



**PAINTED DOG CONSERVATION**  
**(PDC)**

**RESEARCH ANNUAL REPORT FOR THE YEAR**  
**2018.**

**Summary:**

During the past 30 years, there has been a decline in the number and distribution of painted dogs and known viable populations are now limited to only eight counties (IUCN 2012) The most important cause of this decline is conflict with expanding human populations and habitat fragmentation (Creel and Creel, 2002). State sponsored persecution of painted dogs has officially ceased, however painted dogs are still widely persecuted by land owners due to prejudice and perceived conflict with livestock. In addition, indirect anthropogenic mortality is caused by road deaths, and the incidental capture of painted dogs in snares set for other species (Woodroffe and Ginsberg, 1999). Painted dogs occur at lower densities than other competing carnivores, and are highly susceptible to edge effects due to their wide-ranging behaviour. Larger protected areas similar in size to Hwange National Park (HNP) are required to support viable populations of painted dogs than most other carnivore species.

Painted Dog Conservation (PDC) highly values the importance of species conservation management, through monitoring painted dogs as an indicator species and their presence, and density, acts as an indicator of the conservation status of wildlife areas in Zimbabwe. Thus, successful painted dog conservation is beneficial to ecosystem conservation, as it results in the preservation of numerous species and natural processes in the wildlife areas, being protected.

Painted dogs in the country are listed as endangered and the population had been declining, however, Hwange National Park (HNP) has recorded a slight recovery in painted dog population since 2016, brought about by more pups in breeding units, more pups surviving to adulthood, being linked to plenty rainfall and prey species, thus healthier alpha females. (Creel and Creel 1996; Mills and Gorman 1997) The Gwaai areas in Hwange is still considered a sink habitat for dogs and herbivory, and other farmlands bordering HNP. The wide-ranging behaviour of dogs, means that some packs spend some time in human induced areas beyond the safe confines of protected areas. *See maps 1 & 2.* Here they encounter humans, snares, poisons, speeding cars on tarred highways and domestic dog diseases.

The Destiny pack, Mpindo pack, Kali pack, Ganda and Nkwizizi pack range beyond HNP and have resulted in mortality and injuries, during the reporting period, as a result of anthropogenic induced factors.

There is growing concern for surrounding the disturbance of painted dogs in Mana Pools. While the painted dogs are a “must see” for many visitors, which we see as a big plus for the species and Mana Pools, this enthusiasm needs to be carefully managed and monitored closely.

The den sites for the painted dogs in Mana Pools are visited often by operators with clients and some tourists with walking permits. While there is little evidence that this causes any significant harm, there are recorded incidents of packs moving their den apparently due to disturbance. The real reason for the move and its timing is unknown. It is noted that painted dogs do indeed move their den two or three times at least, generally if the site becomes too smelly and thus likely to attract more attention from predators such as hyena, lion and leopard.

Crowding of the painted dogs while resting and being closely followed on foot is also a growing concern in Mana Pools. Again, the enthusiasm to see the painted dogs is welcome but needs to be managed.

**The painted dog population** in the PDC Core research area of Hwange National Park, based on data available, a total count of all known packs in the HNP for the period January 2018 to November 2018, is 21, consisting of 124 adult/ yearling dogs and 44 pups. There are 6 packs featuring 42 adults recorded previously but not seen in 2018. We also believe there could be more pups not yet accounted for as some packs could have littered late. It is estimated that an additional 5 packs consisting of approximately 30 adults/ yearlings exist in the unsurveyed areas of HNP.

**This would make our estimate for HNP to be +/- 196 adults in 32 packs at an average of 6 per pack.**

**Plus 7 known dispersals that do not qualify as a pack as they are not a breeding unit.**

**The painted dog population in Mana Pools and The Mid Zambezi Valley** based on data available, a total count of all known packs in the region for the period January 2018 to November 2018, is 9 packs featuring 52 adults and 25 pups. There are four packs featuring 50 adults previously recorded but not seen in 2018.

**This would make our estimate for Mana and The Mid Zambezi Valley to be +/- 102 adults in 13 packs at an average of per pack 11.33**

**Extrapolating this figures gives an estimate for the entire Mid Zambezi valley at 196 adults in 24 packs.**

Permission during the year was given by ZPWMA to collar 13 separate dogs in HNP and two in Mana Pools, they are being monitored on their movements.

