

# ANIMAL BEHAVIOUR WITH RESPECT TO TOURISTS IN THE KRUGER NATIONAL PARK

by

K. BABICH, B.Sc. (Eng.),

*Fieldwork Section,*

*Wild Life Protection and Conservation Society of South Africa.*

## I N D E X

1. INTRODUCTION.
2. METHOD OF OBSERVATION.
3. OBSERVATIONS :
  - 3—1. On the Roads.
  - 3—2. At Watering Places.
  - 3—3. Other Places.
4. TOURIST BEHAVIOUR.
5. ANIMAL REACTIONS AND INTERESTING OBSERVATIONS.
  - 5.1. CARNIVORES :
    - 5—1.1. Lion (*Panthera leo krugeri*).
    - 5—1.2. Leopard (*Panthera pardus pardus*).
    - 5—1.3. Cheetah (*Acinonyx jubatus jubatus*).
    - 5—1.4. Spotted Hyena (*Crocuta crocuta*).
    - 5—1.5. Black-Backed Jackal (*Canis mesomelas mesomelas*).
  - 5.2. UNGULATES :
    - 5—2.1. Giraffe (*Giraffa camelopardalis*).
    - 5—2.2. Cape Buffalo (*Syncerus caffer caffer*).
    - 5—2.3. Blue Wildebeest (*Connochaetes taurinus taurinus*).
    - 5—2.4. Impala (*Aepyceros melampus melampus*).
    - 5—2.5. Kudu (*Tragelaphus strepsiceros strepsiceros*).
  - 5.3. OTHERS :
    - 5—3.1. Warthog (*Phacochoerus aethiopicus*).
    - 5—3.2. Burchell's Zebra (*Equus Burchelli antiquorum*).
    - 5—3.3. Elephant (*Loxodonta africana africana*).
6. CONCLUSION.
7. ACKNOWLEDGEMENTS.

## 1. INTRODUCTION.

In the last few years much criticism has been levelled at the Parks Board as regards the behaviour of tourists in the Kruger National Park. As a result of this, a survey on the behaviour of animals with respect to tourists had to be made. The first such survey was carried out in September 1961, by two members for only 5 days. The 5-day survey threw some light on this subject, but what the 5-day survey did do, was to make it evident that much more investigation was needed.

This report deals with the second such expedition.

Altogether 21 days were spent in the Game Reserve itself. Seven of these days at Skukuza, seven at Lower Sabie, one at Orpen and six at Satara. Unfortunately two of these days were wasted due to inaccurate information regarding waterholes, pans, windmills etc. However, the loss was more than offset by the good opportunities and results obtained at the other observation points.

This report is a more comprehensive report and, as will be seen from the index, the subject matter has been carefully sub-divided, so that all factors are dealt with. Certain observations are recorded in Appendix I\* at the end of the report. In some cases sex compositions of the various herds were also noted. Interesting animal and tourist behaviour is also dealt with.

Much of the valuable information was gathered around the campfires at night. Further information was obtained by plain "eavesdropping" or taking part in various conversations.

## 2. METHOD OF OBSERVATION.

From time to time it was necessary to vary and/or modify the method, but generally it was as follows:-

- (1) Noted weather. (On arrival — midday — on departure).
- (2) Selected a suitable observation point once at the site.
- (3) Noted time of arrival and the presence of any animals at the site.
- (4) One member continually observed the site for all animals and their behaviour with the assistance of a 10 x 50 pair of binoculars. Recorded all observations.
- (5) The second member observed the tourists (and when needed or when available this member helped the other member especially when sex identification was necessary). This member had an 8 x 35 pair of binoculars. Recorded all observations.
- (6) Numbers in herds were often double checked to ensure accuracy.

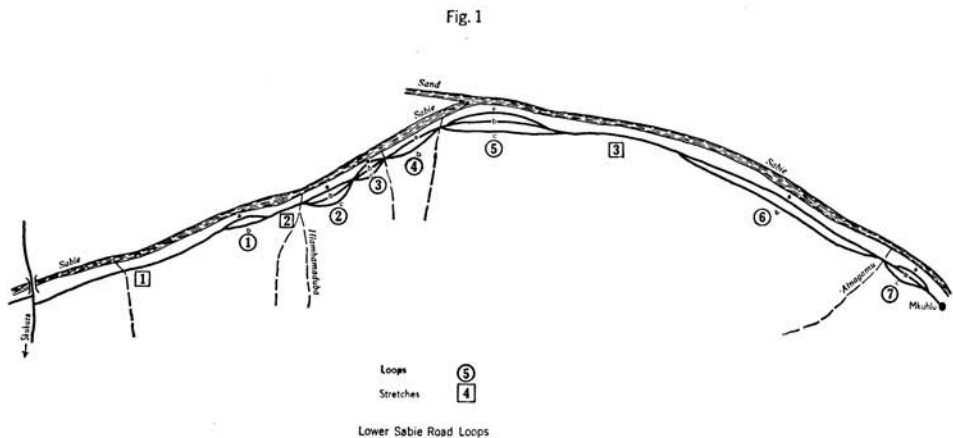
---

\* Mr. Babich's report tabulated 433 different observations. Only 62 are given in Appendix I — only those referred to in text. — *Editor*.

- (7) Noted all the distances of nearest animal(s) from car.
- (8) Noted all car arrivals, departures etc.
- (9) Noted state of affairs at our departure, i.e. any animals present etc.
- (10) Tabulated and checked results at rest camp every evening.

Certain complications arose during the observations and are listed below:-

- (i) Two members per group was insufficient at places like Kumane dam and Bangu Windmill.
  - (ii) Certain watering places proved useless for observation purposes due to Bantu labour gangs being present, e.g. Nsemane, Mavumbye and Mareyo.
  - (iii) Some dams have no suitable place from which one can observe, e.g. Rabelais dam, Bangu Windmill, and Gudzane dam.
  - (iv) Others have no parking facilities (in cases where good observation is possible), e.g. Orpen dam, Kumane dam and Mlondozi dam. This also applies to many natural pans, e.g. Nwatindlopfu.
  - (v) Lack of shade — making it too hot to stay in one place between 11.00 a.m. and 3.00 p.m.
  - (vi) Lack of space in vehicle, sometimes resulting in "cramp".
- The latter two points were mainly responsible for the members having lunch at rest camps whenever possible.



### 3. OBSERVATIONS.

#### 3—1. *On the Roads:*

It is difficult to state any one fact categorically, since no two animals will react in exactly the same way, but Appendix 2 will give a general but accurate account of how the various animals reacted.

From Appendix 2 the following facts appear:-

- (1) Impala are the calmest — especially in the Lower Sabie road area.
- (2) Giraffe are usually calm.
- (3) Wildebeeste and zebra unpredictable.
- (4) Buffalo appear calm, but it is uncertain what their reaction would be if one member were frightened.

Furthermore, it may be added that animals closer than 25 yards from the car (or road) would react more sharply than those further away, so much so that animals 100 yds. (or more) away from the road would not be affected at all.

It was observed that animals in certain districts were less prone to reaction than others. Those on the Lower Sabie road (even bushbuck) were very much calmer than those in the Orpen dam—Lindanda Memorial area. Further study is essential in this field.

A peculiar habit, observed and reported on the first trip, was that of herds being divided into two by an approaching car, resulting in such a herd attempting re-union as soon as possible (bull and rams excluded in several instances).

In conclusion it should be stated that tourists travelling at speeds between 10—15 mph are the most likely to see the game in any particular area. Those travelling 20 mph and above are not only creating dust and making nuisances of themselves, but are not likely to see much game.

