The Vanishing Wild Life of Africa[1]

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EVER since white man set foot upon African soil to make his own trails across the trackless jungles, the world has been astonished by tales of an apparently inexhaustible wealth of game.

As one of the oldest of the large land masses Africa is remarkable for its compactness and the lack of indentation in its coast line. A comparatively great stability, with relatively slight fluctuations of the land area since Tertiary times, must have assured an exceptional continuity of favorable breeding grounds for its marvelous array of beasts. Here was the ideal setting for the evolution of a unique fauna, which fossil records indicate was essentially vigorous and more truly African than had formerly been believed.

Furthermore, as a result of its practical isolation, Africa offered unwelcome competitors among the mammals little chance for invasion. Except in the Mediterranean regions man himself was not able to people successfully the vastnesses which proved so inhospitable to him. Only after the introduction of satisfactory staple foods from other continents—an accomplishment credited chiefly to the Arabs and the Portuguese—did his scattered settlements in the wilderness of the great forests flourish.

Thus for many centuries Africa remained a paradise for vast herds of game. In no land has nature offered such an impressive aggregtee of mammals. Countless indeed were their numbers. Gigantic brutes, ungainly and cumbersome, mingled with the most graceful and fleet of tropical wanderers. Stubborn brutishness and unexcelled virility in some were contrasted with defenselessness in others. Beasts of prey, powerful, strong, and stealthy, singled out the weaklings and the careless, to whom less chance was thus given to dispute the leadership of those that alone would insure a vigorous race.

When the Roman triumphs had achieved the acme of cruelty and fastidiousness, the victorious leaders of stalwart legions could still add to their glory by displaying in the arena African beasts either so wild or so imposing as to drown the popular dissatisfaction. To think of five hundred lions and twenty elephants in a single orgy of savage destruction almost surpasses the capacity of our later-day imagination, yet that is the inauguration record of Pompey's theater in 52 B.C.

Hundreds of years have passed, exacting their heavy toll. Northern Africa, long the part most accessible to Europe, has lost its gigantic mammals. The hordes of despoilers would find much of it a desolate wilderness today. With this in mind, the admirers of nature at her best and other right-thinking men and women now look with alarm upon the rapid decimation and threatened extinction of the game animals in the remainder of Africa.

South of that fiery furnace, the Sahara—the greatest continuous desert in the world— lies the Ethiopian region of zoölogists. It extends more than three thousand miles from the north

[1]Photographs, with the exception noted, by the author

to the Cape of Good Hope in the south, and even for a greater distance from west to east across Senegal to the Somali coast. The fairly uniform warmth of the climate throughout virtually the entire length and breadth of this region favored the development of free-roaming animals. The margins of the raging sea and the desert wastes were the only limits to their realm. No bleak high mountain chains barred the way. Only four glacier-bearing peaks arise like snow-capped islands from the blue equatorial haze. At certain seasons their foothills offered a welcome change from the torrid sun that scorched the plains. Equally welcome were the lofty hills and the invigorating freshness of the high plateaus in the south, east, and north. Thus nature extended a matchless domain to the throngs of grazing and browsing creatures.

Roughly speaking, there are but two kinds of abode in all the land: the grass-covered regions, or savannas, and the tropical forests. Both offer an ample variety of food and shelter: their differences depend chiefly on the amount of rainfall and humidity. Some animals, like the elephant and the buffalo, can live in the dry savanna as well as in the humid forest. Others, like the rhinoceros, the giraffe, and the zebra, and most of the antelopes are at home chiefly in the grasslands, which include about two-thirds of the entire Ethiopian region. On these open, sunny spaces, sprinkled over more or less with bushes or trees and dotted with park lands between the hills and ravines, Africa's chief wealth of game had its stamping ground. Of the nearly one hundred kinds of antelopes, varying from the size of a hare to that of a bull, each lived in its peculiar sphere.

A vitally different area is the West African rain forest, an equatorial belt about 400 miles in width and 1800 miles in length. In this steaming hot complex, with its lofty canopies mostly one hundred fifty feet above the ground, seasonal changes are but slight. The dense vegetation makes gregariousness here as impracticable as it is advantageous on the plains.

