



PAINTED DOG CONSERVATION

RESEARCH ANNUAL REPORT 2020

SUMMARY

Zimbabwe is one of the few African countries with a viable population of painted dogs (*Lycaon pictus*) and the national painted dog pack is mostly found in three distinct subpopulations: NW Matebeleland, SE Lowveld and Mid Zambezi valley.

The painted dog species is one of the most endangered mammals and research by Painted Dog Conservation (PDC) for over twenty two years, shows the constant evolution of threats to dog viability, induced through human activities as road kills, snaring, diseases taking a heavy toll, however other factors such as large carnivore pressure, habitat loss and climate impacts significantly reduce the painted dog pack size.

The painted dog is the umbrella and flagship species of PDC and re-enforces the multi-pronged conservation efforts the organisation has been undertaking over the past decades. Collection and the analysis of ad hoc sighting data represents a useful approach for estimating the distribution of painted dogs and providing conservative estimates of population sizes.

The monitoring effort undertaken in 2020 was severely impacted on by the Covid pandemic outbreak which closed all research efforts for months. Furthermore, due to social distancing requirements our field staff were grounded and data collection affected. Consequently the estimates being given herewith are preliminary population estimates based on the relatively limited information we were able to gather.

The data coming from Hwange National Park (HNP) indicates a stable viable population in 2020 with 176 adult dogs, **in 26 packs with a pack size of 6.7. Seven breeding units were recorded with a total of 44 pups.**

The recording of the Mathathela pack of four males dispersing from the Wexau pack and forming a new pack on the pack periphery supports this.

The painted dog population in the Mid Zambezi including Mana pools is 158 adult dogs from 18 packs, and 3 breeding units were recorded during the current reporting period with a total of 13 pups, making a pack size of 8.7.

The data from Mana Pools is a cause for concern, especially with regards the packs occupying the main tourists areas along the floodplain between the Sapi and Ruckomecci Rivers. Here there are currently only two packs with a total of just 11 adult dogs (and four pups). This compares with a high of three packs numbering more than 60 individuals less than ten years ago.

Painted dog populations are considered to be susceptible to sudden fluctuations and this sharp decline confirms the vulnerable position of the species. Factors causing the sudden dip, are considered to be large carnivore (lion , hyena) pressure and anthropogenic factors highlighted by PDC over the last few years: den disturbance and surrounding of packs by visitors,



operators and film crews. **Several such reports have been made by PDC and concerned visitors to ZPWMA in 2020.**

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 monitoring to prevent abuse.

A crucial part of monitoring painted dogs is the understanding of potential threats causing decline in the species. In HNP, snares, diseases, road kills, have remained as the greatest factors contributing to mortality. In Mana Pools, the ball game is very different, here lion and hyena pressure and competition significantly cause mortality, plus the emerging threat of den disturbance and pack crowding by operators and visitors alike.

Currently, Social and ecological researches are being conducted in Mid-Zambezi. On social aspect, the emphasis is on understanding people's attitudes towards carnivore conservation, Painted dogs in particular. Understanding the factors influencing the attitudes is essential for enhancing and designing mechanisms to stem possible human-carnivore conflict in Mid-Zambezi valley. It also offers information on which priority areas to focus on, in terms of conflict mitigation. Based on the results we will be able to determine whether it is essential to establish awareness programme.

Painted dog spatial distribution, ranging, diet and interaction with other carnivores, especially lion 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.

Permission during the year was given to collar 6 Adult dogs in HNP and 5 Adult dogs at Mana Pools during the current reporting period. 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 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. However, during the same period it has been noted that several (six) packs have denned but no pups were seen or emerged, and the denning period ended abruptly after a two or three weeks, compared to a full denning period of 10+ weeks. The cause of pup mortality has remained a mystery. Demographic overview of dogs seen in HNP in 2020 is shown in table 1 below.



HWANGE NATIONAL PARK and SUROUNDS

Table 1: Demographic overview of HNP dogs seen in 2020

PACK NAME	TOTAL NUMBER OF DOGS	TOTAL AD	AD M	AD F	PUPS	LAST SEEN
Somamalisa	9	9	5	4	0	Jan-20
Tshakagwenya	5	5	2	3	0	Feb-20
Wexau	7	7	4	3	0	May-20
Mandavu	23	15	9	5	9	Jul-20
Kashawe	3	3	2	1	0	Jun-20
Lukodet	20	10	4	6	10	Sep-20
Shumba	16	8	3	5	8	Sep-20
Destiny	2	2	1	1	0	Oct-20
Bumbusi	10	3	1	2	7	Oct-20
Ngweshla	6	6	4	2	0	Oct-20
Shabi Shabi	6	3	2	1	3	Oct-20
Kennedy	3	3	2	1	0	Nov-20
Mathathela	5	5	4	1	0	Nov-20
Spectrum	5	2	1	1	3	Nov-20
Chowato	8	4	2	2	4	Nov-20
TOTAL	128	84	46	38	44	
Number of packs	15					
Pack size	5.6					