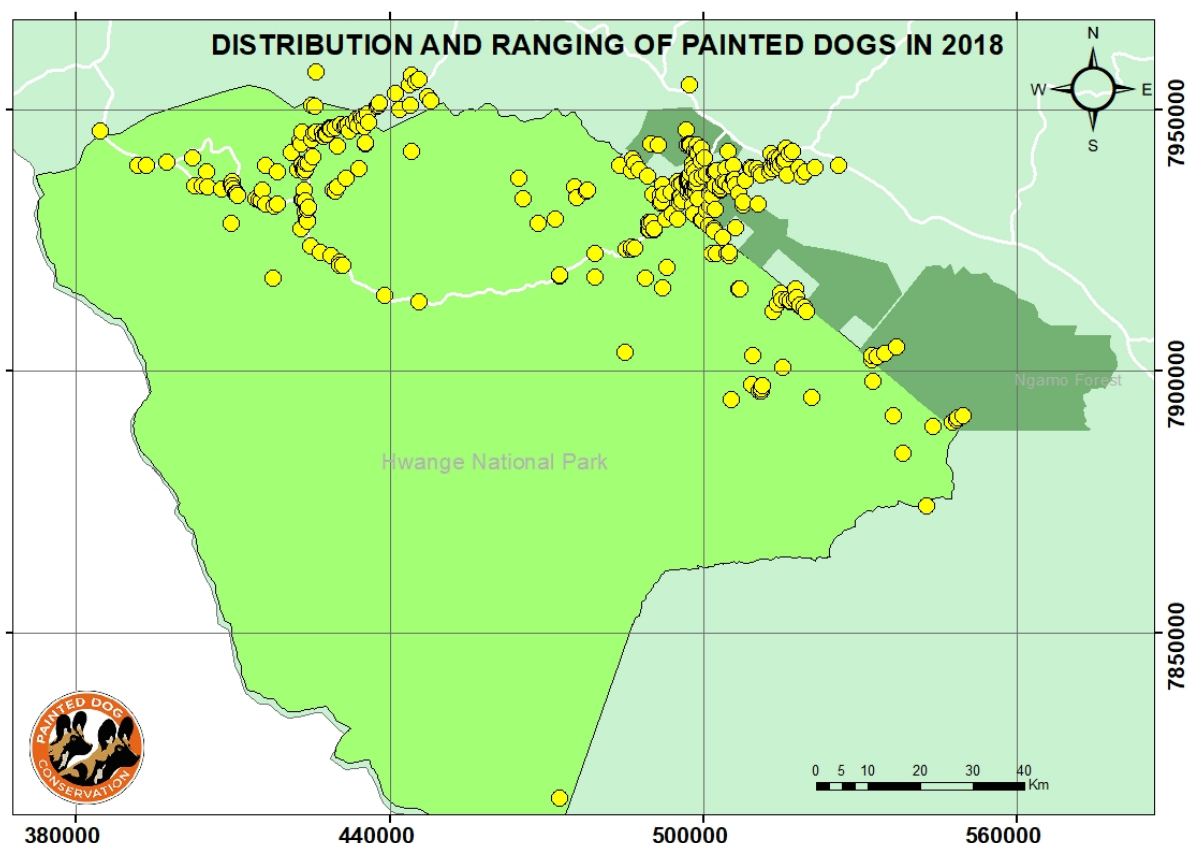
Sighting questionnaire forms were distributed throughout the HNP and all Safari camps/lodges, to broaden wild dog sighting data in all areas and photographs were requested from tourist whenever available to identify the individual dogs in the packs.

These pictures significantly improve dog identification, as each dog has unique markings.

**Faecal analysis.** An analysis of dog scats from Mana Pools indicates to a high preference for baboons which has never been recorded or observed in Hwange and is being investigated through monitoring and research. An analysis of painted dog scats during the year from packs indicates to prey preference of dogs in HNP ecosystem for kudu and impala in larger packs (>five adults) and duiker in smaller packs (<five adults). **Thus, lending support towards the argument for a moratorium on hunting Kudu and impala if the painted dog population is to thrive.**

**Road counts.** The road counts were conducted in collaboration with ZPWMA, CIRAD/CNRS and PDC to monitor and understand seasonal habitat preference and use in relation to spatial distribution for the herbivores, with emphasis on key dog prey species. The monitoring and analysis is aimed at assessing prey trends and abundance over a given period. Final results for road counts indicate a stable trend for all herbivores.

### **PAINTED DOG POPULATION RESULTS FOR HWANGE NATIONAL PARK (HNP)**



**Map 1- DOG DISTRIBUTION AND RANGING FOR 2018**

Data on the HNP population demographics is collated from direct sightings, photographs and sighting sheets. Each dog has a unique coat pattern and thus

photographs or video footage are the most valuable tool in determining pack and pack structures (number of adult males/ females, yearlings and pups) and distinguishing one pack/ individual from another. Pup survivorship is a key element that is recorded as photo capture / recapture method of recording the individuals seen each time a pack is encountered and this is entered on data capture sheets. Painted dog monitoring was undertaken through ground based tracking of the VHF collared packs, combined with opportunistic observations of uncollared packs. Population parameters were derived from data collected during the course of the year. Pack size is estimated as the number of adults and yearlings in each pack, preceding breeding.

Data used in this report is based primarily on sightings recorded and received in the period January to November 2018. The Destiny pack failed to raise any pups due to hyenas and lion predation and this reinforces the threat to survivorship of dogs by large carnivores. *See table 3.*

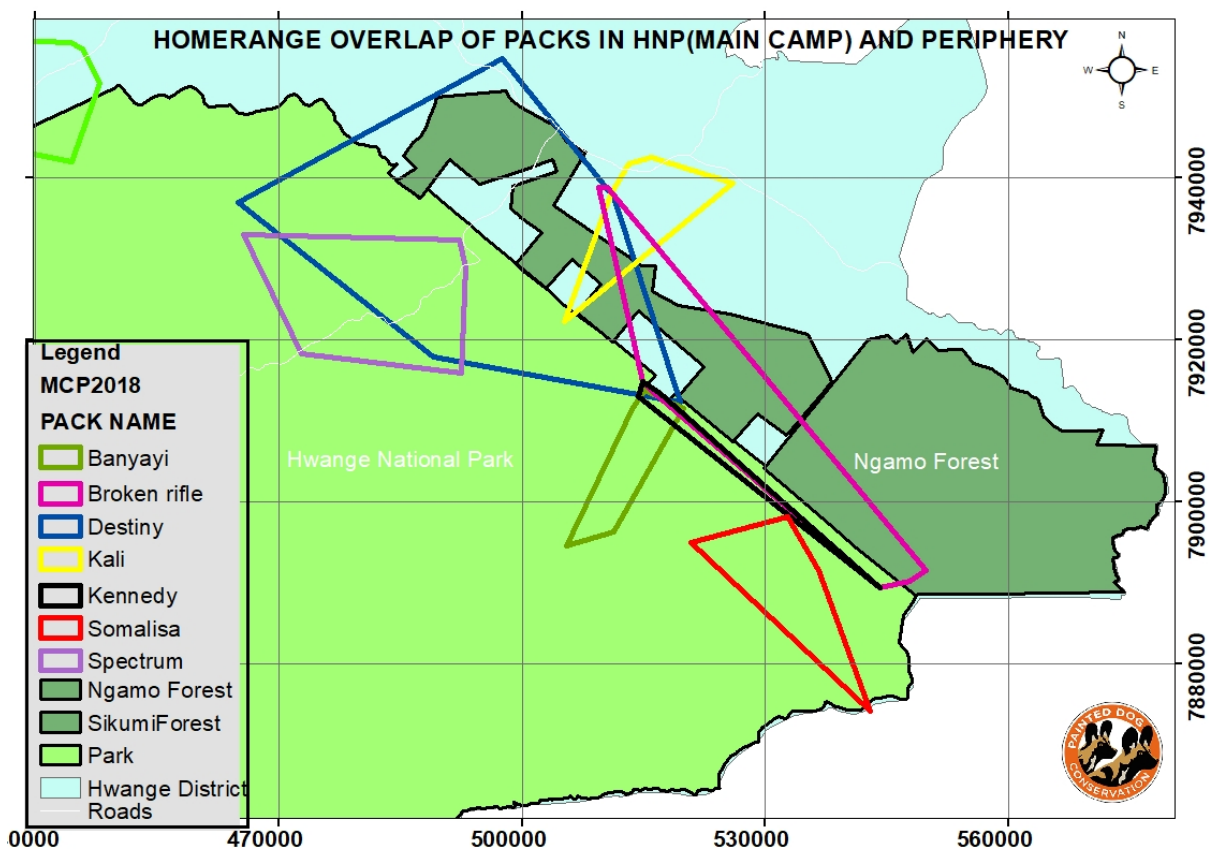
**The average adults per pack for 2018 is 5.9** *See table 1 below.*

