BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

DEPARTMENT OF ANIMAL SCIENCE

THE EFFECT OF THE REHABILITATION FACILITY AS A CONSERVATION STRATEGY IN THE SURVIVAL AND DIET OF PAINTED DOG (*LYCAON PICTUS*) IN HWANGE NATIONAL PARK.

By Sharara Shantal P. N

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE BACHELOR OF AGRICULTURAL SCIENCE HONOURS DEGREE IN ANIMAL SCIENCE AND TECHNOLOGY.

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RESEARCH PROJECT

STUDENT NUMBER: B212520B

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Dedication

This work is dedicated to my beloved parents (Mr and Mrs Sharara), for their undying love and support.

Abstract

The African painted dog (Lycaon pictus) is a critically endangered carnivore facing persistent threats from habitat loss, poaching, and human-wildlife conflict. Rehabilitation facilities have emerged as a key conservation tool, aiming to rescue injured or orphaned individuals and reintroduce them into the wild. This study investigates the impact of such a facility—specifically the Painted Dog Conservation centre in Hwange National Park, Zimbabwe—on the survival and dietary behavior of rehabilitated painted dogs. Through a combination of post-release monitoring, GPS tracking, and scat analysis, the research assesses whether time spent in captivity affects hunting proficiency, prey selection, and overall survival. Preliminary findings suggest that while rehabilitation can reduce short-term mortality and facilitate reintroduction, long-term outcomes depend heavily on social reintegration, competition with other predators, and the restoration of natural foraging behavior. The study contributes to understanding best practices for carnivore rehabilitation and highlights the need for data-driven, species-specific approaches in conservation programs. The objective of this study was to evaluate the effectiveness of the rehabilitation facility as a conservation strategy in the survival and diet of painted dogs in Hwange National Park. Data was taken from the P.D.C database and observed kills after release of the rehabilitated painted dog in the Hwange National Park. The Wilcoxon test was used to compare the prey [diet] of the wild dogs after release. The results of this study revealed that the rehabilitation facility has no effect on the survival of wild dogs after release in Hwange National Park. There is no significant relationship between the rehabilitation and the survival of wild dogs [$p>0.05$]. Diet [Prey] caught after release was influenced by abundance of the prey. From this study it was concluded that rehabilitation facility has indeed helped with the injuries and diseases of wild dogs and wild life rehabilitators should be encouraged.

Acknowledgement

Firstly, I would like to give Glory to the Almighty God for the courage he has been granting me throughout my learning, he has really moved mountains for me. I am extremely grateful to the host organization, Painted Dog Conservation for offering me a place to carry out my project. I would like to acknowledge my industrial supervisor Dr Hillary Madzikanda for mentoring me during the internship period and Project supervisor Mr TNC Mangwiro. Many thanks to all PDC staff that I managed to work with and they created a workable environment. To Miss Tanaka Sharara for her support on the day-to-day activities and assistance on laboratory work, for her enlightenment on many ecological aspects and guidance on my research studies and in other extracurricular activities. She has made an immense contribution in my life. Furthermore, many thanks go to my family for their prayers and unfailing support in all aspects of life.

Research Instruments

Radio telemetry

A method used to track animal movements by fitting them with radio collars.

Requires researchers to use a handheld receiver and directional antenna to pick up VHF (Very High Frequency) signals.

The user must be relatively close to the animal and manually follow the signal to triangulate its location.

It is relatively low-tech but cost-effective and reliable in many environments.

GPS (Global Positioning System)

Uses satellite signals to determine the exact location of an animal fitted with a GPS-enabled collar.

Provides accurate, automated data on animal movements, often stored on the collar or transmitted remotely.

Can record locations at set intervals (e.g., every 30 minutes), helping researchers study movement patterns, range, and behavior over time.

CyberTracker

A handheld device and software system used by field researchers and trackers.

Combines GPS tracking with customizable data collection forms (e.g., for animal sightings, tracks, or signs).

Particularly valuable for integrating traditional ecological knowledge with modern tech; often used in conservation work in Africa.

Easy to use, even for non-literate users, using symbols and icons.

VHF and GPS Collars

VHF (Very High Frequency) collars transmit radio signals detectable with radio telemetry equipment; they require manual tracking.

GPS collars automatically collect and often transmit precise location data via satellites or cellular networks.

Some collars combine both technologies: VHF for manual tracking and GPS for detailed movement data.

Used extensively in wildlife conservation to monitor endangered species like painted dogs.

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AWD-African Wild dog

List of Abbreviations

AWD-African Wild dog

UTM-Universal Transverse Mercator

HNP-Hwange National Park

PDC-Painted Dog Conservation

IUCN-International Union for Conservation of Nature

CHAPTER ONE

1.0 Introduction

The painted dog (Lycaon pictus), is an iconic and also endangered canine which faces severe population declines globally (Woodroffe et al., 2005). Hwange National Park, Zimbabwe, harbours a significant population, but their numbers continue to dwindle due to habitat loss, human- wildlife conflict, disease and poaching (Rasmussen, 1999; Van Dyk & Slotow, 2003). In order to mitigate these threats, there are various strategies done to conserve painted dogs, namely anti-poaching efforts (Somers et al, 2008), whereby people remove snare wires set by poachers, mainly for game meat but then painted dogs fall victim to the snare wires, habitat protection (Macdonald & Loveridge, 2010) or restoration, whereby people try to mitigate encroaching their settlement in wild life areas, or community education (Edzenga, Lauren 2021) through flyers, banners or addressing in schools or any gathering, informing them about how endangered the painted dog is and asking them to report if and whenever they see one and or rehabilitation facilities (Bekoff, 2002) whereby injured, sick or orphaned painted dogs are taken in to the rehabilitation facility where they are put in enclosures that allow their housing.

Rehabilitation facility offers a crucial conservation strategy, providing medical care, rehabilitation, reintroduction into the wild (Creel & Creel, 2002) and monitor and study painted dog behaviour, ecology and conservation biology. Wildlife rehabilitation requires specialized knowledge and training in wildlife biology, veterinary medicine and animal care (Hartstone- Rose et al.,2010). Rehabilitation begins when an animal is found and reported to a wildlife rehabilitator, or seized from the illegal wildlife trade or a poacher. Upon arrival, the animal is examined by a trained wildlife rehabilitator or veterinarian to determine the extent of the injury and the possibility of successful rehabilitation. This can involve treating injuries, administering medication and supportive care (Edzenga, 2021) such as fluids and nutrition.