For days and weeks one might travel in these forests and catch but few glimpses of its wild denizens. In striking contrast with the level plains, the hiding places in the tall and luxuriant forest are multiplied beyond measure. Elephants and buffaloes in small troops, the huge, black, forest boar, and the most beautiful of all pigs, the red river hog, though lost to the eye, can be heard as they seek safety in the depth of the jungle. Of the bands of monkeys, occasionally chattering and gamboling, only an inquisitive old male dares to scrutinize the intruder. With a saucy, cocksure air he puckers his face and contemptuously dismisses the idea of escape. There are antelopes, great and small, porcupines, squirrels, and an array of smaller mammals. Chimpanzees herald the morning with loud calls and shrieks.

On the whole, however, these forests are a far too unsatisfactory scene of operation for the white hunter, who must linger long to reap his reward. The uncongenial climate and the difficulty of getting about rob the sport of any enjoyment. In such a retreat wild life in general would long be safe if gun and powder were not distributed among the natives.

But in spite of all these impediments nature is in danger of losing a few of her rarest mammals. In vain has she been able to hide and shelter them through untold ages. The white man has set

about rudely wrenching from her the last remnants that have survived from bygone days. Foremost among them are the okapi (*Okapia johnstoni*), the pigmy hippopotamus (*Chœropsis liberiensis*), the gorilla (*Gorilla*), and the chimpanzee (*Pan*).

The okapi is as rare as it is inoffensive, and being nocturnal is seldom seen. Its haunts are confined to a small portion of the gloomy West African forest, a narrow strip about 700 miles long and 140 miles broad, in the hilly regions of the headwaters of the northeastern affluents of the Congo.[1] In spite of its relatively large size, about that of a mule, the okapi was not known to the outside world until 1901 when it was discovered by that distinguished African explorer, Sir Harry Johnston. Instead of being a forest zebra—as was for a while the impression, based on the striped pieces of skin secured—it proved to be a short-necked giraffe, small-eyed, and with a delicately modeled deerlike head. Its dark brown velvety coat, with whitish stripes chiefly across the limbs, was highly prized by the natives for superstitious reasons, and the skin of its hind limb, with the striking pattern, would purchase a wife. Only a powerful chief was permitted to sit upon the hide or use the pretty parts as ornaments.

So elusive a quarry was in no danger of being successfully hunted by the white man. Its rarity, however, and its peculiar fame made him place so high a premium upon a good skin that the magnificent hermit creature has been hounded by the natives into its most distant retreats. If equally enticing rewards were made to the chiefs to protect the okapi in their sphere, the most remarkable of large African mammals might be able to hold its own. Policing its habitat is quite out of the question, but the characteristically marked skin is so easily recognized that confiscation would not be difficult and would help in assuring the survival of this interesting creature. It seems a pity that an animal that has weathered the storm through probably millions

A young male okapi (*Okapia johnstoni*) at Niapu, northeastern Belgian Congo.—Just captured, he is bleating like a sheep for his mother, disproving the belief that muteness is the unalterable fate of the giraffe family

of years should be wiped out within a few decades after being recorded in the annals of science.

Were it not that the pigmy hippopotamus has been able to hide in the depths of miasmal swamps in Liberia, it might long ago have followed in the footsteps of the Madagascan form, now known only as a fossil. Major Schomburgk was the first white man to study a pigmy hippopotamus in its haunts. This was in July, 1911, and he subsequently captured several specimens alive. Three of these fine examples, exhibited in the New York Zoological Park, responded to the excellent care received there by adding to their number.

[1]Lang, Herbert. 1918. "In Quest of the Rare Okapi." *Zool. Soc. Bull.*, New York, XXI, pp. 1601–14, 11 photos, map of distribution.

From Schomburgk we learn that instead of making good its escape by continuous diving, the animal seeks refuge in the dense forests bordering the river. It is fortunate that the inhabitants of Liberia hold it in high fear, and its rather ugly hide is not a desired trophy. These circumstances have perhaps contributed as much toward its preservation in the past as legal regulations made in its behalf will, it is hoped, aid it in the future.

