

UGANDA PROTECTORATE.

EXTRACTS FROM THE ANNUAL REPORT OF THE GAME
DEPARTMENT, 1928.

Expenditure and Revenue.—Figures for 1928 are as follows :

	£	s.	ct.
Expenditure	5,160	9	65
Revenue	17,030	7	30
Balance of revenue over expenditure	11,869	17	65

The revenue was derived as follows :—

(a) Sale of Ivory, Rhinoceros horns, and Hippopotamus teeth	11,350	17	30
(b) Game Licences	5,679	10	00

Game Licences.—The revenue from licences continues satisfactory. Generally, the numbers of the various licences sold vary little from those of last year, though there is an increase in the total revenue derived from this source. The number of bird licences issued is nearly doubled.

Game and special licences were issued :—

Residents (Full)	271	Resident's or visitor's, one white rhinoceros	1
Visitor's (Full)	14	Natives, elephant	18
Resident and visitor's (14 day)	20	Bird	366
Resident's or visitor's, elephant	233		

Tribal hunting on an extensive scale during the early months of the year continues in certain districts of the Northern and Eastern Provinces. The yearly massacre in Lango takes place in January or February. In addition to the slaughter of wild animals in uninhabited areas where they are doing no harm, tribal hunting is particularly harmful from the point of view of the dissemination of diseases noxious both to mankind and stock.

Sleeping Sickness Closed (Infected) Areas are entered by hundreds, if not thousands of hunters, and infection is picked up and carried back to clean areas, or clean "fly" in closed areas is contaminated by feeding on infected trespassers. The natural consequences are (a) an unexpected

outbreak of sleeping sickness in a hitherto clean area ; (b) the contraction of infection in an uninhabited area where it would be reasonable to expect no possibility of such an occurrence.

From the point of view of stock diseases—with special reference to rinderpest—there can be little doubt that responsibility for the spread of rinderpest to Bunyoro and its subsequent extension to North Buganda can be traced to the activities of a great Acholi hunt which took place in South-East Gulu early in the year, at a time when there was a widespread outbreak of the disease in the Eastern Province.

Two hundred and forty animals were killed in this hunt, which swept through the Sleeping Sickness Closed (Infected) Area, driving large numbers of buffaloes in front of it, and penetrated as far west as the Murchison Falls.

Six buffaloes are known to have swum across the Victoria Nile, north of Foweira, to avoid slaughter. Shortly afterwards rinderpest broke out in two new areas.

Game Ordinance, 1926.—There have been no alterations of magnitude. A close season was proclaimed in the Saza of Bugerere in the Mengo district from the 1st November until 31st January, 1929, during which period the hunting of any animal was completely forbidden, in order to lessen the possibility of an existing outbreak of rinderpest extending further south and east in the Buganda Province.

The white rhinoceros has been added to the list of completely protected animals.

Owing to a satisfactory increase of eland throughout its habitat in the Protectorate, it is now possible to obtain one under a (Full) Game Licence wherever it occurs.

In order to put a stop to an appreciable amount of unnecessary wounding and cruelty on the part of thoughtless individuals possessing rifles but not game licences, who made a habit of using hippopotamuses, when in the water, for target practice, this animal was withdrawn from the vermin list in Lakes Victoria, Albert, Edward, and George. The number obtainable under a (Full) Game Licence was increased

from two to four; and the inclusion of one was made in the schedule of animals permitted to the holder of a (Fourteen-Day) Game Licence.

At the end of the year the limit on the number of buffalo obtainable under Game Licences was removed, subject to the same reservations as before, as they had increased inordinately everywhere and had been responsible for the transmission of rinderpest during recent outbreaks.

Owing to the neighbouring territory of Kenya having raised appreciably its fees for Special Elephant Licences and having closed for a period certain well-favoured elephant hunting grounds, it was considered advisable to raise the fee for the Visitor's (Full) Game Licence in Uganda from £25 to £50 as from 16th April, 1928.

During March, under special instructions issued relating to famine, the Game Laws were suspended in parts of the Teso district, under the provisions of the 1926 Game Ordinance, Section 79 (1) to (3).

Game Reserves.—The existing Bunyoro Game Reserve has been extended northerly across the Victoria Nile for a distance of 10 to 15 miles, and the whole reserved area is now known as the Bunyoro and Gulu Game Reserve. This extension brings the waters of the Victoria Nile, from Foweira to the Murchison Falls, and from the latter to Lake Albert, within the limits of this sanctuary, thereby safeguarding its myriad crocodiles from promiscuous shooting on the part of sightseers on the river steamers.