Once stabilized, the animal is placed in an appropriate setting where it can recover, in this case, they are put in enclosures. Animals undergo rehabilitation to regain their strength, mobility and survival skills. When an animal is fully recovered, rehabilitators aim to release it into a suitable habitat close to where it was originally found. The release site is carefully chosen to ensure the animal can thrive in its environment. In order to be released, an animal must be physically and mentally well and be able to survive on its own.

Preventing factors such as imprinting and habituation is important in the rehabilitation process. Imprinting occurs when a young animal, specifically young birds, begin to see the rehabilitator as their primary caregiver Edzenga, Lauren (2021). It is possible to reverse this process in most animals, but it is permanent with birds. Rehabilitators have to take caution when caring for young animals in order to avoid this. It is critical to establish maintain boundaries between the rehabilitator and the animal. This includes wearing a mask and gloves around animals or even covering an animal’s cage with towel to prevent contact with humans.

This study aims to investigate the impact of rehabilitation facility on painted dog survival rates and dietary habits, building on previous research (Creel & Creel, 2002; Woodroffe et al., 2005)

1.1 Pictures of painted dogs (Lycaon pictus)

(www.google.com)(gettyimages.com)

1.2 AIM

To investigate the effectiveness of the rehabilitation facility as a conservation strategy on the survival and diet of painted dogs in Hwange National Park.

1.3 RESEARCH OBJECTIVES

- To determine the effects of the rehabilitation facility as a conservation strategy in the survival of Painted dogs (*Lycaon pictus*) in Hwange National Park.

- To determine the prey kills of rehabilitated Painted dogs (*Lycaon pictus]* in Hwange National Park.

1.4 RESEARCH HYPOTHESIS

- H0 The Rehabilitation conservation strategy has no effect on the survival of African wild dogs (*Lycaon pictus)* in Hwange National Park.
- H1 The rehabilitation has an effect on the survival of African wild dogs in Hwange National park.
- H0 The rehabilitation has no effect on prey kills by African wild dogs in Hwange National park.
- H1 The rehabilitation has an effect on prey kills by African wild dogs in Hwange National park

1.5 SIGNIFICANCE OF THE STUDY

Wild dogs are an endangered species hence detailed information from the study will help policy makers review and redesign effective intervention policies aimed at restoring the population thus preserving the dogs for future generations. The results from the study will help us on the human side understand how better to deal with Lycaon pictus for example informing conservation strategies for painted dogs in Hwange National Park thereby generating knowledge that can be used by future researchers. The study will also help highlight deficiencies in the rehab strategies currently in use. Furthermore the study will help enhance population management and recovery efforts and contribute to global efforts to conserve this endangered species.

1.6 STATEMENT OF THE PROBLEM

There is no doubt that conservation strategies has helped replenish the decreasing population of painted dogs. However there has been no study to evaluate the effect of the rehabilitation facility in the survival and diet of painted dogs. This study investigates the effectiveness of the rehabilitation program for wild dogs in Hwange PDC, specifically examining whether the process prepares them for successful reintegration into their natural habitat. The research aims to determine if the rehabilitation experience makes the dogs too dependent on human care, hindering their ability to survive and forage for food on their own after release, compared to their behaviour during their time in rehabilitation.

CHAPTER TWO

2.0 Literature review

The African painted dog Lycaon pictus, also called the cape hunting dog is a canid and is native to the Sub-Saharan Africa. It is the only member of the genus Lycaon, which is distinguished from Canis by its fewer toes and dentition, which is highly specialised for a highly carnivorous diet [Hartstone- Rose et al 2010]. IUCN Red list listed painted dogs as endangered [2016] due to population decline [80% 1986- 2016] [IUCN 2016]. The decline of painted dog population is still ongoing, mostly due to habitat loss and fragmentation, human- wildlife conflict and disease outbreak for example rabies, distemper and other diseases significantly impact painted dog populations [Bekoff, 2002; Macdonald and Loveridge, 2010].

Painted dogs consume various prey [antelope, rodents, birds]. Painted dog population is estimated to be 300-500 individuals [Zimbabwe Parks and wildlife Management Authority, 2020].

Painted dogs are among the most endangered carnivores in Africa. Their populations have declined significantly due to habitat loss, human-wildlife conflict, disease, and poaching. Rehabilitation facilities have emerged as a critical intervention in mitigating these threats, aiming to restore injured or orphaned individuals to the wild. This literature review explores the role of rehabilitation facilities in enhancing the survival and dietary habits of painted dogs, with a focus on Hwange National Park in Zimbabwe.

Painted dogs are highly social carnivores, relying on cooperative hunting and pack dynamics for survival (Creel & Creel, 2002). Their diet primarily consists of medium-sized ungulates such as impalas and kudu, which they hunt using endurance and teamwork. However, habitat fragmentation and human encroachment have disrupted their natural prey availability, leading to changes in dietary patterns (Woodroffe et al., 2005).

Hwange National Park, is a critical habitat for painted dogs and it faces challenges such as poaching, snaring, and vehicular accidents (Rasmussen, 1999). These threats have necessitated the establishment of rehabilitation facilities, such as the Painted Dog Conservation (PDC) project, which focuses on rescuing and rehabilitating injured individuals.

Rehabilitation facilities aim to restore painted dogs to their natural environment by addressing physical injuries, providing controlled diets, and reintegrating them into packs. Studies suggest that rehabilitation can enhance survival rates, particularly for individuals affected by snares or vehicular accidents (Somers et al., 2008). However, the success of these efforts depends on factors such as the quality of care, the release strategy, and the ability of rehabilitated individuals to adapt to wild conditions.

Diet plays a crucial role in the rehabilitation process. Providing a diet that mimics natural prey ensures that rehabilitated painted dogs maintain their hunting skills and nutritional balance. Research indicates that dietary supplementation during rehabilitation can prevent malnutrition and improve the chances of survival post-release (van Dyk & Slotow, 2003).Dietary adequacy is a critical concern for rehabilitated painted dogs. In captivity, dogs are typically fed carcasses or butchered meat, which can alter their prey preferences and diminish their ability to hunt diverse prey post-release (Gorman et al., 1998). Moreover, painted dogs rely on high-energy hunting techniques that are learned and refined through experience; captivity may erode these skills, leaving individuals more vulnerable to starvation or dependent on scavenging. Post-release dietary studies, including scat analysis and GPS kill tracking, have shown that some reintroduced individuals alter their diet to include non-traditional prey or human-associated food sources (Creel & Creel, 2002), which can lead to increased conflict with humans or reduced fitness.

In Zimbabwe, the Painted Dog Conservation (PDC) initiative in Hwange has pioneered a rehabilitation-based model aimed at reducing mortality from snares and road accidents, while also supporting public education and anti-poaching units (Child, 2009). While the facility provides essential veterinary care and temporary housing, the long-term outcomes of released individuals remain underexamined. Rasmussen (2005) argues that effective rehabilitation must consider the behavioral ecology of painted dogs, especially the importance of maintaining natural social groupings and minimizing human imprinting.

