AN EVALUATION OF THE USE OF SAPS AIR WING AS AN AID IN COMBATING RHINO POACHING

by

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DECLARATION

I, Nkhensani Mildred Maluleke (36967564), declare that this dissertation entitled **An evaluation of the use of SAPS Air Wing as an aid in combating rhino poaching** is my own work and that all the sources, that I have used or quoted have been indicated and acknowledged by means of complete references. This dissertation is submitted for the degree Magister Technologiae in the subject forensic investigation, at the school of criminal justice at the University of South Africa. I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

2020/07/31

SIGNATURE DATE

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DEDICATION

This study is dedicated to my special late mother, Miss Tsakani Isabel Maluleke who worked as a domestic worker and a single mother of five. She paved a way for me and my siblings to get education that she never had. Her inspirational words: “Education is the key to success” motivated me to get where I am today. *Mhani* (mother), I will forever remember your words of wisdom and I promise to use them to inspire others.

ABSTRACT

The poaching of wildlife, in particular rhino poaching, has become a huge concern in South Africa and has reached crisis levels. It has been revealed that rhino poaching is a transnational crime in which criminal networks use sophisticated technology such as helicopters, night vision equipment, and high calibre firearms equipped with silencers to hunt and kill rhinos. Taking into account the high rate of rhino poaching in South Africa, with a specific focus at Kruger National Park, the researcher investigated the role of the South African Police Service Air Wing, its use as an aid in combating rhino poaching, and including the investigation thereto. A qualitative approach was adopted in conducting the study, where interviews, literature, including personal experiences were employed as data collection methods. In terms of the use of the SAPS Air Wing as an aid in combating rhino poaching, the study found that the SAPS Air Wing can be used in three areas, which are prevention, investigation and combating. The study also revealed that investigation into rhino poaching entails criminal and forensic investigation. The study further found that the SAPS Air Wing is not optimally utilised in combating rhino poaching owing to low aircraft serviceability, other operational demands and financial challenges. The study recommends the optimal utilisation of the SAPS Air Wing in combating rhino poaching, including the utilisation of other technological capability such as Remotely Piloted Aircraft Systems (drones).

Key Words: Poaching, rhino poaching, South African Police Air Wing, Investigation.

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LIST OF ABBREVIATIONS

Abbreviation	Description
AME	Aircraft Maintenance Engineer
ALEO	Airborne Law Enforcement Officer
AU	African Union
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRC	Criminal Record Centre
CI	Crime Intelligence
DEA	Department of Environmental Affairs
DNA	Deoxyribonucleic Acid
DPCI	Directorate for Priority Crime Investigation (Hawks)
EMI	Environment Management Inspector
EWT	Endangered Wildlife Trust
FLIR	Forward Looking Infra-Red
IFAW	International Fund for Animal Welfare
KNP	Kruger National Park
LCRC	Local Criminal Record Centre
LEAP	Law Enforcement and Anti-poaching
MAJOC	Mission Area Joint Operational Centre
MO	Modus Operandi
NATJOINTS	National Joint Operational Intelligence Structure
NEMA	National Environmental management Act 107 of 1998
NEMBA	National Environmental Management Biodiversity Act 10 of 2004
NGO	Non-Government Organisation
NIU	National Intervention Unit
ORU	Organised Crime Unit
ORS	Operational Response Service
NVG	Night vision Googles
PIC	Pilot in Command
POCA	Prevention of Organised Crime Act
POE	Port of Entry
RFID	Radio Frequency Identification Devices

Abbreviation	Description
Rhino	Rhinocerotidae
RhODIS	Rhino DNA Index System
SA	South Africa
SADC	Southern African Development Community
SANWCRU	South African National Wildlife Crime Reaction Unit
SANDF	South African National Defence Force
SANParks	South African National Park
SAPF	South African Police Force
SAPS	South African Police Service
SAPS Air Wing	South African Police Service Air Wing
SARPCCO	South African Regional Police Chiefs Cooperation
SARS	South African Revenue Service
STF	Special Task Force
TOPS	Threatened or Protected Species
TCM	Traditional Chinese Medicine
TRT	Tactical Response Team
TRAFFIC	Wildlife Trade Monitoring Network
UNISA	University of South Africa
UN	United Nations
VOC	Venue Operational Centre
WSPA	World Society for the Protection of Animals
WWW	World Wide Web
WWF	World wildlife Fund