There is no doubt that this great sanctuary with the adjoining extensive closed sleeping sickness area in the north is not only the home and refuge of many elephants, but also of no inconsiderable number of fine tuskers. But happenings in the Gulu portion of this sanctuary early and late in the year demand that the incursion of native hunting parties must be checked effectively or else the achievements of elephant control in the adjacent areas will be brought to naught. Big tuskers operating from this sanctuary have caused havoc in the Bagungu settlements, located in a tiny corner of the reserve, as described elsewhere.

The Semliki Reserve continues to be well stocked with game, and nowadays there is little, if any, poaching there. The wholesale hunting of a few years ago appears to be over. There are elephants and large herds of buffaloes, the latter very tame and inquisitive. Hartebeest, which a few years ago were scarce, are on the increase. Waterbuck are numerous, and in March many females were accompanied by young. Kob are plentiful, and reedbuck fairly common.

Large numbers of elephants which have been driven out of Bunyangabo in recent years have taken up their abode in the Lake George Game Reserve.

Elephant Control.—The general situation continues satisfactory, control has been maintained effectively in all areas dealt with by the Department, and further progress has been achieved in some localities.

Bunyoro.—Eloquent testimony is accorded the efficacy of elephant control in one of the quarterly reports of the Provincial Commissioner, Northern Province, in which he records: "Native cultivation is hardly ever raided in Kibanda, thanks to elephant control."

This encouraging state of affairs is better understood if it is realized that the Kibanda north-west boundary is contiguous with the Bunyoro Game Reserve—the great elephant sanctuary of Uganda. The elephants have only to cross this boundary to find themselves in many places within areas of extensive cultivation.

And again, the unsolicited testimonial of one of a party of sportsmen and naturalists, who have been familiar with this area for many years prior to "elephant control" is distinctly illuminating if not humorous. "I must say it is quite wonderful how Mr. Pearson has trained the elephants in his country. There are hundreds of them, every one of them with a map of the 'shambas' on their trunks. In fact I never saw a 'shamba' with damage done by elephants." This was after a hunting trip of several weeks' duration in the elephant areas of the district.

Gulu.—In July the Game Ranger and two of his guards had cleared the Minakulu area of elephants and moved north

towards Attiak. A fortnight later a report was received from the Saza Chief that ten elephants had passed east. This information did not warrant immediate action, and the Ranger could not understand the reason for the urgent appeals for assistance. It subsequently transpired that the ten elephants were all bulls and had traversed the Chief's cultivation. He, being well versed in local elephant habits, knew them to be pilot bulls which, if undisturbed during the reconnaissance, would return to the closed area whence they came and lead out a cow herd by the identical route they had first taken. It was the fear of the consequences of this second movement which had urged him to press for aid. What he anticipated actually happened and the pilot ten being unmolested returned three days later to the sleeping sickness area, two days after which a herd of forty bulls and cows passed easterly through his crops.

Dealing with the Gulu and Bunyoro areas as a whole, there are two points especially noteworthy during the year. One is that the big tuskers are becoming more and more shy of leaving their sanctuaries, the boundaries of which they undoubtedly recognize.

The other is the fact that a markedly larger number of fine tuskers have been both seen and killed during the year, and in view of certain abnormal and far-reaching movements of roving bulls which have been brought to notice, it would appear that there is at the end of each cycle of years which culminates in a condition of acute drought, a general tendency on the part of big wandering bulls from the drier regions of the east—from how far we cannot say—to migrate into the pleasanter surroundings of the River Nile.

The fact that a breeding herd in February was severely burnt in the "gombolola" of Aloro is of peculiar interest, as it indicates either the presence throughout the year of a cow herd in this area or else a south-west thrust from Alito.

The agony which the poor burnt brutes suffered can be realized from the infuriated attacks made on the peasantry, eight of whom were killed within the space of a few days. Some ten elephants—including two suckling infants—died

of their injuries, and another half-dozen were shot to put an end to their misery.

A rogue bull which fled from the scene of these tragic events killed three persons close to Lira, when for a few days it lay up near main roads in the vicinity of and actually within the station. It is believed that the creature was subsequently killed in June.

