

# Monthly Report

August 2016



# CRM Staff



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# News from the field camps

## Staff Hello's and Goodbyes

August saw the a change over of staff in Liwonde National Park. Paolo Strampelli, our Senior Research assistant finished his contract to start his PhD at Oxford University on carnivores in Tanzania. We wish him the best of luck. CRM also welcomed on two new staff members this month. Godwin Zimba, who has a lifelong passion for education and the environment, has joined CRM as our new Community Engagement Officer in Liwonde NP.



Figure 1. Godwin conducting community outreach

Godwin studied Natural Resource Management at Bunda University, he then went on to teach in public secondary schools. He is now keen to combine his teaching experience with his passion for conservation and the environment.



Figure 2 Olivia searching for the release clan on Chinguni hill

Olivia Sievert has joined the team as our new Research Assistant in Liwonde National Park. Olivia studied at Dalhousie University and has previously worked in Malawi with the Lilongwe Wildlife Trust. She has joined us in the past on the urban hyaena project and is excited to now be studying the species fulltime. We are pleased to welcome both Olivia and Godwin to our team.

## Volunteers

In addition to a handover in staff, August has been one of our busiest volunteer months. With both ABC and CRM running volunteer programs it has been a full house at the CRA Research Camp in Liwonde. This month with CRM, we have had four volunteers, as well as two day volunteers, Caley and Mio Nevin. In addition to our volunteers we have had a masters student from the Netherlands, Neetje Hermus assessing hyaena diet.



Figure 3. Volunteers helping to set a camera

Volunteers and interns are an asset, helping us with our daily research and camp activities. During their time here they learned telemetry, camera trapping, and tracking techniques, as well as helped us with data entry and scat analysis.

# CRM findings - Liwonde NP Field station

## New Den Discoveries

This month we have been working hard to identify the dens used by the Liwonde Sanctuary Clan (LSC). This allows us to monitor clan composition and obtain vital rates such as birth and survival to assess the success of the clan. This also allows collection of scats for our diet study.



Figure 4. Hyaena LSC04 at an active den site

Currently we have a total of two clans identified comprising the LSC clan containing 12 animals and the Chinguni Clan containing 2 animals. The Chinguni clan also form a coalition with the LSC on occasions. In addition there is the remaining release clan animal RC3 which has not been seen for a year now.

After many days of tracking, we have identified nine potential den sites within the southern area of the sanctuary in LNP. Through the use of camera traps, three of these five have been determined to be currently active, and one is still being



Figure 5. LSC14 and LSC15, the two new sanctuary clan cubs

investigated (Figure 6). Camera trapping den sites has also allowed us to identify two new cubs (LSC14 and LSC15, Figure 5). These siblings are estimated to be around three months old. They are currently the only cubs to be found with the Liwonde Lower Sanctuary Clan this year.

Upon further investigation, it is believed that these cubs belong to hyena LSC04, a younger female. If this were the case, this would be her first set of cubs. Currently, both are healthy little trouble makers who are giving Olivia and Eleanor,

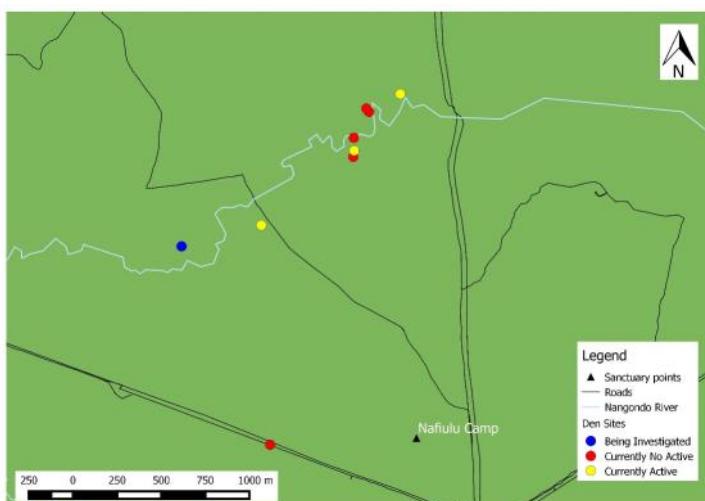


Figure 6. Den site locations for the Lower Sanctuary Clan of Liwonde National Park. All of these den sites were investigated in August 2016, they are marked in colour based on their activity. Den activity was determined by camera trapping each den site for a minimum of two days and maximum

the CRM volunteer, a run for their money when setting camera traps, having taken two traps off trees and chewed them. During the evenings, these cubs are left at a den within the sanctuary. This has allowed our team to have a first hand look at these new clan members.