**Table 1: Demographic overview of HNP dogs seen in 2018**

Pack name	Total Number of Dogs	Total Ad	Ad M	AD F	Pups	Last seen
Shanu	5	5	4	1	0	June-2018
Somalisa	7	7	5	2	0	Nov-2018
Nantwich	5	5	3	2	0	Sept-2018
Broken rifle	4	4	1	3	0	Nov-2018
Sinamatela	3	2	1	1	1	Oct-2018
Lodzi	3	3	1	2	0	Oct-2018
Spectrum	3	3	2	1	0	Nov-2018
Destiny	3	3	2	1	0	Nov-2018
Wexau	6	6	4	2	0	Nov-2018
Lukodet	27	15	9	6	12	Nov-2018
Kapula	4	4	2	2	0	Nov-2018
Kali	3	2	1	1	1	Nov-2018
Ngweshla	5	5	3	2	0	Nov-2018
Kennedy	5	5	3	2	0	Nov-2018
Bathathu	4	4	2	2	0	Nov-2018
Tshakangwenya	6	6	2	4	0	Nov-2018
Ganda	9	2	1	1	7	Nov-2018
Mpindo	10	2	1	1	8	Nov-2018
Mtoa	12	6	3	3	6	Nov-2018
Gurangwenya	23	20	10	10	3	Nov-2018
Jozi	21	15	10	5	6	Aug-2018
<b>TOTAL</b>	<b>168</b>	<b>124</b>	<b>70</b>	<b>54</b>	<b>44</b>	
<b>Number of packs</b>	<b>21</b>					
<b>Average Adults per pack</b>		<b>5.9</b>				

## Fluctuations in population size at local scale HNP

Populations of painted dogs are prone to marked fluctuations at a variety of temporal and geographic scales. At local scale, a combination of high mortality, high fecundity, and dispersal by both sexes means that pack size fluctuates substantially over short periods. It is for these reasons that total dog numbers for each year differ. Because painted dogs are seasonal breeders, fluctuations may be synchronized across packs. These demographic characteristics lead to fluctuations at population scale. With painted dogs local extinctions are uncommon, under good conditions dog populations are able to grow quickly. It is a known fact that dogs have capacity for long range dispersal, means sub-populations/packs reappear unexpectedly and grow rapidly. There are unknown dispersers in HNP that have appeared from nowhere.



**Map 2 -HOME RANGES OF THREE PACKS BEYOND HNP**

Several large packs were not observed during the year; however, dogs have surfaced after several years without being seen, the HNP is big and challenging to monitor packs as less than a third of the park has roads. If Ngwasha, Deteema, Nkwizizi, Mfagazaan and Kanondo pack had been visualized the total number of adult dogs would have been similar to last year's total adult population. *See table 2.*

**Table 2: Demographic overview HNP dogs known but not seen in 2018**

Pack name	Total number of dogs	Total Ad	Ad M	Ad F	Pups	Last seen
Mandavu	3	3	2	1	0	Jun-2017
Robins	4	4	2	2	0	Apr-2017
Mfagazaan	7	7	4	3	0	Oct-2017
manzichisa	7	7	4	3	0	Oct-2017
Lukosi	9	9	6	3	0	Oct-2017
Tshakabika	12	12	7	5	0	Nov-2017
<b>TOTAL</b>	42	42	25	17	0	
<b>Number of packs</b>	6					
<b>Average dogs per pack size</b>	7					

Reference is also given to historical sightings and records, while whole packs/ individuals may not have been seen in 2018, it is unlikely that these dogs or packs no longer exist. The size of the area and the distribution of access roads makes it difficult to have full coverage of the park, a survey would partially indicate only occurrence of the dogs. Tendai of Makwa pack went missing with members of her pack for over one and half years, only for her to reappear at The Hide looking healthy and well. Solero of Mawuye mabena was found by luck, at Robins after missing for nine months, he used to forage between Forestry and White hills area at Main Camp. Solero and his pack have five pups in 2018 at Robins.

If an individual dog is not seen/recorded for a period of two years, the dog is marked as missing only and chances are the dog is still alive. The monitoring in HNP constitutes only about a third of the park, much of the park are inaccessible to vehicles, being largely roadless and covered with vegetation, hilly and rocky to the north, and the substrate being soft Kalahari sands. Hence painted dogs are difficult to observe and impossible to follow for any distance.