CHAPTER 1:
GENERAL ORIENTATION

1.1 INTRODUCTION

Wildlife crime, particularly rhino poaching, is a huge concern in South Africa and has become a national crisis. The killing of rhinos is primarily for securing of the rhino horn which is traded illegally in Asian countries which are influenced by the demand of horn by countries such as China and Vietnam (Montesh, 2012:2). The demand for rhino horns has resulted in organized criminal syndicate networks perpetrating the killing of the rhino. Montesh (2012:2) further explains that rhino poaching can be categorized as transnational organized crime in which criminal networks use sophisticated technology such as helicopters, night vision equipment, and high calibre firearms equipped with silencers to hunt and kill rhinos.

The majority of rhino poaching incidents occur in the Kruger National Park (KNP). According to the 2010-2019 statistics from the Department of Environmental Affairs, a total of 6 418 rhinos have been poached in the KNP. To address the rhino poaching crisis, all mechanisms available must be considered. One such mechanism in combating rhino poaching is the use of the South African Police Service Air Wing (hereafter referred as SAPS Air Wing). The Air Wing can provide effective and efficient airborne Law enforcement as an aid in combating rhino poaching.

The SAPS Air Wing is divided into two sections namely, the Fixed-wing and Helicopter (rotor-wing). A fixed-wing also referred to as an aeroplane refers to an aircraft which is able to fly as the aerodynamics of its fixed-wings generate lift as a result of the airplane's forward airspeed, whilst a rotor-wing or helicopter is as a heavier-than-air aircraft, with rotary wings or blades which revolve around a single mast. One or more rotors supply lift during flight by reactions of the air on the vertical axes (South African Civil Aviation Regulations, 2011).

The helicopter section is the most suitable in combating rhino poaching. The main reasons for providing air support include crime prevention and investigation operations, a speedy response to crime call outs, the fast and timely positioning of security personnel, border patrols, search and rescue, aerial photographs and videos, communication flights and anti-narcotics operations (South African Police Service Airborne Law Enforcement Officer Learning Programme, 2013:46). Furthermore, the SAPS Air Wing forms part of an

additional team, which assists South African National Parks (SAN Parks) with investigations and combating rhino poaching. In addressing rhino poaching in KNP, the SAPS Air Wing provides a supporting role which include:

- transporting specialist to crime scenes for obtaining Deoxyribonucleic acid (DNA) samples;
- Deployment of members on the ground, for example, SANParks, Canine 9 unit (K9), Special Task Force (STF) and Task team members from the SAPS stationed at KNP.

The capabilities of the SAPS helicopters include specialized equipment fitted onto helicopters, for example, powerful searchlights, and forward-looking infrared (FLIR) cameras. The increase in the use of the SAPS Air Wing as an additional resource may provide the stimulus in combating rhino poaching.

1.2 SITE SELECTION

Kruger National Park was selected for this study due to the high population of rhinos and the high statistics of rhino poaching as compared to other parks around the country (also see Table 1.1). Kruger National Park is a South African National Park and one of the largest game reserves in Africa. It covers an area of 19,485 km² in the provinces of Limpopo and Mpumalanga in north eastern South Africa and extends 360 km from north to south and 65 km from east to west. The administrative headquarters is in Skukuza. Areas of the park were first protected by the government of the Republic of South African in 1898, and it became South Africa's first national park in 1926.

The researcher has conducted rhino operation in and around KNP as an Air borne Law Enforcement Officer, which enabled the researcher to gain more experience on how to combat rhino poaching using the SAPS Air Wing helicopters. The researcher believes that it is an ideal place for the research to be conducted, because Skukuza is the head office for air services support. For example, it is equipped with the facilities to safeguard the helicopters after flights to avoid damage by animals such as elephants and from harsh weather conditions such as hail.

Furthermore, the study was conducted in order to evaluate the use of SAPS Air Wing as an aid in combating rhino poaching. Patrolling of the border line is one of the main functions of SAPS Air Wing. The Air Wing patrols the north-eastern part of the park

between South Africa and Mozambique and all the camps within KNP. The use of the helicopters assists in covering most areas where accessibility by vehicle or foot would be time consuming or impossible .