## Hyaenas and Aardvarks

Although not carnivores, our team has had some great camera trap photos of aardvarks this month. While investigating potential den sites, they have managed to camera trap aardvarks in three different locations in the sanctuary (Figure 7). It is well known that aardvarks and hyaenas share den sites, which appears to be the case in the sanctuary, as all the aardvark sightings were at den sites which had hyaena spoor. Additionally, it is exciting to know that there seems to be a thriving population of aardvarks in LNP.

## Diet Analysis Study



Figure 7. Aardvarks at two different den sites in the sanctuary

CRM is currently undertaking a diet analysis study to compare diet of spotted hyaena and other carnivores across Malawi. Carnivore scats are now being collected throughout our four research sites (LNP,

within scats to identify undigested organic material such as bones, insects and hairs. Follicle pattern and cross section analysis is then conducted on hairs to determine prey species. This month our intern Neeltje Hermus completed her project comparing diet between spotted hyaena in Lilongwe

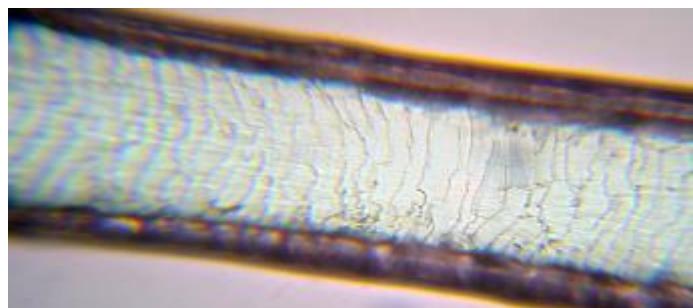


Figure 9 Hair follicle pattern of Kudu

and LNP. Twenty one scats were analysed (11 from Lilongwe and nine from LNP). Interestingly every scat from Lilongwe contained hair from the common duiker (*Sylvicapra grimmia*) (Figure 8). Even though present in Liwonde, no common duiker hairs were found in the LNP hyaena scats. To date it appears that Kudu, (*Tragelaphus strepsiceros*) (Figure 9), are the preferred prey of hyaena in LNP. We are continuing to build on this study and are eager to see the long term results. This month we have collected six more scats from LNP, around 35 from KNP and 32 from Nyika NP, and continue to go out on weekly den checks for more.

## Stumpy the Hyaena

Stumpy (CHC01) is a three pawed hyaena, which was first spotted by our team in LNP in 2014. She was darted not long after and treated for deep lacerations around her neck that were caused by multiple snares. After being treated, she was observed a few more times in the Chinguni Hill area until July 2015. This month, after receiving some reports regarding three-legged hyaena tracks on the main road, our team

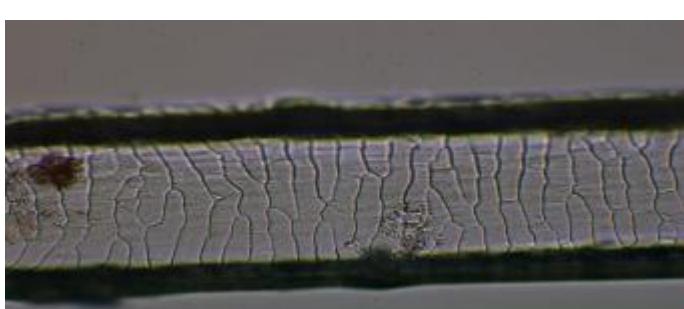


Figure 8. Hair follicle pattern of Common duiker

Lilongwe City, Nyika NP and Kasungu NP). This study allows us to compare prey choice differences between the four locations and to determine prey preferences within LNP as prey composition changes over time and, as new predators are slowly introduced.

Diet is assessed by sorting organic material

camera trapped the area and were excited to catch the first 2016 sightings of Stumpy (Figure 10). Stumpy although old, continues to be an excellent example of how resilient these animals can be, and we are happy to see that she is still doing well.



Figure 10. Stumpy (CHC01) on camera trap, August 25th 2016

## Release Clan Update

Our focus this month has been on finding our two missing release clan members, RC1 and RC2. Both hyaenas were released into LNP from Lilongwe in 2015 in a joint project by CRM and Lilongwe Wildlife Trust (LWT) on behalf of the Department of National Parks and Wildlife (DNPW) to mitigate human-wildlife conflict within the presidential estate in Lilongwe.

Although followed closely for a year, two individuals left the park to the south and were last picked up with telemetry in 2015. Thus, we decided to climb to the highest point in the Southern region of the park to try and obtain signals from either individual.

### RC1

RC1 was the first signal we obtained. It was a mortality beacon, indicating either low battery or that the collar had not moved in a while. Our team spent weeks following this signal which took them over 30km from the top of Chinguni hill to a village on the Eastern side of LNP roughly 1.3km from the fence line. The collar from this animal was subsequently tracked to a house in the

village outside the park. The case is currently on going.