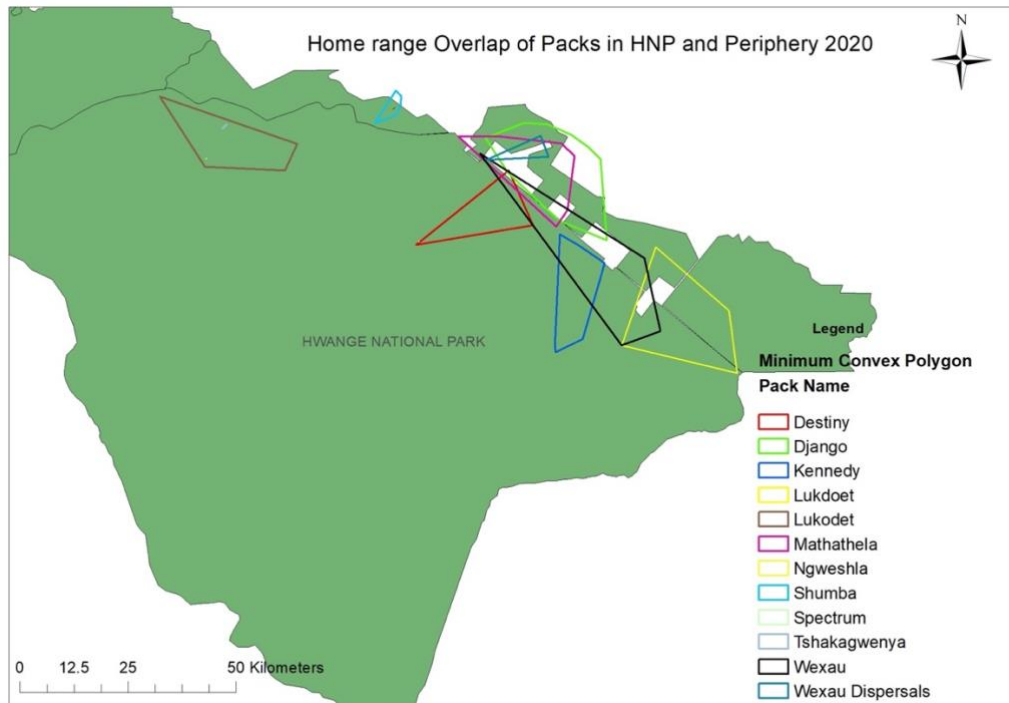


Table 2: Demographic overview HNP dogs known but not seen in 2020

PACK NAME	TOTAL NUMBER OF DOGS	TOTAL AD	AD M	AD F	PUPS	LAST SEEN
Sinamatella	3	3	2	1	0	Dec-19
Botswana	5	5	1	4	0	Nov-19
Jozi	21	21	14	7	0	Nov-19
Brokenrifle	5	5	3	2	0	Dec-19
Nantwich	5	5	3	2	0	Dec-19
Gurangwenya	13	13	7	6	0	Nov-19
Mtoa	12	13	8	5	0	Nov-19
Somalisa	7	7	5	2	0	Nov-19
Matshayitambo	7	3	2	1	4	Nov-19
Bathathu	2	2	1	1	0	Nov-19
Tshakabika	15	15	10	5	0	Nov-19
TOTAL	95	92	56	36	4	
Number of packs	11					
Pack size	8.4					

The data coming from Hwange National Park (HNP) indicates a stable viable population in 2020 with 176 adult dogs, in 26 packs with a pack size of 6.7. Seven breeding units were recorded with a total of 44 pups.