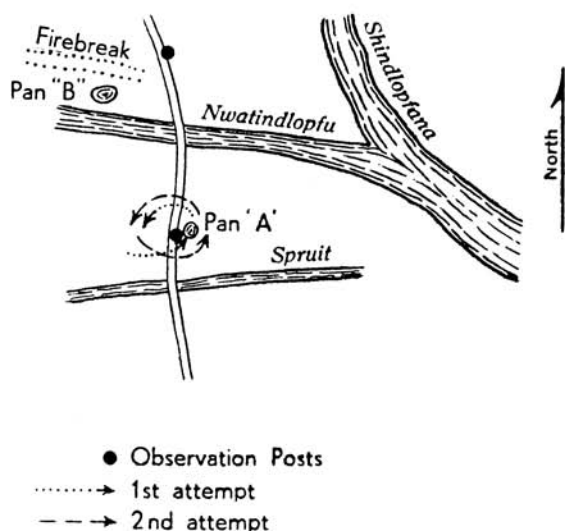
### 3—2. At Watering Places. (Refer to Appendix 1).

Several watering places were closely watched and good results were obtained. The watering places observed were:-

- (a) Nwatindlopfu pans. *SABIE - KUDUZA*
- (b) Mlondozi dam. *MUN*
- (c) Nsemane windmill.
- (d) Mavumbye windmill.
- (e) Satara drinking troughs.
- (f) Gudzame windmill. *GUD*
- (g) Bangu.
- (h) Kumane Dam. *SABIE - SATARA*
- (i) Mareyo.
- (j) Rabelais Dam.
- (k) Orpen Dam. *ORPEN*

Fig. 2

Nwatindlopfu Pans



a. Nwatindlopfu Pans:

There were two pans near the Nwatindlopfu which were named "A" and "B" for easy reference. The former is very close to the road and there is no doubt that animals are cautious when drinking from it — the giraffe, baboons and lion being exceptions. This cautiousness is well supported by the following examples (ref. 9, 10 and 11):-

The wildebeest and zebra arrived at 8.15 a.m. (just before the baboons departed). The herd was led by a fine specimen of a zebra stallion. There were 8 cars present during the whole episode. The stallion crossed the road, 25 yds. south of the nearest car (50 yards south of pan "A"), followed by all the wildebeest only. The crossing was cautious and was done in single file. When the first lot of wildebeest were abreast of pan "A", the leader suddenly bolted, followed by the rest, the stallion forming the rear. They crossed 50 yards north of the nearest car and ran 50 yards into the bush. Finally, with much caution the stallion alone re-crossed on the south side (30 yards from nearest car), drank very cautiously at 9.15 a.m. and crossed back again 50 yards north of the nearest car. The herd dispersed widely after this, some mixing with the impala 150—120 yards away. At 11.00 a.m. the stallion crossed again in similar fashion only to rejoin the others which had by this time assembled in a group again, without drinking. At 11.40 another zebra stallion, all of a sudden started running in the direction of pan "B". It was soon followed by the whole mixed herd which then crossed the Nwatindlopfu and drank at pan "B" without any caution.

The zebra and kudu (ref. 7 and 8) on going to drink at pan "B" were also very frightened and cautious. As the only car present was ours, the conclusion is that the car was responsible for their peculiar behaviour. E.G. although the giraffe was calm at all times the kudu and zebra were frightened off by the approach of another car. Similarly on going down to drink the kudu crossed behind our car as opposed to the baboon, giraffe and zebra, crossing in front of it. The former three species drank with semi-caution.

It may be safely said that the animals drinking from pool "A" did so with great caution and more often than not preferred to drink from pool "B" where little caution was displayed.

b. *Mlondozi Dam:*

During the visit, the only water left in the dam took the form of two smallish pools. Very little game drank from these pools, 14 on the first day (whole day), and only 4 on the second day (morning only). Most of the game drank with great caution (both days), but the reason for this cannot be given. The warthog (ref. 13), zebra (14) and wildebeeste (15) were, at stages, almost in a state of panic. Due to the disappointing game seen this dam was not observed for more than one and a half days.

c. *Nsemane Windmill:*

Due to building activities no game was observed at this spot from 2.10—3.00 p.m. The labour gangs made quite a lot of noise and this was possibly the reason why there was no game here.

d. *Mavumbye Windmill:*

On our arrival there were two herds of animals present. On the East side of the road was a herd of wildebeest (24) and on the West side of the road there was a herd of impala (25). The wildebeest were very keen to drink, and several individuals made half-hearted attempts to get nearer to the dam, which was plus or minus 150 yards from them on the same side as they were. After 30 minutes they gave up trying and left the area, as did the impala. Without any doubt the reason for their not drinking was because of the shouting, singing and whistling of the bantu (2 were seen) who were present there.

e. *Satara Drinking Troughs:*

Several (7) stops at various times and on various days were made at the troughs. The average time spent there was plus or minus 10 minutes per visit and only on one occasion was an animal seen near the troughs. This was a lone wildebeest bull which made no attempt to drink from the troughs. On the opposite side of the road, bantu were observed on 3 visits, but no noise was made by them.

f. *Gudzane Windmill:*

This is one of the number of drinking places at which it is difficult

to observe. The reasons are:

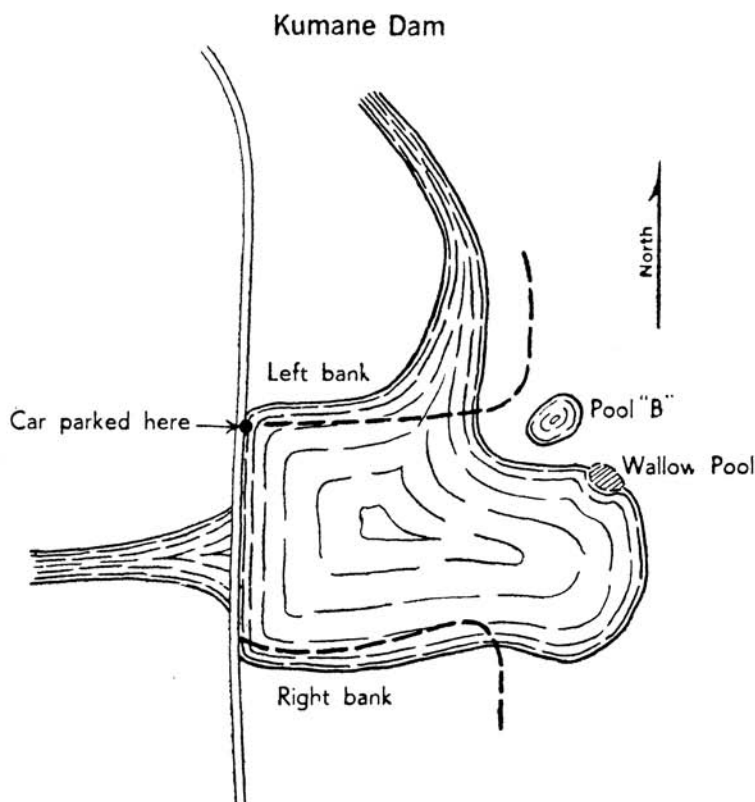
- (i) Inadequate parking facilities;
  - (ii) Area to be observed is far too large for one team only.
- It was decided, therefore, not to do any observing at this spot.

g. *Bangu*:

*Bangu*, as with *Gudzane Windmill*, was difficult to observe. Here, however, over an hour was spent to prove the point. There is no doubt that the water is consumed rapidly, but it is impossible for one team, with such inadequate parking facilities to determine with certainty what is going on. It was observed that:-

- (i) Many different herds use this dam to drink from.
- (ii) Although two concrete troughs were provided, many of the animals preferred the muddy dam itself.
- (iii) It appears that most of the animals have to kneel to drink from the troughs, and, in this connection, it was noticed that very few of the young drank from the troughs.