### RC2

RC2 was tracked to the east of LNP 150m from the park boundary. Unfortunately her skull and collar were found in a field outside the Eastern park boundary. The collar had been cut, thereby reducing the signal to less than 100m. It appears that the hyaena was killed by local villagers as the skull, which (Figure 11), shows clear deep lacerations, one of which broke the eye socket.



Figure 11. Skull of RC2 with lacerations evident

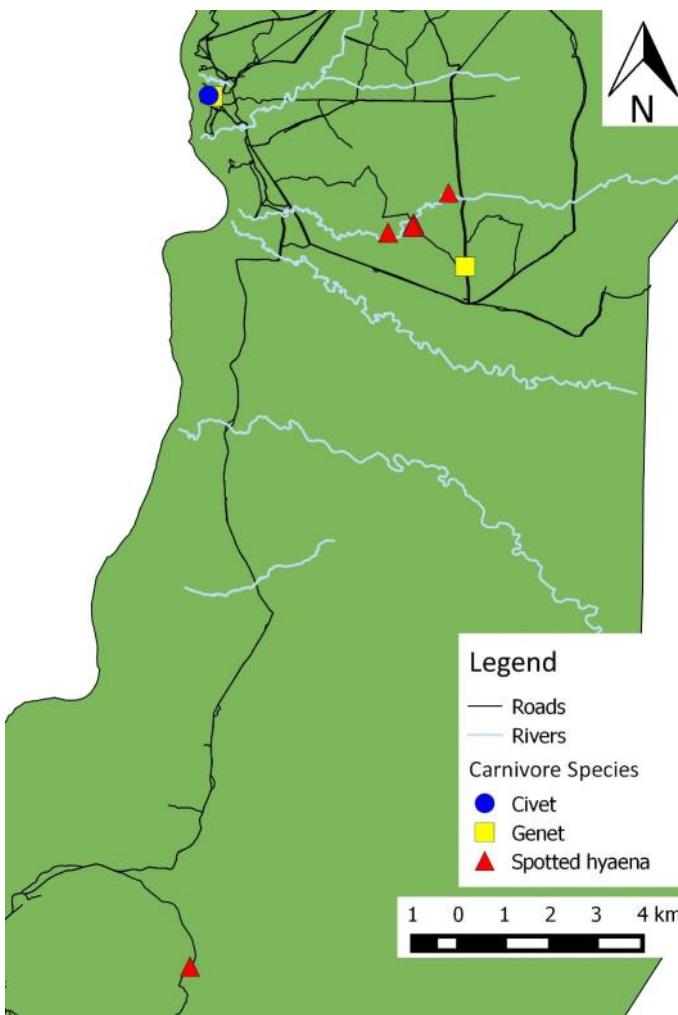
It is unclear whether this hyaena was killed whilst inside or outside the park as the skull was found only 150m from the park boundary.

Hyaena's in LNP roam outside the park boundary on a regular basis and such behaviour is being monitored by the team and any conflict events are followed up by our community outreach officer Godwin.

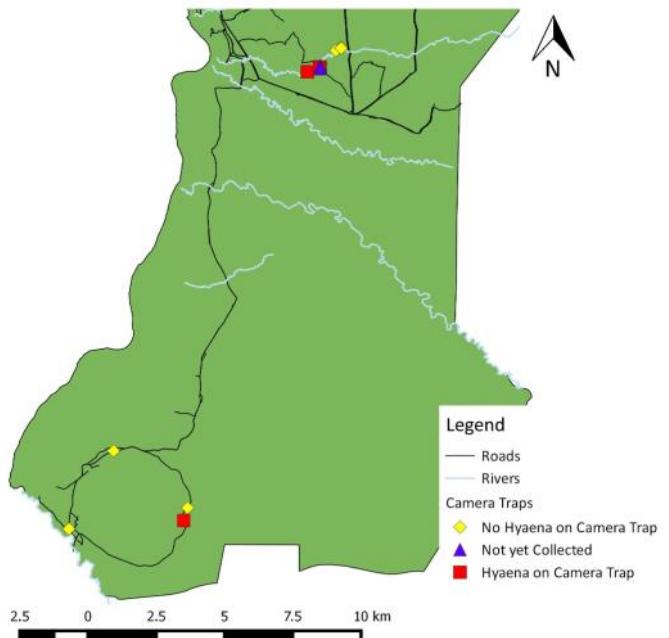
## Opportunistic Carnivore

### Sightings August 2016

This month has seen less opportunistic carnivore sightings than past months. This is due to the increase in daytime work thereby decreasing evening surveys. Nevertheless, we have had a total of 27 carnivore sightings (Figure 12) (see Appendix II for full data) bringing the total number of carnivore species recorded in the park to ten (Appendix I). Many of these sightings were from camera traps set at different locations in the park (Figure 13).