Map 1- HOME RANGE OVERLAP OF PACKS IN HNP AND PERIPHERY 2020



Map 2-Painted Dog Distribution in HNP and Periphery 2020

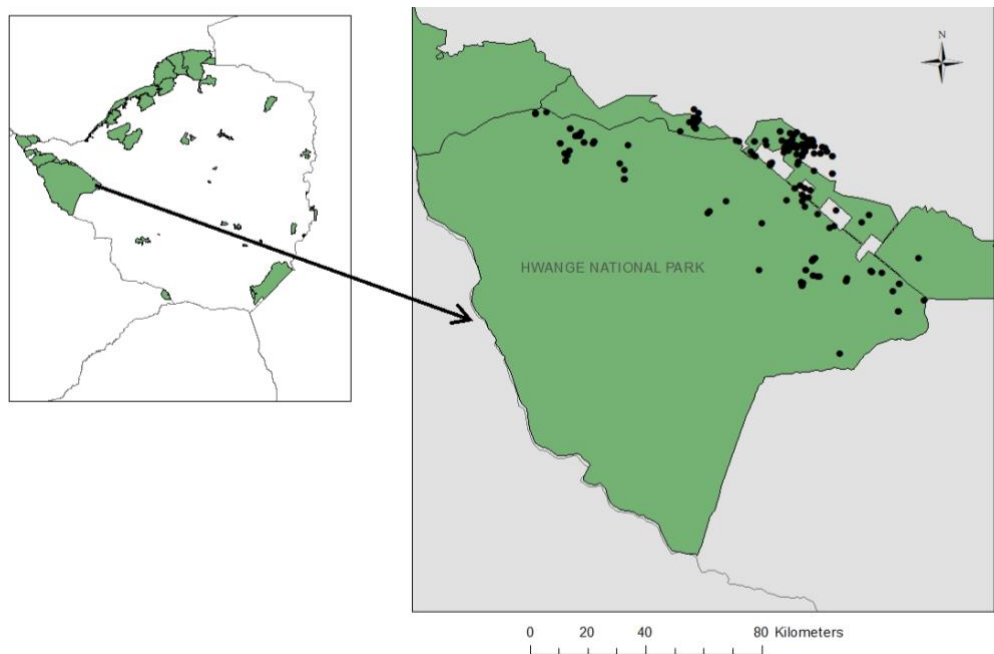
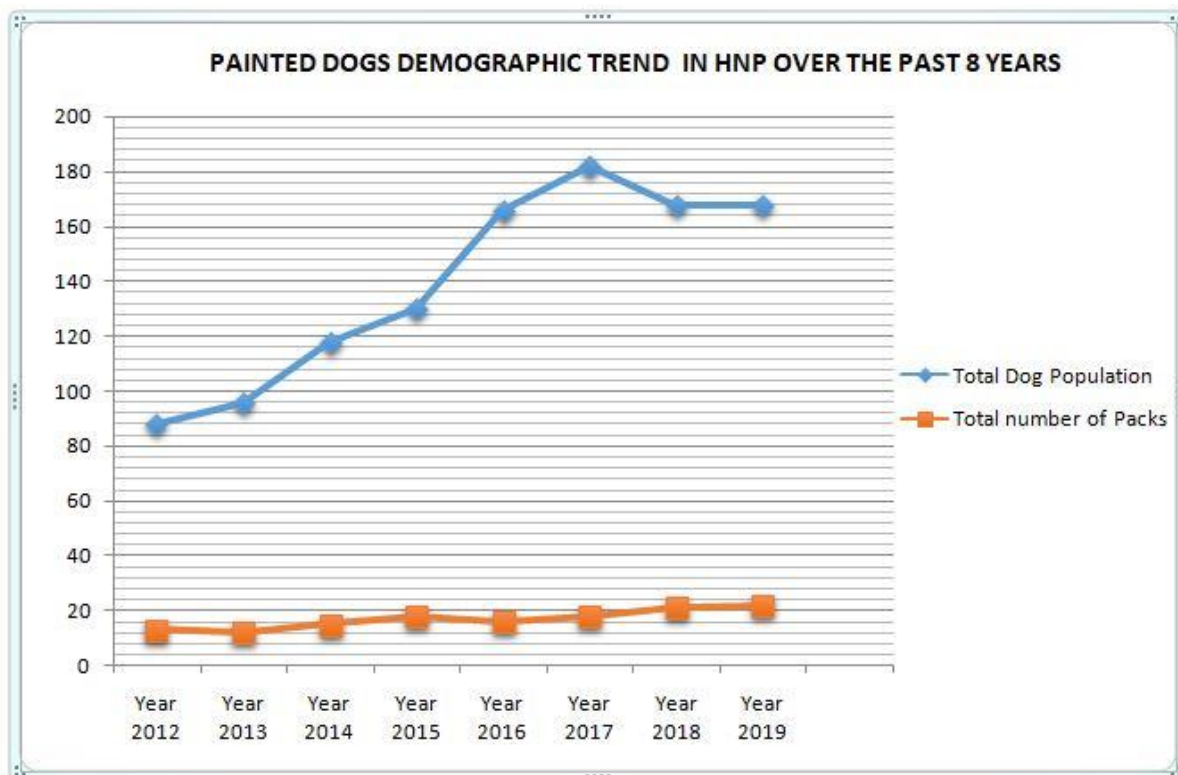