Hwange National Park offers a complex ecological setting for rehabilitation efforts. The park supports a full guild of large predators, including lions (Panthera leo) and spotted hyenas (Crocuta crocuta), which frequently compete with or prey upon painted dogs. Davies-Mostert et al. (2010) emphasize that successful reintroductions must account for spatial overlap with dominant predators and consider strategies to minimize conflict, such as soft releases and pre-release site assessments.

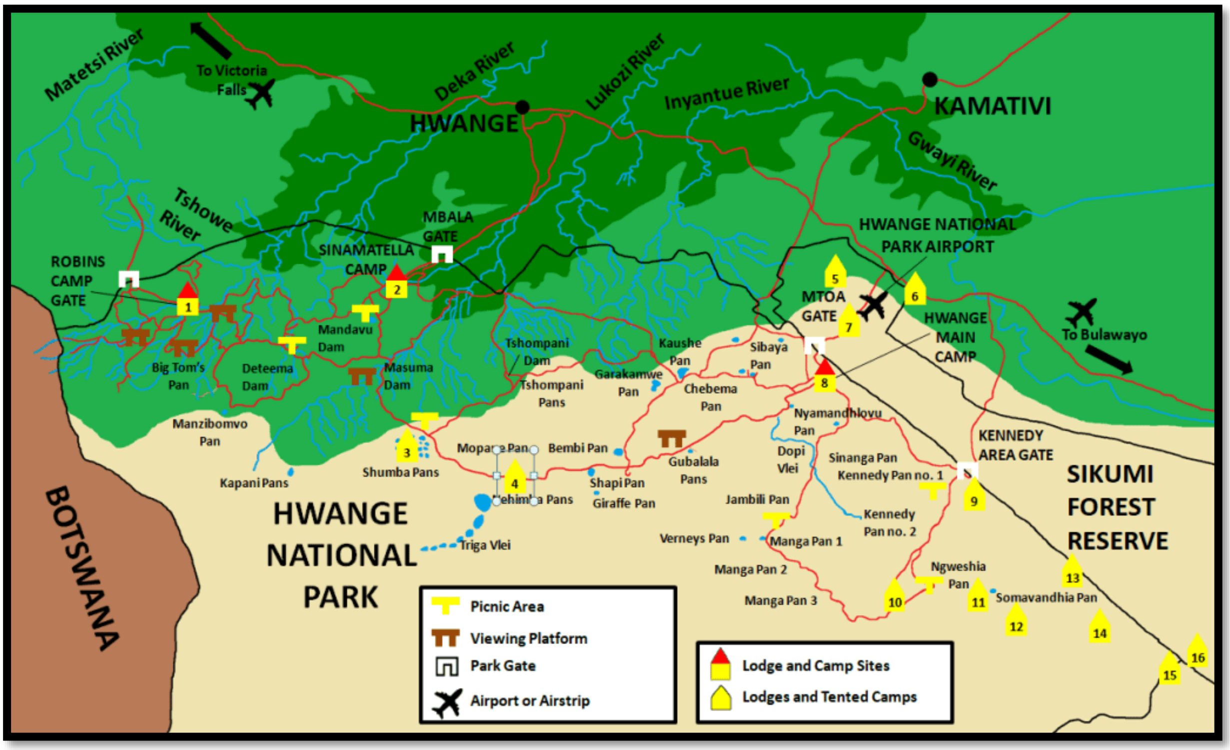
While rehabilitation facilities contribute to immediate conservation goals—such as reducing mortality from anthropogenic causes—their long-term efficacy in sustaining viable populations depends on detailed understanding of how captivity affects the behavioral and ecological competencies of released animals. Few longitudinal studies have assessed the post-release trajectories of rehabilitated painted dogs in Hwange, particularly in relation to diet and survival outcomes, representing a key gap in the current conservation literature.

Despite their benefits, rehabilitation facilities face challenges such as limited funding, potential habituation to humans, and the difficulty of reintegrating individuals into established packs. Future research should focus on long-term monitoring of rehabilitated individuals to assess their survival, reproduction, and ecological impact. Additionally, community engagement and anti-poaching measures are essential to address the root causes of painted dog mortality.

CHAPTER THREE

3.0 Study Area and Methodology

The study was carried out in Hwange National Park (HNP) which is the largest national park in Zimbabwe and covers an area of 14 650 square kilometres in extent. It is located west of the country, on the main highway road between Bulawayo and Victoria Falls. The distance from Victoria falls to Hwange national park 100km, making it a very popular addition to a visit to the Falls and therefore forms an integrated tourism sector with the Victoria falls and other tourist centres of attraction such as Kalahari Desert. Hwange was founded in 1928 as a Reserve, with National Park status being given in the year 1961. The park is close to the edge of the Kalahari Desert, a region with little water and very sparse vegetation (Hwange National Park". Venture To Zimbabwe. Retrieved 22 June 2022)



3.1 Map: https://wanderlustphotosblog.com

HNP is environmentally diverse, with the southern two thirds of the Park being defined by deep Kalahari sands and batoko sands, which support impressive forests of Zambezi teak and other hardwoods. Ancient fossil lake beds and drainage lines are found scattered within these woodlands which are now large savannah grasslands surrounded by Acacia and Leadwood trees. This combination provides habitats for both grazers and browsers, which in turn attract the predators - lion, leopard, and African wild dog, spotted and brown hyena.

The rainy season which is mainly December to March, the ancient lake systems still fill with water; which lead to open grasslands being flooded, attracting migratory birds from Eurasia and other parts of Africa (Hwange National Park". Venture To Zimbabwe. Retrieved 22 June 2022)

3.2 Study Area Sinamatella

Sinamatella Area which is located in the northern part of HNP is distinctly different from the south. It is drained by the Lukosi and Deka Sand Rivers, dominated by Mopane woodlands, and has a number of kopjes (hills). A fascinating and unique feature of the North West are the natural seeps such as Nehimba and Shakwanki where Elephant and other animals still dig for water (Hwange National Park". Venture To Zimbabwe. Retrieved 22 June 2022)

Sinamatella has an area of (1,328 km2), with a coverage of 9% of the park, and its geomorphological systems are flat and on Kalahari sands in most areas. Nevertheless the north contains areas of basement complex and Karoo sedimentary rocks. These areas are drained by various rivers which give rise to special environments for Hwange. Eroded sandstone bluffs provide spectacular views and there are pockets of granite outcrops which are special habitats (General Management Plan 2016 – 2026).