Figure 1.1 depicts the map of Kruger National Park and the geographical location of the gates and the camps within the park. The map further illustrates that KNP is situated along the international borders of three countries namely; South Africa, Zimbabwe and Mozambique. KNP forms part of the Great Limpopo Transfrontier Park (GLTP). The GLTP is a vast wildlife international conservation which interlinks the three mentioned countries, namely the KNP in South Africa, the Gonarezhou National Park in Zimbabwe and Limpopo National Park in Mozambique. This presents an ideal opportunity for cross-border rhino poaching.

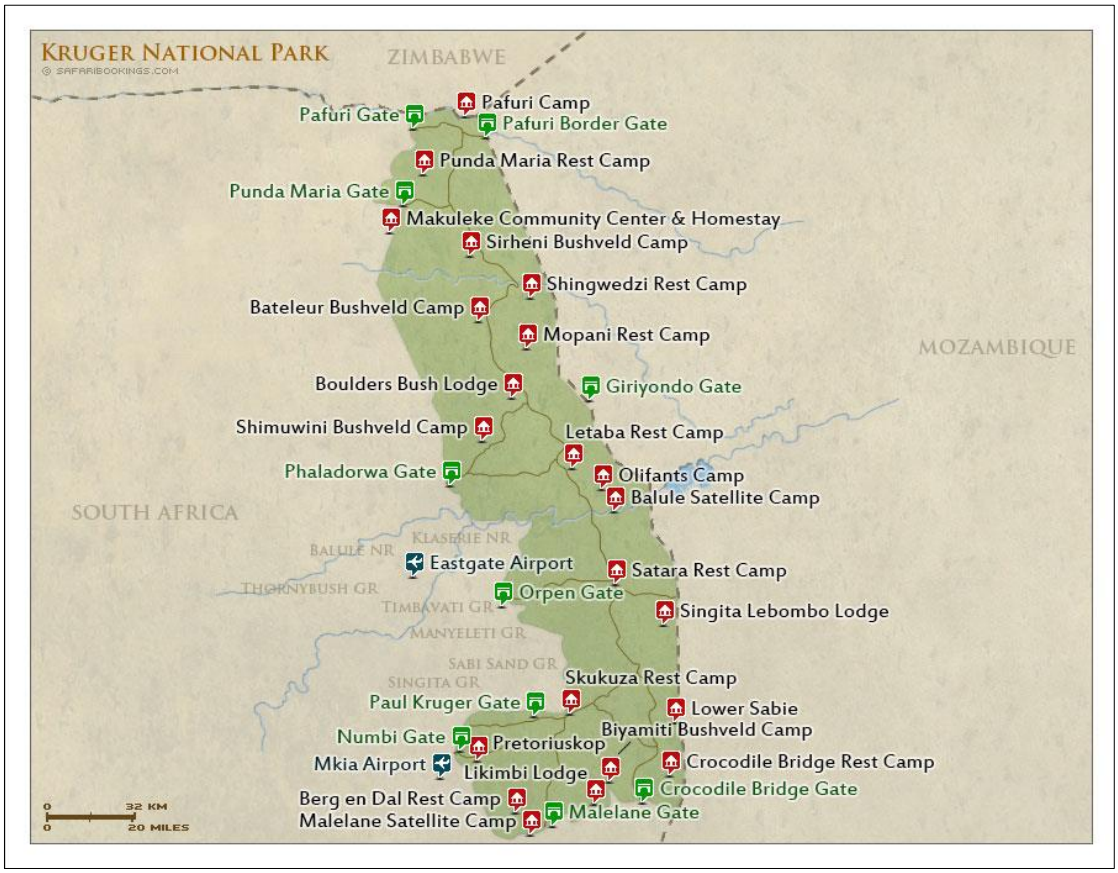

Figure 1. 1: Map of Kruger National Park

Source: SANPark ,2020

In this study, the type of an aid used to combat rhino poaching is the use of South African Police Service Air Wing helicopters and its equipment.