Fig. 3



- (iv) There was no caution displayed by any of the animals drinking. In fact there was quite a lot of chasing around the troughs etc.
- (v) The animals that have to cross the road(s) to the dam were all cautious, especially the zebra (58). At Bangu one interesting feature occurred and that was that most of the zebra were continuously "yelping" as opposed to Kumane dam, where only on a few occasions were the zebra heard. The wildebeest on the other hand, were much quieter than the zebra, and more so than the wildebeest at Kumane.

*h. Kumane Dam:*

This dam proved the "gem" of all spots during the survey. Although ideal parking conditions were not available, the whole dam could be seen from where the car was parked (see sketch).

Parking conditions were not ideal because

- (1) No shade — too hot between 11.00 a.m. and 3.00 p.m.
- (2) Narrow road on bridge — Park lorries had difficulty in passing.

During the total observation period, 204 herds of animals were recorded. (This total includes lone bulls). It is impossible to state definitely how many animals were represented in the 204 herds, but a figure with a plus minus 5% error is 2,293. (This figure does not include animals that came to the dam but did not drink).

Of the 2,293 animals that came to drink —

1,355	were	wildebeest
480	"	impala
174	"	zebra
150	"	buffalo
73	"	warthog
31	"	elephant
25	"	giraffe
2	"	vervet monkey
1	each	kudu, baboon and hyena.

---

2,293

---

The total number of hours (to the nearest half hour) spent at Kumane Dam was 20.5 hours, i.e. the number of head of game drinking per hour =  $\frac{2,291}{20.5} = 112$ .

NOTE: It is probable that some of the animals referred to in the figure of 2,293 were recorded several times. In fact in the case of warthog this was proved to be so. But the figure of 112 per hour is nevertheless a true reflection.



During these 20.5 hours, 193 cars passed by the dam, i.e. number of cars passing the dam per hour =  $\frac{193}{20.5} = 9.4$ .

Only 8 of these cars stopped at the dam for over 30 minutes, 35 stayed between 5—15 minutes, while 47 did not stop at all. No other car stayed longer than 51 minutes.

The greatest number of cars present at any one time, was 25 and that was during the buffalo visit (ref. 61).

*Interesting Observations:*

- (1) 90% of all the animals that came to drink at Kumane displayed little or no caution. The zebra, on the whole, were the only animals to display caution.
- (2) Twenty cases of animals being frightened were recorded. The reasons are as follows:-
  - 2 cases — frightened by visitors.
  - 2 " frightened by Park lorries (only 3 lorries passed while we were there).
  - 12 " frightened by another animal, e.g. impala rutting.
  - 4 " frightened by unknown reasons.
- (3) Sometimes it was noticed that similar species from two different herds would join up and make one herd. This was especially so in the case of wildebeest, who were responsible for seven such instances. The only other instance was recorded when giraffe from two different herds joined up to make one herd of 11.
- (4) Several herds waded deep into the water. Of these cases 12 were wildebeest, 2 giraffe, 1 buffalo and 1 zebra. Out of these 16 recordings, it was observed that 4 of these herds ran out of the water due to reasons unknown. In spite of the fact that practically all animals in a herd running out were affected, usually one or two would run out, but remain in the water.
- (5) Caution in coming down to drink was displayed very occasionally. This resulted in the herd getting to within 50 yards of the dam and then standing and gazing around. Altogether 9 cases of these delays were recorded, of which 6 were zebra and 3 were wildebeest.
- (6) Rolling in mud was common. The following herds or troops were recorded; 16 warthog; 16 wildebeest; 1 buffalo.  
Usually only 1 or 2 members per each herd rolled in the mud, except in the case of buffalo where 8 rolled simultaneously in pool "B", reducing the latter to a pool of mud. The total number of animals that rolled were as follows: 27 warthog; 24 wildebeest; 8 buffalo; making a total of 59.
- (7) The main dam was the most popular. The "left" and "right" banks and pool "B" were seldom used. Pool "B" could not be used for

drinking purposes after the buffalo had wallowed in it.

- (8) Most of the animals that came to Kumane, came from a northerly direction. It was also proved that a herd did not always go back the way it had come after it had finished drinking.
- (9) Busiest drinking period was 8.30 a.m.—11.00 a.m., followed by the period between 11.00 a.m.—1.30 p.m.
- (10) Fooling around the dam was common. Here impala, giraffe and wildebeest were chiefly responsible. It was also noticed that lone wildebeest bulls did not like impala or warthog, the latter two species always being chased away.
- (11) Remarkably few people got out of their cars. A total of 193 cars were recorded at Kumane, and out of this total, 9 cars carried occupants that got out of cars. From all the 9 cars that were recorded, 11 people were seen out of them, i.e. roughly one person per each of the 9 cars. Also since only 9 cars out of 193 were carrying offenders, it will be seen that the number of offenders is extremely low ( $9/193 = 4.67\%$ ).
- (12) The only carnivore or scavenger seen was a hyena, and it can be concluded therefore, that the reason for non-caution as displayed by 90% of the animals was due to the fact that carnivores were not present.
- (13) Certain animals, e.g. giraffe and warthog, drank more than once from the dam on the same day.
- (14) The dam became almost deserted after 4.30 p.m. on all the visits. Usually only a few impala could be seen at this time, apart from the elephants that visited the dam late one day (ref. 62).

i. *Mareyo*:

Although the area all around was green, water could not be seen, confirming Dr. Pienaar's information. There were quite a number of animals within 150 yards of the windmill. Most of the animals were wildebeest.

j. *Rabelais*:

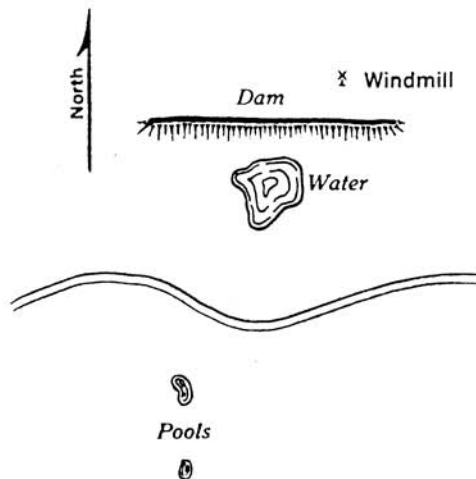
Rabelais proved a great disappointment as regards the present survey. There were a number of reasons for this. They were:-

- (1) Although the parking available offered shade, at no time could both sides of the dam be seen. It appeared, in fact, that the other side was used more often by all the animals in the area, except the giraffe.
- (2) Scarcity of animals. (Probably many drank from the other side.)
- (3) Several pools in the vicinity of the dam.

The following facts were noted:-

- (i) A total of 135 animals were seen, i.e. roughly 7.9 per hour.
- (ii) Only 4 people out of 64 cars got out of their vehicles.
- (iii) Feeding of birds common here. Even a crested barbet was a beggar here.
- (iv) A lone, old, bull elephant charged a car, but it was in no way provoked by the latter.
- (v) Only 11 out of 64 cars stayed at the dam for longer than 3 minutes. Only 1 of these eleven stayed longer than 30 minutes.
- (vi) The giraffe preferred to drink from the pools on the South side of the dam (see sketch). Only one drank from the dam proper.
- (vii) The animals were disturbed only on two occasions — both by visitors.
- (viii) Only the impala made any noise.
- (ix) No wallowing took place.
- (x) No playing of fool was observed.