**Table 3: Mortalities recorded in 2018 in HNP**

NAME OF DOG	DATE OF BIRTH	NAME OF PACK	CAUSES OF DEATH
Rocket	06/01/2018	Mabuyamabema	Died of rabies
Shangani	22/02/2018	Destiny	Missing believed killed by lions
Ezra	18/03/2018	Tshakangwenya	Died of natural death
Jambo	30/03/2018	Destiny	Missing presumed

			dead as was alpha male.
1 Unnamed pup	3/04/2018	Brokenriffle	Suspected killed by hyenas
Cusp	1/05/2018	Brokenriffle	Collar retrieved and cause of death unknown
Aurora	12/04/2018	Chipinda	Found her collar, cause of death unknown
3 unnamed pups	14/7/2018	Destiny	Puppies last seen on the 12 <sup>th</sup> of July 2018 presumed dead (intraguild killing)
Akila	15/7/2018	Destiny	Puncture on the throat seemed to be from a big carnivore
5 unnamed pups	26/7/2018	Destiny	Last saw the adults with 7 puppies on the 21 <sup>st</sup> of July, no sightings till 26 <sup>th</sup> of July and 5 pups were missing from the pack
Harry	8/8/2018	Nyamandlovu Dispersals	Retrieved collar from Antoinette farm, No carcass found
1 unnamed pup	14/8/2018	Kali	Found dead on Vic falls-Byo Main highway
Ring	1/8/2018	destiny	Retrieved collar between Makwa and the Hide concession
I unnamed pup	30/9/2018	Kali	Missing and presumed dead (intraguild killing)
Solo pup	10/10/2018	Destiny	Missing and presumed dead
1 unnamed pup	22/10/2018	Kali	Found dead on the Vic falls-Byo main road near Sikumi tree lodge junction GPS position LOC X: 0512181, LOC Y: 7941125)
1 unnamed pup	24/10/2018	Sinamatela	Suspected to have

			been killed by lions or hyenas
1 unnamed pup	3/11/2018	Kali	She was killed in a snare wire near Camp Selous

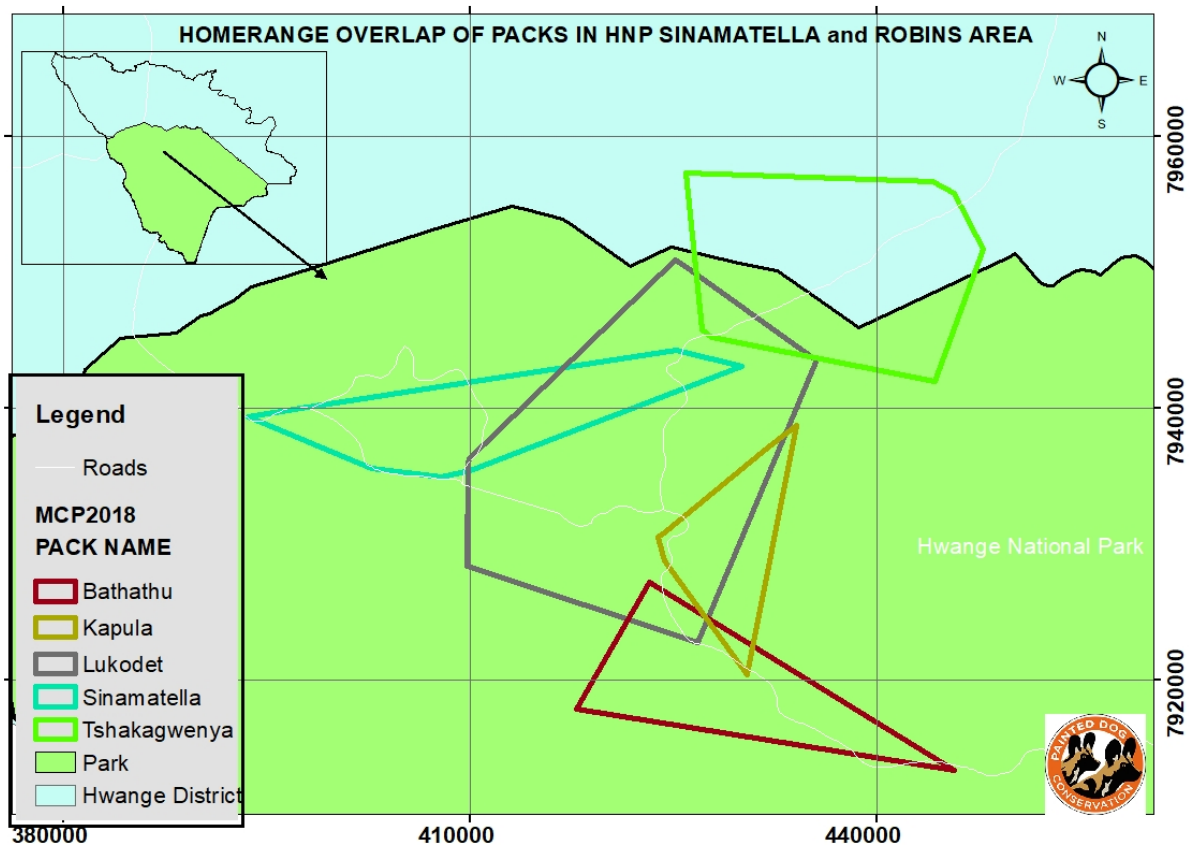
Until 2015, road kills, rail kill and snaring have been recorded as major causes of mortality, however a new emerging threat was recorded in the Protected areas, of cyanide poisoning at water points. In the current reporting period twenty-four (24) mortalities were recorded. Two separate dogs were treated for snare wounds and survived. Gwayi bridge/Dete Valley 3 and Mbala/Pongolo place, are becoming a snare hotspots for 2018.

