

Oryx

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Oryx - The International Journal of Conservation, is now published quarterly by Cambridge University Press on behalf of Fauna & Flora International. It is a leading scientific journal of biodiversity conservation, conservation policy and sustainable use, with a particular interest in material that has the potential to improve conservation management and practice.

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KRUGER NATIONAL PARK.

EXTRACTS FROM THE WARDEN'S REPORT FOR 1933.

By Col. J. STEVENSON-HAMILTON.

Climatic.—1933 was the eighth year of drought conditions : so far as the earlier part is concerned, heavy rain having fallen only for a few days in the beginning of January and again at the beginning of March. The southern portions suffered most ; north of Letaba conditions were rather better, and they improved still more towards the north, so that No. 8 Section held good pasture all through the winter. On the other hand, south of Olifants River, every particle of pasture was eaten off for many miles around ; the veld resembled a roadway and the animals had to trek far to find food. In November the drought broke and until the end of the year good rains fell.

Resident Natives.—There has been practically no trouble with nor offences by resident natives. All able-bodied men not away working on the Mines or elsewhere were employed on Park work during the year.

Poaching.—No poaching by whites within the Park boundaries was reported.

The Portuguese border on the whole was quiet, largely owing to the complete absence of water and consequently of game on our side within some distance of the frontier. Ranger No. 4 detected and apprehended some members of a gang who had killed a waterbuck on the Sabi River near the boundary.

Along our southern boundary things have greatly improved since the south bank of the Crocodile River was definitely placed under the protection of the Park staff, and there has been less trouble thence than for many years past.

There was serious and organized poaching into the new section (No. 7) from the native locations adjoining on the west, the natives concerned using mainly bows and arrows with dogs. No doubt for many years past much game has been killed, including Eland and Roan Antelope in considerable numbers.

The most serious trouble, and the one most difficult to deal with, came from the native reserve (Sections E and F) along our south-west border.

The natives of this area, living as they do close to white settled country, are thoroughly sophisticated, and are, moreover, well acquainted with the stations and movements of our police, on which careful watch is kept. They have by various means acquired a large stock of modern rifles and ammunition, and great numbers of dogs. Until we acquired police control of the area, we were helpless against the organized and carefully timed raids made into the Park, and once the poachers had escaped back into the reserve it was impossible to lay hands upon them. Since we assumed control a great number of unlicensed firearms have been found and confiscated and several hundred unlicensed dogs destroyed; in spite of this the natives have still been able to give trouble, and in the earlier part of the year the ranger of No. 1 Section (Mr. Wolhuter) obtained information which, after a great deal of hard work on the part of his native police, resulted in the capture of two complete gangs of professional native poachers provided with firearms and discovered camping many miles inside the Park, where they had killed not only large antelopes of all kinds but also buffalo and giraffe. Owing to our control of the native area it was possible later to arrest those members of the gangs who had managed to escape when first discovered, and practically all who had taken part were duly tried, convicted, and sentenced to the maximum penalty which is at present practicable under the Parks Act.

Pafuri Game Reserve.—A wedge of country lying between the Limpopo and Pafuri Rivers on the north-west edge of the Park was declared by the Provincial Administration during the year to be a Game Reserve and for administrative purposes was placed in charge of the Park's officers. The area contains a small native location (Makuleke's) and this was, of course, excepted from the proclamation. It was later discovered that the majority of the natives from the location were in fact occupying land outside of it in the new

game reserve. The area, though containing but little game at present due to the presence of the natives, is suitable for nyala and also forms a corridor for the passage of animals from Rhodesia and P.E.A. into the Park. There are also contained within it several large pans haunted by numerous waterfowl, of which owing to the general unsuitability of natural conditions the Park itself is very deficient. The ranger of No. 8 section was appointed to take charge of the new reserve and was given a few extra native rangers to enable him to supervise it adequately.

