



PAINTED DOG CONSERVATION

RESEARCH ANNUAL REPORT 2021

SUMMARY

The painted dog (*Lycaon pictus*) also commonly known as the African wild dog, cape hunting dog or the painted wolf, has suffered a great decline over the years in most countries. The major causes of the painted dog decline are human induced: habitat loss and fragmentation, persecution, diseases, climate change impacts and others. Painted dog Conservation (PDC) has deliberately branded the species to be referred to as painted dogs in Zimbabwe as a ploy to improve the people perception of the animal.

Even though the Zimbabwe national pack has remained stable over the past years, the conservation status is fragile. The up-listing of the species within the country to the highest level as a specially protected animal is an attempt to arrest the potential of local extinction. With the national pack at around seven hundred (700) painted dogs, literally every animal counts. PDC is currently monitoring the painted dogs in two of the country's painted dog strongholds: NW Matebeleland and the Mid Zambezi Valley.

The multi-pronged conservation approach being undertaken by PDC for the past twenty three years, may have proved to be a game changer in protecting one of Africa's most endangered carnivores through: research and monitoring, law enforcement, conservation education and awareness, community involvement and livelihoods.

The monitoring effort undertaken in 2021 was severely impacted on by the Covid pandemic outbreak which closed all research efforts for months. Furthermore the lack of availability of the single Parks ranger who is supposed to accompany all research activities at Main Camp complicates the monitoring effort, due to social distancing requirements our field staff were grounded for long periods and data collection was affected.

The data coming from Hwange National Park (HNP) indicates a reasonably stable viable population in 2021 with **172 adult dogs, in 26 packs with a pack size of 6.6. Four breeding units were recorded with a total of 31 pups.**

PDC is confident that more packs and breeding units would have been recorded if it was not for the COVID protocols during the course of the reporting period. However the current indicators of pack size at 6.6 for HNP and some breeding units detected and the overall size of sixteen (16) animals per pack points to a viable painted dog population in HNP. Chowato, Spectrum, Somamalisa and Shumba packs reinforce this, additionally the recording of the Sandoval pack supports this. The pack had not been recorded in our ID files.

The painted dog population in the Mid Zambezi including Mana pools (based on known packs) is 128 adult dogs from 14 packs, and 4 breeding units were recorded during the current reporting period with a total of 17 pups, making an average pack size of 9.2

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The data from Mana Pools is a cause for concern, especially with regards to the packs occupying the main tourist areas along the floodplain between the Sapi and Ruckomechi rivers. The Mana Pools painted dogs are facing a phase of decline which has been noted for the past three years in particular. Here there is currently only one pack with a total of just 10 adult dogs and four pups. Every year the number of dogs fluctuates indicating severe pressures to the species, which we assume to be from large carnivores (lions and hyena). **Crowding by visitors, operators and film crews following packs and staying at den sites for hours on end is believed to be a contributing factor of concern and needs to be addressed.**

Painted dog populations are considered to be susceptible to sudden fluctuations, the last few years this sharp decline at Mana Pools, confirms the vulnerable position of the species. **Several such reports have been made by PDC and concerned visitors to ZPWMA in 2021.**

While the painted dogs are a must see for visitors, which has a positive outcome for the species and wildlife in general, the situation and behaviour of some requires careful park monitoring to prevent abuse.

Painted dog spatial distribution, ranging, diet and interaction with other carnivores, especially lions and hyenas enables PDC to understand the ecological needs in the Mid Zambezi valley and compare with the HNP. Collaborative research on herbivore counts and spoor surveys were undertaken at Mana Pools and HNP for the dry and wet season.

During the current reporting period Mana Pools has three collared adult dogs and HNP has seven, with two of these being GPS collars. Sighting sheets were distributed as usual to all safari camps and lodges, to widen dog data sighting and photographs were requested to identify individual dogs in packs.

Painted Dog Population Monitoring:

PDC's painted dog monitoring is essential for keeping track of dog movement patterns, habitat utilisation at landscape scale and local scale, demographics, prey preference and competition from other carnivores. PDC monitoring involves use of telemetry, hand held GPS devices, camera trapping, tracking using traditional methods, behavioural data and extrapolating, this leads to informed management strategies and a better understanding of issues facing the species and other wildlife in general in protected areas. PDC has a strong focus in data collection and monitoring of painted dogs in HNP and Mana Pools. Data used on population demographics is collated from tracking and direct sighting, photographs and sighting sheets.

Since 2013 the painted dog population has been stable in HNP, with some packs having 30 individuals per pack, during the current reporting period Chowato, Shumba, Somamalisa, Spectrum have all sizeable individuals per pack. Demographic overview of dogs seen in HNP in 2021 is shown in table 1 below. The low number of breeding units seen and recorded is attributed to COVID challenges and the lack of consistent daily tracking due to non-availability of a ranger.