3.3 Main Camp Area

Main Camp areas covers 10,765 km^2, with a 73% space coverage of the park. The geology is mostly on Kalahari Sands with extensive "mudflats" on basalts in the Dzivanini area.The drainage system is undefined with drainage on Kalahari sand. Fossil drainage feeds into the Nata catchment in the south and numerous pans. Vegetation comprises of broad mix of woodland, bush-land and mopane in the extreme south (Hwange National Park". Venture To Zimbabwe. Retrieved 22 June 2022)

3.4 Outside Hwange National Park

The periphery of Hwange National Park covers an area of 6,000 km^2, the space comprises of state forests, communal land, and privately owned land (google.com). Zimbabwe's economy has faced many challenges over the past years, amongst others leading to an increase in wildlife crime such as poaching, which places the population of threatened species at risk of depletion (https://hideawaysafrica.com). Areas found outside the HNP include Gwayi, Ngamo and Sikumi.

This area was ideal for my data collection because it is a national park with a large space and tracking and monitoring wild dogs could be done effortlessly

Most dogs are brought into the rehab because of injuries or loss of all the other pack members such that another pack will be needed for that dog. After treatment, the dog is released with either a GPS or Very high frequency (VHF) collar for tracking and monitoring.

Painted dogs have a matriarchal system and can have at least 2 dogs to 16 dogs in a pack. Only 2 dogs reproduce and every member of the pack helps take care of the puppies until they are old enough to leave the den and the pack will be nomadic again.

Observed kills were monitored by observing which prey the released dogs were going after. This was done during tracking hours; early in the morning and late afternoon when the temperatures are cool and when the dogs were hunting.

3.5 Data Collection

Data was collected from four different packs. The packs have at least 3 individuals fitted with collars for tracking purposes. The collars fitted are either VHF or GPS collars with metal studs surrounding them that act as an anti-snare method. PDC database contained secondary data that was used for analysis. These are the four packs which were being monitored: Mpindotella and Bachijwa (rehabbed), Chowato and Umkhonto (not rehabbed).

3.6 Data collection for Survival probability

To analyse survival probability, data was collected from four packs. Two packs were rehabbed and two packs were not rehabbed. Data was collected from 2022 to 2024 with secondary data compiled from the PDC data base. Nineteen (19) individuals were selected for the study period which was for 380 days. The following were recorded for the purpose of the study: Date, pack name, dog name, days survived after being released from the rehab facility, status of dog , if the dog was either rehabbed or not rehabbed, type: either the dog was dead or alive during the study period.

3.7 Data collection for Prey kills (Direct observation)

Data collection for prey kills was collected from four packs. Two which were rehabbed and two which were not rehabbed. The packs were: Mpindotella, Bachijwa and Chowato, Umkhonto respectively. Direct observations were made during tracking when the packs would make a kill and the data was recorded. Secondary data was also used which was compiled from the PDC data base from 2022 to 2024. The following information was recorded: Date, Pack id, loc states, prey killed. Secondary data contained information about the name of the pack, location points, and wild dog's date of birth, date of rehabilitation, type of injury or cause of the need for rehabilitation and or type of snare.

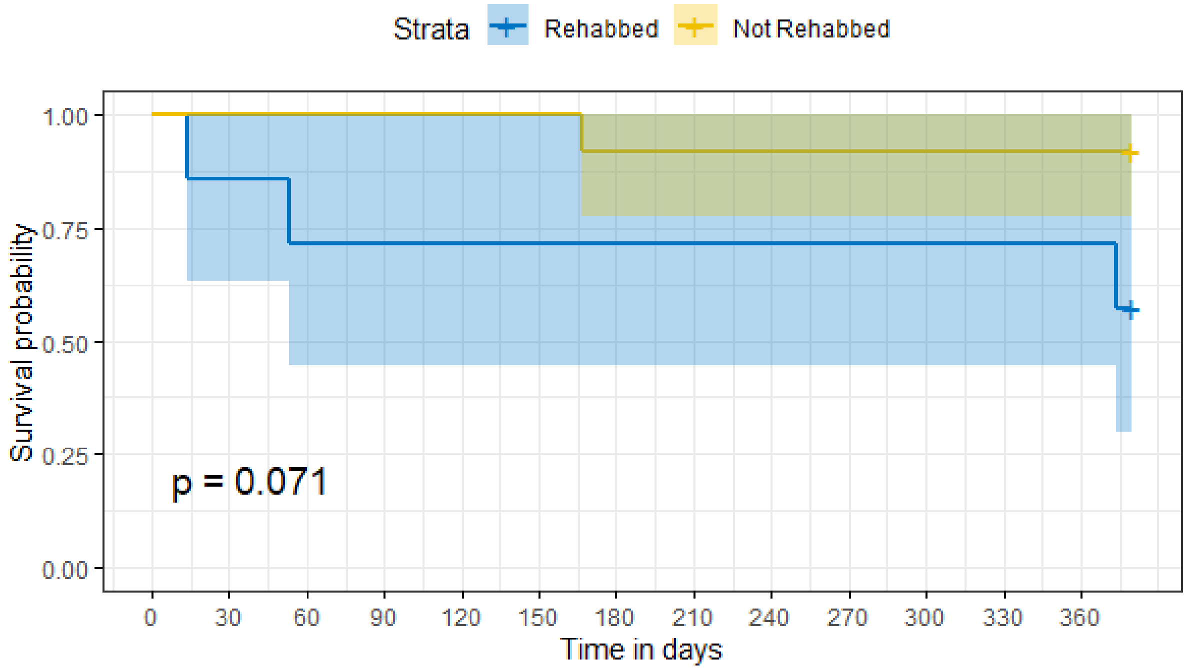
3.8 Data Analysis

Survival probability was analyzed using survival curves packages in the R statistical package version 4.3.3 To compare two independent groups Rehabbed and Not Rehabbed prey kills were subjected to a frequency occurrence analysis using the Wilcoxon test in the R-statistical package version 4.3.3.

Chapter Four

4.0 Results

The first results below are showing the survival probability curves from the rehabbed and not rehabbed packs. As shown by the strata colouration, blue is representing the Rehabbed packs and yellow is representing the Not Rehabbed packs.



4.1 Survival Probability Graph: Results

4.2 Interpretation of the above results

The results above show that there is no significance difference between the paired observations as seen by the p-value 0.071 which is > 0.05 (greater than 0.05). The rehabilitation facility does not alter the survival probability of painted dogs (Lycaon pictus) in Hwange national park. This therefore means that the rehabilitation facility has no effect in the survival probability of painted dogs in Hwange national park.