Locusts.—Swarms of red locusts were first observed passing over northern portions of the Park from west to east in August. In November many swarms appeared, the general trend being from north-west to south-east and the majority passed over into Portuguese Territory, especially the earlier ones. Towards the end of the month, however, there was a tendency to settle, and during the first week of December there was extensive egg laying in most parts of the Park, especially in the eastern areas.

Rest Camps.—For the first time since the opening of the Park, accommodation, generally speaking, was equal to the demand. Except on several exceptionally busy days, such for instance as the August Bank holiday, it was possible to find accommodation for every visitor. I wish here to pay a tribute to the excellent work performed by all the camp superintendents at the various rest camps. During the "rush" season these men have to work from dawn till long after dark, meeting the various demands of a crowd of visitors all anxious for precedence and most in a hurry. The manner in which they did so, and their unfailing patience and courtesy often under circumstances of great difficulty, deserve the highest praise. The few complaints received were found on investigation to reflect no blame upon the officials concerned.

Profiting by experience and by warning, many visitors not forced to do so by pressure of the children's holidays, deferred their visits until after July, and thus avoided the overcrowding in that month.

No further concrete rondavels were built, but one hundred more cottage tents were provided and distributed among the various camps. During the months of July and August these were fully occupied.

Indian Camps.—Two rest camps were provided for Indian visitors, one at Skukuza and the other at Olifants pontoon. They were fenced with jackal netting and properly gated; cottage tents were provided and other accommodation. These camps, fully furnished, were throughout the season, even during the busiest times, set aside and reserved solely for expected Indian visitors. Unfortunately the experiment did not justify itself, as the Skukuza camp was occupied on only two occasions during the season and the Olifants pontoon not even visited.

Water Supplies.—Consequent on the severe drought, 1933 being the eighth year in succession of the same conditions, many visitors were struck with the straits to which the wild animals were being reduced from lack of pasture and water, and in consequence a movement was begun in Johannesburg which quickly spread to other towns in the Union with the object of raising money from the public to establish bore-holes in the more arid areas. The response was astonishingly gratifying and was the best evidence of the position the Park has gained in the estimation of the people of the Union.

The work of boring was entrusted to the Irrigation Department and work was commenced early in September. By the end of the year four bore-holes had been completed, water being adequate at distances varying from 150 to 200 feet. At Pretorius Kop the supply is sufficient both for the requirements of the camp and to feed a natural dam at which all animals are prone to drink in ordinary years, only a short distance below the camp. Near Ship Mountain the supply was extremely gratifying as it exceeded 2,000 gallons per hour. On the Selati Line, in the very dry granite country, water was obtained in lesser quantities but still sufficient, it is hoped, for the purpose.

A line of five bore-holes will extend when completed

through the middle of the old (1898) Sabi Reserve from east to west, and will fulfil a very much required want. Except in one or two isolated places such as the Hlambanyati-Mbeamide junction, the whole area between the Crocodile and Sabi Rivers is during the latter part of every dry season without any water, and it is thus almost bare of wild life excepting within a few miles of the permanent rivers and the few perennial mud holes. The veld on the other hand is excellent, and we have had the picture of every tiny bit of pasture having been eaten off within grazing distance of the water on the one hand and on the other miles of splendid but waterless veld in which hardly any life is to be seen. The chain of bore-holes bisect this arid country and so are likely to do much to relieve the former congestion near the permanent rivers. Moreover, species such as buffalo, which like plenty of water, find a more suitable habitat in this area than north of the Sabi, and I anticipate that the greater watering facilities will help the buffalo greatly and also the roan antelope, which is, south of the Olifants, now practically confined to the old reserve.

I feel that I must here pay a tribute to the work of Mr. Jearey of Capetown, as the bore-hole movement undoubtedly emanated from a conversation which he had with me while he was staying at the Skukuza Rest Camp during the winter, as a result of which he approached the press when he reached Johannesburg, and succeeded in starting the campaign. Although the Board had resolved to instal certain bore-holes so soon as funds became available, the credit of the idea of starting a publicity campaign with the object of raising a public subscription belongs to Mr. Jearey, without whose enthusiastic initiation of the plan I doubt if it would have taken shape.