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HWANGE NATIONAL PARK and PERIPHERY

Table 1: Demographic overview of HNP dogs seen in 2021

PACK NAME	Total Number of Dogs	Total AD	AD M	AD F	Pups	Last seen
Ngweshla	4	4	3	1	0	Feb-21
Bumbusi	9	9	4	5	0	May-21
Chowato	16	8	3	5	8	Aug-21
Shumba	16	9	5	4	7	Sep-21
Mandavu	8	8	4	4	0	Oct-21
Sandoval	3	3	2	1	0	Oct-21
Mpindotella	6	6	3	3	0	Nov-21
Somamalisa	22	14	6	8	8	Nov-21
Spectrum	13	5	3	2	8	Nov-21
Kennedy	2	2	1	1	0	Nov-21
Destiny	2	2	1	1	0	Nov-21
Lukodet	8	8	4	4	0	Nov-21
Makona	6	6	2	4	0	Nov-21
Tshakagwenya	5	5	2	3	0	Nov-21
TOTAL	120	89	43	46	31	
Number of packs	14					
Pack size	6.4					

Reference is also given to historical sightings and records, while packs/individuals may not have been seen in 2021, it is unlikely that these dogs or packs no longer exist. The size of the research area and distribution of access roads makes it difficult to have full coverage of the park.



Table 2: Demographic overview HNP dogs known but not seen in 2021

PACK NAME	TOTAL NUMBER OF DOGS	TOTAL AD	AD M	AD F	PUPS	LAST SEEN
Gurangwenya	13	13	7	6	0	Nov-19
Mtoa	13	13	8	5	0	Nov-19
Somalisa	7	7	5	2	0	Nov-19
Matshayitambo	7	7	4	3	0	Nov-19
Bathathu	2	2	1	1	0	Nov-19
Tshakabika	15	15	10	5	0	Nov-19
Brokenrifle	5	5	3	2	0	Nov-19
Sinamatella	3	3	2	1	0	Dec-19
Nantwich	5	5	3	2	0	Dec-19
Wexau	7	7	4	3	0	Jun-20
Kashawe	3	3	2	1	0	Jun-20
Shabi Shabi	3	3	2	1	0	Oct-20
TOTAL	83	83	51	32	0	
Number of packs	12					
Pack size	6.9					

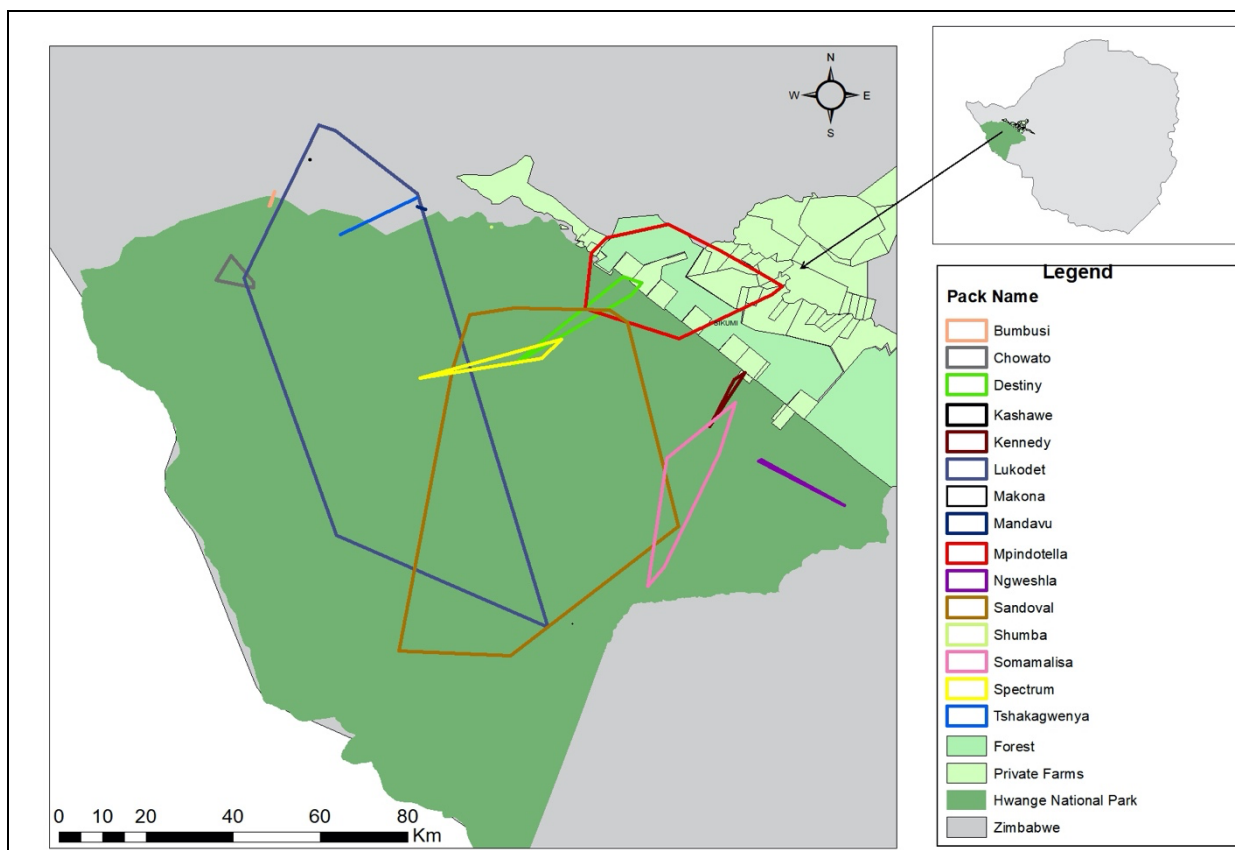
The Covid regulations resulted in 12 packs not being recorded during the course of the year, however PDC has recorded some packs in intervals of between two to four years. The size of HNP and the lay-out of road networks makes dog monitoring very difficult.