Buganda Province.—With the exception of a few uninhabited areas, notably Buruli and the north-west portion of the Masaka district, the population, and the elephants where they occur, have to live more or less side by side. Broadly speaking, the elephants are based on the main rivers and watercourses, from which they raid the neighbouring cultivation, and when harried pass from one dense swamp to the next and start again their marauding, as they have no uninhabited expanses, with the above two exceptions, or sanctuaries to which they can retire. It would appear, therefore, that the ultimate fate of the Buganda herds will be extermination, unless they can be driven north to join up with the Bunyoro thousands in their existing sanctuaries. Even then the certainty of overstocking these sanctuaries by such action will necessitate a drastic reduction in numbers in the near future.

In November the Ranger killed an immense tuskless bull which he estimated must have stood nearly 12 feet at the shoulder. He towered above nine other bulls which were with him. He was a well-known animal and very old. It is hoped to recover some of the leg bones of this monster, as their measurements will indicate whether the animal was of unusual height.

An interesting episode is recorded by the District Commissioner, Ankole. About six o'clock one evening, as he was watching a solitary bull elephant browsing on a hillside in the distance, it suddenly threw up its trunk and fell over—apparently dead. But, having scrutinized the place carefully for nearly half an hour, he observed the elephant stagger to its feet and move off slowly downhill to a patch of forest. Next morning early it was tracked through the forest and

it was noted that it had fallen down three times during the night. The bull was shot and examined carefully, but there was no old bullet wound or other external injury to account for its behaviour. A post-mortem was held and, although the heart was apparently in sound condition, about a foot from it and in what was probably the aorta, a clump of live maggots was found attached to the inner walls. The clump was about the size of a man's fist and each maggot three-quarters of an inch in length and the thickness of a pencil. Unfortunately, no specimens of these parasites were kept. It was not a particularly old elephant, and the tusks weighed about 50 lb. each.

I am often asked whether I am aware that elephants when killed are not infrequently found to have "jiggers" in their feet. The error is excusable, for the parasites—a quarter of an inch long and the thickness of a pencil—to which reference is made are the brownish larvæ of some form of fly. The fly evidently lays its eggs in the crevices of the horny sole of the foot and the larvæ must bore their way through the sole and live on the tissues above it, for that is where they are found. Samples for identification and report have been forwarded to an eminent helminthologist in England.

NOTES ON UGANDA FAUNA.

Primates.—Numerous specimens—some of outstanding merit—have been collected; the occurrence of a species of red colobus monkey, as described by Sir Harry Johnston from the Toro district, verified; and the existence of a curious type of black and white colobus discovered in the lake-shore forests bordering Tanganyika Territory.

Mountain Gorilla—*Gorilla gorilla beringeri* (Matsch).—A most valuable report on the distribution, habits, and estimated numbers of the gorillas of the Kivu volcanoes, which was published in the *Annals* of the Royal Zoological Society of Belgium at the end of 1927, was received from the author, Dr. J. M. Derscheid. Dr. Derscheid allots

100 to 150 gorillas to the British portion of the Birunga volcanoes.

There is one point worthy of mention which is stressed in his report, and that is the record of an "astonishingly small number of young gorillas in the troops which I have had under observation". From information received, the accuracy of which I have no reason to doubt, I am led to believe that mortality amongst young gorillas due to the activities of leopards is exceptionally high.

I am not prepared to accept the assertion which is sometimes made that "generally speaking this animal is only a visitor to Uganda". There are definite records of its occurrence in fair numbers during the months of November, December, and January, on the slopes of the main volcanic group (Sabinio-Mgahinga-Muhavura), and apparently, if one knows where to search, the gorilla troops are not difficult to find. Also a specimen was killed in February, 1925, near the Congo boundary halfway between the Kayonsa forest and the volcanoes, and another near Kumba to the north-west of Kabale in June or July of this year. The locality in which this last-named animal was killed should establish definitely the existence of gorilla in Kayonsa forest.

Chimpanzee — Anthropopithecus troglodytes purschei (Matsch).—In Kigezi from reports received it would appear that the numbers of this species are diminishing. It is, however, likely that a permanent change of quarters has resulted in its disappearance from localities where it was previously known. It has been ascertained from Ankole that the parties or families of chimpanzees are great wanderers and not confined to specified localities. However, information both from the Toro and Bunyoro districts also records a recession from areas in which till recently these animals were seen and heard.

Lion.—There has been no recurrence of man-eating in the Ankole district. Only three human deaths have actually been reported, and those were all part of the same fatality. As far as it could be ascertained it was the work of a lioness accompanied by two large cubs.

The loss to stock in the district throughout the year has been negligible.

Statistics of deaths amongst human beings and loss to stock in the Protectorate are almost impossible to compile, as such occurrences are not always reported to district headquarters. Fatalities are known to have occurred in several areas and there still exists a tendency on the part of marauding lions to eat their human "kills". One knows that annually many lions must be destroyed by the local inhabitants, but it is only by chance that one hears of such incidents.