1.3 PROBLEM STATEMENT

Fox and Bayat (2013:13) state that a research problem necessitates breaking down the general interest and focusing on a particular research problem which is small enough to be examined. A problem statement is a provisional solution or clarification of the research and its investigation (Welman, Kruger & Mitchell, 2005:12). Rhino poaching is a huge concern globally, particularly in the conservation fraternity. South Africa represents over 80% of the world's total rhino population. Statistics reveal that in 2014 the highest numbers of rhinos were poached. A total of 1215 rhinos were illegally killed in the country in 2014. This is a 21% increase from 1004 rhinos killed in 2013 (Department of Environmental Affairs, 2015). Table 1.1 highlights the number of rhinos poached nationally for the period 2010 to 2019. Of concern, is the high number of rhinos poached in the KNP (see Table 1.1).

Table 1. 1: Rhinos poached nationally

South Africa	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Kruger National Park	146	252	425	606	827	15	232	504	421	328
MNP-Marakele National Park (SANParks)	0	6	3	3	1	0	0	0	1	0
Gauteng Province	15	9	1	8	5	0	0	4	2	5
Limpopo	52	74	59	114	110	12	30	79	40	45
Mpumalanga	17	31	28	92	83	0	14	49	51	34
North West	57	21	77	87	65	0	15	96	65	32
Eastern Cape	4	11	7	5	15	0	13	12	19	4
Free State	3	4	0	4	4	0	3	38	16	11
Kwazulu Natal	38	34	66	85	99	6	51	222	142	133
Western Cape	0	6	2	0	1	0	0	0	0	0
Northern Cape	1	0	0	0	5	0	5	24	12	4
TOTAL	333	448	668	1004	1215	33	325	1027	769	596

Source: Department of Environmental Affairs, 2010-2019

The high rate of poaching can be attributed to the sophisticated and organized manner and hierarchical levels in which criminals perpetrate this crime. It is therefore incumbent

on the SAPS Air Wing to be at the forefront in combating rhino poaching. Considering the high rate of rhino poaching in South Africa, the researcher investigated and evaluated the use of the SAPS Air Wing Unit as an aid in combating rhino poaching, particularly in the KNP. To understand the role, responsibilities and challenges experienced by the Unit, the researcher conducted a pre-informal one-on-one interview with Dr SB Mahlangu, the Section Head of the Unit, who also holds the rank of Brigadier in the SAPS. The interview revealed the following as the purpose, function, and responsibilities of the Section Head:

- Provide effective and efficient airborne support to all policing environments;
- Coordinate and conduct tasking and provisioning of aircraft for operations; and
- Maintain a serviceable air fleet at all units.

Furthermore, the findings of the interview showed the following;

The use of the SAPS Air Wing is not sufficiently used during initial investigations in rhino poaching because of budgetary constraints and the limited number of helicopters available. Furthermore, the interview indicated types of operations and airborne support that the SAPS Air Wing conduct, including specialised equipment such Forward-Looking Infrared (FLIR) thermal imaging camera systems, searchlights for night operations and hoisting and slinging equipment. In addition, the non-availability of night vision equipment such as night vision goggles (NVG) for the use in police helicopters results in the grounding of helicopters and not to operate at night. These points, therefore, hamper the work of SAPS Air Wing in combating rhino poaching effectively in KNP. It was therefore important that the study evaluate the use of SAPS Air Wing as an aid in combating rhino poaching.

1.4 RESEARCH AIM

Any research aims are “to establish facts, gather new data, and to determine whether there are interesting patterns” contained in the data (Mouton, 1996: 103). Collins (2010:76) is of the view “that an aim is a general statement reflecting the intention or purpose of the chosen area of research” including what the researcher wants to achieve.

The aim of this research was to evaluate the use of SAPS Air Wing as an aid in combating rhino poaching in KNP.

1.5 RESEARCH QUESTIONS

According to Leedy and Ormrod (2014:39), the types of data that the researcher needs to collect is guided by the research questions and these suggest how the researcher should analyse and interpret the data collected. It is, therefore, not uncommon for the researcher to have questions relating to the research problem. Du Plooy-Cilliers, Davis and Bezuidenhout (2014:69) mention that research questions narrow down the topic to a focus area that the study would address. This study seeks to find answers to the following questions:

- What does the SAPS Air Wing entail?
- What does the investigation into rhino poaching entail?
- How can the SAPS Air Wing be used as an aid in combating rhino poaching?