The data coming from Hwange National Park (HNP) indicates a reasonably stable viable population in 2021 with 172 adult dogs, in 26 packs with a pack size of 6.6. Three breeding units were recorded with a total of 23 pups. The deployment of GPS collars during the course of the year has given an insight into the movement and ranging behaviour of Sandoval and Lukodet packs, that forage deep into the interior of HNP, as evidenced by Map 1 below.

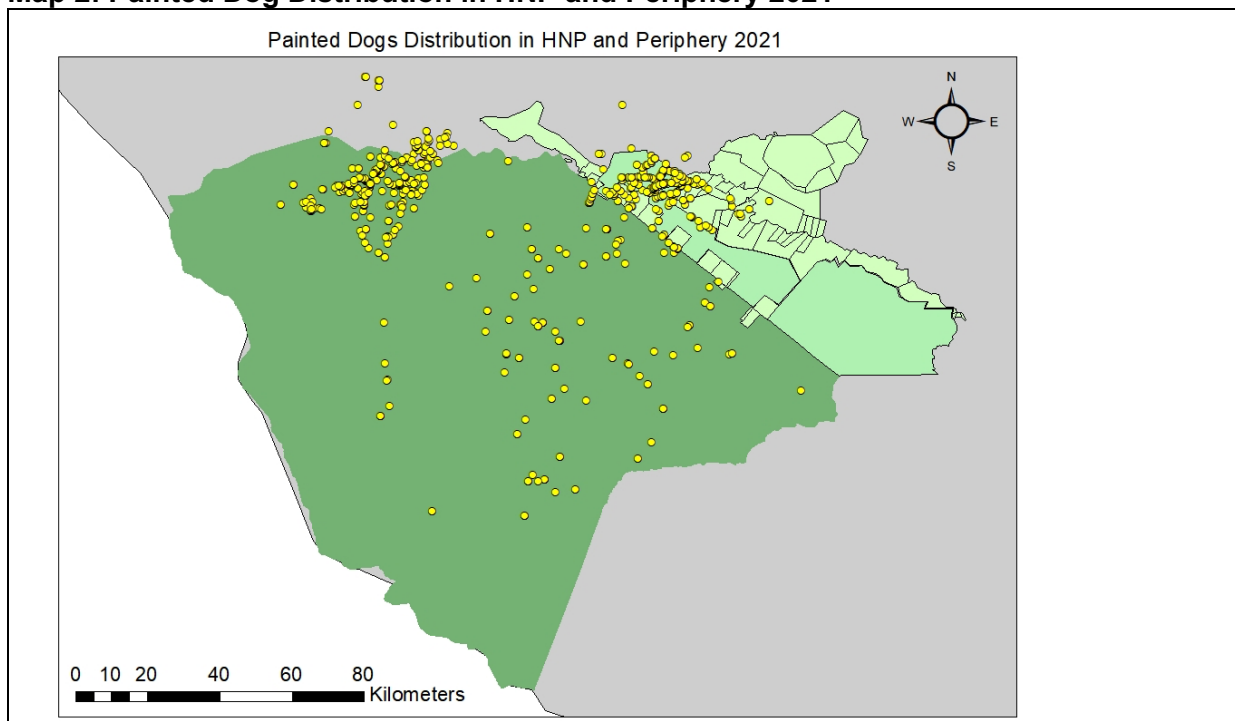
The Mpindo pack was released and the females joined four males from Mathathela and they are now called the Mpindotella, they move mostly within Forestry, Dete Vlei and the eastern age of HNP as shown by map 1.