The question of bore-holes as opposed to dams as a means of providing permanent water supplies for wild animals during the driest months of the year has been one which has exercised my mind for several years.

On the surface the latter would seem to be the more economical and the easier method, and given a spring or

some permanent recruitment of water however small, would probably suffice for all needs. Unfortunately in the Park the sand spruits usually carry only storm water in the form of torrents. Good dam sites, which will not at once silt up, are hard to find in appropriate places, and seepage and evaporation, especially the latter, combined with the immense numbers of animals which compete for the water as it begins to get low, exhaust it just at the very time when it is most required. Thus there being no fresh supply coming in, the dam about the end of August, exactly when it begins to be most urgently required, tends to dry up into a mud hole. Should heavy July rains fall, as happens every four or five years, the dams would receive possibly even another month of life, but unless there happened to come exceptionally early storms they are dry again by the beginning of September. The dam at Satara, built in 1925, which after good rains fills up, has now been dry for several years. The Entumene dam and many natural rock dams which exist are cases in point. In any case, dams in the Park are dependent on rainfall, and when this fails or is deficient, naturally they remain empty.

Bore-holes are admittedly an experiment, and we have to feel our way to the correct solution, but they appear to be the most promising plan yet devised, as providing a permanent supply which will be drawn upon only when the other sources have failed. The bore-holes in fact are likely only to be required for some three months in each year, and thus there is not likely to be any excessive drain upon permanent supplies.

It is hoped accordingly that the throwing open of many hundred square miles of pasture hitherto denied to the animals through lack of drinking facilities will result in the retention in the Park towards the end of the dry season of many which now perforce are obliged to seek better conditions outside.

Dams as subsidiary aids, however, have not been lost sight of. Several natural pans which hold water for the early part of the winter have been enlarged and deepened,

and experimental earth dams are being constructed in several sections, notably in Nos. 4 and 5, between Tshokwane and Kumane and near Satara respectively, all in very dry areas.

Pasture.—As indicated above, all pasture and browsing in the vicinity of the permanent water in most places south of Olifants River ceased to exist for the last two months of the dry season, with the result that in certain places the veld resembled a road. This was especially noticeable in parts of No. 4 Section, where, as for instance at Tshokwane, there is permanent water in pools along the Manzemntondo. There is no chance for reseeding and after rain merely weeds grow up. In various places, however, especially under thick thorn bushes where the animals could not get at it, patches of seeding grass have survived, and Ranger Steyn has evolved and is carrying out an excellent plan of fencing in such places with the object of fostering the growth of the grass by protecting it further against animals. In this way it may be possible gradually to form as it were depots whence the surrounding areas may become reseeded more quickly than would otherwise be the case.

In this connection, as showing the recuperative power of the veld, I would instance No. 3 Section. In its eastern parts from 1926 to 1930 very exceptional drought conditions were experienced with the results as noted above. In 1931 and 1932, however, this area was fortunate enough to experience a number of local storms which did not occur elsewhere, and this year the grass has again almost everywhere once more made itself good without artificial assistance. Seeds are no doubt blown by the wind or carried by mammals and birds from other places and under favourable conditions soon establish themselves and sprout.

Commemorative Tablet.—Two brass plates suitably inscribed in commemoration of the establishment of the Sabi Game Reserve by President Kruger in 1898 and of the inauguration of the Kruger National Park comprising the old Sabi Game Reserve and its northern extensions by the Hon. P. Grobler, then Minister of Lands, in 1926, were erected on the face

of a large rock a little north of the Manzendhlovu River on the road between Skukuza and Tshokwane. The unveiling took place on 22nd September in the presence of the Hon. P. Grobler, Senator the Hon. W. J. C. Brebner and members of the National Parks Board, and of the Hon. J. S. Smit, Administrator of the Transvaal, who made a special journey to be present.