**2018 is considered at PDC as, *annus horribilis*, as twenty four dog mortalities were recorded in our core research area, from various causes.** See table 3 above

- All ten (10) pups of the Destiny pack killed by hyenas/lions in a period of six months since leaving den.
- All pups except, one pup from the original five, of the kali pack have died, re-enforcing the low survivability of pups.
- Two dogs had snares removed and were treated successfully, the survival rate after collar placement has remained at 100% since inception of the programme. All darted dogs recover quickly and join rest of pack in socializing and hunting within minutes, collaring is benign to dogs.
- One female of Nyamandlovu pack, Harry, was found dead at Antoinette of unknown causes.
- Two Destiny pack adults went missing in February and April respectively under circumstances that indicated they had been killed though no carcass was recovered.

**It is apparent that regular PDC daily anti poaching patrols deter poaching and are effective in protecting wildlife and painted dogs. Thousands of snares are lifted every year in wildlife areas by these patrols. However, the continued lack of similar effort / management from stakeholders, particularly in the Gwaai remains a real cause for concern and contributes to significant population declines across multiple species.**





**Map 3 - HOME RANGE OVERLAP OF PACKS IN HNP AND PERIPHERY**

Home range sizes are measured by the restrictive polygon method (Mills 1990) ,where the length of any side of the polygon enclosing the radio locations is restricted to the mean distance between fixes and the arithmetic mean centre[ i.e. the mean of the x and y coordinates] Habitat selection for dogs is measured at two levels, at landscape level, where habitat selection is measured for all known packs for HNP and individual habitat selection by each pack, the habitat preference for dogs and their prey is measured through compositional analysis and index of preference. Territory size of dogs highly differs and is mostly determined by the dispersion patterns of food patches, densities of lion and hyenas and other factors. *See map 3 above.*

**Inadequate land management practices in the Gwaai and Forestry contribute enormously to the loss of painted dogs and prey and the Gwaai has remained a critical source of sink for years. *See map 3.* Currently only three packs are ranging in the area as compared to seven packs that utilized the Conservancy at its peak. Kali and Destiny pack range in the Gwaai and have lost between them fourteen (14) pups in 2018.**

**Indications from the spoor transects undertaken in the Gwaai, suggest a massive decline in herbivore population especially kudu, impala, sable and eland and combined with the PDC APU data, thus the need to urgently reduce the sport hunting quotas and the removal of prey species for dogs from these areas or placing a moratorium on the hunting of some species.**

**Table 4: DOGS COLLARED IN 2018**

PACK NAME	DOG NAME	TYPE OF COLLAR	DATE COLLARED
Tshakagwenya	Ezra	VHF	09/02/2018
Destiny	Jambo	GPS	03/03/2018
Destiny	Lily	VHF	09/07/2018
Destiny	Akila	VHF	09/07/2018
Lukodet	Drone	VHF	13/07/2018
Lukodet	Peter	VHF	15/07/2018
Broken rifle	Antonio	VHF	02/08/2018
Tray	Nyakasanga	VHF	13/08/2018
Kali	Lemonie	VHF	20/08/2018
Kali	Mak	VHF	20/08/2018
Tris (replaced collar)	Rucommecci	VHF	19/09/2018
Fran	Ganda	VHF	20/11/2018
Mathew	Ganda	GPS	20/11/2018
Snow tail	Mpindo	GPS	20/11/2018
Jonathan	Mpindo	VHF	20/11/2018

**Hair 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 scats/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 even teeth found in faeces.

The prey hair analysis objective is to collect prey data to establish the extend of the predatory role of *lycaon pictus* and its impact on the ecology of the HNP ecosystem and provide **informed recommendations to Parks Management on sport hunting and ration usage.**

During the course of the year, faecal samples were analysed, *table 5*, for hairs from prey species, the dogs, from different packs consumed in HNP.

The hair samples were taken from several parts of the body, specifically the neck area, tail, thigh, belly and shoulder. Plucking on different parts of the animal was done to see if the patterns were hair changed with location on the body and were compared with a hair reference data base compiled from the Bulawayo Museum.

Both the scale and cross pattern and cross section of the prey hairs was used to determine which species the different pack consumed within the Hwange Ecosystem and Mana Pools.

Results were analysed and compiled, the most preyed upon species as with the records, was kudu, for the HNP, followed by impala and bushbuck.

**The importance of kudu and impala in the diet of dogs, re-enforces the argument and recommendations by PDC for the reductions or alternative species for management quotas for Parks and the Gwaai Area.**

**Table 5A: HNP Painted dog diet analysis results by species.**

<b>Species</b>	<b>Totals</b>	<b>Percentages %</b>
Bushbuck	4	11
Kudu	11	30
Impala	15	40
Steenbok	1	3
Common Duiker	5	14
Birds	1	3
<b>TOTAL</b>	<b>37</b>	<b>100%</b>

**Table 6: HNP Faecal Hair analysis by pack  
Destiny pack Main Camp**

<b>Species</b>	<b>Totals</b>
Impala	4
Kudu	6
Common Duiker	3
Bush buck	2
<b>Totals</b>	<b>16</b>

**Tshakagwenya pack- Sinamatella**

<b>Species</b>	<b>Totals</b>
Kudu	2
Impala	6
Common Duiker	1
Birds	1
<b>Totals</b>	<b>10</b>

**Brokenrifle pack -Main Camp**

<b>Species</b>	<b>Totals</b>
Kudu	2
Common duiker	1
<b>Totals</b>	<b>3</b>

**Lukodet pack - Sinamatella**

<b>Species</b>	<b>Totals</b>
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Kudu	1
Impala	5
Bushbuck	2
<b>Totals</b>	<b>8</b>