Figure 1 -Painted Dog Demographic Trend in HNP Over The Past eight (8) Years

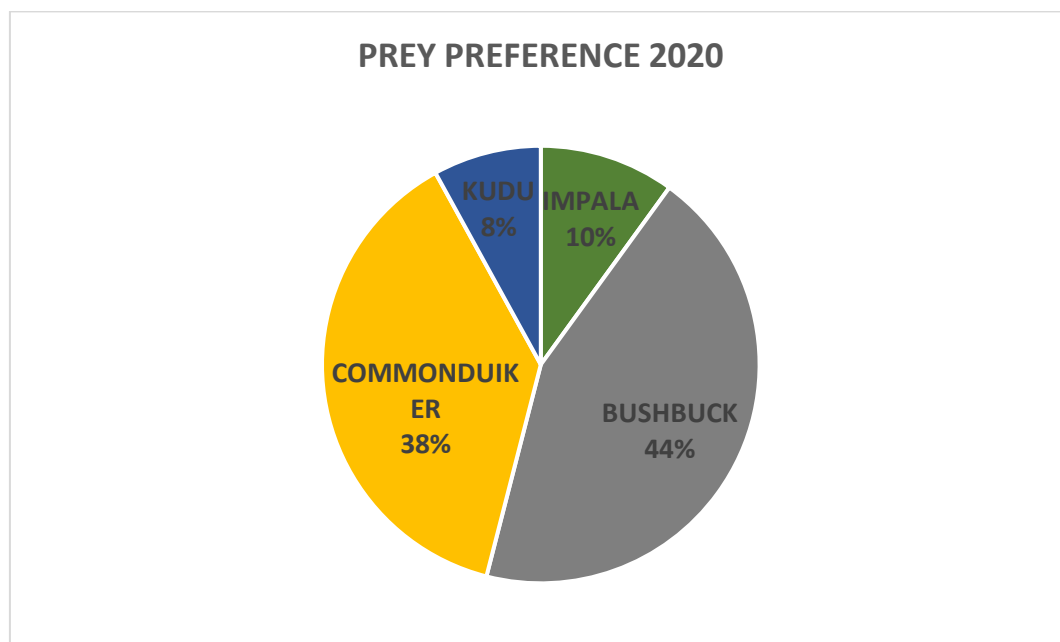


Reference is also given to historical sightings and records, while packs/individuals may not have been seen in 2020, it is unlikely that these dogs or packs no longer exist. The size of the research area and distribution of access roads makes it difficult to have full coverage of the park.

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 2 -Prey Preference of some Packs in HNP 2020



The pie chart 1 above, shows the results of the Prey Preference of some Packs in HNP for 2020. It should be noted that sixty (60) scat samples were collected and analysed, the majority of the scat samples were collected from the pack that comes to the Rehab, the Mathathela 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.

Painted dog Mortality 2020

PDC recorded only two (2) mortalities in the HNP, being Francie of Ngweshla pack which was killed by lions and Aubrey of the Kennedy pack which was also killed by lions at the gate of Somalisa Acacia camp.

Spoor Counts.

PDC during the current reporting period under took a spoor count for the Mid Zambezi valley, to enable management to have a better understanding on large carnivore populations. Reliable estimates of population density of large carnivores (lions, hyenas, wilddog, leopard) are necessary for effective conservation management.

Indirect sampling through counting spoor could provide repeatable and an effective measure of population parameters of carnivores. The relationship between true population density and sampling results is affected by sampling intensity, total road distance, precision of spoor frequency calculations and substrate. Two (2) vehicles undertook the spoor survey for six (6) days in Manapools, Sape, Nyakasanga and Chewore. Further spoor counts are planned for the wet and dry season in 2021 and then an analysis will be undertaken yearly thereon.



MID ZAMBEZI VALLEY:

The spatial and temporal fluctuation of the Mana painted dog population, points to a classic “dip or bust” scenario, which is common in painted dogs. 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 3 shows the demographic overview of dogs seen at Mid Zambezi valley.