Fig. 4



k. Orpen Dam:

Although this dam is known for its animals, only on the last day was it visited. The following facts were recorded:-

- (1) Nearly all the visitors alighted from their cars at this dam. Some, in fact, held a tea party. Many visitors complained that it was impossible to drive around the circular drive at the top of the dam, due to the narrow road. Furthermore, some argued, that only the front cars could see the game below.

- (2) Loud talking, engines stopping and starting, doors opening and closing, whistling and radios were all common disturbances. Without any doubt the male lion at the dam was chased away because of one or more of these factors.
- (3) The two impala rams, however, were not disturbed by the public, but they gave the impression that both of them were far too pre-occupied in watching the lions.
- (4) The impression gained here (from the conversations) was that the tourists only came here because of the lions.
- (5) A lady in her late 60's (estimated) got out of her car to photograph some flowers. Some of these shots were obtained by lying on the ground — an excellent target for a hungry predator!

#### 4. TOURIST BEHAVIOUR.

It appears that a relatively small percentage of tourists is responsible for the breaking of the Park's rules. In a few cases the same group of tourists was found to be responsible for more than one offence.

The following offences were noted with the number of cases behind in brackets.

- (1) *Speeding*: (estimated at 71). Very few (13) were observed to be travelling very fast, i.e. 50 mph. The latter cases were all observed on the "major" roads, i.e. Skukuza-Satara; Skukuza-Numbi.
- (2) *Out of cars*: (56). Mostly occurred at dams. The "tea-party" at Orpen Dam being a good example. Tourists would get out of cars should the call of nature force them to (three such cases were recorded). It is truly amazing how little care is taken by tourists once out of their cars. A certain lady was at least 50 yards from her car at Nwatindlopfu pans in the presence of lions.
- (3) *Feeding*: (17). For the animals and birds fed refer to appendix 4. Most of feeding took place on the Lower Sabie road. Usually baboons and vervet monkeys were fed.
- (4) *Off the Road*: (3). Consisted of the following:- two groups off the road in order to see lions better. (One car was a good 50 yards off the road). The third group was a party observed travelling on a fire-break in the Satara area.
- (5) *Throwing Objects*. (1). Near Gommondwane at a pride of lions. The objects thrown were oranges. In what must have been a similar incident, oranges were thrown at lions on a wildebeest kill near Gudzane Windmill.
- (6) *Hooting*: (4). Usually at lions. One case recorded where elephants were present.

In addition to the above, certain other incidents were observed viz.:-

- (i) Turning radios on very loud — usually near lions. Five such cases were recorded.
- (ii) Whistling and shouting — again at lions.
- (iii) Standing on car roof in order to see the lions better. Lions 100 yards off the road. (Another case ref. 60).
- (iv) A tourist in the Satara area was observed trying to lure a jackal nearer to his car with a piece of fresh meat.
- (v) A tourist car warned all approaching cars of the speed trap at Saliji. The car was parked approximately  $\frac{1}{2}$  mile from the trap.
- (vi) Several people were observed right on top of the boulders at the Kruger Plaques.
- (vii) Young children were often seen outside cars relieving themselves by the sides of the roads. Sometimes the parents would accompany them to the bushes.

Finally the following behaviour is worthy of mention:- When lions (or anything interesting) is sighted, many cars gather around, with the result that some of the occupants in certain cars cannot see. This in turn results in the driver of the car manoeuvring the car back and forth, thus frightening the animals away. In addition many people are induced to sit half-in and half-out of their cars, or to stand on the running board in order to see better. At such gatherings loud verbal communication is frequently resorted to. Opening and closing of doors, playing of radios are two further disturbing factors.

## 5. ANIMAL REACTIONS AND INTERESTING OBSERVATIONS.

### 5—1. Carnivores:

1.1. *Lion*: Lions are without any doubt the Park's main attraction and coupled with the fact that lions are lazy by nature, making them the most open target for tourists. The following facts were recorded:-

- (i) Two prides were subjected to orange bombardment (ref. 16 and 33).
- (ii) Many tourists readily got out of their cars near lions. The latter's reaction is either to look up and lie down or look up and depart.
- (iii) Tourists were responsible for chasing away *all* the lions seen, except the lionesses in ref. 6.
- (iv) The lions in ref. 16 attempted to mate on 3 occasions in spite of all the interruptions.
- (v) The lions in ref. 32 came out for a stroll in the Nwanedzi river itself. A couple of tourists with powerful telescopic cameras insisted on riding up and down the road, resulting in the lioness moving off into the bush.

- (vi) Two members of the pride of 4 (ref. 33) eventually attempted to return to their kill at 3.30 p.m. Neither ate while cars were present that afternoon. It appears that this pride unfortunately killed a wildebeest so close to the road, that the cars were practically on top of them. The lions thus decamped, which brought forth the oranges (Ranger Adendorff later stated that the lions had hardly touched the carcass during the night. He later moved the carcass further away from the road).

1.2. *Leopard*: Leopards seem to suffer the same fate as lions and cheetah. The following incidents were recorded:-

- (i) The leopard in refs. 1 and 3 was eventually forced away from his meal due to the loud talking, for one could hear several loud snarls when people talked loudly. The snarls were accompanied by a jerk of the head in the direction of the loud voices. In the afternoon he would not climb into the tree. On several occasions he opened his eyes on hearing loud talking.
- (ii) The leopards in refs. 17 and 26 disappeared as soon as people gathered. The gathering was accompanied by loud talking.

1.3. *Cheetah*: The cheetah in ref. 20 attempted to mate, but it is obvious that the presence of our car disturbed them. Originally they were observed lying on the top of a mound of earth, sunning themselves. The mound was roughly 25 yards from the road. The second and only other car to pass, frightened one of them out of sight. Later on, however, both were visible again, but by this time both were on level ground and further in. After attempting to mate both walked farther into the bush.

1.4. *Spotted Hyena*: None of the tourists appeared very keen on hyenas although the two below the leopard's kill in ref. 1 were seen accepting biscuits (or bread) from tourists. The absence of many hyenas may have had something to do with this solitary example. (Very few hyenas were seen on this trip.)

One amusing incident occurred at Kumane Dam, however. Here a single specimen was observed to drink and urinate at the same time. It must be added that the urine appeared to be falling in the exact spot from which it was drinking.

1.5. *Jackal*: It is uncertain whether the jackal on the Orpen-Satara road accepted its bait. It could not be observed due to the number of cars present. It does appear, however, that the jackal must have been there for some time, since several cars were present.

The four jackal in ref. 35 were observed chasing an impala ewe around bushes. The ewe was a member of a herd of impala, ref. 34, from which herd no other member made any movement, but stood watching the hunt. After several minutes all five disappeared from view.

## 5—2. Ungulates:

2.1. *Giraffe*: The following incidents are worth recording:-

- (i) One of the giraffes in ref. 36 was frightened by one of the Rangers' trucks while feeding on a tree. After the truck had gone it recrossed to the same tree and continued with its meal.
- (ii) The largest herd seen in the Park was in ref. 37. A pair attempted to mate on several occasions. The peculiar thing about this herd is that it virtually circled  $\frac{3}{4}$  of Rabelais Dam before it appeared to drink on the "other" side of the dam.
- (iii) The male in ref. 51 made several attempts to cross the dam in order to join the seven females in ref. 52. Finally two females came over to his side and escorted him back to their bank. He was immediately accepted into the herd. No attempts at mating.
- (iv) The four males in ref. 57 were definitely frightened off by some loud talking from the cars near them. One could distinctly see the giraffe pick up all the high notes from the voices.

