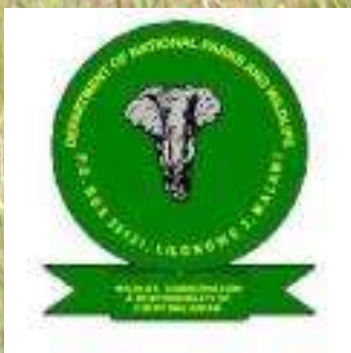


Wild Dog Conservation Malawi

End of Year Report 2014





WILD DOG CONSERVATION MALAWI

Wild Dog Conservation Malawi is a non-profit conservation project based in Malawi, through the University of Bristol UK. The project falls under the umbrella of the UK charity Conservation Research Africa. WDCM works in collaboration with the Department of National Parks and Wildlife Malawi (DNPW) and the Lilongwe Wildlife Trust (LWT).

This report outlines the activities undertaken for the period January 2014 to January 2015. Progress is reported against project milestones.



PROJECT TEAM



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PROJECT OBJECTIVES

Over 1 year

1. Determine the abundance, demography and distribution of wild dogs and competing carnivores in KNP
2. Examine relationships between co-predator activity rates to assess levels of intra-guild competition
3. Describe and compare habitat use of carnivores in KNP with regard to structural vegetation features and prey densities
4. Determine density estimates of large mammal prey
5. Determine key threats to the population (human wildlife-conflicts; high risk conflict areas and, inter-predator competition)
6. Determine human perceptions of wild dogs and other carnivores
7. Conduct awareness and education programmes in communities surrounding KNP

Long term objectives

8. *Produce a wild dog management plan in collaboration with Department of National Parks Wildlife Malawi (DNPW)*
9. *Inform IUCN conservation planning for this species*
10. *Build capacity within DNPW and Malawi students in ecology and research*



PROJECT MILESTONES 2014



Progress is reported against the following project milestones for the year 2014 (Table 1).

Table 1. Project milestones for 2014. Milestone 7 is a long term milestone which will be achieved after 3 years of research.

Milestone No.	Milestone	Objective	Status
1	Camera Trapping Arrays	1-3	Partially Complete
2	Large Mammal and Spotlighting Transects	4	Complete
3	Audio Playbacks	1	Complete
4	Community Surveys	6	Partially Complete
5	Education Materials Completed	7	In progress
6	Community Education Activities conducted around KNP	7	In progress
7	Wild Dog Conservation Management Plan and IUCN Report	8-9	Ongoing

MILESTONE 1 – CAMERA TRAPPING ARRAYS



Opportunistic and systematic camera trapping surveys (n = 18 Cuddeback Attack Trail Cameras) have been conducted in KNP. Systematic camera grid surveys were commenced in October 2014 (camera stations 2km apart , n = 2 cameras/station). Grids are sampled for two months before being deployed to the next grid across the entire park (2,316 km² survey area).

A photographic database has been compiled and individual animals have been identified using diagnostic spot/coat patterns (leopard, hyaena wild dog) which will be used to estimate species specific densities using capture-mark-recapture.

Two hyaena clans have been indentified from camera trapping in KNP. One clan comprises 11 individuals and the other clan size is uncertain. Four leopard have been identified in KNP. We have located two active hyaena dens which had sub adults in May 2014.



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MILESTONE 2 – LARGE MAMMAL AND SPOTLIGHTING TRANSECTS

Driven large mammal (LMT) and spotlighting (SPT) transects were conducted across all accessible roads in KNP between April 2014 and January 2015.

Forty nine LMTs were completed across the wet and dry season ($n = 490$ km driven). Large mammal observations were recorded on 40.8% of transects ($n = 36$ total observations) with a mean of 0.7 observations per transect (mean 0.07 obs/km) across seasons (Table 2).