Tourist Traffic.—The opening of the season on 1st June instead of 15th May on the strong recommendation of the Public Health Department apparently made no difference in total numbers, as persons who would have come in May merely put off their visit until later, and the loss of the extra fortnight in numbers was fully made up before the end of June.

The traffic was this year better distributed in point of time, that is to say, every one did not concentrate on July as in previous years, but, where possible, antedated or predated his visit.

There was again a rather widespread disregard of the regulations against (1) driving cars off the roads in order to get nearer to animals, (2) getting out of cars, the more easily to take photographs of animals, or with the mistaken idea that the latter may thus be more closely approached.

(1) Has constantly been the cause of visitors coming along some distance behind having been deprived of the opportunity of seeing interesting animals, which have been frightened away by cars driving straight towards them.

(2) This, which is a notorious vice among some visitors in the close presence of lions, will, unless put a stop to, sooner or later almost certainly end in a serious and probably fatal accident.

Because lions recognize motor cars as unedible objects, have become accustomed to regard them as harmless, have hitherto not associated them with human beings, and in consequence betray usually only a mild interest in them, some people appear to think that the animals are tame, and may be approached on foot with impunity.

Now, a lion is an animal which exists by killing other

animals. The only reason that he does not regard man as legitimate prey, but on the contrary does his best to keep out of man's way, is because he has had ingrafted in him through many generations a wholesome dread of man, as his most dangerous enemy and his acknowledged master. Once eradicate that idea and teach him that he has nothing to fear from man, and it is only a matter of time and opportunity for the lion to begin experimenting with human prey. By repeatedly getting out of their cars and showing themselves in close proximity to lions and especially by sometimes displaying panic and running back to safety as they often do, it will not be long before people teach the local lions that (1) motor cars are definitely associated with human beings, (2) that human beings are definitely not only harmless but actually afraid of them.

Cases of the fatuous folly sometimes displayed could be quoted *ad nauseam*. On August Bank Holiday for instance, the story goes, the occupants of several cars saw a lion asleep by the roadside, and having come to the unwarranted conclusion that the animal was dead, they left their car, approached to close quarters, and threw something at it. When the lion sprang to its feet they consummated their folly by making a wild dive for their cars. Why the lion did not seize and maul one or more of them, as it could easily have done, must be put down to the immunity which fools in common with drunkards sometimes enjoy. Another time a young woman ran towards a lioness, which with cubs was at a kill, and when the animal gave a warning growl she turned and fled, again with better luck than might have been anticipated. Fortunately, lions are by nature indolent and lazy, and in the heat of the day may, unless alarmed or annoyed, be approached without much risk; game understands this well.

On the other hand, a lion suddenly startled at close quarters by a human being on foot is quite likely to attack the intruder in fancied self-defence. Then on cold days or in the early mornings and late evenings, lions wake up and become active; in the case of the younger ones, playful. There is

far more danger from these young kittenish lions up to two years of age than from the older ones. In a fit of playfulness one of them is quite likely to jump suddenly on some person foolishly standing in the roadway and very likely watching another lion. Having once caught hold of their victim the young lion and its companions would treat him or her much as half-grown cats would a mouse.

So long as people will only stay inside their cars in presence of lions there is no risk whatever, and inconceivable liberties may often be, and are taken, at close quarters and in complete safety. But for the public good and the credit of the Park, the insane habit of jumping out of cars to approach any animals, especially lions, must cease.

One fatal accident would, of course, put an abrupt end to all the amenities which tourists have hitherto enjoyed of seeing lions under conditions unknown elsewhere in the world.

Then among the public there occur cases of an opposite mentality. When a lion gets up and walks a few paces towards a car or trots along the road behind it to satisfy its curiosity, the occupants sometimes "tread on the gas" and arrive in camp with the most alarming tales of having been "charged". It is, of course, very natural indeed that people who meet wild lions at close quarters for the first time should feel a certain amount of nervousness, but if they only remain quietly in the cars, they are perfectly safe. The danger from nervous people is that they may lose their heads and fire off their rifles, when if by chance they did happen to score a hit, they might invite the very danger they were anxious to avoid.