2.2. *Cape Buffalo*: Buffalo on this trip proved most docile but still give the impression of untrustworthiness. There were two large herds in the Lower Sabie Rest Camp area. The herd in ref. 18 was reached just as the first 20 or so had crossed. It was considered inadvisable to attempt to cut through them, but a second car showed up soon after this. As it was late the driver of that car forced a way through in a way similar to someone cutting through a herd of cattle. We followed suit and came through successfully. The nearest animals could have been touched by an outstretched hand. Two days later both herds were encountered in the late evening, necessitating a break through the herd. The first herd had also just started crossing the road. The car came through without incident. In the second herd, which had nearly completed the crossing eastwards, all animals crossed eventually excepting a big bull at the end. He was motivated to cross by revving the engine. He crossed at a gallop, snorting, and finally stopped 25 yards from the road staring at the car. In all three cases the following facts came to light:

- (i) The buffalo just stood like cattle in a road as the car approached.
- (ii) Mothers and calves gave no reaction.
- (iii) All herds moved eastwards at a very slow pace towards the evening.
- (iv) Not much bellowing was heard from either herd.

The herd at Kumane Dam (ref. 61) walked up to a point 500 yards from the dam. From here on there was no stopping them. A herd of impala and several warthogs were present, drinking from the dam. Once the presence of the buffalo had been ascertained the impala and warthog departed. They were in such a hurry that several impala collided with each other. The buffalo waded right into the water without any caution.



By this stage a large number of cars had gathered. Several tourists were out of their cars already. When the herd had waded in deep they started to drink. Suddenly the herd stampeded out of the water excepting one bull who never moved. The reason for this sudden stampede could not be determined. However, it was not long before the buffalo returned to the water, wading in just as deeply again. Other interesting observations at Kumane were as follows:-

- (i) A full grown cow had a wire noose around her neck.
- (ii) Several bulls looked up at a few tourists out of cars by the edge of the dam. One bull snorted several times.
- (iii) Pool "B" was turned into a mud pool once the buffalo had finished their wallowing.
- (iv) The leader of the herd appeared to be a really big brute with stunted horns. He was given a wide berth by the rest of the herd.

2.3. *Blue Wildebeest*: The following incidents are worth recording:-

- (i) The herd in ref. 24 was observed running northwards almost parallel to the Lindanda Memorial Road. The herd was running in single file at a time when the heat was almost unbearable. They encountered three bulls (ref. 22) standing in the shade of a tree. All three bulls looked up at the herd coming up in single file. Later on two of these bulls joined up with this herd, the third never moved. The herd crossed the Trichardt road and ran as far as one could see. The total distance covered was plus or minus 5 miles. Not once was any member seen to stop running.
- (ii) The herd in ref. 28 came down to drink simultaneously with the herd of zebra, ref. 27. Two of the wildebeest joined up with the herd of zebra.
- (iii) The herd in ref. 29 (53 members) came to drink just before the herd in ref. 30 (36 members). After drinking the composition of herds was 80 and 9. The herds left in completely different directions.
- (iv) Several herds of wildebeest, similar to the buffalo would wade in deep at Kumane Dam. Some of these herds startled by something causing them to stampede out (ref. 46, ref. 41, etc.).
- (v) The herd in ref. 41 would not go down to drink while the hyena was there. Once the hyena went, they rushed down to drink.
- (vi) The lone bull in ref. 43 had a broken horn. Although he was not present while the hyena was there, he could obviously scent that it had been there, because he sniffed the ground for a while before going to drink. He later joined the herd in ref. 44. The members of the latter herd rubbed their noses on his buttocks.



- (vii) The herd in ref. 45 was the only wildebeest herd to drink at Pool "B" as well.
- (viii) The herd in ref. 49 drank in turns, i.e. the first to drink were a bull and 2 calves. After they had come back to the herd two more bulls went down to drink. These two bulls were in the act of coming out when the herd came down to drink.

#### 2.4. *Impala*:

- (i) In the herd in ref. 38 was a ram who continually tried to chase away an ewe with a young ram. Each time the ewe came back the ram would chase her away. At one stage he tried to gore her with his horns.
- (ii) The ram in ref. 42 was also present when the hyena was at the dam. He, too, would not drink while the hyena was there. This ram only had the right horn.

2.5. *Kudu*: The herd of kudu in ref. 40 was approached with the utmost caution. During the period of observation it was proved that if approached in the right way without noise, Kudu will not be disturbed. The herd was cautious at all times, however. Similarly with the herd of Kudu in ref. 21.

Both these herds were observed from a distance of plus or minus 100 yards. The speed of the car was reduced to 10 mph. and the vehicle was halted plus or minus 25 feet from the herd. The animals soon lost some of their suspicion and one member from the herd in ref. 21 returned to within 10 feet of the car. Normal browsing was resumed once the car had been accepted, but the latter was under constant vigilance. At the click and whirr of the cameras, slight reactions were recorded.

#### 5—3. *Others*:

3.1. *Warthog*: Warthog are plentiful throughout the Park, but seldom allowed a close approach. This was probably due to the fact that a litter of young was present. Tourists were not seen molesting or disturbing them. At Kumane Dam several interesting facts came to light:-

- (i) That the same animals would drink and wallow more than once on the same day.
- (ii) A very big warthog with big tusks, ref. 31, 47, 48, 50, 53 and 54 wallowed four times in one day. This animal — "Harry, as he was nicknamed — made many unsuccessful attempts at mating. He was also responsible for stopping a fight between two warthog females.
- (iii) Females go into a fight like lightning whereas the males prefer to scratch around and pretend that they are fighting.
- (iv) Wildebeest were often responsible for chasing the warthog away from drinking.
- (v) Wallowing was very popular amongst the warthog.

- (vi) The reason for the fight between the two females ref. 55 and 56 could not be determined. They were walking past each other (litters following) when all of a sudden they started to fight. They were separated by "Harry". The young of both litters then started fighting amongst themselves. Once again "Harry" stopped the fight.

3.2. *Burchell's Zebra*: It was observed throughout the trip that zebra appeared to be the most cautious, especially when cars were near. They were also very cautious at drinking places, but, whether this was partially due to tourists is difficult to say.

3.3. *Elephant*: It is now evident that tourists have complete disregard for elephants. It might be said that some tourists in driving to within 25 yards of elephants, are in fact molesting them, and sometimes cause the elephant to charge, flap its ears, etc.

