



# Raptor's View Camera-Trap Survey

Autumn 2017

A report into the results obtained from a camera-trap survey of Raptor's View by Jeremy Bolton of Bushcam Consulting.

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## Executive Summary

- Please note that this digital report is intended to be accompanied by folders of photographs as well as an Excel spreadsheet and a Google Earth map showing camera locations.
- Camera traps were set up at 59 different locations on the Estate between 29 March 2017 and 10 May 2017 (note 1)
- In aggregate they were installed for 1149 “trap nights” (note 2). The median duration of a camera at each location was 19 days.
- Almost 45 000 images were recorded during this period but all non-wildlife photos were deleted when seen. These included human and vehicle shots as well as “blanks” (note 3)
- From the above approx. 32 000 images were retained for further analysis
- Just over 3 500 “events” were recorded from the above. An event could include a single animal walking past the camera or a herd of animals standing in front of the camera for hundreds of images. (note 4)
- These events were analysed in respect of: a) Location on the estate i.e. phase 1, 2 or 3 or b) Habitat – here defined as Wilderness, Riparian, Residential or Fenceline. (note 5,6)
- The species registering the most events was the grey duiker (564 events). They were followed by impala (478), kudu (431) and warthog (286). See attached Excel table for the full list
- However when broken down by habitat then duiker were overwhelmingly dominant in residential areas and were also the most often seen mammals in riparian areas. Along the fences kudu and (territorial) wildebeest dominated while impala were the most-recorded species in wilderness habitats.

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- Phase 3 showed the greatest mammal diversity (32 species) with Phase 2 showing the least (24 species). As regards the frequency of events / sightings per night Phase 1 showed the highest at 3.8 with Phase 2 the lowest at 2.4. See table on Page 9
- The carnivore most commonly recorded was jackal (98 events), followed by civet (77), wild dog (53) and spotted hyena (49). Interestingly the spotted hyenas were only seen moving along the fences.
- At the other end of the abundance spectrum was caracal which was recorded only once along the southern fence and cape clawless otter which was recorded twice just below the school dam.
- In total 35 mammal species were recorded. Two were only seen through the fence, namely brown hyena and eland. This represents excellent species diversity and can be compared to my recent survey in Kruger where only 25 species were recorded – and this included the big 5.
- The camera that recorded the greatest diversity of species was located on the southern fence (23 different species). This was followed by the one on the western fence where the Zandspruit tributary crosses under the fence into Zandspruit estate.
- Leopards were recorded on 16 occasions by 12 different cameras. Some locations had cameras set up in pairs with the intention of, hopefully, recording both sides of a leopard for ID purposes. Sadly, the leopards didn't pass these cameras. Nevertheless there were obviously at least two individuals recorded on the estate during the survey.
- Two cameras were installed at holes in the fence bordering Khaya Ndlovu and Zandspruit. These recorded a number of smaller species passing through – particularly porcupine. Wild dogs were also seen to be going through and it appears that leopards made use of them too.
- The cameras did not reveal any obviously sick or injured animals. The only photos of interest in this regards was the male leopard which might be blind in his right eye.

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- Interesting, to me, was the almost complete absence of small rodents in the camera trap images. Although they were set up to record larger animals they usually record quite a few rats, mice and similar species. Perhaps the lingering effect of the recent drought?
- The fences recorded more activity per night than any other habitat despite fences being fairly busy areas in terms of traffic and people. This is partly due to the inclusion of sightings on the other side of the fence but it might suggest that the animals feel that “the grass is greener....”
- The cameras also didn't show any evidence of poaching or other suspicious behavior.
- I'm very grateful to the management and staff of Raptors View for their kind assistance. Similarly to the residents, contractors (and animals) for not stealing or damaging my cameras in any way. The occasional wave or dance was appreciated!
- Surveys like this provide an interesting 'snapshot' of the mammal diversity and abundance at a point in time. Hopefully this type of survey will be repeated during other seasons for comparative purposes.