Fauna.—Lions have been much in evidence during the past season owing to concentration of game near the rivers and waterholes, with of course a corresponding assemblage of predatory animals.

North of the Olifants River, where game, especially wildebeeste, is less numerous than to the south, lions are seen in equally large parties, and it was noticed that half-grown cubs and immature animals generally, when members

of these large parties, were often in very poor condition. This was certainly due to the older ones habitually chasing them away from the meat at a kill. Even a zebra or waterbuck every night, which is beyond the usual average—for there are many nights in which nothing at all is killed, and the troop may have several nights of ill luck in succession especially where game is relatively scarce—hardly satisfies the appetites of a troop of ten lions, and if the number is greater, naturally the weaker ones go short. The majority of these young lions under such conditions no doubt die, since they cannot hunt alone, and thus we have another example of how nature equalizes in her own way. As soon as species becomes too numerous for the local food supply, natural law steps in and adjusts matters. Thus lions keep wildebeeste and zebra from increasing beyond bounds; leopards, chitas, and wild dogs do the same for impala, while for their part the carnivora, so soon as their own numbers make the evening meal inadequate to go round, lose their younger and weaker members who cannot compete with the older and stronger in the struggle for food. Even in the south, where game is far more numerous than in the north, I have sometimes observed the same thing among the larger troops. All young growing animals require plenty of food, and if they do not get it they cannot grow up, under jungle law. There was nowhere any signs of emaciation among full grown mature animals, which were nearly always exceedingly sleek and fat because they always had been able to insist on their own share of what happened to be going.

Leopard.—Were seen fairly often by visitors during the season near the roads. An interesting spectacle was enjoyed by the occupants of several cars along the Lower Sabi Road. Five young lionesses were seen attacking a leopard which had sought refuge in a tree. It was seen to escape by making a great spring and rushing into the reeds, whither the lions followed it unsuccessfully. Later one of the latter was seen to be suffering from a severely torn face and neck, and had left a lot of blood on the ground, so that the leopard on the

whole may be said to have come off best in the encounter.

Chita.—Were seen pretty frequently by visitors, the uninitiated mistaking them sometimes for leopards and sometimes for lions. They continue to be among the most timid of the carnivora so far as cars are concerned.

Wild Dogs.—Very few were seen by tourists, and they appear now to be confined, south of the Olifants River, to one pack located in No. 2 Section, from which some stragglers once raided as far as the Sabi, where formerly they were always to be found in large numbers.

Hyena.—These animals are reported slowly increasing everywhere. A few years ago they were exceedingly scarce in the southern Park, and though it was freely guessed that they might have suffered from some disease, I am inclined to think that the large numbers which were formerly trapped and shot in combination with their slow rate of increase, is more likely to have been the reason. In the new section No. 7 the ranger reports that they are very numerous, and that owing to the relative absence of their natural food—carrion and bones left by the lions, the latter are said to leave nothing whatever of a “kill” in No. 7—they are responsible for killing a good many young animals.

Jackal.—Rangers Nos. 4 and 5 Sections both report an apparent striking decrease among the jackals. Attempts to find any sick ones have so far been unsuccessful, and it is possible that the departure of the game and the lions due to the drought may have been responsible for the temporary disappearance of the smaller animal. It will not be possible to judge of the real facts until the game—and the carnivora—concentrate again next winter.

Smaller Carnivora.—A specimen of the Large Grey Mongoose (*Herpestes caffer*), which is rather rare locally, was noticed near Kumane in No. 4 Section. It is the largest of all the tribe.

Crocodiles.—Proved to be very numerous in all the pools of the Tende, Shingwedi, and elsewhere in No. 7 Section, where they seemed hungry, attacking anything that approached the water. Ranger Crous, patrolling the country

along the north bank of the Olifants between the pontoon and the Mklasiri River, found them also in great numbers in the Olifants River.