Elephants were responsible for the following interesting incidents:

- (i) The two bulls in ref. 4 and probably ref. 5 at first would not allow cars to approach them, but later (ref. 5) appeared very docile. Some cars could not have been more than 20 yards from them.
- (ii) In ref. 12 it will be seen that a car was plus or minus 15 yards from the elephants crossing the road. This same car, when an elephant feinted a charge in its direction, could not start. The occupants, however, said that they had recorded everything on their 8 mm camera.
- (iii) The herd in ref. 19 was definitely disturbed by our presence. It was late evening and the herd was moving eastwards, when first spotted it was a good 500 yards from the road. The animals approached the road slowly, feeding on the way. The leader got to plus or minus 50 yards from the road and stopped abreast of the car. As the other elephants arrived, they spread themselves out in a line parallel to the road and facing it. It was obvious that our car was disturbing them. As soon as the engine was started, the herd took off in fright in the direction from which they had come.
- (iv) The lone bull in ref. 39 charged unprovoked. It was obvious from the time he first appeared that he was not pleased with something. He charged a blue car for a full 50 yards. Thereafter he moved off into the bush without further incidents.
- (v) The elephants in ref. 59 were also disturbed by tourists, loud talking induced the smallest to make a mock charge at cars that were not more than 20 yards from where it stood. When the elephants crossed the road, the nearest cars were within 50 yards of them.
- (vi) The herd in ref. 62 proved very interesting. The first sign of

the herd was two bulls coming to drink. As the car was parked up wind the scent of the car (and humans) must have carried to them quickly, for they were scenting the air long before they had reached the edge of the dam. Later on 3 more bulls appeared — all scenting the air. Five minutes later the herd proper appeared. The cows were uneasy from the start. It was not long before the whole herd decided to move off.

## 6. CONCLUSION.

From the 3 week survey the following facts may be deduced:-

- (i) The chief attraction in the Park i.e. lion, elephant, leopard and cheetah are the ones to suffer the most.
- (ii) The average tourist will commit one or more minor offence during his stay.
- (iii) The percentage of tourists responsible for the major offences does not exceed 5%. Some times the same party was responsible for more than one offence.
- (iv) Chief disturbance factors were:-
  - (a) Loud talking and radios.
  - (b) Opening and closing of doors.
  - (c) Starting the car engine.
  - (d) Manoeuvring of cars.
  - (e) Speeding.
  - (f) Getting out of cars.
- (v) People without adequate photographic equipment are causing many of the disturbance factors, although those with powerful telescopic equipment are also to blame. In fact the "camera" is beginning to show itself as a bad influence on tourists.
- (vi) Most tourists are not afraid of being caught by the Park's staff, when they are committing offences.
- (vii) Too many people allow young children to relieve themselves outside the camps.
- (viii) Courtesy is lacking in many tourists.
- (ix) The list of begging animals and birds seems to be increasing.

## 7. ACKNOWLEDGEMENTS.

The author would like to take this opportunity to thank the Park's Board for permission to carry out this survey.

To Mr. Brynard and Dr. Pienaar special thanks for their kind information and constant guidance.

INDEX TO APPENDIX No. 1.

1. Reference
2. Locality
3. Animal
- 4.a Males
- 4.b Females
- 4.c Young
- 4.d Unknown
- 4.e Total of a, b, c, and d.
5. Time first observed
6. Total observing time
7. Number of cars present during total observing time
- 8.a Reactions to engine
- 8.b Reactions to doors
- 8.c Reactions to voices
- 9a. Minimum distance between car and animal(s) observed
- 9.b Maximum distance between car and animal(s) observed
10. Speed when animal(s) first sighted
11. Remarks
- D. Disappeared from view



APPENDIX No. 1

1	2	3	4a 4b 4c 4d				5	6	7	8a 8b 8c 8d			9a	9b	10
			LOCALITY	ANIMAL	SEX	TOTAL TIME				STAY	No.	REACTIONS			
REF.			M.	F.	Y.	U.	min.	CARS	Eng.	Doors	Voice	Near	Far	m.p.h.	
<p>Date: 2.5.1962.                      Weather: Clear and bright all day, getting hot towards mid-day.                      Locality: All on Lower Sabie Rd.</p>															
1	Loop 2b	LEOPARD	—	—	—	1	8:30 a.m.	20	6	No	—	Yes	10 yds.	100 yds.	
2	Loop 2b	HYENA	—	—	—	2	8:30 a.m.	20	6	No	—	No	1 ft.	D	
3	Loop 2b	LEOPARD	—	—	—	1	4:45 p.m.	25	8	No	Yes	Yes	50 yds.	50 yds.	
<p>The kill was secured into a tree ± 8 ft. from ground. Leopard appeared undisturbed while eating in tree, but once on the ground, it was never at ease. Ground very scrubby with dense bush. Washed a little while on ground, but the continual talking eventually drove it off out of sight. Did not pay attention to 2 hyenas around tree. Hyenas scrambled for tit-bits that fell. Once the leopard had come down, one hyena came to within touching distance of the car, but left when it did not get anything. Both hyenas left shortly after this. Same leopard as in ref. 1. He came before 4.45 p.m. and lay in some thick scrub, just barely visible. As in the morning his ears moved when he heard voices, or doors. Stayed in same spot all the time. Left at 5.10 p.m. with leopard in the same position.</p>															
<p>Date: 4.5.1962.                      Weather: Bright and clear, getting hot towards noon. Slight wind.                      Locality: Morning: Lower Sabie Road. Afternoon: Skukuza Tshokwane Road</p>															
4	Loop 5 b & c	ELEPHANT	2	—	—	2	7:00 a.m.	8	1	Yes	—	—	50 yds.	D	
<p>10-15 Saw them from loop 5b, about 150 yds. from junction of loop 5b and loop 5c and 80 yds. from road. As they were moving towards loop 5c, proceeded there and after 3 or 4 minutes they were seen 60 yds. from the car about to cross road. On seeing the car, went back into bush and eventually ran across the road ± 150 yds. from car. Engine stalled several times and having had to constantly rev it the noise might have upset the elephants.</p>															
5	Loop 5 Stretch 3	ELEPHANT	2	—	—	2	8:10 a.m.	5	15	No	No	No	20 yds.	50 yds.	
<p>Probably same two bulls. No reaction to tourists — just continued to feed. The nearest cars could not have been more than 30 yds. from them.</p>															
6	15.3 from Skukuza	LION	—	2	—	2	3:15 p.m.	80	21	Yes	No	No	± 100 yds.		
<p>Near the Nwatindlopfu spruit at pool "A". Some 50 yds. from the waterhole and ± 100 yds. from the road lay these two full grown lionesses. At least two different people left their cars. One lioness did put her head up when one car engine was started, otherwise they just lay about, sometimes, with all four paws in the air.</p>															

Date: 5.5.1962.

Weather: Bright and clear with a moderate NE wind, becoming strong N after 3.00 p.m.

Locality: Morning: Same waterhole as in ref. 6 (NWTINDLOPFU). Arrived: 7.10 a.m.; Departed: 12.00 noon.

Afternoon: Waterhole 3 miles farther North on left hand side along the Nwatindlopfu spruit. Arrived: 3.45 p.m.; left: 4.45 p.m.

7	15.3 m. from Skukuza	ZEBRA	2	8	1	—	11	3.52 p.m.	60	8	Yes	Yes	Yes	25 yds.	± 150 yds.	Almost on our arrival the giraffe was seen grazing. Two minutes later kudu and zebra appeared, but after being in view for some 5 mins. a car approached and they scattered back into Shindlopfana spruit, the kudu even crossing the spruit. They, however, came back slowly again, and after much deliberation followed the baboons for a distance. Here the kudu stopped (only 5 in sight) while the baboons crossed the road and went to drink, followed by the zebra and giraffe. The giraffe was calm but cautious. Finally the kudu, led by the impala ram crossed behind the car (as opposed to others crossing in front) and went to drink. The kudu were very nervous and ran away twice, so that we, too, left.
8	15.3 m. from Skukuza	KUDU	—	6	2	—	8	3.53 p.m.	60	8	Yes	Yes	Yes	50 yds.	± 150 yds.	

Date: 6.5.1962.

Weather: Cloudy to partially cloudy in North, becoming cloudy at 9.30 a.m. with a strong E. wind.