1.6 PURPOSE OF THE RESEARCH

Research is conducted for many different purposes. At its most fundamental level, the purpose of research may be basic or applied (Macnabb, 2010:3). According to Denscombe (2002:25), the purpose of the study is to indicate the focus and direction of the research and provide criteria for the evaluation of the outcomes of the research.

The researcher decided on the following purposes:

- To evaluate the existing role and technology used by SAPS Air Wing in combating rhino poaching, with the intention to determine the strengths and limitations, and to deliberate on how these issues can be improved (Denscombe, 2002:25). The researcher investigated and researched the work of the SAPS Airborne Law Enforcement Officers and interviewed participants in an attempt to determine how the SAPS Air Wing can be used as an aid in combating rhino poaching.
- To scrutinise and study national and international literature in order to discover what the current investigation trends are in relation to this study is (Denscombe, 2002:25). The objective of this research was to accumulate facts and to give an account on the current position both locally and internationally
- To make recommendations for good practice based on the results of the data analysis that address the problem and enhance the effectiveness and efficiency of the Airborne Law Enforcement of SAPS Air Wing in combating rhino poaching.

1.7 KEY THEORETICAL CONCEPTS

1.7.1 Poaching

According to Brockington, Duffy and Igoe (2008:77), poaching is defined as an activity which ranges from hunting for survival with traps and snares. This includes hunting for birds or animals to provide food, as well as hunting in order to acquire wildlife products, such as rhino horn and ivory, which are extremely profitable. Additionally, Booth, McCullum, Mpinga, and Mukute (1994:167), state that poaching can be described as the unlawful hunting of wildlife.

1.7.2 Rhino

“Rhinoceros is described as a very large herbivorous mammal with very thick skin and one or two horns on its snout. It is native to Africa and Asia” (Ercarta World English Dictionary, 1999:1609).

1.7.3 Organised Crime

Hall and Martin (2013:i) define organised crime as groups involved in continuous criminal activities, such as drug traffickers, mafia families, smugglers, violent gangs, swindlers and others.

1.7.4 Air Wing

The SAPS Air Wing is a unit that provides a professional airborne law enforcement service in the support and maintenance of the Constitution of the Republic of South Africa (1996) to the community in general and the South African Police Service in Particular (South African Police Air Wing Mission and Code of Conduct, 2011a:np).

1.7.5 Helicopter

“This is a heavier-than-air aircraft with rotary wings or blades which revolve around a single mast. One or more rotors supply lift during flight by reactions of the air on the vertical axes” (South African Civil Aviation Regulations, 2011: np).

1.8 VALUE OF THE RESEARCH

This study will be a significant means of providing additional data to existing knowledge, resolving practical issues and being relevant to current concerns (Denscombe, 2002:43). For this reason, the researcher is of the opinion that the outcomes of this study will add value to the following fields or institutions:

1.8.1 Academic Community

This study will benefit UNISA and the greater academic community by adding to the body of knowledge. It will assist scholars and researchers as a source for reference material for future research in this field.

1.8.2 Law Enforcement

The findings and recommendations of this research may provide law enforcement agencies with an understanding of the effectiveness of the use of the SAPS Air Wing in combating rhino poaching. Furthermore, it may influence the SAPS and wildlife law enforcement agencies to make use of available technology in combating rhino poaching and other wildlife crimes.

1.8.3 Environmental Department

It is envisaged that nature conversation and the country will benefit by ensuring that the rhino population does not diminish or result in extinction. The frequent visit by the tourists will also boost the economy of South Africa.

1.9 RESEARCH DESIGN AND APPROACH

1.9.1 Design

According to Maxfield and Babbie (2011:1170) research design contains a group of decisions concerning what subject should be studied, amongst what group of inhabitants, what research methods should be used and for what purpose. The topic for this study is an evaluation of the use of SAPS Air Wing as an aid in combating rhino poaching. The research methods included interviews, literature studies, and personal experience. Welman and Kruger (2001:46) submit that a research design illustrates the plan which is used to obtain information from research participants. The researcher identified SAPS Air Wing members and SAPS investigators who are involved in combating rhino poaching in

KNP as research participants. The researcher gained knowledge from them through their experiences.