## Notes and Explanations

1. Locations for cameras were chosen with the intention of covering all habitats on the estate. I always have respect for people's privacy and so no cameras were set up facing houses or other private spaces. However when covering trails or the fences it was unfortunately not possible to avoid getting images of walkers, cyclists or estate staff. None of these images were retained and were deleted as I saw them. However I didn't set up any cameras along the estate roads. They would obviously have recorded some animals but I believe the risks would have outweighed the rewards. I planned to cover 60 locations but unfortunately one camera failed to record anything. See appendix 1 for a list of locations and appendix 2 for a Google Earth map.
2. The term "trap night" is commonly used in these studies but it obviously includes "trap days" as well since the cameras run all day and night. A camera set up today and removed tomorrow would register as one trap night even though it could possibly have run for two days.
3. The significant number of images that weren't saved were of human traffic as well as photos of waving bushes and grass. Even if 100 photos were recorded of a single impala standing in front of the camera these were kept because I never know if they might come in useful at a later stage.
4. The term "event" can mean many things. I use it as one would use the term "sighting". So it could be a single photo of a jackal running past or multiple photos of a herd of impala. As a result the term can't be used to estimate abundance in any way. By way of example there were more duiker events than impala events but that obviously doesn't suggest that there are more duiker on the estate than impala. However, if further similar studies were conducted then one could start comparing the number of events to get an idea of whether mammal numbers were increasing or decreasing.
5. Photos were analysed per phase. While there is obviously no ecological significance in this I thought it might be of interest. For clarification the Aardvark trail is deemed to be in Phase 2.
6. Photos were also analysed per habitat. In many instances I had to decide between two possible habitats and so the results could be somewhat subjective. When the camera was located on a built or unbuilt stand the habitat was deemed to be 'residential'. Cameras aimed at the fences were obviously classified as 'fence' even if they were in 'wilderness' or green belt areas. Cameras along the Zandspruit river, its tributary and the overflow from the school dam were classified as 'riparian' even if they were on or close to residential stands.



## Comments on Specific Species

**Leopards** were seen 16 times by 12 different cameras. Most observations (11) were along fences with the remaining few spread between the other habitats. Phase 1 saw most activity. At least 2 individuals were noted: a large male and a female but many of the other photos were inconclusive and could be of another female or a young male. (See separate leopard folder in Photos.) The records were sporadic in April but between 2 May and 9 May leopards were recorded on 11 occasions. This appeared to coincide with a great deal of anecdotal reports of leopard vocalizing on the estate.

**Wild Dogs** were seen 53 times at 23 locations on 19 separate days. As with leopards, above, they were seen more often in Phase 1 and also had a preference for fencelines. The majority of photos were taken in the area between the school dam and Osprey dam, including the eastern and western fences in that area. As to be expected most of the observations were early morning and evening but a number of “after dark” observations were made – up to midnight.

**Spotted Hyena** were recorded on 49 occasions at 11 locations. All observations were along the fence. Interestingly, no scavenging was seen at three carcasses where cameras were installed for periods of time.

**Civet** were seen at 24 locations and were recorded 77 times. Their distribution was widely spread across the estate but with a preference for the 3<sup>rd</sup> Phase.

**Jackal** were the most commonly seen carnivore and were photographed on 98 occasions at 22 locations. They also had a preference for the 3<sup>rd</sup> Phase and, like hyena, preferred the fencelines.

**Caracal** was only seen once walking along the Southern fence.

**Cape Clawless Otters** were seen on two occasions moving swiftly below the school dam. There appeared to only be one individual but one can't be certain of this because they aren't detected by camera-traps very easily when they are wet.

**Honey Badgers** were seen on 5 occasions and also had a preference for walking along the fence. They were also more commonly seen in the south.

Even though **Brown Hyena** were seen on 17 occasions all of these records were from the other side of the fence, particularly along the southern boundary.



Genets were recorded on 46 occasions. Amongst the images were some that were clearly Small-Spotted as well as some that were Large-Spotted. However many images were indistinct or didn't show the distinguishing features so, for this survey, no distinction has been made.