The gorilla, the largest of the manlike apes, is fortunate in having lately been championed by those interested in its protection. Of the two widely separated areas in which the animal is still to be found, that of the western race (*Gorilla gorilla*) is by far the larger. It extends from the hilly sections of Cameroon southward along the coast into the northern border of the Belgian Congo and eastward to the Sanga River. The last remnants of the central African mountain race (*Gorilla beringeri*) have been holding out in the forested volcanic peaks north of Lake Kivu and northwest of Lake Tanganyika. The reopening of the Daressalaam-Tanganyika railroad in recent years, together with the introduction of Ford automobiles, has made access to that country so easy that the gorillas have been placed in danger of rapid extermination. Mr. Carl E. Akeley, who made valuable observations and took the first moving pictures of these apes in the wild state, has made persistent efforts to have the Belgian authorities set aside the gorilla haunts as a sanctuary, and these efforts should pave the way for their eventual survival.[1]

Consolation is found in the fact that some of the huge primates, like the chimpanzees, appear to be of a rather vigorous race, as the family groups of from eight to twenty or more members would indicate. Contrary to general statements, they reach maturity rather early, somewhat in conformity with the natives living in the same regions. Parenthood is assumed apparently at ten years of age or less. According to data published by Doctor Blair, of the New York Zoological Society, in the case of the first chimpanzee born there, the mother Suzette was then in about her tenth year, weighing 130 pounds; the father, Boma, in about his eighth, weighing 145 pounds. Other most important observations in this respect have been made on chimpanzees at the home of Senora Rosalie Abreu, owner of the "Quinta Palatino" estate at Havana, Cuba, where they have been raised to the third generation. There the apes seem to have a pronounced preference for monogamy.

It is highly gratifying that the French government has now issued ordinances prohibiting the capture, sale, and exportation of live chimpanzees in Africa. Should the Belgian and English authorities join them, and extend this policy to include the gorilla, and stop the shooting and exportation of dead specimens as well, it should save from a speedy death warrant the great African apes in which man has a deep and justified interest.

One might think the smaller monkeys would be safe from wholesale destruction except in the neighborhood of settlements, where they frequently cause havoc among crops. But the power of the clink of gold spurs man on. In the year 1892, no less than 188,000 skins of the *Colobus* monkey were exported from the Gold Coast.[2]

[1]Akeley, Carl E. 1923. "Gorillas—Real and Mythical." NATURAL HISTORY, Vol. XXIII, pp. 428–47.

[2]Buxton, E. N. 1903. "The Preservation of Big Game in Africa." *Journ. Soc. Arts*, London, Vol. LI, p. 576.

How mercilessly their annihilation was carried on is best proved by the fact that five years later only 1067 skins figured in the records. The silky-haired, black-and-white mantled skins had become the fashion. Thus two of the most strikingly beautiful forms of West African forest monkeys (*Colobus satanas* and *C. vellerosus*) were cruelly hunted down. In Eastern Africa their near relatives with the magnificent, generally white tail brush would probably have been wiped out completely had legal protection not come to their assistance in the nick of time.

A young female *Colobus abyssinicus ituricus* from Faradje, northeastern Uele, Belgian Congo. On account of the beauty and consequent market value of the long silky black-and-white pelt these monkeys were slain by the thousands until protective measures were taken in their interest

Often it happens that relatively small and obscure nocturnal forms, hardly represented in any museum, become the object of intense pursuit. From a range of high hills along the Gold Coast, with deep gorges and ravines covered with almost impenetrable bush, no less than 200 pelts of the rare spiny-tailed flying squirrel (*Anomalurodon pelii*) were brought down by two native hunters in about a month's time.[1] Yet their silky, chinchilla-like fur is absolutely worthless, the skin being extraordinarily thin and fragile.

To return to the real hunting grounds of big game, the savanna country and wooded patches bordering the great forests, there sad havoc has been wrought. Attractions beckoned from so many sides that, the climate permitting, the white man was not slow in heeding the invitation. However, the influx of settler and hunter is not to be held solely responsible. India furnished a splendid example of the survival of herds of game during centuries in the midst of a dense population. But now transportation facilities have lessened the hazards of travel and the frightful advance in the construction of firearms has made even the most dangerous hunting a sport to be carried on recklessly.

In one of the previous numbers of this journal[2] citation is made of a paragraph by the author to the effect that at least two of the larger African mammals have been completely done away with. The last of the quaggas (*Hippotigris quagga*), a nearly unstriped South African zebra, was killed in 1878 in Orange Free State. Of the blaubuck (*Egocerus leucophæus*), apparently always scarce, the last record dates from about 1800, when the animal was reported from the Swellendam district of Cape Colony. Only a dozen specimens of the quagga and five of the blaubuck have been preserved in the museums of the world.