Map 1: HOME RANGE OVERLAP OF PACKS IN HNP AND PERIPHERY 2021



Map 2: Painted Dog Distribution in HNP and Periphery 2021

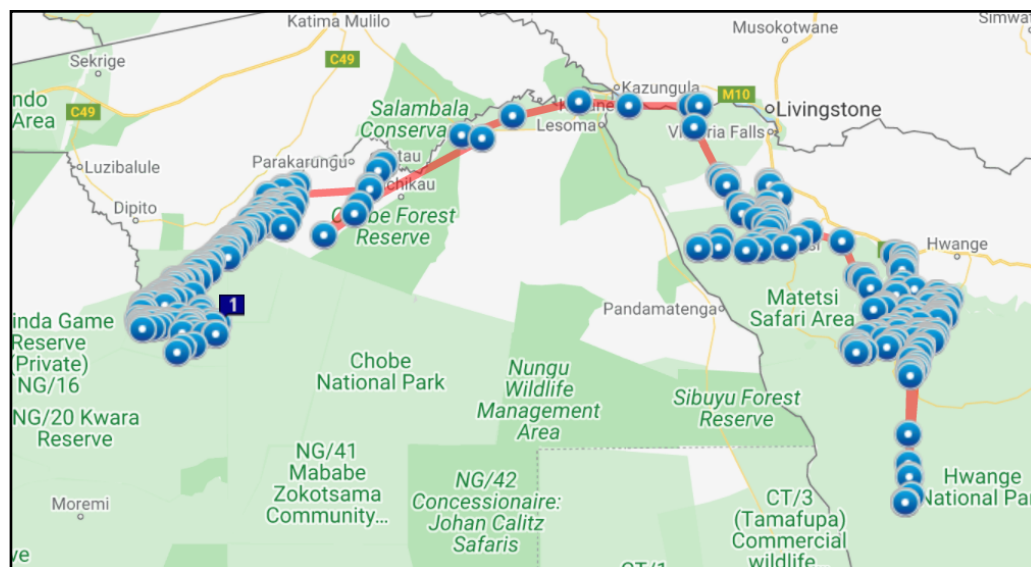


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The long distances covered by painted dogs have been recorded over the years, in 2021, Michya a GPS collared female with four of her siblings dispersed from Lukodet at Sinamatella and ranged through Matetsi, Zambezi National Park, Kazungula into Chobe National Park in Botswana. The dispersal movement of the females is clearly indicated in map 1 below, unfortunately the GPS collar has since stopped working, denying us an insight into the pack's eventual settlement. At the time we were trying to get the Botswana counter parts to visually record the pack, the GPS failed somewhere in Linyathi National Park. Such a peripatetic movement had never been recorded at PDC.

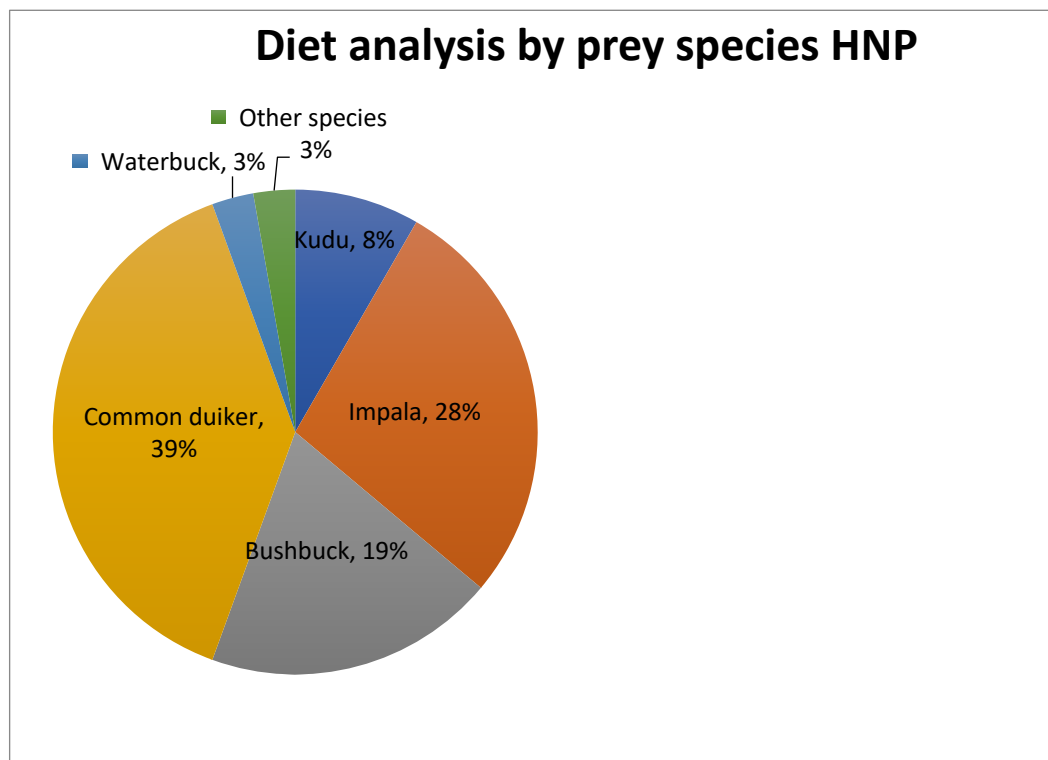
Map 3 : dispersal movement of females from Sinamatella to Chobe Botswana



Faecal Analysis of Prey species in dog scat

Diet and preference of painted dogs was also investigated through scat analysis and opportunistic observations of kills. Painted dog scat/faeces were collected opportunistically during the course of monitoring and were distinguished from those produced by other species on the basis of appearance and distinctive smell. Observers recorded the location of scats and named the packs where possible. Prey species were identified by comparing appearance of hairs, hooves, bones and teeth found in the faeces.