On this survival probability curve, all the drops or declines, representing the decreasing survival probabilty are all above 50% meaning that the rehab has no significant effect on the survival probability.

4.3 Prey kills for Rehabbed and Not Rehabbed packs

120 direct observation kills were made by the packs and analysed. This was made possible by tracking and monitoring done every day, in the morning, evening and full moons.

Figure 1: Frequency Occurrence for Impala

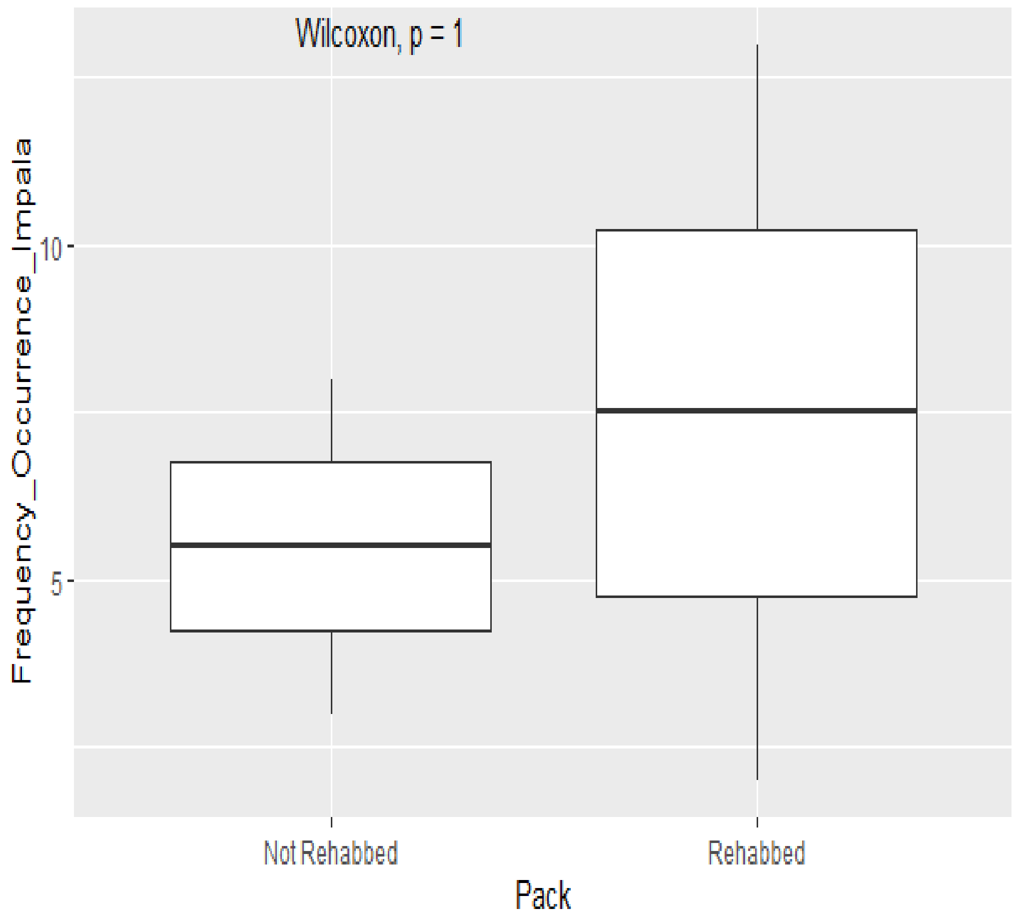


Figure 2: Frequency Occurrence Commonduiker

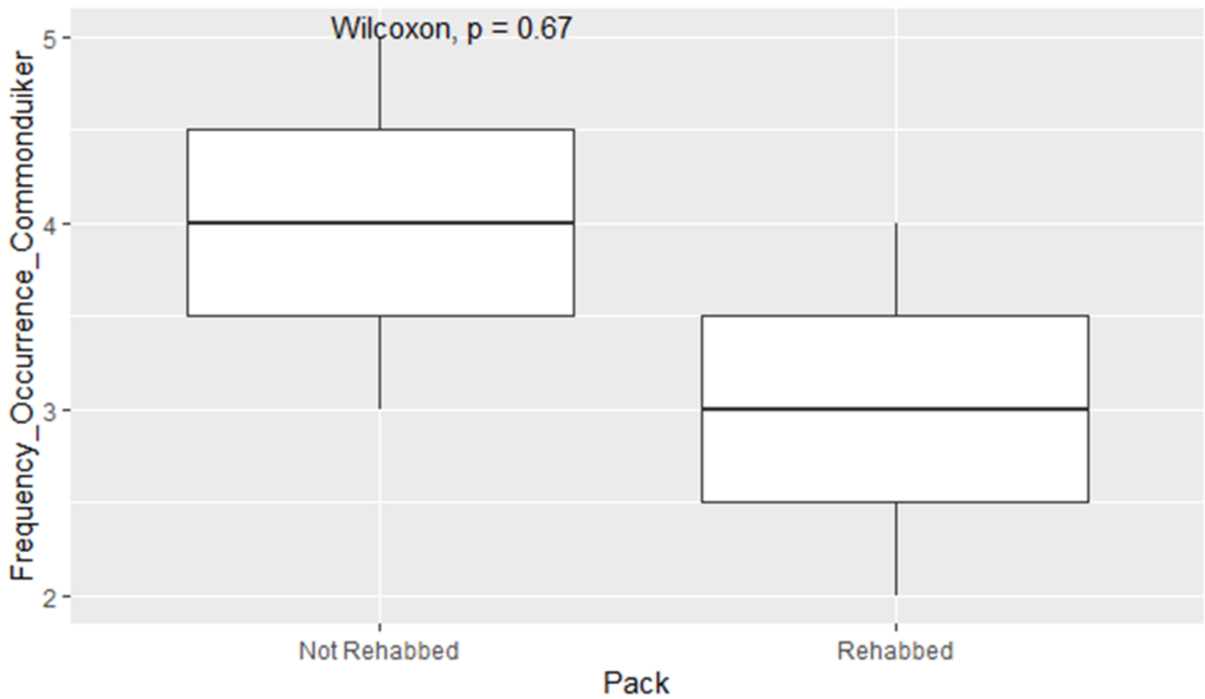


Figure 3: Frequency Occurrence Bushbuck

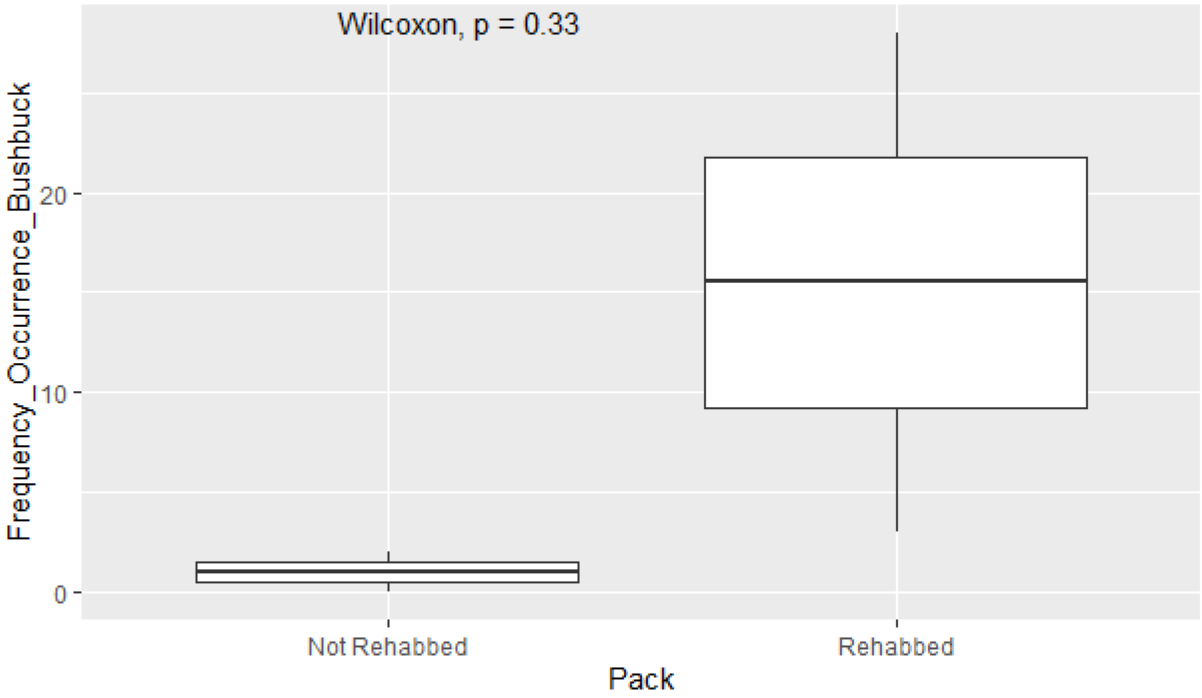


Figure 4: Frequency Occurrence Kudu

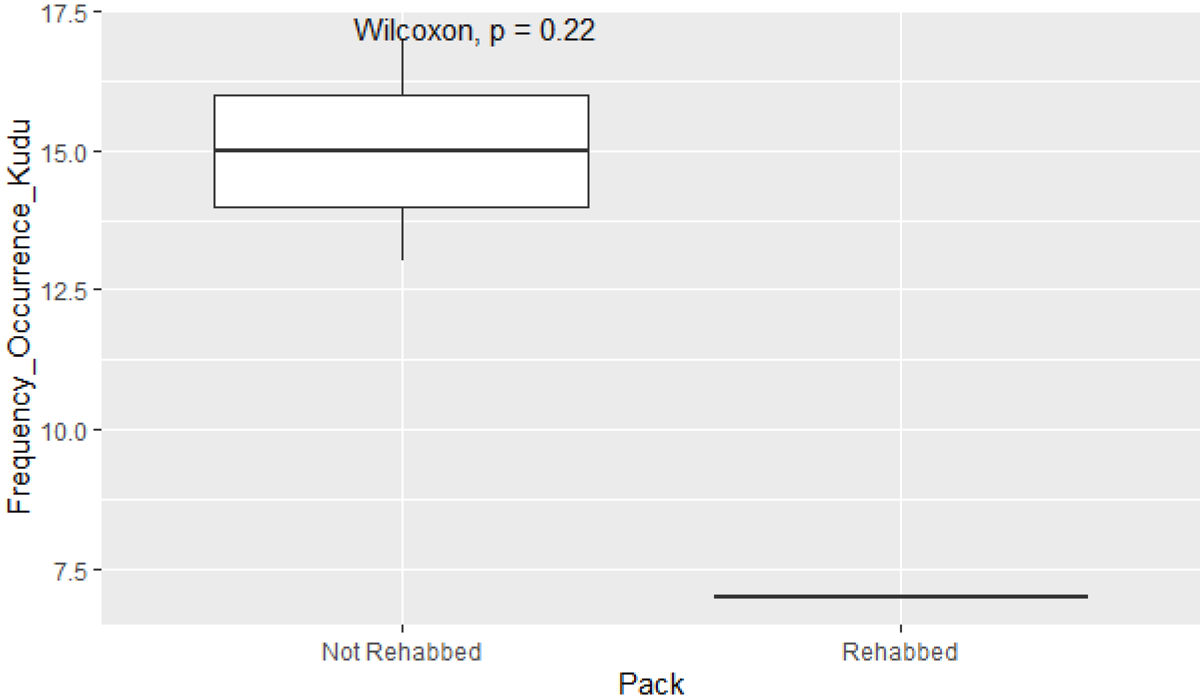
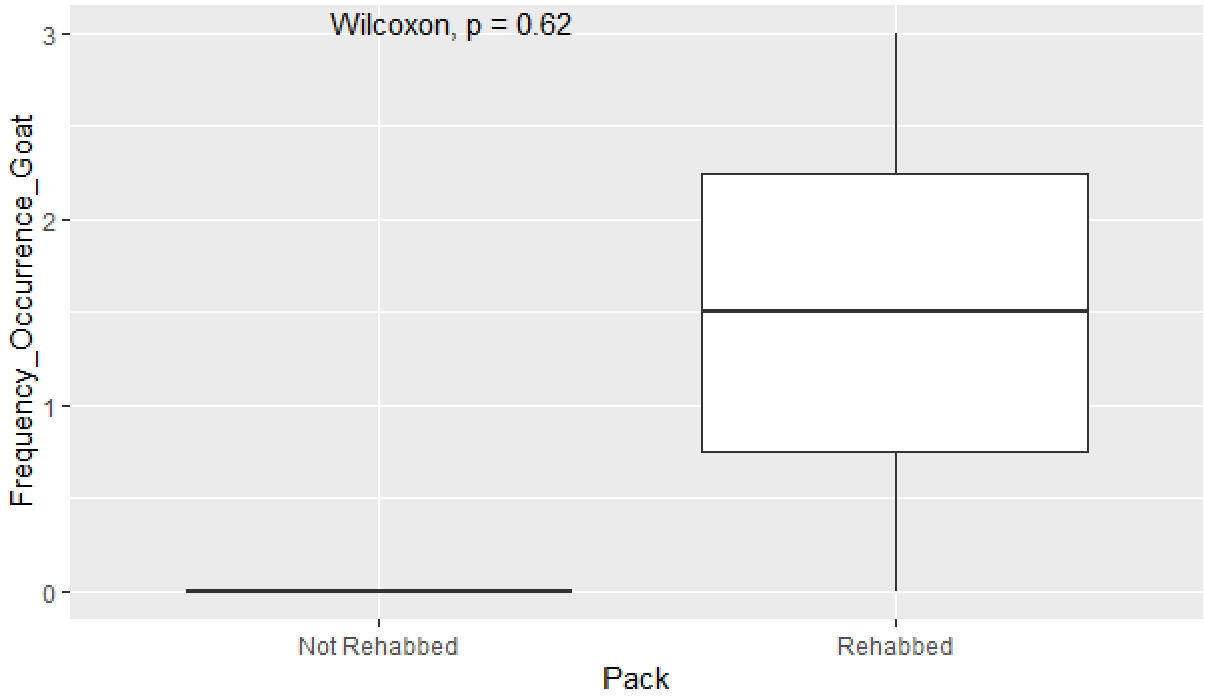