According to Maxfield and Babbie (2011: 6), empirical research design produces knowledge based on experience or observation. The empirical research design was employed in this study to evaluate and explore the function of SAPS Air Wing in combating rhino poaching. The production of knowledge is important because not much literature is available on the topic. The researcher collected data in the form of interviews, personal experiences and a literature review. The kind of evidence required to address the research question, or the problem is by exploring new ideas regarding the use of SAPS Air Wing and its technology in combating, preventing and investigation rhino poaching.

1.9.2 Research Approach

A qualitative approach was selected for this study as it involves the use and collection of a variety of empirical material through personal experiences, interviews and literature study that describe the interpretation of the problem, and its contribution to the literature or a call for change (Denzin & Lincoln, 2011:3). The research study was exploratory in nature. Leedy and Ormrod (2014:141) describe a qualitative exploratory study as an approach that focuses on phenomena that occur in natural settings and involves capturing and studying the complexity of those phenomena. The topic focused on how SAPS Air Wing can be utilized in combating rhino poaching.

1.10 TARGET POPULATION AND SAMPLING

According to Lodico, Spaulding and Vouegtle (2006:140), a population is the broader unit of individuals that the researcher wishes to comment on. A population is described as the entire selected group of individuals or entities from which information is needed (Du Plooy-Cilliers et al., 2014:132). A target population is the total assembly of units of analysis in relation to the research problem. A sample is a group that is selected from the target population to provide the information needed for the research (Welman et al, 2012:52-53).

The target population for this study included all SAPS Air Wing operational members (pilots, Airborne Law Enforcement Officer (ALEO) and senior management) involved in rhino poaching operations in all 12 SAPS Air Wing units in South Africa and all SAPS

Task team investigators based at the Kruger National Park. However, it was not possible to include all the members because it would cost a lot of money and time, and it is not practical. Therefore, a suitable sample was drawn from the target population.

The sample included SAPS operational members working at the SAPS Air Wing in Pretoria also known as National Heliport and SAPS experienced investigators in KNP who address rhino poaching cases. National Heliport is seconded to the KNP in performing crime prevention functions by providing air support to ground units, for example, SANParks and the South African National Defence Force (SANDF) members at the KNP in the fight against rhino poaching.

National Heliport is made up of a total of seven operational members, which include four Airborne Law Enforcement officers and three pilots. Both the pilots and ALEO's have been involved in combating rhino poaching in the KNP. In order to gain more insight into the functioning, organisation, roles and responsibilities of the Air Wing, the researcher purposefully included the Section Head of SAPS Air Wing. The researcher further and purposefully targeted two Task team members involved as investigators at Kruger National Park in the investigation of rhino poaching cases. Sampling according to Kumar (2011:193), is a process of selecting a small portion from the entire population. However, because of the small population, no sampling methodology was used.

The researcher, therefore, decided to regard all ten participants for this study. The members were divided into different samples namely; sample A consisted of five participants which included four ALEOS and one management official. Sample B consisted of three participants which were all pilots. A further sample C included two SAPS Task team investigators working at the KNP responsible for investigating rhino poaching cases. The reason for including the investigators as participants is that they are experienced, knowledgeable and best placed in investigating rhino poaching at KNP. The investigators are also responsible for the overall operational planning in combating rhino poaching at the KNP.

Purposive sampling is used as a means of acquiring the best information through the selection of individuals most expected to have experience or expertise in order to gain quality information and valuable understanding of the research topic (Denscombe, 2002:35). No sampling was done as the whole population was chosen for this study. This provides an overall sample of ten (10) participants who were interviewed for the study.

1.11 DATA COLLECTION

Leedy and Ormrod (2001:158) contend that in qualitative research, there are various forms of data collection methods that assist researchers in answering their research questions. In this study, the researcher used triangulation by employing primary and secondary data collection methods. Denscombe (2007:134) indicates that triangulation involves the use of different methods and sources of data within the study so that the researcher can have a better understanding of the phenomenon that is being investigated.