Figure 1 -Prey Preference of some Packs in HNP 2021



The figure 1, shows the results of the Prey Preference of some Packs in HNP for 2021. It should be noted that seventy three (73) scat samples were collected and analysed, the majority of the scat samples were collected from the pack that comes to the Rehab, the Mpindotella Pack. This clearly explains the huge preference of Bush buck and Common duiker which are the most common species that are found on the periphery of HNP, where they mostly range.

Developing the Genomic Tools for the conservation of Painted-dogs has been on-going since the beginning of the year to investigate the genetic diversity of dogs across their range in HNP and Mana pools, to explore the possibility of using genetic markers for individual id and genetic relatedness. The second objective is to use faecal samples to investigate stress and reproductive hormones, in known Painted dog populations. At the time of writing 17 faecal samples were collected for DNA and Hormonal analyses from the Mana pools population and 18 samples from HNP.

Painted dog Mortality 2021

PDC recorded only three mortalities in the HNP, being Gemma of Mathathela pack, Didi the Alpha female of lukodet and Chenai of Mpindotella which was run over by a truck. Remains of two unidentified dogs were also recovered.



During the course of the reporting period seven individual dogs were recorded with injuries, most recorded injuries were recorded in the Gwayi area which, has always been a sink for the species. See table 4 below.

Table 4: Injuries recorded in HNP

	Pack name	Dog name	Injury	Mitigation
1	Mathathela	Gemma	Snare wound around neck	Collar removed and wound treated.
2	Mathathela	Washy	Snare wound around neck	No treatment possible
3	Chowato	Casper	Injury on scrotum	Pack has not been seen for the individual dog to be helped but he his still alive observed on Camera traps still with the same injury. Seen with injury since 19/05/2021
4	Lukodet	Drone	Limping rear left leg	Observed the injury and its not bad, he is copying well since beginning of the year 2021
5	Mpindotella	Thinnet	Limping on her right front leg	Naturally recovered
6	Mpindotella	Clara	Limping on her left front leg	Naturally recovered
7	Lukodet	Letwin	Wound on left rear leg	Observed the injury is not so bad, she is copying well 08/11/2021

MID ZAMBEZI VALLEY:

The spatial and temporal fluctuation of the Mana painted dog population, points to a classic sudden decline scenario, which is common in painted dogs and other species. We are linking this dip to large carnivore pressure by lion and hyenas and a research study at Masters level is being undertaken by PDC, results and findings will be obtained on completion. Table 6 shows the demographic overview of dogs seen at Mid Zambezi valley. The pack size of 9.4 for the rest of the Zambezi valley indicates to a healthy population, at the same time Dandawa, Nyamepi, Kachore and Nyaodza have big packs. Big packs are able to survive only where they kill large prey to feed all members.



Table 5 :Demographic overview of packs seen in Mana pools 2021

PACK NAME	TOTAL NUMBER OF DOGS	TOTAL ADULTS	ADULT MALES	ADULT FEMALES	PUPS	LAST SEEN
Nyamepi	14	10	7	3	4	Nov-21
Ilala*	1	1	0	1	0	Sep-21
Kavinga	7	7	-	-	0	August 2021
Rukomechi	10	4	2	2	6	Oct-21
Dandawa	16	13	-	-	3	Nov-21
TOTAL	48	35				
Number of packs	4					
Average dogs per pack/pack size	8.5					