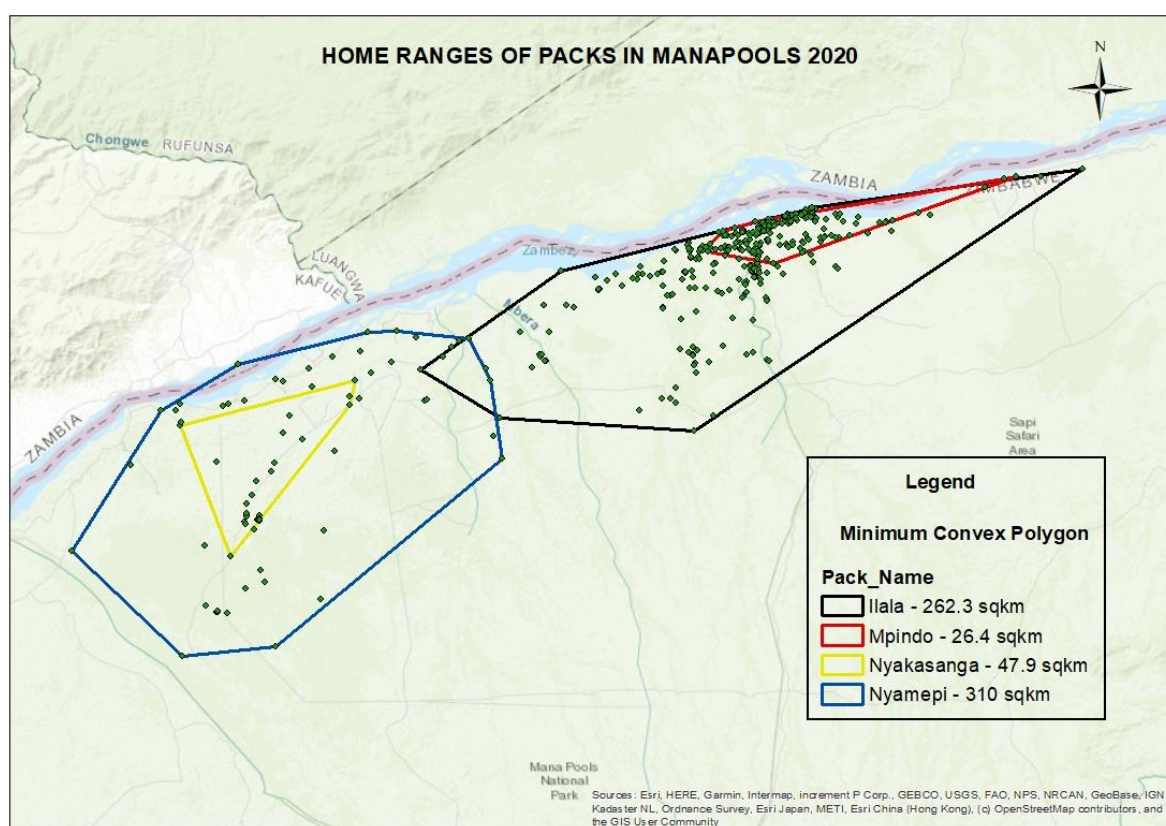
Table 3. Demographic overview of packs seen in Mid Zambezi valley in 2020

PACK NAME	TOTAL NUMBER OF DOGS	TOTAL AD	AD M	AD F	PUPS	LAST SEEN
Ruckomechi	4	4	3	1	-	May-20
Nyamepi	12	8	6	2	4	Nov-20
Ilala	3	3	2	1	0	Nov-20
Chitake	5	5	4	1	0	Oct-20
Kavinga	7	7	5	2	-	May-20
Chitembe	2	2	2	0	0	Oct-20
Dandawa	15	10	-	-	5	Oct-20
Mtavatava	6	6	-	-	0	May-20
Manhoror pack	8	8	-	-	-	Aug-20
Chewore	7	7	-	-	0	May-20
Kachowe	30	30	-	-	-	Aug-20
Man-Angwa	22	18	-	-	4	Oct-20
Mkanga	8	8	-	-	0	Oct-20
Doma	7	7	-	-	-	Aug-20
Mongwe	7	7	-	-	-	Oct-20
Nyamoumba	6	6	-	-	0	May-20
Nyaodza	15	15				Nov-20
Charara	7	7	-	-	-	Aug-20
TOTAL	171	158	22	7	13	



Number of packs	18	
Average dogs per pack/pack size	8.8	

Map 3- Home Ranges of Packs in Mana pools 2020



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, 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.

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.

Mpindo Pack

The Mpindo pack was moved from HNP to Mana pools, at Chikwenya where a boma had been constructed. The intention was to release these 9 dogs in April 2020. However the alpha female became pregnant early (January 2020) and had a litter of ten pups in April 2020. This meant it was necessary to keep the dogs for an additional five months so that the ten pups could grow. A new release date was set for September 4th and indeed on that day all 19 dogs were released in consultation at every point with ZPWMA.

Post release the pack soon suffered losses to lion and hyena. With hyena in particular being a constant unwelcome presence. They made several kills, however on at least one occasion this was lost due to kleptoparasitism by lion. Hyena seemed to be the main culprits killing the pups and the pack was soon reduced to just 12 (three adults, five yearlings and four pups).

The 12 dogs moved downstream from Chikwenya past Great Plains, driven, we believe, by the constant pressure from the hyena and lions. We hoped they would stay near Great Plains as the lion and hyena population is reportedly at a lower density there compared to Chikwenya/Mana pools. However the pack continued to move down stream and for a period of two weeks our team lost all contact with them, despite searching daily for them. Thus the pack was now more than 170km from the release site.