**Figure 12** Opportunistic carnivore sightings for Liwonde National Park for August 2016



**Figure 13** Camera trap placement in August 2016 in Liwonde National Park. Each symbol indicates if spotted hyaena were caught on camera trap.

# CRM findings - Kasungu NP Field station

## Cape clawless otter caught on camera.

An exciting sighting for Kasungu NP as camera trapping on the Lower Lingadzi revealed the presence of Cape clawless otter (*Aonyx capensis*) (Figure 14). Whilst we have recorded this species once in 2014 any captures of this species are a particular highlight, especially at this time of year when the riverbed is dried up. This animal was no doubt caught travelling between the very few small pools of water left in the river.



Figure 14 Camera trap picture of Cape clawless otter, Aug 2016

As well as being somewhat of a rarity to capture on camera the animal is also an excellent indicator species for ecosystem health. Their presence points to a healthy river system supporting a wide range of biodiversity. This is great news for Kasungu NP and it is hoped that the Lingadzi river, along with the other rivers in the park, support a healthy population of otters. Our cameras on the Lower Lingadzi are still in place and it is hoped that we can collect more images of this elusive species in the coming weeks, before the rains

come and we have to take our cameras out of the riverbed.

## Lion report outside KNP

A report was brought to our attention by park manager Dixie Makwale on the 25th August of lion tracks in Linyangwa village, approximately 7km east of Kasungu NP. The report was followed up with Kasungu NP Research Officer, Bryson, but unfortunately it appears to be unverified. All tracks that had been reported had been walked over and a report of the lion being sighted by one villager seemed to have been fabricated and just word of mouth. The community was informed that any further reports will be followed up but the team require more hard evidence. The community was taught how to identify lion tracks and a recording of lion calling was played for them. Whilst the report was not validated we are grateful for the speed it was brought to our attention as information regarding the status of lion in the park is one of our key objectives.

## Honey badger sighting

Another exciting sighting for this month was the first record of a honey badger in over two years. LWT Primate Release Manager, Amanda Harwood, was lucky enough to see one run across the main road close to the turn for Lifupa Camp. The last known sighting of a honey badger was made by CRM staff in May 2014 and although the species was caught on camera a couple of times more in 2014 records for the species have been absent since then.

## Leopard reports continue

August was a good month for leopard reports with both direct sightings and camera trapping providing several records. A common area for sightings, with reports from both Dixie Makwale and the LWT Team, is the turn for Black Rock off the main road. We have now placed cameras in this area to see if we can identify which leopard is commonly crossing the road in this area.



Figure 15 Camera trap image of KNPLEOP012 and her cub

Our camera traps on the Lower Lingadzi river also resulted in a high number of leopard captures with a capture of KNPLEOP012 and her cub (Figure 15), probably the most notable sighting. These two leopards are known to us



Figure 16 Camera trap photo of leopard KNPLEOP002.

already having been identified in July 2016. KNPLEOP002 (Figure 16), is fast becoming the most camera trapped leopard in Kasungu NP. This adult male was first identified in June 2015 around the CRM camp at Lifupa Dam but camera trapping is now revealing the vast size of his territory. This year he has now been photographed at Lifupa dam, Black Rock, the Lower Lingadzi and as far north as the Limamba Junction on the Dwangwa Road. From our extensive camera trapping surveys, we have now identified 20 individual leopards in the Park.

## Lifupa clan cub

During our recent carnivore camera trapping survey a young spotted hyaena was recorded along the Chipembere Road (Figure 17). This hyaena is believed to be