Locality: Skukuza — Satara road. Arrived at waterhole (ref. 6) at 8.00 a.m., departing at 11.40 a.m. for Skukuza.

9	15.3 m. from Skukuza	ZEBRA	3	2	1	5	11	8.00 a.m.	220	38				15 yds.	± 200 yds.	See in text Nwatindlopfu pans.
10	do	WILDE-BEESTE	2	—	6	14	22	8.15 a.m.	220	38				15 yds.	± 200 yds.	
11	do	IMPALA					± 50	8.25 a.m.	220	38				± 200 yds.		

Date: 7.5.1962.

Weather: Cloudy to partially cloudy up to 9.30 a.m. Hot around midday.

Locality: Skukuza to Lower Sabie Rest Camp.

12	Loop 2b	ELEPHANT	3	5	3	3	14	10.50 a.m.	14	4	Yes			15 yds.	± 100 yds.	Herd was crossing road towards Sabie River in twos and threes. Several cars very close to elephants, so that when they crossed, they put up their ears and ran across. One person sitting on car door. (See text under Elephant).
----	---------	----------	---	---	---	---	----	------------	----	---	-----	--	--	---------	------------	---

1	2	3	4a	4b	4c	4d	4e	5	6	7	8a	8b	8c	9a	9b	10	REMARKS
REF.	LOCALITY	ANIMAL	SEX	TOTAL TIME STAY				min.	CARS	No.	REACTIONS			DISTANCE		SPEED	
			M.	F.	Y.	U.				Eng.	Doors	Voice	Near	Far		m.p.h.	
<b>Date:</b> 8.5.1962.																	
<b>Weather:</b> Cool and clear with no wind in morning. At about 11.00 a.m. puffs of cloud appeared and it got quite hot apart from a slight breeze from 8.00 a.m.																	
<b>Locality:</b> Mlondozi dam via Saliju. Return to Lower Sabie via Mlondzi loop. Morning: arrived 7.45 a.m. depart 12.00 noon. Afternoon: arrived 3.15 p.m. depart 4.30 p.m.																	
13	Mlondozi	WARTHOG	1	1	2	—	4	10.50	35	1							Came down at 10.50 a.m., made two semi-circles of the dam, before drinking at 11.20 a.m. Very cautious. No wallowing.
14	do	ZEBRA	1	—	—	6	7	11.15	10	1							Leader was a male and kept himself apart. Came down at a good walk and drank immediately but with caution.
<b>Date:</b> 9.5.1962.																	
<b>Weather:</b> Clear and cool with no wind in morning. At 8.30 a.m. N. wind with puffs of cloud.																	
<b>Locality:</b> Morning: Mlondozi dam via Solitjie, back via Mlondozi loop. Arrive dam: 8.00 a.m. depart: 12.00 noon. Afternoon: Gomondwane road.																	
15	Mlondozi	WILDE-BEEST	2	—	—	—	2	8.30	50	1							Came from N. Very cautious going from one waterhole to the other.
	do	IMPALA	1	—	—	—	1	10.15	5	1							Ran away without drinking.
	do	IMPALA	1	—	—	—	1	10.50	10	1							Sighted at 10.50 a.m. and drank at 11.10 a.m. with caution. Left immediately.
16	Gomondwane Rd. 8 m. from L. Sabie	LION	1	1	—	—	2	3.00	130	12	No	No	No	60			Tourists hooted, whistled, shouted, played radios, half out of cars, baby crying, etc., etc. Lions attempted to mate 3 times — female unwilling. (See text under lion).
<b>Date:</b> 10.5.1962.																	
<b>Weather:</b> Cloudy and warm with no wind and light local drizzle. Partially cleared at 10.30 a.m. with slight wind from N.																	
<b>Locality:</b> Morning: Crocodile bridge via Gomondwane and back stopping at Gomondwane pans. Afternoon: Gomondwane road — first 9 miles only.																	
17	Sabie Bridge	LEOPARD	—	—	—	—	1	6.15	3								Saw him from camp sitting in the road just above bridge. Persistent barking by baboons. Only 3 tourists saw him from the camp.
18	4.8 m. from L. Sabie	BUFFALO	800	800				5.00	10	2	?	?	5 ft.	D	5		At least 20 members had crossed to E. side when we arrived. We were prepared to let them cross (and be late) but a second car came and forced a way across, with us following. No buffalo made any attempt to charge. (See text under Buffalo).





1	2	3	4a	4b	4c	4d	4e	5	6	7	8			9a	9b	10	REMARKS
											LOCALITY	ANIMAL	SEX				
REF.			M.	F.	Y.	U.		min.	CARS	Eng.	Doors	Voice	Near	Far	m.p.h.		
30								10.31	6	1			200				Very big, distinctive male which we named "Harry". Rolled in mud. This male came down often (see later) and also see text under Warthog.
							a.m.						yds.				
31								11.39	18	4	No		200				
							a.m.						yds.				
32								12.30	38	6	No	No	150				10-15 See text under Lion.
							p.m.						yds.				
33								3.00	100	21	Yes	Yes	50				5 At wildebeeste kill. See text under Lion.
							p.m.						yds.				
<b>Date:</b> 15.5.1962.																	
<b>Weather:</b> Cloudy with a light drizzle. The drizzle was intermittent practically all the way to Rabelais Dam. No drizzle or rain at dam after 9.00 a.m. Started clearing after midday. Hardly any cloud at 5.00 p.m.																	
<b>Locality:</b> Rabelais Dam. Arrive: 8.15 a.m. Depart: 4.30 p.m.																	
34								8.10	6	2			20				No reactions to car. See text under Jackal.
							a.m.						yds.				
35								8.10	6	2			25				See text under Jackal.
							a.m.						ft.				
36								10.15	30	6	Yes		350				See text under Giraffe. Did not drink.
							a.m.						yds.				
37								11.30	90	6	Yes		20				See text under Giraffe.
							a.m.						yds.				
38								12.02	14	5	Yes		50				See text under Impala.
							p.m.						yds.				
39								4.15	15	5	Yes		50				Distinct reaction to engine causing him to charge nearest car. Had two trunkfuls of water from this side of dam but one could hear him bathing, etc. on the other side. Covered in mud. Crossed the road and it was there that it charged. (See text under Elephant).
							p.m.						yds.				

**Date:** 17.5.1962.

**Weather:** Clear with a cold N. wind the whole day.

**Locality:** Morning: 6.30 a.m.—1.30 p.m. Satara-Timbivati Road (first 14 miles).

40 8.4 m. 9 12.35 15 1 Yes  
from Satara p.m.

Afternoon: Satara Drinking Troughs. Arrived 3.15 p.m. Departed 4.40 p.m.  
15 ft. 50 5-10 See text under Kudu.  
yds.

Date: 18.5.1962.

Weather: Few clouds on E. horizon. Cold in morning, getting very hot at midday.

Locality: Kumane Dam. Arrived 7:10 a.m. Depart 4:45 p.m.