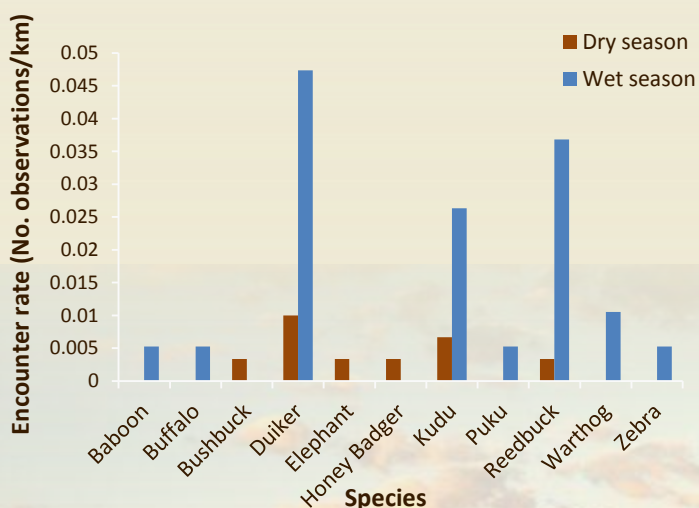


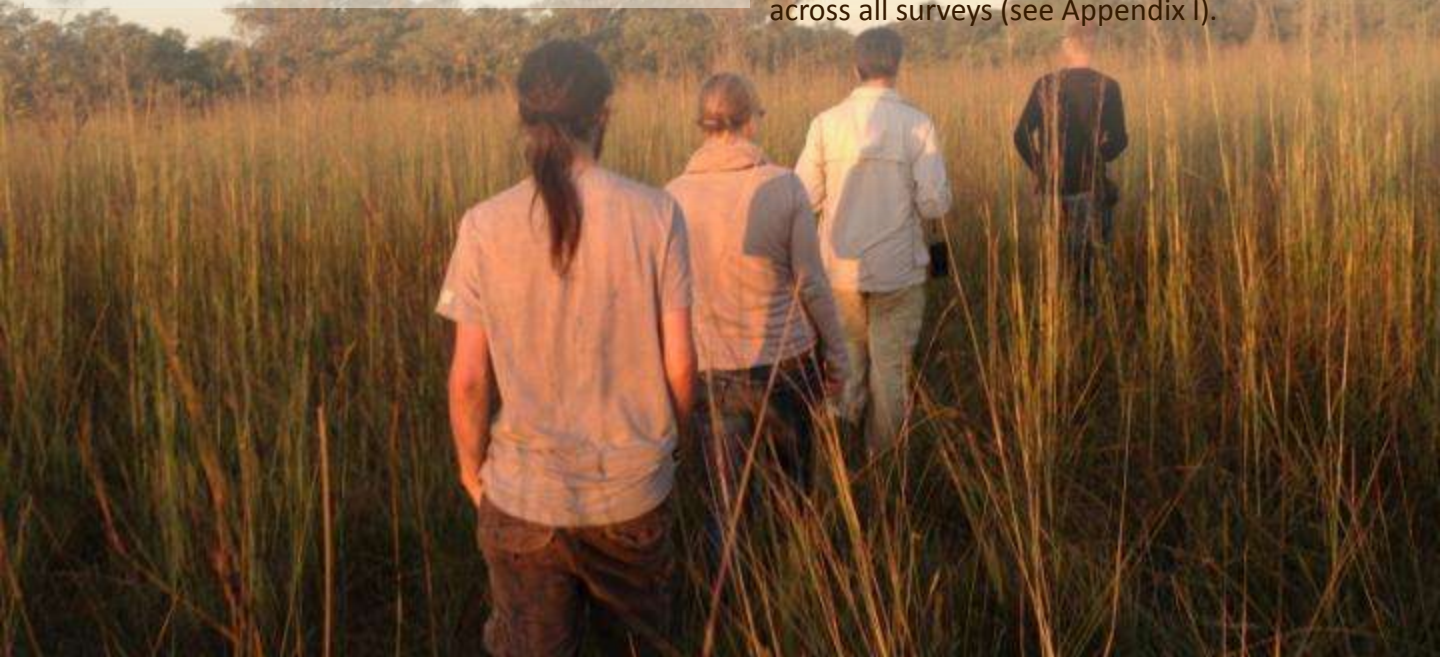
Figure 1. Species specific encounter rates (observations per km) for LMTs April 2014 - January 2015 in KNP.

Table 2. LMT survey effort and summary results April 2014 - January 2015 in KNP.

Large mammal driven transects (April 2014 – Jan 2015)	Dry Season	Wet Season	Overall
Total No. transects completed	30	19	49
Km driven	300	190	490
% Transects with observations	30	57.9	40.8
Total No. observations	9	27	36
Mean observations/transect	0.3	1.4	0.7
Mean observations/km	0.03	0.14	0.07
Mean No. species /transect	0.3	1.1	0.6
Total No. species recorded	6	8	8
Total No. individuals observed	10	84	94
Mean No. individuals / observation	1.1	7.6	4.7

Species specific encounter rates (observations/km) were higher in the wet season (mean 0.003 obs/km dry, mean 0.013 obs/km wet).