The losses to livestock were reported and our team immediately followed up on these worrying reports and arrived at Angwa Bridge at 2am on Wednesday 14th. By then it was apparent that the villagers had killed the alpha female and one of the yearlings, reducing the pack to just 6 individuals. All of the pups were missing and thus presumed dead as they would not be alone.

The RDC representatives and the ZPWMA Area Manager for Dande urged immediate action to mitigate the situation. Our team located the dogs using radio telemetry and worked with the villagers, RDC and ZPWMA Area manager to find a solution.

PDC was instructed to capture the pack to prevent further livestock losses and revenge killing of the painted dogs. Consequently we deployed additional staff and vehicles, specialised capture equipment and expertise that only PDC has in Zimbabwe. The pack had been located by our team (assisted by staff member from Wilderness Safaris who lives in the villages close to Angwa Bridge) and fed with goats purchased from the villagers to prevent/control further livestock losses.



A boma of nets was set and six dogs were driven into the boma. Three were caught in the nets, while the other three avoided capture. Those captured were placed in our capture/transport trailer.

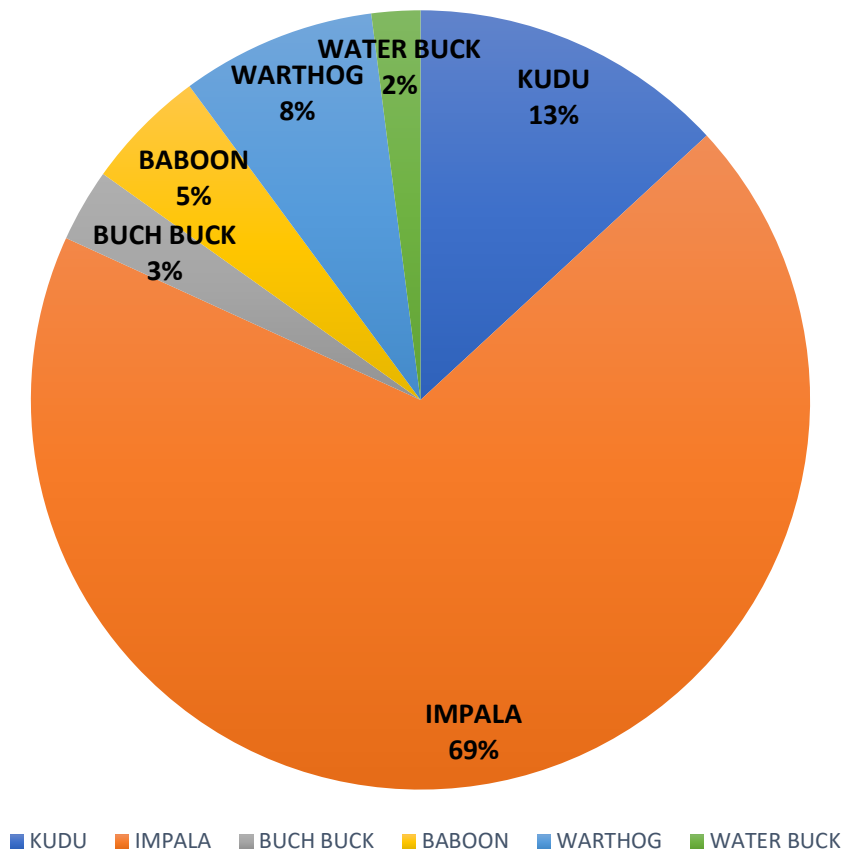
In the morning bait was set in a tree, the three came to eat, the alpha male was darted but was not affected enough by the drugs to be able to catch him. Jonathan has always been known to be skittish and wary of humans, he avoided attempts to capture him, and being conscious of the heat and subsequent welfare of keeping the other dogs in the trailer for several days, a decision was made to leave Jonathan behind and the five (5) dogs were taken to our Rehabilitation Facility at HNP while awaiting further instructions from ZPWMA.

Recommendations for Mpindo Pack.

Releasing them back into the wild should be a priority but where to do this is a tremendous challenge as the pack now seem to be serial livestock predators and the fear is that they would again travel any distance to find a habitat they are comfortable with, which would now seem to inevitably end human wildlife conflict. See annex for full details of recommendations / options.