41	do.	Kumane Dam	WILDE-BEEST	1	4	2	—	7	7:14 a.m.	28	1					200 yds.	Very cautious due to Hyena. Only drank at 7:35 a.m. See text under Wildebeest.	
42	do.		IMPALA	1	—	—	—	1	7:19 a.m.	20	1					do.	Very cautious. Drank at 7:30 a.m. See text under Impala.	
43	do.		WILDE-BEEST	1	—	—	—	1	7:41 a.m.	3	3					do.	No caution. See text under Wildebeest. Rolled in mud.	
44	do.		WILDE-BEEST	2	6	1	—	9	7:44 a.m.	5	3	Yes				do.	Ran down to water. Waded in 15 yds. Two bulls rolled in mud.	
45	do.		WILDE-BEEST	—	—	—	—	2	8:03 a.m.	6	2	No				200 yds.	Some drank at "B". All drank at "A" where some waded in 100 yds. See text under Wildebeest. 1 cow and 1 bull rolled in mud.	
46	do.		WILDE-BEEST	—	—	—	—	±	8:44 a.m.	10	2					100 yds.	Trotted to dam. Waded in far. See text under Wildebeest.	
47	do.		WARTHOG	1	—	—	—	1	9:38 a.m.	180	40	No				200 yds.	"Harry". He spent about 3 hours near water, sometimes taking an active role in the dramas at the dam. "Harry" drinks again. Came down at a slow walk.	
48	do.		WARTHOG	1	—	—	—	1	10:48 a.m.	13	4	No				do.		
49	do.		WILDE-BEEST	2	5	2	—	9	10:52 a.m.	16	3					150 yds.	Walked down. Cautious. See text under Wildebeest.	
50	do.		WARTHOG	1	—	—	—	1	11:32 a.m.	1	4					do.	"Harry" again. Drank at pool "B" had a wallow and tried to mate with female.	
51	do.		GIRAFFE	1	—	—	—	1	11:49 a.m.	90	4	No				25 yds.	No apparent caution by male or seven females. See text under Giraffe.	
52	do.		GIRAFFE	—	7	—	—	7	11:50 a.m.	90	24	Yes	No			150 yds.	"Harry" again. Walked to the dam and had another mud bath. Tried to mate with one female, but did not worry other females.	
53	do.		WARTHOG	1	—	—	—	1	12:06 p.m.	11	1					200 yds.	"Harry". Trotted down and had a mud bath. See text under Warthog.	
54	do.		WARTHOG	1	—	—	—	1	1:23 p.m.							do.	Walked down. Female wallowed. See text under Warthog.	
55	do.		WARTHOG	—	1	3	—	4	1:42 p.m.	6	2	No				do.	Walked down. See text under Warthog.	
56	do.		WARTHOG	—	1	3	—	4	1:42 p.m.	4	2	No				do.	Walked down. See text under Warthog.	
57	do.		GIRAFFE	4	—	—	—	4	2:20 p.m.	±	60	8	Yes	Yes	Yes	25 yds.	200 yds.	Came close to the cars but displayed distinct reactions. See text under Giraffe.

1	2	3	4a	4b	4c	4d	4e	5	6	7	8a	8b	8c	9a	9b	10	REMARKS
REF.	LOCALITY	ANIMAL	SEX	M.	F.	Y.	U.	TOTAL TIME	STAY	No.	REACTIONS	DOORS	VOICE	DISTANCE	SPEED		
								min.	min.	CARS	Eng.	Eng.	Eng.	Near	Far	m.p.h.	
<p><b>Date:</b> 19.5.1962.  <b>Weather:</b> Hot with little or no wind. No cloud.  <b>Locality:</b> Morning: 8.10 a.m.—9.15 a.m. Bangu Windmills. 9.15 a.m.—11.30 a.m. Timbavati Road.  Afternoon: Kumane Dam (4.00 p.m.—4.55 p.m.)</p>																	
58	Bangu Windmill	ZEBRA	6	8	2	—	16	8.36 a.m.	?	?				25 yds.			See text under Bangu Windmill.
59	Timbavati Olifants Rds. Junction	ELEPHANT	3	—	—	—	3	9.20 a.m.	11	6	Yes	Yes	Yes	20 yds.			The smallest (youngest probably) charged the cars, due to voices but never got onto the road. All three crossed the road from W. to E. flapping their ears at a trot. Nearest car 20 yds.
<p><b>Date:</b> 20.5.1962.  <b>Weather:</b> Clear and hot. Little or no wind.  <b>Locality:</b> Kumane Dam (8.25 a.m.—11.00 a.m.) — (4.15 p.m.—4.50 p.m.).</p>																	
60	Kumane Dam.	VULTURES	—	—	—	—	30	8.15 a.m.	?	8	No	No	No	100 yds.			Impala ewe was killed. Lions not near. Several people out of cars and much noise. Two gentlemen climbed on car roof to see better.
61	do.	BUFFALO	—	—	—	—	150	10.25 a.m.	25	14	Yes	Yes	Yes	100 yds.			Waded in deep. Several people out of cars. See text under Buffalo.
62	do.	ELEPHANT	5	?	8	18	31	4.40 p.m.	10	1	Yes			200 yds.			See text under Elephant.

APPENDIX No. 2.

ANIMAL	NIL (STANDING)	0—10	10—15	15—25
IMPALA (364)	At first no reaction, but generally will walk away.	No reaction.	Slight reaction.	Distinct reaction. Some will run away.
WILDEBEEST (101)	Do not allow close approach—will walk away.	Slight reaction.	Will trot away.	Stand amazed. Some will trot away.
GIRAFFE (37)	Will stand suspiciously at first, then move away slowly.	No reaction.	Slight reaction.	Distinct reaction. Some will gallop away.
ZEBRA (52)	Move off immediately at a trot.	Slight reaction (head movement)	React by trotting away.	Will gallop away—amazed sometimes.
STEENBOK (6)	Will bolt away after a few minutes (1—2 min.).	Looks up only.	Looks up only.	Will bolt away or stand dead still.
KUDU (24)	Will observe car with suspicion. Some will walk away.	Slight reaction.	Will move away at a trot.	Distinct reaction. Will run away.
BUFFALO ( $\pm$ 800)	Look at car. Some will come to investigate.	No reaction.	Not observed.	Not observed.

Tables based on an average distance of 25 yards between car and animals. The figures in parenthesis indicates the number of animals the results are based on.

APPENDIX No. 3.

	Number of Animals	Total Hrs.	Animals per Hour	Total Cars	Cars per Hour	Number of Persons out of Cars
A. Nwatindlopfu Pans ... ..	149	11	14.0	281	25.6	6
B. Mlondozi Dam ... ..	21	8	2.6	64	8.0	24
C. Nsemane Windmill ... ..	0	1	0	2	2.0	0
D. Mavumbye Windmill ... ..	139	1	139	21	21.0	0
E. Satara Drinking Troughs	1	$\frac{1}{2}$	2	38	76.0	0
F. Gudzane Windmill ... ..						
G. Bangu ... ..	$\pm 400$	1	400	26	26.0	0
H. Kumane Dam ... ..	2293	$20\frac{1}{2}$	112	193	9.4	11
I. Mareyo ... ..						
J. Rabelais Dam ... ..	135	17	7.9	64	3.8	4
K. Orpen Dam ... ..	3	2	1.3	20	10	$\pm 31$

APPENDIX No. 4.

The following of the Park's animals and birds were observed being fed by tourists:-

(1) *Animals:*

Chacma baboon .....	All over the Park.
Vervet monkey .....	All over the Park.
Hyena .....	Lower Sabie road.
Jackal .....	Satara-Orpen road.
Dwarf mongoose .....	Hippo-pool road (Skukuza).

(2) *Birds:*

Crested Barbet .....	Rabelais Dam.
Yellow Billed Hornbill .....	All over the Park.
Red Billed Hornbill .....	All over the Park.
Starlings — Cape Glossy .....	All over the Park.
Burchell's Glossy	All over the Park.
Ground Hornbill .....	Tshokwane.