Elephants.—It is now known that there are five separate breeding herds, Ranger Crous having discovered the existence of two others along the Olifants River. The total number of animals in the Park cannot be less than 200. The herds from the Olifants wander west and south, and have been seen a long way outside the Park and well up the Klasiri River. The herds on the Letaba largely confine themselves to the immense reed beds found in that river, and the tendency is less to leave the Park for incursions into P.E.A. than it was formerly. During the marula season—March and early April—all elephants are less static and wander far from their usual feeding grounds. Individuals and small groups have been seen as far north as the Shingwedsi and also in the extreme east of No. 8 Section.

Black Rhinoceros.—Native rangers of No. 3 Section report that they saw a male, female, and a young one on the Lower Sabi Road during the winter. Several tourists also, as last year, said they had seen “small elephants” in the thick bush there, which points to rhino. The tendency of the animals would be to come to the river to drink during the night and retire into the thick Matamiri thorn bush by day.

Giraffe.—Owing to the excessive winter drought, giraffe largely left their favourite country in No. 5 Section and wandered all over the Park, coming sometimes almost down to the Sabi from the north, while some were also seen on Pretorius Kop, which is further east than they usually go in that area.

Buffalo.—There is a considerable spreading of buffalo. They are now present all through the Park south of the Olifants in the more thickly bushed districts and seem to wander from the Sabi Bush through Tshokwane to the western boundary and thence as far as the Olifants River. They are also present in No. 8 Section, as reported by the ranger. Several were found killed by lions.

Zebra, Antelope, and Wild Pig.—Owing to the long drought, there was great concentration of animals near all permanent water with the result that all the pasture was completely eaten off for many miles around. In areas, on the other hand, where the animals were unable to drink, the veld was uneaten, but was too far from water to allow of game benefiting by it. Great numbers of all species trekked out of the Park both to east and west. The absence of game was especially noticeable in Nos. 4 and 5 Sections, where visitors were formerly accustomed to expect to see many animals all along the road. Near Tshokwane, where there is permanent water, the lack of any grass was so complete, due to overgrazing, that there was nothing to sustain life, and the veld looked like a roadway. On the other hand, the country outside the Park between Acornhoek and Rabelais was full of game. This winter trekking is no new thing, though seven years of drought in the Park have caused it lately to happen on a larger scale than formerly. There was always a tendency for the herds to move westwards from July onwards until the first rains, but up to 1923 the western areas were part of the Sabi Game Reserve so that the animals did not by trekking have to leave their own country. Now, owing to the width of the Park not being sufficient for winter trekking requirements, we lose a large number of our animals for several months in each year. Near the Rabelais gate there is outside the Park and about a mile away a large waterhole which was available almost up to the rains; inside the Park, on the other hand, in the same area, there was no water at all, and thus the herds every morning moved out of the Park to water and returned to it after dark to feed. An efficient borehole at this point will no doubt do a great deal to retain the animals inside our boundary. Fortunately, the rains came in October, and by the end of that month the grass was good; consequently there was less distress among the animals than in 1932, when the rains were a month later. A few of the older animals died, and there was a slight retardation of the calving season, especially in the case of wildebeeste; otherwise no great harm was done and by

the end of November all the game was in excellent condition.

Hippo.—Ranger Crous reports that hippo are very numerous all along the Olifants River. A good deal of damage was done by these animals to farmers' lands across the Crocodile River, and arrangements were made in some cases to help landowners by putting up wire fences to keep them out. A very low fence suffices to stop a hippo, who will not step over even a low obstacle and does not seem to push through a wire fence.