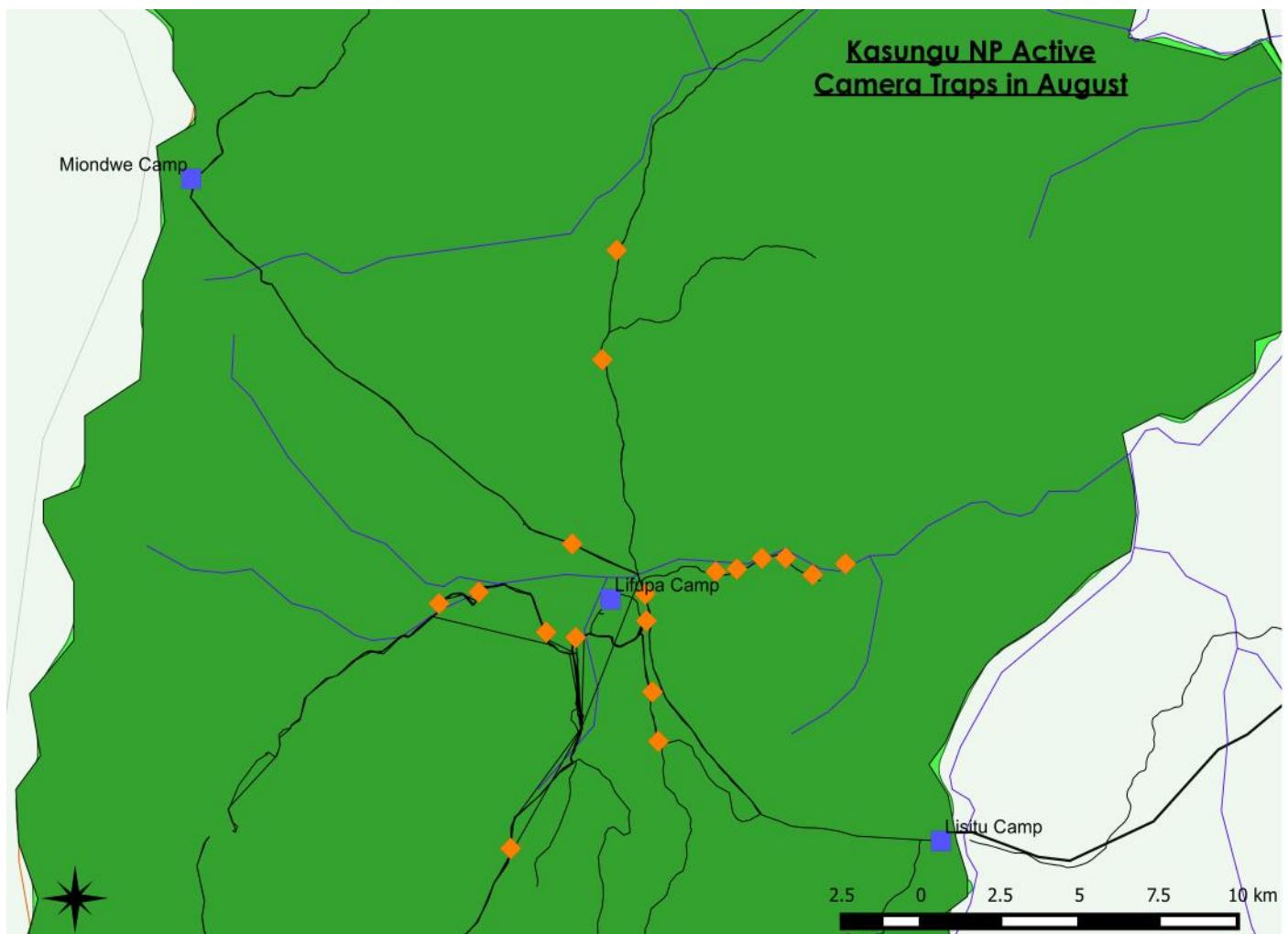


Figure 17 Camera trap image of Lifupa clan hyaena cub.

one of the clans most recent cubs and is aged at around 10-12 months old. Whilst we are still searching for the clans current den site this kind of capture is highly encouraging and it is likely the den is not far off this part of the Chipembere Road, as hyaenas of this age are unlikely to stray too far from the den site. We hope to conduct more searches for this den in September to increase our understanding of the Lifupa clan.

## Camera Trap Activity

During the month of August, 18 camera traps were set and active around the park. Of these 18 cameras, six Bushnell Trophy cameras were deployed at random to assess random detection encounter rates of mammals. Six more cameras were deployed on the Lower Lingadzi river to assess recent lion reports in the area and, the remaining six were set on major roads and trails to monitor carnivore populations (Figure 18). It is through camera trapping that we were able to obtain most of our opportunistic sightings data.



**Figure 18** Locations of camera traps, marked in orange diamonds, for August 2016 in Kasungu National Park.

## Opportunistic sightings

There were 33 opportunistic carnivore sightings in August 2016 (Figure 19) with honey badger and Cape clawless otter being the highlights, bringing our total number of carnivore species recorded in the park to 15 (Appendix II). Camera trapping provided most of the sightings ( $n = 29$ ) whilst there were three leopards and one honey badger observed. The 29 camera trap images came from ten camera trap stations located throughout the park. Most of these camera traps are placed on roads to increase the chances of successful photographic captures.

With the dry season commencing large mammal sightings have also increased in the park. The highlight this month being a sighting of 14 Sable (*Hippotragus niger*), including two foals, on the Chipiri Road. The first sighting of this year of Lichtenstein's hartebeest (*Alcelaphus lichtensteini*) was also recorded and Buffalo (*Synacerus caffer*) dung was found on the CRM camp road 800 metres from camp.