It is important to triangulate primary data with secondary data collection methods in this study to ensure the validity of the conclusions as explained by Davies, Francis and Jupp (2011:100). For the purpose of this study, the researcher gathered data by means of the following data collection methods:

- Interviews
- Literature
- Personal experience

1.11.1 Interviews

The foremost method of data or information collection in qualitative research is through interviews. (De Vos, Strydom, Fouche & Delport, 2011:342). Interviewing is the method of gathering primary data used by researchers in pursuing qualitative research strategies. Interviews are the most intrusive of all qualitative approaches (Macnabb, 2002:94). Data was collected using semi-structured one-on-one interviews. Leedy and Ormrod (2014:196) state that in a semi-structured interview, standard questions with one or more specifically targeted or personalised may be used in order to obtain clarity or to further understand a person's reasoning. The participants were interviewed one-on-one, using an interview schedule with open-ended questions. Leedy and Ormrod (2010:188) points out that face-to-face interviews provide the research with the distinct advantage of being able to create a report with the prospective interviewees, and in this way attain their co-operation.

An interview schedule was used to identify the participants and the researcher obtained answers from the research questions. Kumar (2011:145) defines an interview schedule as “a written list of questions, open-ended or closed, prepared for use by an interviewer

in a person to person interaction". The interviews were recorded by writing down each participant's answers within the interview schedule. Names were labelled according to codes to maintain and ensure confidentiality. The digital voice recorder was used, and the recordings were transcribed into texts. Field notes were taken where audio recordings were not possible.

1.11.2 Literature Review

According to Flick (2011:196) literature review refers to all the research literature available on a subject or topic. The researcher should ultimately know the literature related to the topic very well as an extensive literature review has numerous benefits (Leedy & Ormrod, 2014:51). To find the literature for the study, both national and international sources were consulted to obtain data on what has been written about the topic. The sources included books, journals, articles, dissertations, Internet, Google scholar and conference papers on rhino poaching. The researcher also made use of various search engines via the World Wide Web (www) to assist in the retrieval of data from relevant websites. Sources were consulted with the object of answering the research aim and research questions. Mouton (2001:87) states that it is important to conduct a literature review to establish what has already been done in a specific field of study. Preliminary findings have shown that there is information relating to the topic but not the specific topic of this study. In order to address the study, the researcher broke down the topic into keywords which included the following:

- Poaching;
- rhino poaching;
- wildlife crime;
- organised crime;
- airborne law enforcement;
- crime combating;
- Air Wing;
- Helicopters;
- Technology; and
- Illegal hunting.

In order to obtain additional information, the literature review assisted the researcher in what has been written and what needs to be established.

1.11.3 Personal Experience

Cresswell (2014:83) mentioned that the researcher can use his or her own experience but must decide on how and in what way his or her understanding will be introduced in the study. The researcher is an active police officer with 18 years of service in the SAPS. Furthermore, the researcher has twelve years' experience as an Airborne Law Enforcement Officer (ALEO). The researcher has a diploma in Policing and a BTech degree in Policing both obtained from University of South Africa (UNISA). This personal and practical experience assisted the researcher in analysing and evaluating data collected during the interview and literature review.

1.12 DATA ANALYSIS

De Vos et al. (2011:397) describe data analysis as being the process of giving order, structure, and meaning to a large quantity of collected data. The information is collected from participants by using interviews and these are analysed in order to identify patterns and ideas. The analysis focuses on the findings that are derived from research questions. All information collected through interviews using digital voice recording was transcribed. Both the notes and transcribed data were studied. To know data well the researcher has to read and reread the text even when the recorded interviews have been transcribed (Maree, 2007:6). According to Leedy and Ormrod (2014:160), in a qualitative study, "there is no single correct method of analysing data". The data analysis spiral method was used by the researcher in this study for the purpose of analysing the raw data.

The researcher went through the data several times, by using the followings steps:

Transcriptions: data was transcribed from voice recordings into the paper. The researcher listened to the voice recorder repeatedly to be familiar with the recorded interviews and wrote down the relevant data word by word. The purpose was to clean and edit the manuscript by eliminating typographical errors and contradictions.