Figure 5: Frequency Occurrence Goat



4.4 Interpretation of the above results

The Wilcoxon test is a non-parametric statistical test used to compare two related samples or repeated measurements on a single sample (Hollander, M.,Wolfe. D. A (1999)]. The p-value represents the probability of observing the results of the study assuming that the null hypothesis is true. If p-value < 0.05: Reject the null hypothesis (statistically significance). If p-value > .05: Fail to reject the null hypothesis [not statistically significant]

All in all, the p-values: 1, 0.67, 0.33, 0.22 and 0.62 for impala, common duiker, bush buck, kudu and goats respectively are all greater than 0.05 (p-value > 0.05) therefore, statistically there is no significance difference between rehabilitated dogs and the not rehabilitated dogs. The rehabilitation facility has no significant difference in the diet of painted dogs as seen by the frequency occurrence of impala, common duiker, bush buck, kudu and goat kills shown above. Meaning that rehabilitated dogs catch goats' just as much as un-rehabilitated dogs. The rehabilitation does not alter the diet of painted dogs therefore we fail or do not reject the null hypothesis

Chapter 5

5.0 Discussion

Wildlife rehabilitation is the treatment and subsequent release of injured wildlife. Wildlife rehabilitation benefits individual animals receiving care, but also supports conservation medicine approaches by providing opportunities to monitor wildlife health, contaminant loads and disease prevalence. However, it is typically considered to have negligible effects on population growth, and has not traditionally been acknowledged as an effective tool for wildlife conservation.

The study found a significant increase in survival probability among rehabilitated painted dogs, which is consistent with previous research on the effectiveness of rehabilitation programs for carnivores [Woodroffe et al., 2017]. However, the results also highlight that the diet after release did not change and this has not been extensively explored in previous research.

This study demonstrates that rehabilitation program at PDC in Hwange National Park requires more resources so as to perfect their work. These findings have important implications for conservation efforts, highlighting the need for continued investment in rehabilitation programs.

Future studies should investigate the long term effects of rehabilitation on painted dog populations, as well as the impact of rehabilitation programs on other aspects of painted dog ecology and behaviour, as well as educating people on the advantages of not persecuting wild dogs because human wildlife conflict or interactions are typically the main cause of admission as stated by Grogan and Kelly., 2010.

Saving individuals can benefit wildlife populations, in certain scenarios. The results illustrate that wildlife rehabilitation can be a tool for wildlife conservation, because intensive rehabilitation efforts can stabilize some endangered populations or at least reduce their chance of extirpation. Rehabilitation efforts are most likely to benefit species with slow life history strategies and the population level benefit of rehabilitation interventions is negligible for species that are capable of rapid exponential population growth. Whether rehabilitation of injured wildlife is performed from an individual- focused perspective, the result is a reduction in mortality rates. Thus, the effect should approximate that of a population reinforcement in the fitness of rehabilitated individuals [Kelly et al.., 2010]. Population reinforcement efforts have prevented a number of extinctions over the past century [Jachowski & Lockhart, 2009; jones et al.., 2008; Walters et al., 2010] and rehabilitation efforts can in theory have a similar effect when practiced on a scale sufficient to offset the key threats to a species. Rehabilitation of individual animals is clearly not always an effective tool for population stabilization, but neither are most other available conservation interventions [translocations, captive breeding and release]. Dodd and Segel, 1991; Magdalena Wolf, Garland, and Griffith, 1998]. If wildlife rehabilitation can be an effective tool in some cases then it should be explicitly included in the conservation science toolbox, and the contributions of wildlife rehabilitators should be recognized and encouraged.

While these efforts can directly inform in situ management, it is unclear whether rehabilitation and release efforts themselves can have population- level impacts [Sleeman & Clark, 2003]. Enrichment in rehabilitation may also reduce the distress a wild animal experiences in captivity. The goals of enrichment programs in rehabilitation include increased diversity and range of expressed normal behaviours and reduced frequency of abnormal behaviour. The benefits of enrichments programs in rehabilitation can encourage natural behaviours and increase quality of life while an animal is in temporary captivity. One particular enrichment we did was hiding pieces of meat in the enclosures and made the dogs find them. This highlighted the critical role of good diet and activities in the rehab for painted dogs. A balanced and nutritious diet is essential for maintaining optimal health and improving survival probability among rehabilitated individuals.

When assessing the success following the release of a wild animal, one is often focused on the individual rather than the population. Measurements may include long term survival and integration into the local population. Success should also be the maintained health of an animal.

Chapter 6

6.0 Limitations, Conclusion and Recommendations

6.1Limitations

The sample size of rehabilitation dogs may be limited, which can impact the accuracy of results. Future studies should aim to increase sample sizes to improve the reliability and generalizability of findings.

The study duration may be limited, which can impact the ability to access long term outcomes.

6.2 Recommendations

There is need for upgrading the rehabilitation facility at Painted Dog Conservation into a more scientific department that deals will the injuries and housing of painted dogs. A veterinary on the site is yet another significant upgrade that needs to be done.

Continuation of community engagements to promote coexistence with painted dogs and address human-wildlife conflict. Local schools continuing to come and taught of painted dogs is also a helpful program.

Providing support for livestock protection measures to reduce human-wildlife conflict for example giving people canvas protection for their kraals instead of using logs as they give easier and more access to their domesticated animals than canvas.