There is a long list of hard-pressed sufferers in South Africa which deserve to be kept alive. Perhaps the same pride South Africans take in their

[1]Adams, W. H. 1894. "On the Habits of the Flying-Squirrels of the Genus *Anomalurus*." *Proc. Zool. Soc. London*, pp. 243–46.

[2]Osborn, H. F., and Anthony, H. E. 1922. "Can We Save the Mammals?" NATURAL HISTORY, Vol. XXII, pp. 398–402.

Taken at the New York Zoological Park

THE WHITE-TAILED GNU (*CONNOCHÆTES GNU*)

The "wildebeest" of the Boers is the strangest-looking of all the antelopes. Among the ruminants, that large class of shiftless wanderers, none has excited more admiration than this animal with its equine body, menacing buffalo head, shaggy mane, and long white horselike tail. Yet in less than fifty years the apparently inexhaustible herds that formerly populated the plains of Cape Colony have been reduced to a few troops

achievements in developing the country will manifest itself in granting the remnants of big game a definite leasehold, free from all future encroachments. The four hundred mountain zebras (*Hippotigris zebra*), the few bontebuck (*Damaliscus pygargus*), blesbuck (*D. albifrons*), and the white-tailed gnu (*Connochætes gnu*) are on the verge of extinction. But the most magnificent of all antelopes are those pursued hardest. The larger kudu (*Strepsiceros strepsiceros*), the nyala (*Nyala angasi*), the sable antelope (*Hippotragus niger*), the roan (*H. equinus*), and a few others in different regions, need more adequate protection, especially when they answer the requirements of a sportsman's trophy. A case in point is the newly discovered Angolan race of sable antelope (*H. niger variani*) with horns measuring on their front curve as much as sixty-four inches.

The abundance of the beautiful springbuck (*Antidorcas marsupialis*), at the beginning of the last century would seem well-nigh unbelievable were it not for Gordon Cumming's account, amply corroborated by others. For two hours he saw vast legions of these animals streaming through a neck of the hills in unbroken phalanx. The hillsides were covered "not with herds but with one mass of springboks." As far as the eye could strain, the landscape was alive with them. "Some hundreds of thousands were within the compass of my vision" until they faded into a dim red mass of living creatures. Flocks of sheep becoming intermingled with them were swept along without hope of escape. Even the lion may thus be entrapped. Such inspiring sights are of the past. Springbuck can still be shot for sport, but so typical a South African animal deserves pastures offering a secure refuge.

One of the worst of fates has been meted out to the square-lipped or "white" rhinoceros (*Ceratotherium simum*). Extremely common in suitable sections of South Africa in 1817, when it was first made known by Burchell, this rather stupid, quiet beast was recklessly butchered from the very beginning. During the course of a day's trek from fifty to one hundred could be sighted. The shooting of ninety rhinoceroses, most of them of the square-lipped kind, in one journey, was an event to be proudly heralded by two famous sportsmen; another game hog killed sixty, considering it a feat to be recorded in the annals of hunting. Today perhaps not a dozen are left, the very preserve set aside for them having been opened to slaughter. Between the two Umfolozi rivers in Zululand, their last stand, they have little rest, for the farmer covets the land and their ultimate survival seems extremely doubtful at the present time.

Of the Upper Nile race of white rhinoceroses (*Ceratotherium simum cottoni*) several thousand were still left in 1910.[1] But recent reports as to their status give cause for alarm. Unless drastic measures are soon taken to prevent traffic in the hides and horns, this huge representative of the Pleistocene age will shortly be extinct.

In former days it ranged to the extreme north of Africa as shown by fossil records and was even contemporaneous with Neolithic man, who engraved its image on the rocks.[2] It is difficult to understand how such splendid examples of nature, practically harmless though possessed of formidable weapons, should suddenly be brought to the verge of extinction.

[1]Lang, Herbert. 1920. "The White Rhinoceros of the Belgian Congo." *Zool. Soc. Bull.*, New York. Vol. XXIII, pp. 66–92, 31 photos, 1 map, 1 text figure.

[2]Lang, Herbert. 1923. "Recent and Historical Notes on the Square-Lipped Rhinoceros (Ceratotherium simum)." *Journ. Mammalogy*, Vol. IV, p. 159.

Among the bigger game the most distressing losses have been inflicted upon the elephant and the hippopotamus. A continuous toll has been exacted by armies of hunters. Literally hundreds of sportsmen annually visit Africa from every point of the globe. They will no longer find the great tuskers nor the thousands of river horses. Elephants have no opportunity to grow old. Governments have reaped the benefits of increased income derived from taxes on permits and the exportation of ivory, and have thus consented to their doom. And this has gone on in spite of all assurances to the contrary.