* One dog does not constitute a pack

Table 6: Demographic overview of packs seen in Zambezi Valley 2021

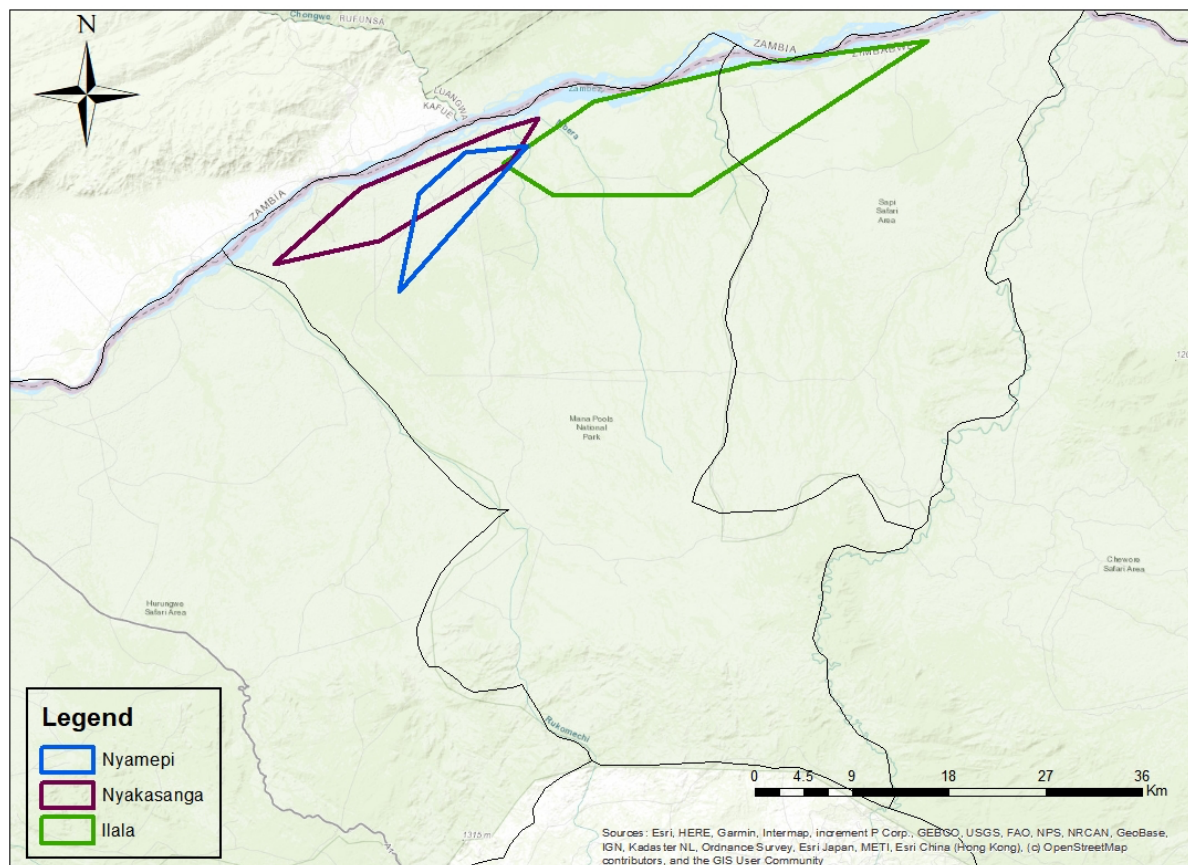
PACK NAME	Total Number of Dogs	Total AD	AD M	AD F	Pups	Last seen
Manhoro pack	9	9	-	-	0	Sep-21
Kachowe	26	26	-	-	0	Aug-21
Man-Angwa	16	12	-	-	4	Aug-21
Mkanga	8	8	-	-	0	Sep-21
Doma	6	6	-	-	0	Jun-21
Makuti	7	7	-	-	0	Oct-21
Madziva Pack	7	7	-	-	0	Oct-21
Nyaodza Pack	16	16	-	-	0	May-21
Unknown Pack	3	3	-	-	0	Oct-21
TOTAL	98	94				

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Number of packs	10
Average dogs per pack/pack size	9.4

Map 4: Home Ranges of Packs in Mana pools 2021



PDC analyses from data over the years of threats to painted dog populations have highlighted a few features of the species ecology that significantly contribute to its vulnerability. Painted dog population densities are always low even in pristine habitats, that is why only large areas like HNP, Mid Zambezi valley can support viable populations.

At the same time dog home ranges are large, hence packs living in all but large protected areas are more exposed to threats beyond borders, the edge effects (Map 1, 2 and 3).

