has made translocation and captive breeding easier, but handling wild animals is still tricky. Besides, most wildlife agencies abhor resorting to manipulative strategies.

Artificial though they may be, such drastic measures are necessary and promising. During the 1930s, southern white rhinos dwindled to a mere 100, most within one reserve. Under intensive management the species recovered; its numbers now exceed 3,000. White rhinos have been reintroduced to dozens of parks and reserves throughout South Africa, Zimbabwe, and Botswana.

Elephants present a different problem. They retreat from hunting and human encroachment, congregating in parks, where they strip bark and push over trees to find food, often adversely affecting other wildlife. Africa's national parks support five times as many elephants as do adjacent, unprotected areas. Many reserves—among them Kruger, Hwange, Luangwa, Ruaha, Tsavo, and Murchison—have embarrassing numbers of elephants. Wildlife departments have come up with a variety of solutions from hands off to culling.

Zimbabwe has 12 times as many elephants as it had in 1900, and they are squeezed into tiny reserves covering 12 percent of the country. To protect woodlands and other wildlife as well as to maintain viable elephant herds, Zimbabwe's national parks service has been culling elephants since 1966. Some of the meat is sold at reduced prices to local farmers, the rest to raise money for conservation. Zimbabwe's policy is frequently criticized by outside conservationists, but it may be a forerunner of the future, as the human population swells.

Not all African countries take the same view, particularly where the fates of elephants and rhinos depend on factors beyond a nation's control and borders. Commerce in horns and tusks is often dictated by foreign poachers, international carriers, and spot market prices rather than by government policies. This is where conservation organizations such as the AERSG play crucial roles, piecing together the continental picture for large mammals and tackling the universal threats they face.

BESIDES MONITORING all of Africa's elephants and rhinos, the AERSG has been asked to develop a plan to oversee conservation programs for particular populations and genetic races. The critically endangered northern white rhino tops the list. Kes Hillman's 1981 survey showed that the only viable group was in Garamba National Park, Zaire, with 15 to 20 animals. The IUCN and the Frankfurt Zoological Society contributed $400,000 to reinforce the park's antipoaching corps with additional guards, equipment, and supplies.

The specialist group is also a watchdog. It publicized elephant massacres that occurred in Sudan from 1978 to 1983 and succeeded in getting that country to ban the export of ivory. With other international organizations, the AERSG helps publicize trade violations and it lobbies governments and trade associations. Recently it designed population models that show how many elephants of what ages and from what regions could be harvested to produce maximum ivory without overhunting.

All these measures face an uphill battle, but at least a sense of common purpose is emerging. Trade restrictions and antipoaching regulations will work only if everyone complies. Pressure must be put on Yemen to strictly enforce its ban on rhino horn and on Sudan to halt its illegal traffic in horn. Likewise Japan must stop illegal imports of ivory. Meanwhile, efforts by conservation groups will buy time in which to make reasonable judgments and take the steps necessary to secure a place for Africa's most conspicuous creatures in a progressively crowded future. □

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