## **HERBIVORE POPULATION TREND MONITORING**

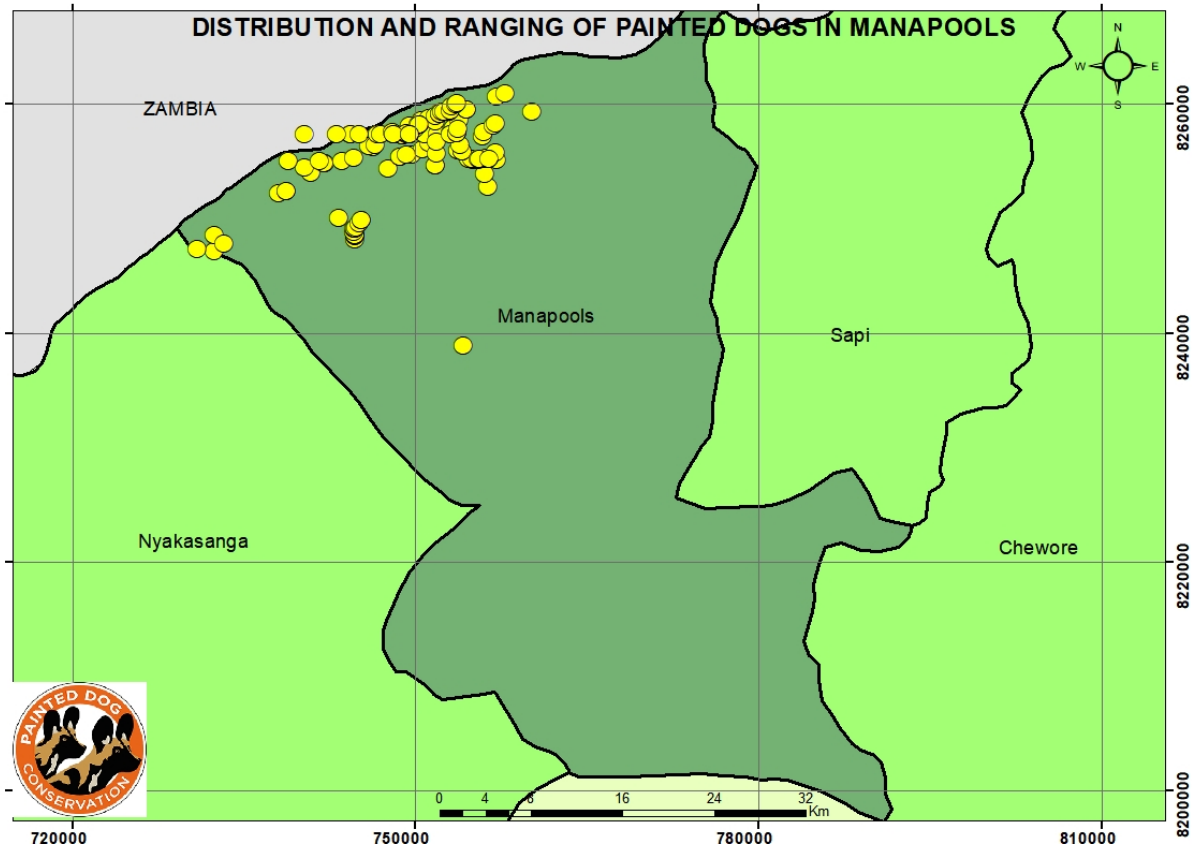
PDC participated and provided logistical support to the yearly PDC, ZPWMA, CNRS, CIRAD road counts in HNP. The objective of this monitoring and analysis is prey trends and abundance over given period.

### **Road counts**

Road counts were carried out in May and October in the Main camp area, Sinamatella and Robins camp. The most available roads were used as transects. Each transect was driven at least twice at different times of the day. The road count was followed by line transect method where perpendicular distances are calculated by using the angle and the direct distance between the animal and vehicle at first detection. Although the use of road transects has been under debate (Buckland *et al.*....., 2001) it is often the only way to estimate densities over large areas and does allow for comparisons between sides and years. Data analysed, indicates stable densities for most species and data for 2018 is yet to be analysed.

**PAINTED DOG POPULATION RESULTS FOR MANA POOLS and MID ZAMBEZI VALLEY**

Map1b shows the distribution of painted dogs in Mana pools during the current year only.



Map 1b: Distribution and ranging of Painted dogs at Mana pools

Mana Pools and the Mid Zambezi Valley was monitored for eleven months, total known dog numbers sighted is seventy (52) adult dogs and eighteen (18) pups from nine known packs. However, through extrapolation, the estimated number of dogs in the lower Zambezi valley including Mana Pools is 196 dogs. *See table 1b below*

**This indicates a decline in the population likely to be linked to reported levels of poaching in the Mid Zambezi valley reducing the prey base. In Mana Pools itself the population seem to be in decline currently with pup survivorship being very low and none existent in one pack the past three years.**

**Table 1b: Population estimate for Painted Dogs in the Zambezi Valley**

Mean	Stdev	Std error	95% Upper	95% Lower	Mean Pack size
196.48	5.62	1.28	221.55	172.41	8.18

Research in Mana pools has highlighted a substantial decline of wild dog population; this could be the result of interspecific competition with lions and hyenas.



*hyena following pups of Nyamatusi pack in Mana pools flood plain.*

For the current reporting period, prey records of ungulates, with a particular effort to evaluate prey preference was recorded and unlike packs at HNP, the Mana pools dogs have a preference for Baboons, Impala, Kudu and Eland. Statistics from HNP indicate a greater percentage of Impala and Kudu, the significance of this will be a comparison of prey preference by packs being under taken at an MSc level. However, the above facts are deemed commensurate with the fact that kudu show a preference for woodlands and thickets. The above view reinforces the view that dogs will take prey species in proportion to their relative abundance with no selective targeting for their main prey species.

Table 2a, 2b and 2c show the demographic overview of painted dogs at Mana pools in 2018. The mean pack size of 5.78 adults per pack from the recorded dogs is low, however this improves somewhat to 61 adults in eight packs at an average of 7.6 per pack when the recorded but not seen packs are included. However, the population appears to be in decline as indicated by the failure of the Nyamatusi pack to raise any pups from three litters.