Of the herbivores **Grey Duiker** were the species most often seen (564 events). They were particularly common in Phase 1 and had a preference for the residential areas. **Impala** was the second most frequently seen herbivore (by number of events/sightings rather than absolute number of animals). They were also recorded most often along the fences.

**Wildebeest** were overwhelmingly seen along the fences and often appeared to be involved in territorial disputes with others on the far side of the fence. In contrast, **Nyala** and **Warthog** were well distributed through the reserve.

**Steenbok** were seen 9 times at 6 locations. The relative scarcity of these animals compared to the abundance of duiker is striking.

**Aardvark** were seen 27 times at 19 locations. They preferred Phase 1 and had some preference for fencelines but were widely distributed.

**Monkeys**, not surprisingly, had a preference for both Residential and Riparian areas. **Baboons** on the other hand were most often seen along the fences.

**Bushbuck**, strangely, were seen most often along the fences and least often in Riparian areas.



**Summary of Sightings**

(By Frequency of Event)

	<b>Species</b>	<b># Events</b>		<b>Species</b>	<b># Events</b>
1	Duiker	564	19	Aardvark	27
2	Impala	478	20	Scrub Hare	21
3	Kudu	431	21	Brown Hyena**	17
4	Warthog	286	22	Leopard	16
5	Wildebeest	265	23	African Wild Cat	11
6	Giraffe	209	24	Steenbok	9
7	Porcupine	169	25	White-tailed Mongoose	8
8	Waterbuck	168	26	Slender Mongoose	6
9	Nyala	165	27	Honey Badger	5
10	Zebra	108	28	Dwarf Mongoose	5
11	Monkey	105	29	Bush Pig	5
12	Jackal	98	30	Banded Mongoose	4
13	Civet	77	31	Squirrel	4
14	Wild Dog	53	32	Cape Clawless Otter	2
15	Bushbuck	49	33	Eland**	1
16	Hyena	49	34	Caracal	1
17	Genet*	46			
18	Baboon	41			

\*Small-Spotted and Large-Spotted Genets have been combined since not all photos were clear enough to discern the difference.

\*\* Only seen through the fence, not on Raptor's View itself.



## Stats by Habitat

Habitat	Species Recorded	Trap Nights	Total Events	Events per Camera per Night*
Fence	32	441	1726	3.9
Residential	24	159	476	3.0
Riparian	29	230	549	2.4
Wilderness	25	319	752	2.4
<b>Total</b>	<b>35</b>	<b>1149</b>	<b>3503</b>	<b>3.0</b>

## Stats by Phase

Phase	Species Recorded	Trap Nights	Total Events	Events per Camera per Night*
1	30	469	1800	3.8
2	24	269	648	3.4
3	32	411	1055	2.6
<b>Total</b>	<b>35</b>	<b>1149</b>	<b>3503</b>	<b>3.0</b>



## **Conclusion.**

Camera-trap surveys like this provide an interesting 'snapshot' of mammal activity on the estate. They can obviously give a confirmation of the presence of a mammal on the estate and, if run for long enough, may suggest the absence of a species. However a single survey reveals little about the abundance of herd species unless the photographs are reviewed in detail and herd sizes are estimated.

However, if surveys like this are repeated then one can start getting an idea of whether numbers, as well as diversity, are increasing or not. However, even with repeated surveys the results can be influenced by seasonal or climatic factors.

Raptor's View is fortunate in that it has an impressive diversity of species. It is very possible that a few more nocturnal and cryptic species could be added to this list if regular surveys are conducted.

## **Acknowledgements.**

I would like to acknowledge the enthusiastic support that I received for the project from the estate management. They provided a great deal of valuable information to me for which I am very grateful.

I would also like to record my appreciation to all the residents who expressed interest in the project and allowed me to put up cameras on their properties. I'm sure there were many who would have preferred not to regularly walk past a camera-trap, but they did so without complaint. Thank you.

I'm also grateful that not one of my cameras was damaged or lost. This notwithstanding the attention of many people and animals.

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