Figure 3- Prey Preference of Packs in Mid Zambezi 2020

PREY PREFERENCE OF PACKS IN MID ZAMBEZI 2020





MOTARLITIES RECORDED IN MANA POOLS PARK

<u>Date</u>	<u>Pack name</u>	<u>Dog Name</u>	<u>Cause of death</u>	<u>Area</u>
7/1/20	Three sisters	Tray	Attacked by lions	Chikwenya camp
17/08/20	Ilala	Poet	Unknown	Chikwenya camp
20/09/2020	Mpindo	Colleen	Lions	Chikwenya camp
6/11/20	Nyamepi	Tonic	Lions	Vundu airstrip

- a. Ilala pack had 7 pups at first emergency from the den and all died during the course of the year.
- b. Nyamepi pack had 7 pups at first emergency from the den, 3 died and 4 are to survive.
- c. All ten (10) Mpindo pups were killed by lions and hyenas over a period of a month after release from Chikwenya. One (1) alpha female, Snowtail, and two (2) other individual were presumed killed as retaliation at Angwa Bridge by communities

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) for 2 10 days from 20/10/2020-30/10/2020

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.

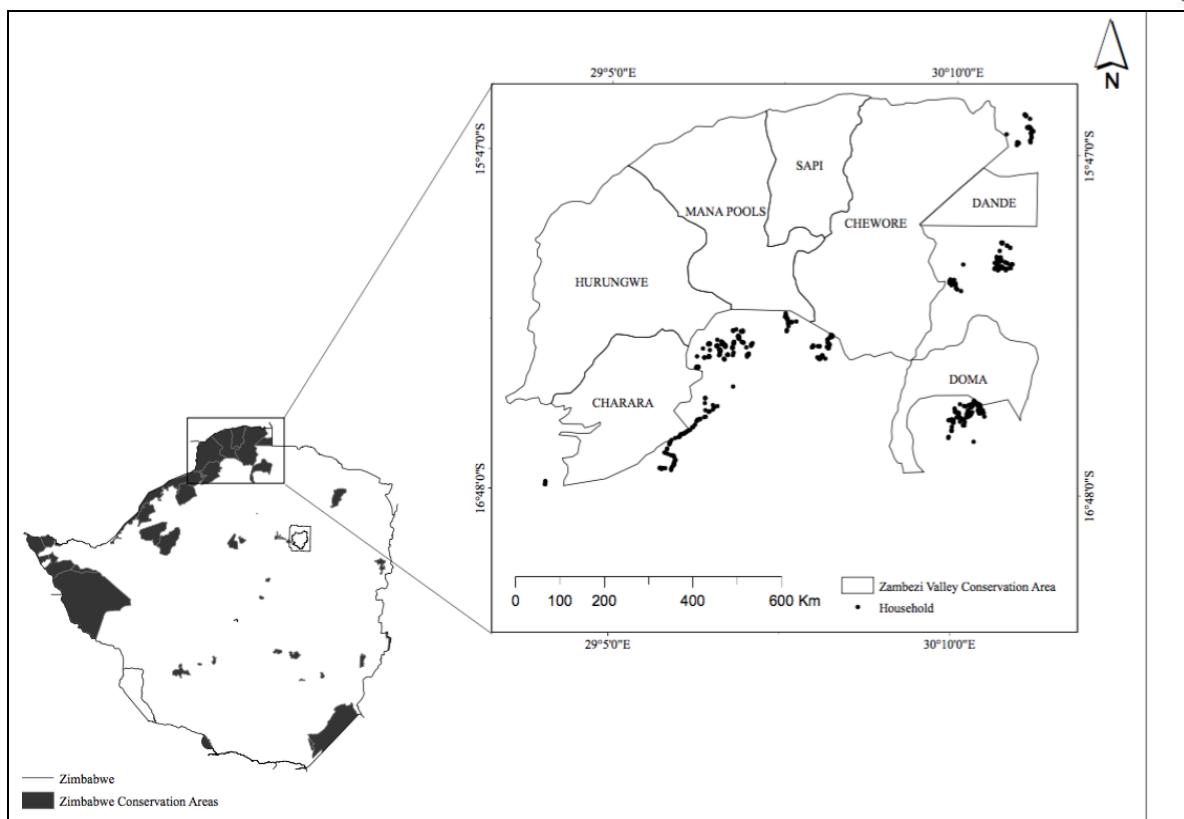
Two vehicles were used with one operating in the Sapi/Chewore area and the other one in the Mana pools area moving at a speed of 10-20kms/hr. along the transects with 3 people per vehicle. The people included one skilled national parks tracker who set in front of the vehicle to identify the spoor, the 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.