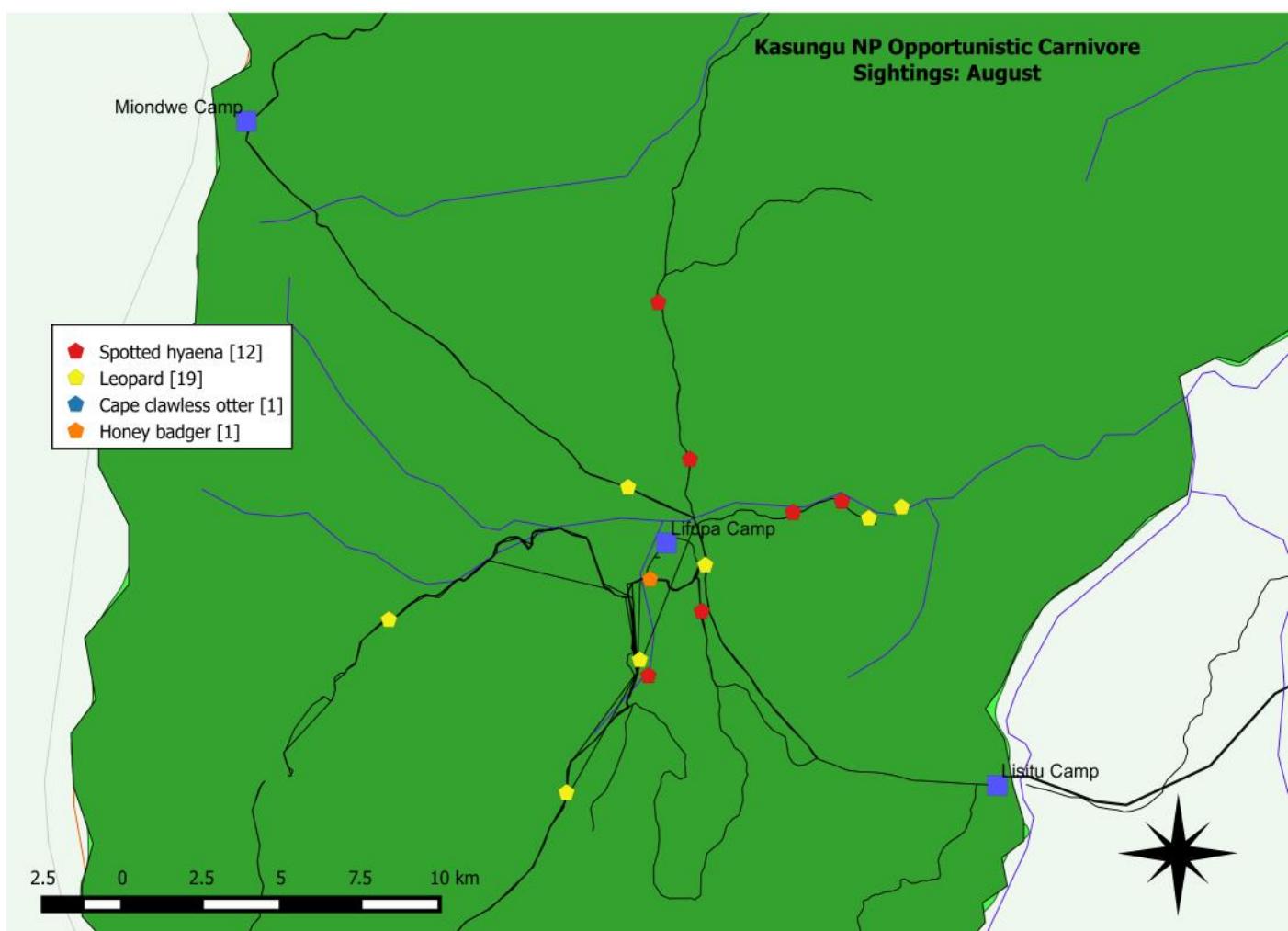
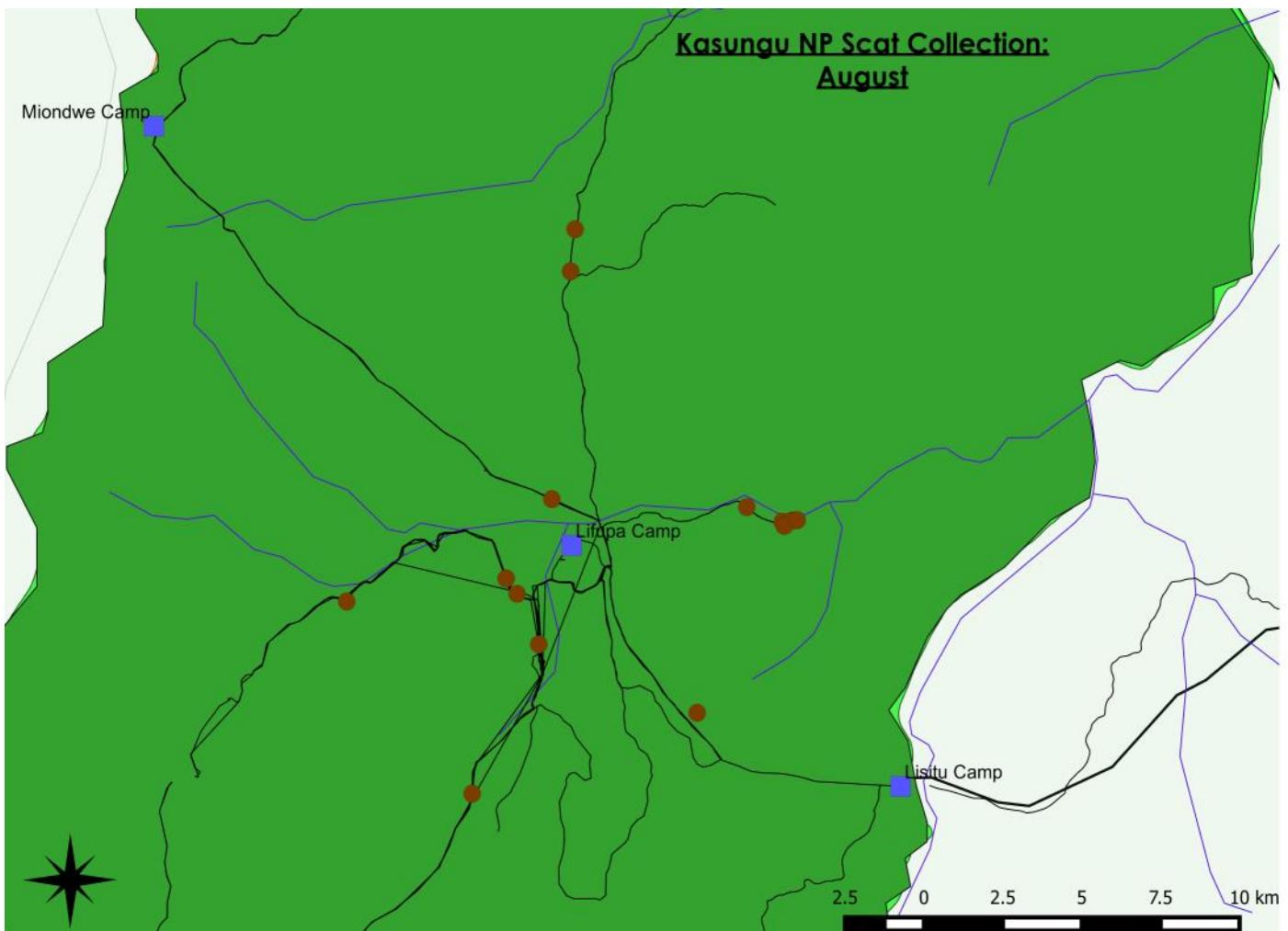