A typical case of apathy is instanced as happening in the Koki area of the Masaka district. A herd-boy, aged about nine, was killed by a well-known trio of lions as he went to let out the goats in the early morning. In spite of the efforts of his father and others, the lions carried off the body which they consumed completely. No report of this tragedy had been received at district headquarters eleven days later, and no especial effort had been made to deal with the murderers.

Early in the year several persons were killed and others mauled in Singo county of the Mubende district. In the same Saza during September a lion ate a girl who was caught and killed at 6 p.m. while bringing back the goats. The following day the lion was hunted and killed.

<i>White Rhinoceros</i> .—The actual number of different animals seen by Captain Salmon and myself was	41
The number of fresh tracks seen and accepted as reliable evidence	47
	—
Total	88
If to this number is added for the Rhino Camp area a further	12
	—
we get along this River Nile a total of	100
If, for the River Koich—Midigo—Kei—River Kaia area we accept the 1925 figures we get a further	30
	—
Estimated grand total	130

This is probably the most optimistic estimate of the white rhinoceros still existing in the Protectorate.

Of the forty-one specimens seen, twenty-seven were adults and fourteen juveniles in all stages of growth ranging from the size of a pig to practically full-grown.

There appears to have been a marked diminution in the numbers of white rhinoceros since the 1925 census. I would draw attention to the following figures :—

1925 *Census estimated white rhinoceros to number 150.*

Animals known to have been killed subsequent to the census, or represented by "found" horns brought into district headquarters :—

1925	.	.	.	15
1926	.	.	.	18
1927	.	.	.	17
1928	.	.	.	5
				—
				55

The estimated increase in 1926 and 1927 is seven for each year. If this rate is accepted we have an increase of twenty-eight for 1925–26–27–28. Basing calculations on the 1925 census the existing animals should, therefore, be 123, a figure which agrees closely with the one given above.

Buffalo.—The buffalo problem undoubtedly constitutes a most serious menace to the economic development of the country. The southern, south-western, and western thrust of rinderpest during the year has brought it very much to the fore. However, in fairness to the buffalo it must be recorded that this animal was not responsible for the original outbreak in Bugerere.

During the past three years the holders of game licences have been encouraged to kill unlimited buffaloes in specially defined regions which, with few exceptions, comprised practically the whole of the populous areas of the Protectorate; but it cannot be claimed that the results have been in any way encouraging.

Eland.—From several sources comes news of a maintained increase in the numbers of this splendid antelope, and also

there are numerous reports to the effect that the trophies to be obtained have improved considerably. It is a matter of regret that there should be little, if any, tendency on the part of the species to spread north-east into its old habitat in Singo and Bulemezi, an area which it had been hoped might be eventually re-stocked with game. In this respect I quote the remarks of the Game Ranger of Mubende: "There is no sign of a general re-stocking of country whereon game once flourished. It seems unfortunately true that once a species reaches a certain low level it requires more than casual protection to enable it to re-establish itself thoroughly."

Crocodiles.—The question of the main source of food supply of the crocodiles in Lakes Victoria and Albert has once again come into prominence owing to the activities of the members of the fishing surveys of these two lakes. One hears it stated freely that crocodiles consume enormous quantities of fish, but actual proof in support of such assertions is difficult to obtain.

In the first Annual Report of this Department (1925) attention was drawn to the reports of eye-witnesses at the Murchison Falls who had computed that as much as a ton of fish a day was consumed by the masses of crocodiles which infest the pools below the falls. The observers from whom this information was derived had ample opportunity daily for a period of nearly a fortnight of studying the crocodiles at close quarters.

I quote verbatim from a memorandum written by one of them on the subject:—

"As many as 600 crocodiles have been counted basking on the sandy flats on the Acholi bank half a mile below the telegraph line.

"An observer scanning the river at about 5 p.m. from a position on a hill-top will be struck by the apparently regular formation taken up in the water by row after row of crocodiles, like ships of war in line of front, with intervals of about 50 feet between each crocodile in the row and 300 feet between the rows, which extend from bank to bank

and 2 miles downstream. Soon a large and luckless fish swims by, and a crocodile hurls itself at it with a mighty plunge, seizes it by the middle, and, with head held high above the water, champs and crunches in its efforts to break the struggling fish in halves, whilst its neighbours throw themselves at his head in an endeavour to snatch a portion away.