Young bull of the square-lipped or "white" rhinoceros (*Ceratotherium simum cottoni*) near Vankerckhovenville, northeastern Belgian Congo.—Close approach arouses in even so stolid an adversary the signs of a charge, usually preceded by the twisting of the tail. The value of the horns and the relative lack of danger with which so large an amount of meat could be secured brought about the doom of the South African race of this giant even before civilization reached the fields it roamed

Among the causes of destruction of wild life in Africa the natural agencies, however severe, have proved to be relatively unimportant, chiefly because of the infrequency of their occurrence. The uniformly mild climate is accompanied by no such seasonal inclemencies as the habitual wintry rigor of colder regions. Even violent tornadoes and destructive hailstorms are few and far between. In ordinary dry seasons, the game is wont to repair in great numbers to more satisfactory pasturage or to a few isolated waterholes. The yearning of the animals at such times to quench their thirst eliminates much of their habitual wariness. On such occasions game photographers, hiding in "blinds," have made the most successful pictures. True it is that destruction of thousands upon thousands of game animals by drought has been recorded, but only as extremely rare occurrences during a period of consecutive dry years. Such a calamity, being local at most, does not influence the general

status of the continental herds, though, judging from Gregory's account,[1] acres may be covered with the bleached bones of the victims.

The increase of drier areas in Africa, especially in the north and south, as a result of gradual desiccation, has been frequently cited as an important factor limiting the distribution of some of the mammalian fauna. The data so far advanced seem to point toward a change of climate causing drier conditions and especially a more intensive drainage. The result is well exemplified by the dry areas formerly covered by lakes Chad and Ngami. Perhaps many of the migrations of great herds of game, as described by the earliest explorers, were due to the setting in of such modifications in the regions cited.

A very encouraging contribution toward the preservation of game animals in Africa is the long list of scientific achievements in curbing the rapid spread of various diseases. The successful use of immunizing sera is one of the noteworthy results. Rinderpest, formerly considered the most deadly of the infectious scourges, filled with dismay and terror those interested in wild life, but it is now fairly well under control. Apparently of Asiatic origin, it reached Africa by way of Egypt. As usual it was introduced by infected live stock and proved to be extraordinarily virulent in its swift progress. In about fifteen years it traversed the entire length and breadth of the continent. From 1886 to 1898 it caused the most frightful losses in game and cattle alike, generally ninety per cent of the animals attacked succumbing within a week. The difficulty and uncertainty of diagnosis is chiefly due to the fact that incubation is latent for the first few days. Intense fever, swollen mucous membranes, the development of small papular ulcers, and extreme prostration are common indications. In the early days rinderpest raged unchecked, but future catastrophies are improbable as its occasional outbreaks are now quickly localized and the heavy mortality much reduced. The most hopeful point of all is that in less than fifteen years African game without exception recuperated, especially in those regions where organized slaughter was stemmed.

Taken at the New York Zoological Park

Formerly found in astounding numbers on the plains in the southern parts of Africa, the blesbuck (*Damaliscus albifrons*) now exists only on certain farms in the Orange Free State, Transvaal, and Bechuanaland

In 1891, when the ravages of rinderpest were greatest in East Africa,[2] buffaloes came down to the Tana River literally in thousands to die. A gruesome sight were the attending vultures and marabout storks gorged to reple-

[1]Gregory, J. S. 1896. *The Great Rift Valley.* London (John Murray), p. 268.

[2]Hobley, C. W. 1922. "The Fauna of East Africa and its Future." *Proc. Zool. Soc. London*, Vol. I, p. 2.

Taken at the Dresden Zoological Garden

Burchell's zebra (*Equus quagga burchelli*), the closest relative of the extinct quagga. This magnificent stallion was considered one of the last of its kind living in captivity in 1905

tion. Hardly any of the game animals escaped. Giraffes, and most of the antelopes, including waterbuck, eland, kudu, and bushbuck, as well as pigs and rhinoceroses, were victims. Apparently zebras, oryx, sable, roan, wildebeest, and hartebeest did not suffer in such numbers. Elephants and hippopotamuses apparently escaped unscathed.