Figure 19 Map of opportunistic carnivore sightings in Kasungu National Park for August, 2016.

## Scat Collection

This month, as part of a diet analysis study, 32 carnivore scats were collected in Kasungu National Park (Figure 20). This diet study, which uses hair follicle pattern and cross section analysis to examine prey preference, is being conducted across our three study sites in Malawi. Of the scats collected, 24 were from spotted hyaena, three from leopard, one from caracal and four were unidentifiable. Most of the spotted hyaena scats came from known latrine sites inside the park.



**Figure 20** Sites where carnivore scats were collected, (brown circles), in Kasungu National Park in August 2016.

# CRM Funders and Supporters

CRM would like to thank all our funders and collaborators.



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## Appendix I. Mammals of Liwonde National Park

All mammals seen on transects, camera traps, acoustic surveys or opportunistic surveys.

Animals reported by a DNPW Parks staff member and reported to CRM are marked with an asterisk (\*).

### **Artiodactyla**

<b>Bovidae</b>	
<i>Sylviacapra grimmia</i>	Common duiker
<i>Raphicerus sharpei</i>	Sharpe's Grysbok
<i>Redunca arundinum</i>	Common reedbuck
<i>Ourebia ourebi</i>	Oribi
<i>Kobus ellipsiprymnus</i>	Common Waterbuck
<i>Alcelaphus buselaphus</i>	Hertebeest
<i>Hippotragus equinus</i>	Roan
<i>H. niger</i>	Sable
<i>Aepyceros melampus</i>	Impala
<i>Tragelaphus scriptus</i>	Bushbuck
<i>T. strepsiceros</i>	Greater Kudu
<i>Taurotragus oryx</i>	Common Eland
<i>Syncerus caffer</i>	African Cape Buffalo
<b>Suidae</b>	
<i>Potamochoerus porcus</i>	Bushpig
<i>Phacochoerus aethopicus</i>	Warthog
<b>Hippopotamidae</b>	
<i>Hippopotamus amphibius</i>	Hippopotamus