“To escape them he dives, there is a commotion under the water, but in another minute the crocodiles have resumed their position in line.”

Mr. Michael Graham and Mr. E. B. Worthington, the principal members of the fishing surveys of Lake Victoria and Lake Albert respectively, have not only challenged the assertion that crocodiles subsist mainly on fish, but have recorded the opinion that they are not inclined to believe that a crocodile is capable of capturing so active a creature as a normally healthy fish in its natural element.

Stomach examinations—a most unsavoury proceeding—furnish but little evidence to uphold the contention that the crocodile is very destructive to fish life and tend to support the conclusion arrived at by the experts of the fishing survey, that normally the crocodile does not catch live fish.

There are several points which suggest themselves from these stomach examinations :—

(a) It is probable that crocodiles can and do subsist for protracted periods on exceedingly little food or none at all.

(b) It is possible that after a crocodile has had the opportunity of gorging itself it submerges until it has digested and got rid of the remnants of its meal, and that all specimens observed on the dry land are *hungry* crocodiles.

(c) Breeding females are so busy protecting their eggs that they have no opportunity to look for food and consequently have empty stomachs.

(d) Several pounds of pebbles are invariably found in the stomach of each crocodile examined. The function of these stones is uncertain ; but they may help the digestive juices to remain in normal condition during long periods of abstinence.

(e) The damage done to economic fisheries by crocodiles, in Lake Victoria, at any rate, is negligible.

(f) The establishment of the fact that crocodiles are accustomed to eat their own eggs.

It is probable that nature did not intend this species of crocodile to be a fish-eater, a role which it has had to adopt through force of circumstances.

A characteristic feature of the crocodile is its ability to seize and hold on to its prey with open jaws under water owing to the posterior nostrils being set so far back in the skull and so completely cut off from the mouth cavity by specially developed bones of the palate that they have no inter-communication with the mouth. In consequence there is no reason why the species should not be capable of catching live fish especially as the activity of the crocodile when in the water is remarkable.

Certain officers of the Protectorate Medical Service who have taken the trouble to investigate crocodile's stomachs have discovered fish remains. Dr. Carpenter during this year, when on the Eastern shore of Lake Albert, near Bagungu, noticed a crocodile making for the land unusually rapidly, and saw it come ashore with a large live fish in its jaws. Early in the year several crocodiles were observed tearing lumps out of a huge defunct Nile perch which was floating in the Nile near Pakwatch. There is much mortality amongst the larger fish in Lake Albert, and from this source the crocodiles must obtain an almost limitless food supply.

In the localities investigated on the Entebbe coast, part of Mengo coast, and Damba Island, there is a definite breeding season during the months of September, October, and November. The period of incubation appears to be in the region of three months. Four nests examined on 12th and 13th November contained eggs on the point of hatching out, in fact some did hatch as they were dug out. There was a total of 237 eggs (66, 61, 55, and 55) in these four nests.

The newly-hatched young are extremely agile and vicious, but they can do no damage with their unformed teeth;

they utter a chirruping cry, probably of annoyance. These youngsters feed at first on flies and various insects, but subsist chiefly on the contents of the yolk-sac which is absorbed in the body and traces of which have been found after the age of six months. The embryo crocodile has an egg-tooth at the end of the snout for cutting its way out of the egg, the shell of which becomes exceedingly leathery prior to hatching out.

Dr. Hoare, of the Bacteriological Laboratory, has successfully discovered what happens to the newly-hatched crocodiles in the wild state. These little creatures apparently for months after birth spend a greater portion of their lives, secure from numerous enemies, including larger specimens of their own kind, lying along the bare stems of dense bushes overhanging the water, on to which they can climb direct from the water. In spite of such habits the mortality amongst the tiny crocodiles must be exceptionally high.

THE FEEDING HABITS OF SEALS.

EXTRACTS FROM A REPORT OF THE CHIEF INSPECTOR OF FISHERIES, VICTORIA, 1929.

For many years past fishermen at various fishing centres on the Victorian coast have complained of the operations of seals in connection with their industry. These complaints may be summarized as follows:—

(a) Interfering with fishing operations by following fishing boats and taking barracouta from the lines.

(b) Preventing the hooking of schnapper, whiting, etc., by coming around fishing boats when anchored on fishing grounds and by taking hooked fish.

(c) Damaging nets which are set for fish by going through them after the meshed fish.

(d) Driving away and breaking up shoals of migratory fish such as salmon, mullet, barracouta, etc.

So many complaints and varying statements as to the number of seals and their habits have come before the Depart-