Twenty-odd beasts were the sole survivors of many thousand head of cattle in northeast Kitui. The desiccated carcasses of those which fell were piled up like a wall outside the villages. Famine was the natural consequence for cattle-herding tribes such as the Somali, Suk, Masai, and Dinka. Rinderpest apparently reached the northeastern Uele in the early nineties, according to information supplied by Maruka, an intelligent native chief of the Logo tribe at Faradje. He told me in 1911 that when the disease reached his country and killed nearly all the cattle, the hook-lipped, black rhinoceros (*Diceros bicornis*) that feeds on bushes died out and never appeared again. The square-lipped, or white, rhinoceros (*Ceratotherium simum*), however, though greatly decimated like the buffaloes, elands, wart hogs, and other game, became sufficiently numerous once more, and for a time held its own, only to be nearly wiped out subsequently as the result of a native uprising during the war. From this it might appear that the two kinds of rhinoceroses formerly shared the range in the Uele, where now only the square-lipped one is known. The black rhinoceros is still common in the Shari-Chad region.

Anthrax, another of the sporadic infectious diseases often fatal to game

and marked by nasty ulcers and intense prostration, is to a large extent deprived of its danger nowadays by Pasteur's method of protective inoculation through anthrax serum, which offers an immunity lasting nearly a year. The last serious outbreak[1] occurred in 1905, killing several thousand head of game, chiefly Coke's hartebeest on the Athi Plains in Kenya Colony. Formerly such disastrous visitations aroused the hostility of the settlers against the game, which they held responsible for the spread of the disease among their own live stock. In the face of such opposition one can realize what a boon it has been to the game that the disease is at last well in hand.

Strange to say, there are scourges which have really served Africa's game as a protection. The formidable diseases borne by tsetse flies, in conjunction with malarial fever and a host of other afflictions, have hindered most of the white man's efforts to establish his home and take over large tracts of the country. There is no underestimating the really important rôle played by tsetse flies, chiefly *Glossina palpalis* and *G. morsitans*, which occur in a broad belt across most of tropical Africa.[2] They are the well-known carriers of a fatal virus, the former species transmitting the dreaded human sleeping sickness, the latter that of "nagana," or trypanosomiasis, a similar infection in cattle. Inoculation generally takes place as an incidental result of the flies feeding on or sucking the blood. Whenever they sink their mouthparts into the blood vessels of their victim, the trypanosomes or flagellate protozoan parasites they carry may enter its system and cause terrible ravages there. At present two of these parasites are known to infect man in Africa—*Trypanosoma gambiense* and *T. rhodesiense*—but several others produce disease in animals. Apparently all African game, including the zebras, though not free from the germ, have become immune to it. It has been held that, acting as the chief reservoir of the virus, the game may indirectly become the most dangerous source of infection. But judging from experiments and observations the probability is great that there are other channels assisting the spread of these diseases. Unfortunately the cattle, though as a rule not affected by the parasites causing human sleeping sickness, readily succumb to those causing "nagana." The impossibility of raising live stock in all regions so infested becomes a well-nigh insurmountable obstacle to effective colonization by the white man, inasmuch as it prevents any extensive agricultural exploitation. Of domestic animals, only goats and chickens are able to thrive under such conditions, though in the northeastern Congo dogs also appear to be immune.

Some years ago in certain of the regions most concerned, the indiscriminate destruction of all the bigger game was urged for the eradication of diseases due to trypanosomes. Only by so drastic a method, it was argued, could man and cattle be freed from the dreadful scourges borne by tsetse flies. For the game, the reign of terror came with overwhelming force. A cause that was apparently in the interests of humanity was able to enlist the frenzied support of the fanatic. The big game was done away with, but all to no avail. At present it does not seem possible to prove that no other repositories of the virus, for instance among the smaller mammals, exist.

[1]Hobley, C. W. 1922. "The Fauna of East Africa and Its Future." *Proc. Zool. Soc. London*, Vol. I, p. 2.
[2]Chapin, James P. 1922. "A Naturalist on Lake Victoria: A Review." NATURAL HISTORY, XXII, map of distribution and text figs. of tsetse flies (pp. 60 and 61).