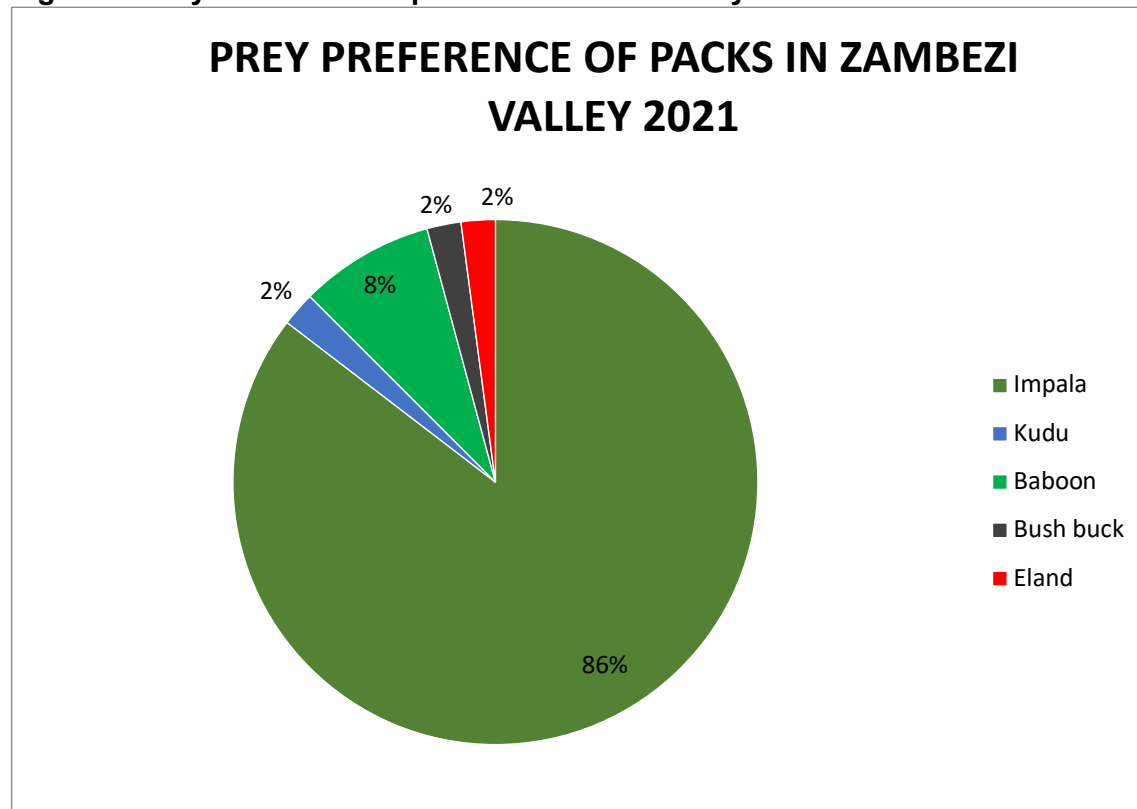
Low densities and the wide ranging behaviour of dogs appear to reflect interaction with other large predators (lion, hyenas). Predation is a cause of dog mortality, especially in Mana Pools and kleptoparasitism is very rampant. Every year less than a third of pups survive to twelve months at Mana Pools due to lion and hyena predation.

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PDC has concluded along the following thinking: not all mortality causes are population threats; all animals have to die of some cause and factors that cause mortality, including anthropogenic, may have no effect on population viability if they kill dogs that would otherwise have died of other causes.

Figure 2: Prey Preference of packs in Zambezi Valley 2021



The preference of baboons at Mana Pools while there is plenty of impala, kudu and nyala is an aspect being researched by Thomas Mutonhori as part of Masters programme, results are earmarked in the coming year.

TABLE 7: MORTALITIES RECORDED IN MANA POOLS PARK 2021

Pack name	Dog name	Cause of death	Presumed date of death
Ilala	Tim	Deep wound on chest	11/04/2021
Ilala	Leo	Lion attack	05/09/2021
Nyamepi	Dan(pup)	Presumed to be a hyena attack	10/07/2021
Nyamepi	Jack (pup)	Presumed to be killed by a hyena attack	03/10/2021



Herbivore counts.

Game counts are an important tool in the conservation of wildlife species across various ecosystems. In our context we used “sample counts”. This is where conclusions about the number of animals in the entire area can be drawn from counts done by sampling smaller surface areas. The results provide information, which assists management in maintaining a healthy balance between predator and prey species, as well as between animals and vegetation.

There is no single counting technique that is suitable for all animal species and no counting technique is flawless, but the most consistent methods give a more regular margin of error and are therefore more reliable for effective game reserve management. The cost, size of the area, animals to be counted, type of habitat, the substrate, the available manpower and the purpose for which the count is required will all influence the final selection of counting techniques that will be used.

Road counts were adopted. This method is chosen due to the large road network providing reasonable access to most areas, and the homogenous (similar) habitat throughout the targeted area. 4 people per each vehicle conducted counts. The first person required is, of course, the driver was using a steady speed of 8 – 10km/hr. along a pre-determined stretch of road, twice a day (morning and afternoon).

Then 2 spotters / counters were available (one facing to the right direction and the other one to the left), their function is to spot, identify animal and count the different animals, – calling out a breakdown of sexes and age classes. This is where a pair of good binoculars comes in use.

The fourth team member operates the equipment used in determining distance and bearing, this is done by using a range finder, a small piece of equipment that uses a laser beam to determine distance and direction. GPS points are also taken and once everything is verified it is recorded on the data sheets along with the relevant animal count.

The data were then cleaned, sorted for analysis and then sent to parks for analysis.

Carnivore Spoor survey.

Carnivore spoor survey was concurrently conducted with Herbivore counts.