Patterns of species occurrence were similar between seasons. Duiker was most frequently observed ($n = 0.01$ obs/km dry, $n = 0.05$ obs/km wet), followed by Kudu ($n = 0.007$ obs/km dry, $n = 0.03$ obs/km wet) and Reedbuck ($n = 0.003$ obs/km dry, $n = 0.04$ obs/km wet). Eight species were recorded though more species have been recorded across all surveys (see Appendix I).



MILESTONE 2 – LARGE MAMMAL AND SPOTLIGHTING TRANSECTS



Thirty five spotlighting transects (SPT) were completed across wet and dry seasons ($n = 350$ km driven). Mammal observations were recorded on 51.4% of transects ($n = 117$ total observations) with a mean of 3.3 observations per transect across seasons (Table 3).

Mean encounter rates were higher for SPTs than LMTs (0.3 obs/km and 0.7 obs/km respectively). Twice as many species were recorded on SPTs ($n = 17$ species) than LMTs ($n = 8$ species).

Table 3. SPT survey effort and summary results April 2014 - January 2015 for KNP.

Summary	Dry Season	Wet Season	Overall
Total No. transects completed	19	16	35
Total No. Observations	33	84	117
Mean No. Obs/transect	1.7	5.3	3.3
No. transects with observations	13	16	18
% transects with observations	68.4	100.0	51.4
KMs driven	190	160	350
Observations per km	0.2	0.5	0.3
Mean No. species per transect	1.3	3.3	2.2
No. species recorded	13	15	17
Total No. individuals seen	39	102	141
Mean No. individuals per sighting	1.3	1.2	1.3

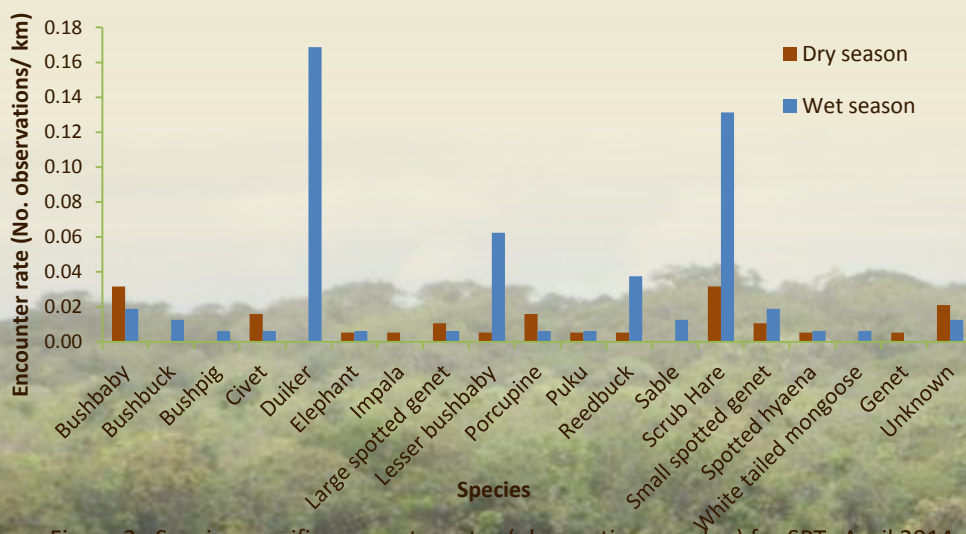


Figure 2. Species specific encounter rates (observations per km) for SPTs April 2014 - January 2015 in KNP.

As with LMTs species specific encounter rates (obs/km) were higher in the wet season (mean 0.01 obs/km dry versus mean 0.03 obs/km wet) (Figure 2).

Duiker was most frequently observed followed by Scrub hare and Lesser bushbaby (Figure 2).



MILESTONE 3 – ACOUSTIC PLAYBACKS TO ESTIMATE CARNIVORE DENSITY



Acoustic surveys are conducted six months apart (one dry season/one wet season) to avoid habituation to calls. Twelve acoustic playback surveys were conducted in November 2014 covering 17% of the park. Playback sites are located in areas of high visibility spaced 4 km apart.

Playbacks were conducted according Mills *et al.* (2001) using recordings of distressed animals and carnivore social calls. Two species responded; leopard (*Panthera pardus*) (n = 1 individual) and spotted hyaena (*Crocuta crocuta*) (n = 8 individuals).