6.3 Conclusion

The rehabilitation facility plays a crucial role in the survival probability and diet of painted dogs. By providing medical care, nutritional support and behavioural enrichment, the facility can significantly improve the chances of survival for injured or orphaned painted dogs

However, it is essential to consider the potential negative effects of rehabilitation, such as habituation and dependence on humans. To mitigate these effects, it is crucial to follow best practices for rehabilitation, including minimizing human interaction, providing naturalistic environments and monitoring health and behaviour.

Ultimately, the success of the rehabilitation facility depends on its ability to provide a safe and supportive environment that promotes the physical and behavioural health of painted dogs. By working together with conservation organizations, researchers and local communities, we can ensure the long term survival of this iconic species.

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7.0 Appendices

Appendix 1: Survival data collection sheet

ID/Dog-recorded dogs starting with those that were alive and died during the study period

Time-Study period duration

Status-recorded alive and dead dogs during the study

Type-Rehabbed or Not Rehabbed

ID/Dog	Time/Duration	Status	Type

1	53	2	1
2	374	2	1
3	14	2	1
4	380	1	1
5	380	1	1
6	380	1	1
7	167	2	2
8	380	1	2
9	380	1	2
10	380	1	1
11	380	1	2
12	380	1	2
13	380	1	2
14	380	1	2
15	380	1	2
16	380	1	2
17	380	1	2
18	380	1	2
19	380	1	2

Appendix 2: Direct Observation Kills

Date-When pack was monitored

Loc-location of the pack and kill site

Prey Killed-species successfully killed and consumed by pack

Date	Pack Name/ID	Loc stats (X. Y)		Prey Species Killed		
04/01/2022	Bachijwa	507619	7926833	Report (goat kill)		
05/01/2022	Bachijwa	507620	7926834	Report (goat kill)		

20/01/2022	Mpindotella	508144	7926860	Kudu		
09/02/2022	Mpindotella	513157	7940567	kudu		
24/03/2022	Mpindotella	497310	7943268	Impala		
22/05/2022	Chowato	429814	7945706	Impala		
31/05/2022	Mpindotella	497997	7938287	impala		
09/06/2022	Mpindotella	521348	7931879	bushbuck		
14/08/2022	Chowato	407088	7941660	Impala		
02/09/2022	Mpindotella	515675	7939590	Bush buck		
04/09/2022	Mpindotella	515713	7939528	bush buck		
19/09/2022	Mpindotella	516946	7939552	bushbuck		
30/09/2022	Mpindotella	514152	7939230	bushbuck		
13/10/2022	Mpindotella	523137	7931685	bushbuck		
17/10/2022	Mpindotella	521606	7931784	bushbuck		
19/10/2022	Mpindotella	521756	7931820	Bush buck		
23/10/2022	Mpindotella	519989	7931883	bushbuck		
28/10/2022	Mpindotella	517585	7940756	bush buck		
28/10/2022	Bachijwa	506150	7938589	Kudu		
06/11/2022	Mpindotella	520099	7937587	commonduiker		
08/11/2022	Mpindotella	519602	7938686	bushbuck		
29/11/2022	Bachijwa	505551	7944417	kudu		
03/12/2022	Bachijwa	520738	7940556	bushbuck		
09/12/2022	Bachijwa	522125	7938159	Bushbuck		
11/12/2022	Bachijwa	525193	7937440	bushbuck		
05/01/2023	Mpindotella	522510	7940856	Bushbuck		
07/01/2023	Mpindotella	523605	7940497	bushbuck		
13/01/2023	Mpindotella	525904	7937129	bushbuck		
14/01/2023	Mpindotella	526502	7936889	bushbuck		
28/01/2023	Mpindotella	501438	7936957	kudu		
24/02/2023	Mpindotella	495232	7938888	kudu		
17/04/2023	Mpindotella	509538	7938734	kudu		
19/04/2023	Mpindotella	511869	7940864	kudu		
03/05/2023	Mpindotella	516953	7942076	Bushbuck		
10/05/2023	Mpindotella	515668	7942449	unknown		
21/05/2023	Mpindotella	518001	7940481	Bushbuck		
06/06/2023	Mpindotella	508922	7943067	bushbuck		
06/06/2023	Mpindotella	508927	7943081	commonduiker		
13/06/2023	Mpindotella	518955	7938576	bush buck		
21/06/2023	Mpindotella	515303	7940854	bush buck		
23/06/2023	Chowato	410018	7934677	Impala		
23/06/2023	Chowato	410018	7934677	Impala		
19/09/2023	Mpindotella	513911	7941704	Bushbuck		
10/10/2023	Mpindotella	513000	7934500	bush buck		
13/10/2023	Mpindotella	526996	7930194	Bushbuck		
30/10/2023	Mpindotella	521837	7939141	bushbuck		

03/11/2023	Umkhonto	514251	7937024	unknown		
13/11/2023	Mpindotella	516217	7931776	Common duiker		
02/12/2023	Umkhonto	511384	7938499	kudu		
13/12/2023	Mpindotella	525996	7929472	Common duiker		
18/12/2023	Umkhonto	498871	7939010	kudu		
09/01/2024	Mpindotella	523631	7940927	bushbuck		
19/01/2024	Umkhonto	510987	7938515	kudu		
23/01/2024	Umkhonto	495268	7937913	kudu		
14/02/2024	Umkhonto	500541	7939874	impala		
19/02/2024	Umkhonto	499219	7943004	Common duiker		
08/03/2024	Umkhonto	493485	7942313	Kudu		
13/03/2024	Umkhonto	492165	7915514	Kudu		
29/03/2024	Umkhonto	496706	7936886	Kudu		
31/03/2024	Umkhonto	512616	7940135	impala		
06/04/2024	Umkhonto	506088	7938583	impala		
13/05/2024	Umkhonto	505984	7943984	Kudu		
14/05/2024	Umkhonto	521390	7940383	Bushbuck		
16/05/2024	Chowato	429757	7942594	Impala		
16/05/2024	Umkhonto	521572	7931106	Kudu		
17/05/2024	Chowato	426869	7944649	impala		
05/06/2024	Umkhonto	516781	7931044	Bushbuck		
15/06/2024	Chowato	433627	7939154	Impala		
18/06/2024	Umkhonto	513093	7924505	common duiker		
29/08/2024	Umkhonto	505543	7928939	Kudu		
30/08/2024	Umkhonto	5112441	7924984	kudu		
04/09/2024	Umkhonto	512315	7929721	Kudu		
21/09/2024	Umkhonto	486983	7890504	common duiker		
01/10/2024	Chowato	426937	7944175	impala		
05/11/2024	Umkhonto	512321	7936281	Kudu		
10/11/2024	Umkhonto	521956	7925973	common duiker		
15/11/2024	Umkhonto	491616	7929156	common duiker		