Two vehicles were used with one operating in the Sapi/Chewore area and the other one in the Mana pools area moving at a speed of 10-20kms/hr. along the transects with 3 people per vehicle. The people included one skilled national parks tracker who sits in front of the vehicle to identify the spoor, the driver and one recorder. The data recorded comprised of the date at which the count was done, road status of the substrate which was classified as either gravel, sandy or clay, vehicle input which was either low, medium or high, the species, age of spoor (which was not supposed to be more than 24 hours), total number of the spoor, sex of the carnivores, whether it was a new or old individual in the same transect, coordinates and the odometer reading of every spoor observed respectively. The spoor survey started at first light and a break was taken in the middle of the day, and transects were continued in the late afternoons until the sun went down and each transect was driven three times. Data collection is still in progress, as we need to complement it with the camera trap data so that the data will be reliable.

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NB, The plan is to conduct game counts every year to gain an insight into the population dynamics of carnivores and herbivores.

Coprophagy of African wild dog faeces by hooded Vultures and hyenas

It is crucial to understand the ecological connection between sympatric predators for management and conservation actions. Further, This aspect has a key role in structuring the ecosystem through energy transfer and nutrient cycling. Therefore, it is important to know how often it happens and at under which circumstances.

A publication on Coprophagy of African wild dog faeces by Hooded vultures and hyenas has been published in a scientific journal.

Planned Research: The impact of lions and hyenas on African wild dogs;

Competition with larger and more successful sympatric carnivores often negatively impacts on African wild dog ecology, through direct and indirect mortality of adults and pups, reduced reproductive success and reduced hunting efficiency. Lack of scientific information and even baseline data regarding the ecology of African wild dogs in MPNP makes it difficult to manage this population. MPNP's African wild dog population has not previously been studied in detail, and the effect of direct competition with lions and hyenas on this African wild dog population remains unknown.

Research topic: The impact of direct competition with lions (*Panthera leo*) and spotted hyenas (*Crocuta crocuta*) on hunting and reproductive success of the African wild dog (*Lycaon pictus*) in Mana Pools National Park, Zimbabwe.

Objectives of the study

- To determine the direct and indirect effects of interspecific competition with larger carnivores on the hunting success of African wild dogs in MPNP.
- To determine the effect of kleptoparasitism by larger carnivores on food intake and prey selection by African wild dogs in MPNP.
- To determine the direct and indirect effects of interspecific competition with larger carnivores on reproductive success of African wild dogs in MPNP.
- A draft thesis on large carnivore competition in MPNP is being submitted in December 2021 by Thomas Mutonhori as part of his Masters programme.

Elisa Sandoval Seres, a Spanish National has completed a year out of the three years she is ear marked to be attached to PDC to collect data for her PHD programme at Oxford titled: Impact of interspecific competition on African wild dogs (*Lycaon pictus*) in an ecosystem with artificial perennial water provision. [See Report Attached.](#)



Students on Attachment:

PDC provides learning experiences through an internship for Zimbabwean students and offered five internships opportunities to local students, listed below for this period.

Ruvarashe Mareya- National University of Science and Technology-Forest Resources in wildlife Management.

Duncan Marufu- Great Zimbabwe University-Development studies

Bongiwe Tshuma- Lupane State University- Geography and Population studies

Prosperity Mpala- Lupane State University- Geography and Population studies

Admire Mabutho- Gwanda State University-Animal science

Support to ZPWMA

- PDC donated and bought a Mini bus for Parks Main Camp school kids, the same bus was fully branded and all maintenance costs and fuels are fully met by PDC.
- PDC gave 2200L of diesel fuel to Mana pools in 2021.
- PDC met the costs of spoor/Carnivore survey in the Valley.
- PDC gave 2200L of diesel fuel to Main Camp.
- PDC gave 2200L of diesel fuel to Sinamatella Camp.
- PDC paid DSTV monthly allocation for Ranger Welfare at Manan pools for 11 months equal USD495.
- PDC provided support to Sinamatella in terms of transport for anti-poaching operations during the period.
- PDC donors and supporters paid USD1400.00 as park entry fees to HNP.
- PDC runs its own anti-poaching unit of 15 people whose mandate is to patrol and remove snares outside the protected areas, however they assist in lifting snares in wildlife areas when requested at Sinamatella and Forestry areas at no cost to these institutions.
- PDC has paid over USD20 052.00 for buying cattle from communities, to feed dogs at the rehab this year and paid USD 194 to the Veterinary unit for the animal movement permit. All payments for cattle are paid in hard cash to cattle owners there by supporting local community and livelihood.
- PDC has paid over USD27 000.00 for forty nine village volunteers who undertake wire removal exercises in areas outside parks for six months, this improves their welfare and instils positive community conservation efforts.
- PDC conducted several community based meetings with Parks/Forestry/Police to tackle poaching.
- PDC has undertaken monthly clean-up campaign at Mabale shops and on the road between airport and Byo-Vic falls high way, to maintain non littering.
- PDC pays tuition fees to more than 50 vulnerable children at primary and secondary schools in our Core Operating Area.
- PDC provided PPE items at a cost of more than USD7000 for the local clinics and schools.

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