Data were sufficient for a preliminary calculation of hyaena densities (Mills *et al.* 2001) with an estimated density of 0.034 hyaenas'/km² equating to an estimated population of 78.7 animals in KNP (Table 3). These data are preliminary estimates from the first set of surveys. These estimates will be augmented with repeat acoustic playback surveys in 2015 to increase accuracy. .

Table 3. Acoustic playback survey effort and summary results November 2015 KNP.

Total No. playback sites sampled	12
Total sampling area (km ²)	386.04
Total park area (KNP)	2,316
Calibration distance (km) (Mills <i>et al.</i> , 2001)	3.2
Proportion of park sampled	0.17
Total No. hyaenas' responding	8
Mean No. hyaenas' responding per station (SD)	2.7 (2.1)
Proportion of sites at which hyaenas' responded	0.25
Mean time to arrival (minutes) (SD)	25 (0.007)
Hyaena density /km ²	0.034
Estimated population (number of animals) in KNP	78.7



MILESTONE 4 – COMMUNITY SURVEYS



The progress of the community surveys has been hindered by the delay in recruitment of the WDCM Malawian community outreach worker. However, we have completed initial liaison and engagement activities in the communities around the South Eastern boundary of KNP.



Donkey carcass eaten by lion near the village of Kayesa (South Eastern KNP).

In May 2014 WDCM received reports of lion killing livestock in the communities around KNP. After community liaison and engagement, WDCM confirmed that lion had killed two donkeys near Kayesa and a cow in Santhe (SE of KNP).

WDCM conducted several liaison and investigation meetings with community leaders bordering the south eastern edge of the park to assist with and assess levels of human-carnivore conflict. WDCM liaised with community leaders to reassure and allay fears.

In collaboration with LWT, WDCM secured funding from the Born Free Foundation to capture, collar and relocate the lion into KNP (where there are no existing lion prides) to mitigate human-carnivore conflict in the area.

WDCM attempted to capture and relocate the lions on three occasions but were not successful. In June 2014 lions were heard roaring inside KNP, and WDCM subsequently observed them on an opportunistic acoustic playback. WDCM aims to collar the lion to monitor their movements and facilitate human wildlife conflict mitigation.



Lion crate being prepared for attempted capture and translocation of lion into KNP

MILESTONE 5 & 6 – EDUCATION MATERIALS DEVELOPED AND CONDUCTED AT LWT AND COMMUNITY EDUCATION ACTIVITIES IN KNP



The progress of the education programme has been hindered by the delay in recruitment of the WDCM Malawian community outreach worker. Contracts have now been completed and we aim to have an officer in place by end April 2015. The education materials and programmes will be developed from April 2015.



We have conducted education and awareness activities in Lilongwe (in partnership with LWT) in relation to human-wildlife conflict with urban hyaena. We have initiated an Urban Hyaena Research Project in collaboration with DNPW to mitigate continued human-carnivore conflict in the city.

We have distributed leaflets, conducted community questionnaire surveys and conducted tracking surveys to locate dens and key areas affected.

We have secured funding to collar and track the urban hyaena clans to determine levels of human wildlife conflict and community areas of high risk.

Animals will be collared in June 2015 and monitored for a period of two years to assess behavioural ecology and inform conflict mitigation.



MILESTONE 7 – WILD DOG CONSERVATION MANAGEMENT PLAN AND IUCN REPORT



Milestone 7 is an ongoing milestone which will be completed at end of project year 3 once all data have been collected.

OTHER ACHIEVEMENTS AND HIGHLIGHTS

AFRICAN WILD DOG SIGHTINGS

The highlight of the year was two sightings of African wild dogs in KNP (n = 9 dogs) and in Nyika National Park in September 2014. WDCM have secured funding for a satellite to track their movements and determine spatial and ranging behaviour. During 2015 we will continue to search for the dogs to attempt to capture and collar them. WDCM are now seeking funding for aerial flights and tracking dogs to assist in locating the wild dogs as they are at very low density in the area.