A CARAVAN LADEN WITH EXCEPTIONALLY FINE ELEPHANT TUSKS

Hundreds of caravans like this one, that was organized by a well-known Hindu trader in Uganda, travel across Africa in every direction to the nearest shipping center. In fact, there are so many tusks taken each year that they would make loads for more than 40,000 porters. No better proof of the relentless and appalling slaughter of African elephants could be cited than the records of the importation of ivory in parts of Europe. In 1913 alone, Great Britain, Germany, and Belgium received tusks weighing 2,592,073 pounds at a value of about $10,368,292. This one year's massacre amounted thus to about 63,220 elephants, allowing 41 pounds of ivory apiece. The figures are practically the same for each year of the decade preceding.

As a matter of accuracy it should be stated that the above computation contains also Asia's contribution of ivory, which, however, totals less than 2 per cent; and that certain limited amounts of ivory may figure more than once in the import records, owing to sales between the three countries under consideration. But this is more than compensated for by the fact that much larger amounts of ivory for which no exportation figures are available go direct from Africa to the United States, France, Italy, Spain, Turkey, Persia, India, China, and Japan

It may be interesting to state that Doctor Roubaud of the Pasteur Institute in Paris, one of the foremost investigators of human sleeping sickness, was led, as a result of his exhaustive studies in the field, to propose, as a means of combating the disease, the increasing of the number of domestic animals about the village. These would then attract the tsetse flies in preference to man, who might thus more easily escape infection.

One of the latest outbreaks of savage and utterly useless carnage of game occurred in 1920 in Zululand, its object being to make the country "fly-proof" for the cattle. Like the massacre of the Addo Bush elephants in 1919, this wholesale butchery was officially authorized. Since the drive included many inexperienced hunters, much game was wounded and some scattered over all the country, without accomplishing the result desired.

The many discussions as to the possibility of eliminating tsetse flies by the removal of big game seemed to have found satisfactory support when conditions were examined in regions where rinderpest had been most severe. But many experienced observers, among them Sir Alfred Sharpe, maintain that in certain parts of Africa the "nagana" tsetse fly (*Glossina morsitans*) is found where there is absolutely no game.[1]

We cannot help but admire nature's peculiar ways. Had it not been for such diseases, much of eastern Africa and parts of Angola and the Sudan might long ago have become a white man's country. Of course it would then have been swept as clean of game as the populated parts of South Africa.

The most hopeful agencies in protecting wild life in Africa are the game preserves. They should be set aside as permanent sanctuaries, free from all tampering through political whims. Inclusion of suitable and sufficiently large areas that border on the natural range of wild animals is also imperative to ward off inbreeding. The interest and beauty of such preserves would in the future attract admiring visitors in as great numbers as hunters have been attracted in the past. Were there a united great nation in Africa, with all people acting in concert, perhaps the problems would not be so difficult.

It is encouraging that twenty game preserves, comprising nearly 200,000 square miles, are to be found scattered all over the continent, mainly in British territory. But the status of even perhaps the most important one, the Southern Game Reserve of Kenya Colony, is woefully unsatisfactory. It is used as a reservation not only for the wild animals but for the Masai natives, and their herds of cattle have preference over the game, large numbers of which, when a drought comes, have to move outside and are foredoomed. In 1910, according to Hobley, the zebra and hartebeest from this reservation, in their frantic search for water, marched into the town of Nairobi, regardless of man. The lions followed close in their wake and killed them nightly in the public square.

It is on such occasions that as many as twenty-three lions, as at Lukenya, and even more than thirty, as at Simba, have been seen together, as vouched for by Sir Frederic Jackson and Bronsart von Schellendorff respectively.[2] These huge felines do not ordinarily come together to hunt in packs, but do so in smaller family parties. Such large gatherings are exceptional and

[1]Selous, F. C. 1908. "Big Game in South Africa and its Relation to the Tsetse Fly." *Journ. African Soc.*, Vol. VIII, p. 129.

[2]The reader is referred to the article by Mr. Clark in this issue, who records seeing a pack of seventeen lions at Ngorongoro.

usually occur in connection with the shifting of game from one region to another.

How difficult it is to regulate abnormal conditions after man has disturbed the balance of nature becomes clear again when we read that Tanganyika Territory in the first half of the year 1923 paid a bounty for three hundred lions and eight hundred leopards. In one district alone the lions killed sixty-seven natives. During the war there was wholesale slaughter of game as food for the contending parties. Cartridges were not to be spent upon carnivores, unfit as provisions. The scarcity of game undoubtedly drove these carnivores, left unchecked for years, to attack the natives.