**Table 2b: Demographic overview of Mana pools dogs seen in 2018**

<b>PACK NAME</b>	<b>TOTAL NUMBER OF DOGS</b>	<b>TOTAL ADULTS</b>	<b>ADULT MALES</b>	<b>ADULT FEMALES</b>	<b>PUPS</b>	<b>LAST SEEN</b>
<b>Nyakasanga</b>	17	10	4	6	7	November 2018
<b>Nyamatusi</b>	5	4	3	1	1	November 2018
<b>Ruckomechi</b>	4	2	1	1	2	November 2018
<b>Chitake</b>	2	2	1	1	7	June 2018

<b>Chewore</b>	9	9	7	2	0	June 2018
<b>Kavinga</b>	8	7	5	2	1	November 2018
<b>Chewore</b>	7	7	4	3	0	March 2018
<b>Matavatava</b>	6	6	4	2	0	October 2018
<b>Wilderness</b>	12	5	Unk*	Unk*	7	October 2018
<b>TOTAL</b>	<b>70</b>	<b>52</b>	<b>29*</b>	<b>18*</b>	<b>25</b>	
<b>Number of packs</b>	<b>9</b>					
<b>Mean pack size</b>	<b>5.78</b>					

**Table 2c: Demographic overview of Mana Pools and Mid Zambezi Valley dogs known but not seen in 2018**

<b>PACK NAME</b>	<b>TOTAL NUMBER OF DOGS</b>	<b>TOTAL ADULTS</b>	<b>ADULT MALES</b>	<b>ADULT FEMALES</b>	<b>PUPS</b>	<b>LAST SEEN</b>
Kanga	12	12	5	7	0	August 2016
Chiruwe	15	15	Unk*	Unk*	0	August 2016
Chikwenya	12	12	Unk*	Unk*	0	August 2016
Mukanga	13	12	8	4	1	Sept-2018
Tarita	11	11	8	3	0	May-2018
Makuti	15	15	Unk*	Unk*	0	May-2018
<b>TOTAL</b>	<b>78</b>	<b>77</b>	<b>21*</b>	<b>14*</b>	<b>0</b>	
<b>Number of packs</b>	<b>6</b>					
<b>Average dogs per pack</b>	<b>13</b>					

**Table 2d: Missing/Dispersed dogs at Mana Pools in 2018**

PACK NAME	AGE	SEX	DOG NAME	DATE MISSING	COMMENTS
Nyakasanga	Adult	Male	Gena	Between 1-24 May 2018	Presumed dispersed
Nyakasanga	Adult	Male	Tray	Between 19-24 May	Presumed dispersed
Nyakasanga	Adult	Male	Joke	Between 19-24 May 2018	Presumed dispersed
Nyakasanga	Adult	Male	Bear	Between 19-24 May 2018	Presumed dispersed
Nyakasanga	Adult	Male	Halo	Between 19-24 May 2018	Presumed dispersed
Nyakasanga	Adult	Male	Mara	Between 19-24 May 2018	Presumed dispersed
Nyamatusi	Adult	Male	Twilight	21/05/18	Presumed Dead
Nyamatusi	Adult	Male	Twiza	25/06/17	Presumed dead
Nyamatusi	Puppy		Unnamed	Prox end Nov 2017	Unknown cause of death
Nyamatusi	Adult	Female	Tait Junior	Aprox, end Dec 2017	Cause unknown
Nyamatusi	Adult	Male	Patric	Aprox end feb 2018	Cause unknown
Nyamatusi	2016 yearling	Female	Rubby	22/04/18	Unknown cause of death.
Total dogs missing/dispersed	12				

**Disturbance in Mana pools**

Painted dogs require suitable den sites to enable them to successfully reproduce, with the den site selection based on the criteria which enables escape and concealment from larger carnivores, especially lions and hyenas. At Mana pools, dogs select den sites in woodlands with closed visibility, reducing chances of predation and detection. The issue of den disturbance at Mana pools is compounded by the free walking allowed to visitors and operators as well as the fact that packs use the same old dens year in year out, only moving during the denning season and most dens are known to operators.



**Den moves is natural, but they may be caused by several anthropogenic factors with detrimental results to pup survivability. Disturbance by humans through frequent visitations by operators is now considered to be a threat to pups at Mana pools and control mechanisms need to be in place.**

**PDC is recommending that operators be informed of the den disturbance issue, and a daily permit system be introduced to control the number of visits / people per day.**

**Den sites close to roads must be monitored by Parks, flyers are to distributed to the operators and public on den disturbance.**

**PDC will inform Parks on the location of all known den sites.**

**Of equal if not greater concern is the crowding / following of the dogs by operators and tourists alike. 12 or more vehicles, 20+ people crowding around the dogs while they rest or following them on foot has been observed and reported to Parks official by concerned individuals. Dogs have been observed hunting in total darkness, which is considered highly unusual and this may have been in order to avoid human pressure, however it equally could have been due to the high ambient temperatures prevalent in Mana Pools.**

**Some operators have gone to extreme measures and acquired radio telemetry equipment under the guise of assisting Zim Parks with radio collaring elephant, while using the same equipment to track the painted dogs as well.**