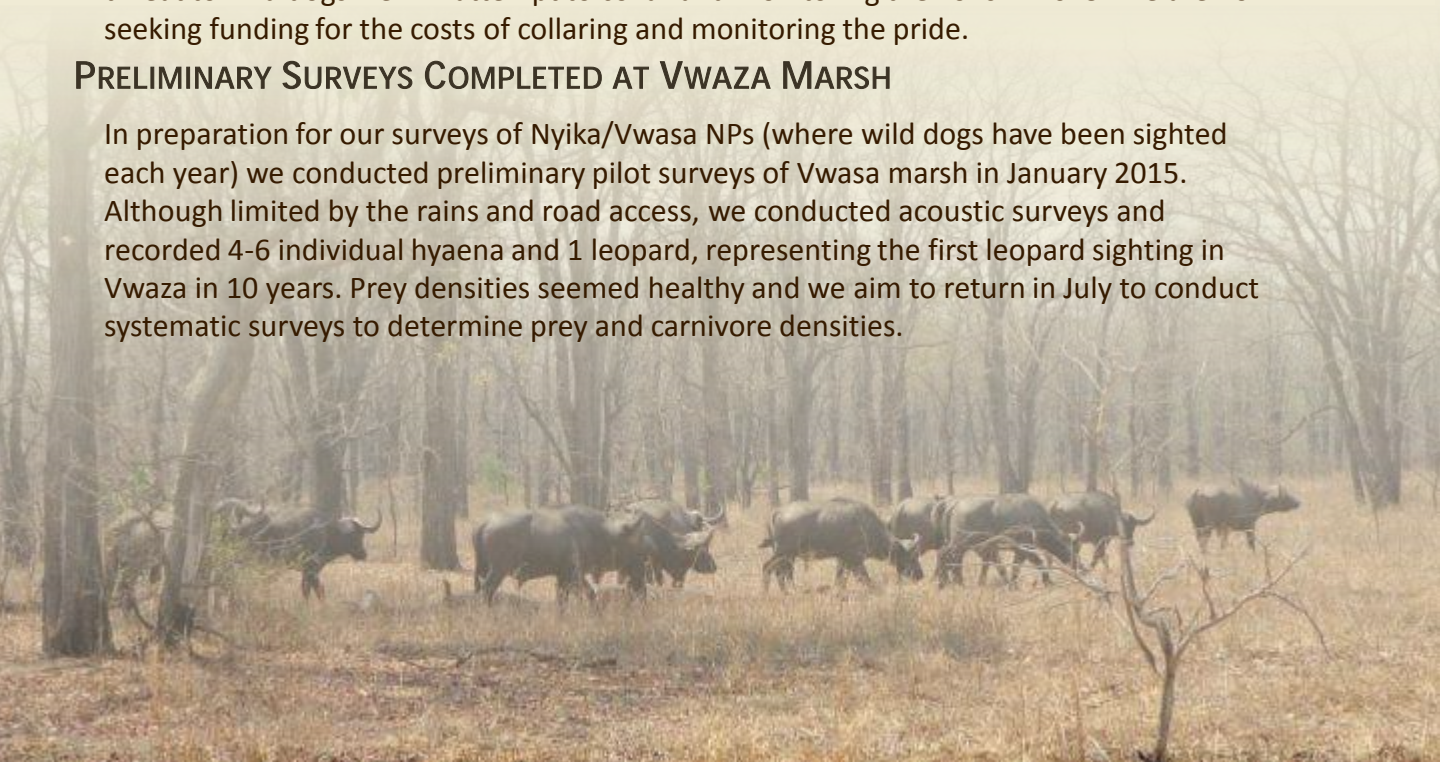


LION SIGHTINGS

Since the early sighting of lion in KNP in June, there have been continued sightings of the pride in the park (reports of 5-6 animals). This is good news for the park, helping to bring back a healthy carnivore guild. At such low densities the lion should not pose significant threat to the wild dog populations in the area. To monitor their movements and potential threat to wild dogs we will attempt to collar and monitoring the lions in 2015. We are now seeking funding for the costs of collaring and monitoring the pride.

PRELIMINARY SURVEYS COMPLETED AT VWAZA MARSH

In preparation for our surveys of Nyika/Vwasa NPs (where wild dogs have been sighted each year) we conducted preliminary pilot surveys of Vwasa marsh in January 2015. Although limited by the rains and road access, we conducted acoustic surveys and recorded 4-6 individual hyaena and 1 leopard, representing the first leopard sighting in Vwaza in 10 years. Prey densities seemed healthy and we aim to return in July to conduct systematic surveys to determine prey and carnivore densities.



OTHER ACHIEVEMENTS AND HIGHLIGHTS



URBAN HYAENA CONFLICT MITIGATION

In July 2014 WDCM were contacted by DNPW to assist with human-carnivore conflict issues in Lilongwe City. Urban hyaena were occupying areas close to peoples houses in the east of the city and causing significant fear and concern. To avoid hyaena mortality WDCM in collaboration with LWT and the Wildlife Emergency Response Unit (WERU) agreed to capture and translocate the animals in to Liwonde National Park (LNP).