### **Perissodactyla**

<b>Equidae</b>	
<i>Equus quagga</i>	Common zebra
<b>Rhinocerotidae</b>	
<i>Diceros bicornis</i>	Black rhinoceros

### **Proboscidae**

<b>Elephantidae</b>	
<i>Loxodonta africana</i>	African Elephant

### **Carnivora**

<b>Viverridae</b>	
<i>Gennetta tigrina</i>	Large spotted genet
<i>Genetta genetta</i>	Small spotted genet
<i>Civettictis civetta</i>	African civet
<i>Mungos mungos</i>	Banded mongoose
<i>Ichneumia albicauda</i>	White-tailed mongoose
<i>Bdeogale crassicauda</i>	Bushy-tailed mongoose
<i>Herpestes sanguineus</i>	Slender mongoose
<b>Hyaenidae</b>	
<i>Crocuta crocuta</i>	Spotted hyaena
<b>Felidae</b>	
<i>Leptailurus serval</i>	Serval
<b>Canidae</b>	
<i>Canis adustus</i>	Side-Striped Jackal

### **Primates**

<b>Cercopithecidae</b>	
<i>Papio cynocapalus</i>	Yellow baboon
<i>Cercopithecus aethiops</i>	Vervet monkey

### **Rodentia**

<b>Hystricidae</b>	
<i>Hystrix africaeaustralis</i>	Porcupine
<b>Leporidae</b>	
<i>Lepus saxatilis</i>	Scrub hare

## Appendix II. Mammals of Kasungu National Park

All mammals seen on transects, camera traps, acoustic surveys or opportunistic surveys.

Animals reported by a DNPW Parks staff member and reported to CRM are marked with an asterisk (\*).

### **Artiodactyla**

<b>Bovidae</b>		
<i>Sylvicapra grimmia</i>	Common duiker	
<i>Raphicerus sharpei</i>	Sharpe's Grysbok	
<i>Oreotragus oreotragus</i>	Klipspringer	
<i>Redunca arundinum</i>	Common reedbuck	
<i>Kobus vardoni</i>	Puku	
<i>Hippotragus equinus</i>	Roan	
<i>H. niger</i>	Sable	
<i>Aepyceros melampus</i>	Impala	
<i>Tragelaphus scriptus</i>	Bushbuck	
<i>Alcelaphus buselaphus lichtensteinii</i>	Lichtenstein's hartebeest	
<i>T. srepsiceros</i>	Greater Kudu	
<i>Taurotragus oryx</i>	Common Eland*	
<i>Syncerus caffer</i>	African cape buffalo	
<b>Suidae</b>		
<i>Potamochoerus porcus</i>	Bushpig	
<i>Phacochoerus aethopicus</i>	Warthog	
<b>Hippopotamidae</b>		
<i>Hippopotamus amphibius</i>	Hippopotamus	

### **Perissodactyla**

<b>Equidae</b>		
<i>Equus quagga</i>	Common zebra	

### **Proboscidae**

<b>Elephantidae</b>		
<i>Loxodonta africana</i>	African Elephant	

### **Carnivora**

<b>Viverridae</b>		
<i>Gennetta tigrina</i>	Large spotted genet	
<i>Genetta genetta</i>	Small spotted genet	
<i>Civettictis civetta</i>	African civet	
<i>Mungos mungos</i>	Banded mongoose	
<i>Ichneumia albicauda</i>	White-tailed mongoose	
<i>Atilax paludinosus</i>	Water mongoose	
<i>Herpestes sanguinea</i>	Slender mongoose	
<b>Hyaenidae</b>		
<i>Crocuta crocuta</i>	Spotted hyaena	
<b>Felidae</b>		
<i>Leptailurus serval</i>	Serval	
<i>Felis caracal</i>	Caracal	
<i>Panthera leo</i>	Lion	
<i>P. pardus</i>	Leopard	
<b>Canidae</b>		
<i>Lycaon pictus</i>	Wild dog*	
<i>Canis adustus</i>	Side striped jackal	
<b>Mustelidae</b>		
<i>Aonyx capensis</i>	Cape clawless otter	
<i>Mellivora capensis</i>	Honey badger	

### **Primates**

<b>Cercopithecidae</b>		
<i>Papio cynocapalus</i>	Yellow baboon	
<i>Cercopithecus aethiops</i>	Vervet monkey	

### **Rodentia**

<b>Hystricidae</b>		
<i>Hystrix africaeaustralis</i>	Porcupine	
<b>Leporidae</b>		
<i>Lepus saxatilis</i>	Scrub hare	