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

MID Zambezi Valley Questionnaire survey

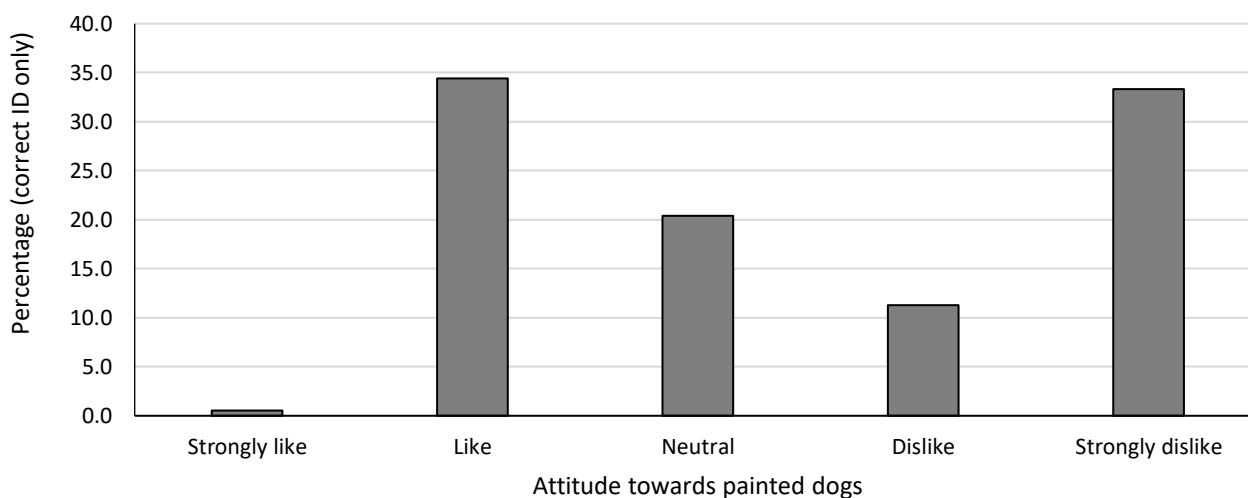
The research topic is; the assessment of attitude towards African wild dog (*Lycaon pictus*) and the potential for human-African wild dog conflict in the communal lands surrounding Mid Zambezi wildlife protected areas, Zimbabwe. To assess whether African wild dogs are sighted outside the protected areas and whether the communities surrounding the protected areas recognize the African wild dogs as a problem animal, interviews were conducted on 506 households in villages, which surround the Mid Zambezi wildlife area. Interviews were conducted before the COVID 19 virus pandemic. As such the pandemic has not affected the research, we used the time during lockdown to enter the data and start preliminary analyses.

Figure 4, Distribution of households interviewed.



Once the final analyses of the data has been conducted I will report back on the main findings of my research, but so far preliminary analyses show that; 36.9 percent of the respondents correctly identified African wild dog. Of the respondents who correctly identified African wild dog, 37.6 percent had seen it, which is 13.9 percent of the total number of the total study population (including those who did not correctly identified the species). Further, 10 of the 504 respondents mentioned African wild dog is causing problems, however none of these 10 respondents correctly identified the species.

See the graph below, of the respondents who correctly identified African wild dog 34.4 percent felt positive about the species, 33.3 percent negative and 20.4 percent neutral.





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.**

Since 2018, data for this research aspect has been collected, and managed to collect 41 Samples and they are enough for the analysis that will be carried out in December 2020.

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.

ADDITIONAL ACTIVITIES AND SUPPORT:

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

Nkazimulo Lima- National University of Science and Technology-Forest Resources in wildlife Management.

Maxwell Muchina- National University of Science Technology- Forest Resources in Wildlife Management

Yolanda Mutinhima- Chinhoyi University of Technology- Wildlife Ecology and Conservation

Anele Bukhosi Sibanda- Lupane State University- Geography and Population studies

Barbara P. Magogo- Chinhoyi University of Technology- Biological Science

Joylene Sibanda- Don Bosco Technical College Hwange"- Wildlife Management



- PDC gave fuel equal to USD \$5,040 for Mana pools.
- PDC paid USD \$3,706 for fuel procurement for Main-camp.
- PDC paid USD \$168 for fuel procurement for Makona.
- PDC provided support to HN/Mana Pools in terms of provision transport for anti-poaching operations during the period.
- PDC donors and supporters paid \$2470.00 as park entry fees to HNP.
- PDC pays for the DSTV subscription for Nyamepi.
- 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.
- PDC has paid over \$12000.00 for buying cattle from communities, to feed dogs at the rehab this year.
- PDC has paid over \$15000.00 for village volunteers who undertake wire removal exercises in areas outside parks.
- PDC conducted several community based meetings with Parks/Police to tackle poaching.
- PDC has undertaken monthly clean-up campaign at Mabale shops to maintain non littering at the community shops.
- PDC pays tuition fees to more than 50 vulnerable children in areas near our offices.
- PDC provided PPE items at a cost of more than \$ 5000 for the local clinics and schools.