The aims of this project are to reduce hyaena mortality, assess spatial behaviour, reduce conflict between people and wildlife and to reinforce the spotted hyaena population in Malawi. WDCM and its partners have captured four hyaenas from the Lilongwe City clan. These have been housed at Lilongwe Wildlife Centre while they await release into LNP.



WDCM have completed the site assessment of LNP for habitat suitability, prey and existing carnivore densities and plan to release the animals in April 2015. The hyaenas have been fitted with tracking collars and WDCM will assess their behavioural ecology and survival over the next 2 years.

The Urban Hyaena Project is supported by



PRELIMINARY SCHEDULE FOR YEAR TWO 2015



URBAN HYAENA CONSERVATION TRANSLOCATION PROJECT

APRIL 2015

WDCM will conduct the translocation of spotted hyaena into Liwonde National Park in April 2015. The clan will be tracked daily to assess spatial behaviour and survival.



URBAN HYAENA BEHAVIOURAL ECOLOGY PROJECT

MAY/JUNE 2015

WDCM will start collaring individuals in the urban hyaena clans in Lilongwe to assess the behavioural ecology of clans occupying the city to inform conflict mitigation.



WILD DOG RESEARCH PROJECT

JUNE 2015 - Outreach and Education

Commence community education and questionnaire surveys around KNP and Lilongwe

JULY 2015 - Competing Carnivores in KNP

Commence collaring spotted hyaena, lion and leopard in Kasungu NP to assess competing carnivore distribution, behaviour & density.

AUGUST /SEPTEMBER 2015 – Nyika / Vwaza Assessment

Commence surveys in Nyika NP and Vwaza Reserve as part of the status assessment of African wild dog.



NOVEMBER 2015

Conduct capacity building workshops in KNP

LEOPARD LANDSCAPE BEHAVIOURAL ECOLOGY PROJECT

SEPTEMBER /OCTOBER 2015

Commence collaring leopards in Nyika/ Vwaza and Kasungu as part of the landscape level PhD study of the behavioural ecology of leopard by WDCM Senior Research Assistant Rob Davis.





WDCM FUNDERS AND SUPPORTERS

We would like to thank all our funders and supporters.

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APPENDIX I : 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 WDCM are marked with an asterisk (*).

Artiodactyla		
	Bovidae	
	<i>Sylviacapra grimmia</i>	Common duiker
	<i>Raphicerus sharpei</i>	Sharpe's Grysbok
	<i>Redunca arundinum</i>	Common reedbuck
	<i>Kobus vardonii</i>	Puku
	<i>Kobus ellipsiprymnus</i>	Common waterbuck
	<i>Hippotragus equinus</i>	Roan
	<i>H. niger</i>	Sable
	<i>Aepyceros melampus</i>	Impala
	<i>Tragelaphus scriptus</i>	Bushbuck
	<i>T. srepiceros</i>	Greater Kudu
	<i>Taurotragus oryx</i>	Common Eland*
	<i>Syncerus caffer</i>	African cape buffalo
	Suidae	
	<i>Potamochoerus porcus</i>	Bushpig
	<i>Phacochoerus aethopicus</i>	Warthog
	Hippopotamidae	
	<i>Hippopotamus amphibius</i>	Hippopotamus
Perissodactyla		
	Equidae	
	<i>Equus quagga</i>	Common zebra
Proboscidae		
	Elephantidae	
	<i>Loxodonta africana</i>	African Elephant
Carnivora		
	Viverridae	
	<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
	Hyaenidae	
	<i>Crocuta crocuta</i>	Spotted hyaena
	Felidae	
	<i>Leptailurus serval</i>	Serval
	<i>Panthera leo</i>	Lion
	<i>P. pardus</i>	Leopard
	Canidae	
	<i>Lycaon pictus</i>	Wild dog*
	Mustelidae	
	<i>Aonyx capensis</i>	Cape clawless otter
	<i>Mellivora capensis</i>	Honey badger
Primates		
	Cercopithecidae	
	<i>Papio cynocephalus</i>	Yellow baboon
	<i>Cercopithecus aethiops</i>	Vervet monkey
Rodentia		
	Hystriidae	
	<i>Hystrix africaeaustralis</i>	Porcupine
	Leporidae	
	<i>Lepus saxatilis</i>	Scrub hare