**Table 5: PREY SPECIES BASED ON VISUAL SIGHTING IN 2018 AT MANA POOLS**

Date	Pack Name	Prey Species	Age of Prey	Sex	Kleptoparasites	Comments
26/05	Nyakasanga	Impala	Adult	Male	Vultures	Got access after dogs leave the kill
27/05	Nyakasanga	Baboon	Sub-adult	N/A	Not Seen	Not Seen
30/05	Nyamatusi	Baboon	Sub-adult	N/A	Not Seen	Not seen
April	Nyamatusi	Baboon	Sub-adult	N/A	Not seen	N/A
18/08	Nyakasanga	Impala	Adult	Female	No klepto parasites	All carcass was finished
26/08	Nyakasanga	Baboon	Sub-adult	N/A	Not Seen	The whole meat was eaten by dogs
04/09/18	Nyamatusi	Impala	Adult	Female	Absent	N/A
07/09/18	Nyamatusi	Impala	Sub Adult	Male	Absent	N/A
09/09/18	Nyamatusi	Impala	Adult	Male	Absent	N/A
14/09/18	Nyamatusi	Baboon	Sub Adult	Female	Absent	N/A
15/09/18	Nyamatusi	Impala	Sub Adult	Female	2/5 taken by hyenas	N/A
06/09/18	Nyamatusi	Impala	Sub adult	Female	2/5 taken by hyenas	N/A
02/09/18	Nyamatusi	Impala	Sub Adult	Female	2/5 taken by hyenas	N/A
14/09/18	Ruckomechi	Warthog	Sub Adult	Unknown	4/5 taken by hyenas	N/A
5/10/18	Nyamatusi	Kudu	Juvenile	Unknown	Not present	N/A
7/10/18	Nyamatusi	Baboon	Adult impala and Baboon SA	Baboon UN, impala female	Not present	N/A
8/10/18	Ruckomechi	Impala	SA	Female	Present 2/5 taken by lions	N/A
10/10/18	Ruckomechi	Impala	SA	Female	Not present	N/A
11/10/18	Ruckomechi	Impala	Adult	Female	2/5 taken by	N/A

					lions	
13/10/18	Nyamatusi	Impala	SA	Female	Not present	N/A
15/10/18	Nyakasanga	Impala	Adult	Female	4 hyenas present but no access.	N/A
15/10/18	Nyakasanga	Eland	Juvenile	UN	Not present.	N/A
16/10/18	Nyakasanga	Impala	Adult	Female	Not present	N/A
17/10/18	Nyakasanga	2*Impala and a Baboon.	Impala adult & SA, baboon sub adult.	Female impalas, Baboon UN	No hyenas present at both kills.	N/A
18/10/18	Nyakasanga	Impala	SA	Female	Present and no access to the carcass	N/A
19/10/18	Nyakasanga	Impala	Adult	Female	Present and no access to the carcass	N/A
22/10/18	Nyakasanga	Impala	Adult	Male	Not present	N/A
22/10/18	Nyakasanga	2*Eland Calves	Adult, Impala and juvenile elands	UN	Not present	N/A
24/10/18	Nyakasanga	Impala	SA	Female	Not present	N/A
25/10/18	Nyakasanga	Impala	Adult.	Female	Present but no access.	N/A
Total	33 prey species fed on					

## **Additional Activities and Summary of Support:**

- PDC provided support to HNP Main Camp/Mana Pools in terms of fuel and vehicle use and main power for Anti-poaching operations. PDC assisted with **1459 litres** of fuel during the current reporting period for various purposes.
- PDC Purchased grader blades for **Zim Parks Mana Pools**
- PDC purchase pool table for **Zim Parks Mana Pools**
- PDC donated over **\$2400 to Zim Parks Main Camp** for purposes ranging from tournaments, anti-poaching operations, covert ops etc in this reporting period.
- PDC donors and supporters paid **\$17,178** as park entry fees for the year.
- PDC donors/visitors paid over **\$122,660** as **accommodation** fees at Parks/ Lodges/hotels in Hwange/Mana/Vic Falls during the period, contributing positively in growing the local economy plus the downstream benefits.
- PDC visitors paid over **\$7500.00** as aircraft charter fees.
- PDC has provided support to Sinamatella Camp in terms of fuel and vehicle use for Anti-poaching operations.
- Genetic profiling is ongoing with Stanford University and PDC
- Development of image recognition software for coat pattern identification of individual painted dogs is on going with Notra Dame University
- PDC runs its own Anti-poaching Units that patrol the buffer zones around HNP.
- PDC provides material support and a hotline between Parks and the community in cases of poaching and human wildlife conflict.
- PDC conducted a series of community based meetings to tackle snaring and poaching in conjunction with ZPWMA

- PDC provided aerial surveillance to Parks by securing the services of a fixed wing and meeting all costs to the tune of over **\$10,000**
- PDC Conducted a domestic dog vaccination programme, adjacent to HNP. Vaccination over 1700 domestic dogs against rabies.
- PDC meets the material needs of a Zero Tolerance to Wildlife Crime Campaign.
- **PDC provides learning experiences for Zimbabwean students and provided five internship opportunities listed below for this period:**
  - ✓ **Arnold Mufaro Chimeri:** Geography and population studies, Lupane State University.
  - ✓ **Abraham Nkala:** Geography and population studies, Lupane State University.
  - ✓ **Kudzai Madyembwa:** Wildlife Ecology and Conservation, Chinhoyi University of Technology.
  - ✓ **Tafadzwa Mahurede:** Wildlife Ecology and Conservation, Chinhoyi University of Technology.
  - ✓ **Candy Maphosa:** Forestry Resources and wildlife Conservation, National University of Science Technology.

#### **Publications:**

**Dangerous game: preferential predation on baboons by African wild dogs in Mana Pools National Park, Zimbabwe.** Esther van der Meer, Nick Lyon, Thomas Mutonhori, Roseline Mandisodza-Chikerema, Peter Blinston. Behaviour Journal Ref.: Ms. No. BEH-1062R2

**Entering the era of conservation genomics: Cost-effective assembly of the African wild dog genome using linked reads.** Ellie Armstrong; Ryan W Taylor; Stefan Prost; Peter Blinston; Esther van der Meer; Hillary Madzikanda; Olivia Mufute; Roseline Madisodza-Chikerema; John Stuelpnagel; Claudio Sillero-Zubiri; Dmitri Petrov. GigaScience Oxford Univeristy GIGA-D-17-00324

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