ANIMALS DEAD FROM VARIOUS CAUSES.

| Name of Animal | Cause of Death | | | | | | | | Total |
|----------------|----------------|----------|--------|-----------|--------|----------|-------|-------|-------|
| | Lions | Leopards | Chitاس | Wild Dogs | Crocs. | Poachers | Staff | Misc. | |
| Wildebeeste . | 611 | — | — | 2 | — | 5 | 67 | 4 | 689 |
| Waterbuck . | 300 | 7 | 11 | 6 | 3 | 27 | 29 | 3 | 386 |
| Kudu . . . | 100 | 1 | 8 | 6 | 1 | 2 | — | — | 118 |
| Sable . . . | 37 | — | — | — | — | 4 | — | — | 41 |
| Roan . . . | 11 | — | — | — | — | 1 | — | 1 | 13 |
| Tsessebe . | 1 | — | — | 2 | — | — | — | — | 3 |
| Eland . . . | 11 | — | — | — | — | 1 | — | — | 12 |
| Nyala . . . | — | 1 | — | — | — | — | — | — | 1 |
| Impala . . | 49 | 57 | 30 | 40 | 7 | 4 | 22 | 19 | 228 |
| Reedbuck . | 2 | 4 | — | — | — | 1 | — | — | 7 |
| Bushbuck . | 1 | 3 | — | — | — | — | — | — | 4 |
| Duiker . . | — | — | 1 | — | — | 2 | — | — | 3 |
| Buffalo . . | 4 | — | — | — | — | 3 | — | 1 | 8 |
| Zebra . . . | 198 | — | — | — | — | 2 | 2 | — | 202 |
| Giraffe . . | 4 | — | — | — | — | 1 | — | 1 | 6 |
| Warthog . . | 18 | 3 | 2 | 2 | — | 9 | — | — | 34 |
| Lion . . . | 7 | — | — | — | 1 | 1 | 33 | — | 42 |
| Leopard . . | 1 | — | — | — | — | — | 1 | — | 2 |
| Chita . . . | — | — | — | — | — | — | — | — | — |
| Wild Dog . . | — | — | — | — | — | — | 5 | — | 5 |
| Hyena . . . | 1 | — | — | — | — | — | 6 | — | 7 |
| Jackal . . . | 3 | — | — | — | — | — | 24 | — | 27 |
| Crocodile . . | — | — | — | — | — | — | 68 | — | 68 |
| Miscellaneous | — | — | — | — | — | — | 27 | — | 27 |
| Total . . . | 1,359 | 76 | 52 | 58 | 12 | 63 | 284 | 29 | 1,933 |

Temperature.—

Skukuza Highest, 113° F. shade, on 8th February.

Lowest, 31° F. shade, on 24th June.

110° and over—once.

105° and over—seven times.

100° and over—thirty times.

90° and over—111 times.

Thermometer night temperature fell below 40° on seventeen occasions.

The winter was slightly colder and the summer not quite so hot as that of 1932.

With the exception of the animals killed by the staff, the above figures represent merely a percentage of the totals, amounting probably to about 10 per cent in the cases of lions, wild dogs, chitas, and crocodiles; 50 per cent in cases of poaching. At least 80 per cent of leopard kills consist of baboons, monkeys, steenbuck, bushpig, etc., none of which figure in above list; probably 10 per cent would represent the proportion of the animals on above list to the *total* number of them killed by leopards.

“Miscellaneous” deaths are mainly due to fighting among males, and a few to snake bite.

If not previously killed by carnivora, about 5 per cent to 7 per cent of the total herbivora would die annually of old age.

PROVINCE OF NATAL.

REPORT OF GAME CONSERVATOR (CAPT. POTTER) FOR 1933.

The Umfolosi Reserve has not been under my jurisdiction except in so far as the protection of White Rhino is concerned. For this purpose my head game guard Mali and five Native Guards are employed. Their headquarters are at Masimba just outside the Reserve and their duties are continually to patrol the areas where the White Rhino live and to keep in close touch with them. It will be of interest to note that although at present there is abundant grazing inside the Reserve, nearly half the White Rhino are to be found outside the Sanctuary.

The animals have bred well during the year and there are