So dangerous were they in 1898 that they held up the building of the Uganda Railroad, but how many are there left today in the localities of their former abundance? During the Pleistocene the lions reached as far north as Great Britain and eastward over a large part of western Asia. Glacial conditions forced them southward with the herds upon which they preyed. Babylonian art points to their relative abundance and suggests that even then lion-hunting was a sport practised by the reigning class to secure the plaudits of the masses. In Africa the lion was once common everywhere except in actual deserts and heavily forested areas. Now it is extinct in South Africa south of the Orange River, throughout North Africa including most of Egypt, also along the mouth of the Congo and the coast of northern Angola. Needless to say, it is greatly decimated wherever the white man has established himself. The lion went even before the game on which it preyed. In Asia it is nearing actual extinction; it is said that only a few are left in the Gir Forest, Kathiawar, Bombay Presidency.[1]

The success that attended the sport of hounding lions, as practised by the late Paul J. Rainey in East Africa, was too far-reaching. Thereafter packs of dogs were not allowed to help in the decimation of the big feline. Kenya Colony could not afford to lose its lions by such swift proceedings, for they are its great attraction, making the country a Mecca for sportsmen, who spend thousands of pounds in the country. Powder and rifle, traps, poison, firebrands, and electric flashlights harassed these huge carnivores. From behind impregnable fences and walls, or from the security of trees or other lofty perches blazed the shots that spelled the doom of the prowling lions. These animals ran the risk of being trailed even when they dragged their kill under cover to hide it from vultures, marabout storks, and the rest of the hungry horde. They were not the raging despoilers. Any kind of meat, even of its own kin, the carcass of an elephant, as well as carrion, is palatable to the king of beasts. The same is true of leopards. Under the greatest difficulties they sometimes drag their kill up trees, not merely out of reach of famished hyenas and jackals but even out of that of the lion.

The international organization for safeguarding African game was definitely initiated by the convention of 1900, attended by all the powers owning territory in that continent. The essential features of efficient protection were thus passed upon. Game sanctuaries; closed seasons; the sparing of females, young, and the rare species; restricted export of the skins, horns, and tusks of certain forms; prohibition

[1]Faunthorpe, Colonel. 1923. "The Vanishing Lion of India." NATURAL HISTORY, Vol. XXIII, p. 524.

of particularly destructive methods, such as grass fires, pits, snares, and game traps, made up the list. These regulations were all designed to limit or prevent unjustifiable slaughter of game or otherwise to foster its welfare.

As elsewhere, however, conditions in Africa have changed since the war. The tide of destruction is far from ebbing. The sheer impossibility of policing such immense territories, often without the slightest financial aid, woefully lames all such legislative measures. Recent decades have furnished decisive proof that real results in African game preservation largely depend on winning active support for the cause among those living in and visiting Africa. The negro population is not, as a rule, as dangerous as one might expect from general reports. Their traps, snares, and mongrel dogs do much less damage than the iron heel of civilization.

The gigantic size of some of the animals and the uncertainty of their temper is one of the biggest obstacles the movement for African game preservation has to deal with. Besides devastating crops, elephants by merely walking over wooden bridges may cripple traffic, and giraffes may interrupt communication by breaking telegraph wires. Zebras stampede through the strongest fencing and endanger both crops and domestic stock. Rhinoceroses and buffaloes may become dangerous by their numbers. But all such local difficulties will find easy adjustment by wise and moderate regulations.

Posterity will be grateful to those who have helped create a sentiment in behalf of the preservation of Africa's wild animals. Prof. Henry Fairfield Osborn, president of the American Museum, espoused the cause many years ago. By his influence and encouragement much has been done, crystallizing into definite results. Dr. William T. Hornaday, director of the New York Zoological Park, has launched many forceful pleas. Lately, in coöperation with Dr. A. K. Haagner, president of the Transvaal Game Protective Association, he has sent out to the South African people a handsome and well illustrated pamphlet[1] on the vanishing game of that region, in which an eloquent appeal is made for safeguarding what still remains,—an appeal which one would like to see heeded not only in South Africa but throughout the continent.

Taken at the New York Zoological Park

The wild dog (*Lycaon pictus*) is distributed over the major part of the savanna region, where it hunts in packs of as many as sixty and is very destructive

[1]Hornaday, W. T., and Haagner, Alwin K. 1922. "The Vanishing Game of South Africa. A Warning and an Appeal." New York and Pretoria.