Check and edit: the researcher checked and edited the transcripts and prepared the data for further analysis. Specific ideas which came to mind were written down.

The entire data were perused to get the sense of what it contains as a whole, and interpretations were done. Categories (examples are; category of poaching, SAPS helicopters, organised crime, and specialised equipment fitted onto helicopters) were

developed, coded and data organised and reduce to manageable pieces to make meaning of the data. A decision was made on the abbreviation of each category, and the codes were placed in alphabetical order.

The themes (rhino poaching and the use of SAPS Air Wing in combating rhino poaching) were examined to identify which ones could be grouped into a smaller number of broader categories and classified each data accordingly in order to give more meaning. Data material belonging to each category were grouped, and preliminary analyses were performed.

The different themes were subsequently presented in an integrated description of the findings. Data reduction through categories and identification of themes enabled the researcher to interpret findings more easily.

The researcher used a computer to store data by using Microsoft Office Excel in the form of spreadsheets.

1.13 METHODS TO ENSURE TRUSTWORTHINESS

According to Kumar (2011:184) areas of difference between quantitative and qualitative research is the use and the importance given to the concepts of validity and reliability. Validity and reliability in qualitative research are defined as trustworthiness and authenticity. The terms reliability and validity are most commonly used in quantitative research (Du Plooy-Cilliers et al, 2014:252).

In qualitative research, the validity and reliability of research are determined in the trustworthiness of the study in terms of credibility or authenticity, transferability, dependability, and confirmability (De Vos et al 2011:419).

1.13.1 Credibility

Trochim and Donnelly (2007:149) state that credibility can be established if the results of qualitative research are credible or believable from the point of view of the participant in the research. Furthermore, they state that as qualitative research studies investigate people's perceptions, experiences, feelings, and beliefs, it is understood that the participants are the best judges to evaluate whether the research findings reflect their opinions and feelings correctly. De Vos et al. (2011:420) state that the researcher

assesses the match between research participant's views, researcher's reconstruction and the representation thereof.

The researcher obtained credibility during the interviews through prolonged engagement with the participants until data saturation occurred. An audio recording was useful to provide a good record. To ensure that the questions were credible, the researcher asked all the participants from the different samples the questions used in the interview schedule that are in line with the research aim, research topic and by interviewing knowledgeable participants on the topic. Furthermore, the researcher obtained credibility by collecting data from books, journals, internet, interviews, and peer-reviewed articles that contain data on the use of SAPS Air Wing as an aid in combating rhino poaching. All sources were cited.

1.13.2 Transferability

As described by De Vos et al. (2011:420) transferability refers to “the extent to which the findings of qualitative research can be transferred to other contexts or settings”. Kumar (2014:219) states that although there is great difficulty in establishing transferability mainly because of the approach that the researcher adopts in qualitative research, to some degree, transferability can be accomplished if the researcher describes the process he or she adopted in great detail such that others can follow and reproduce.

At an academic level and specific to this study, transferability was attained by the evidence of theoretical transference in that the same ideas in the use of the SAPS Air Wing in combating rhino poaching were applied more widely and showed to be relevant in other fields. The researcher ensured transferability by obtaining detail descriptions through the use of purposive sampling to amplify the range of data acquired and to create reports with enough detail and accuracy, to allow decisions regarding the transferability of the study’s findings to other contexts to be made by the reader (Lincoln & Guba, 1985) citation in (Babbie, & Mouton, 2001:277).

1.13.3 Dependability

According to Trochim and Donnelly (2007:149), dependability is a concern with whether we would obtain the same results if we could observe the same thing twice. Anney (2014: 278) mentions that dependability refers to the stability of findings over time. The researcher compared the results with previous national and international research

findings on the use of helicopters as an aid in rhino poaching or any kind of poaching worldwide and explained key differences.

To ensure consistency the study used the same testing instrument, namely an interview schedule to evaluate the methods used to collect data and was consistent across time. The researcher ensured that the answers were written down in the presence of the participants, and acknowledged the sources consulted, for the data to be acceptable.

To ensure the reliability of the study, the researcher interviewed the participants from SAPS Air Wing and SAPS Task team investigators who address rhino poaching or who have a thorough knowledge of the topic. The researcher examined the detailed chronology of research activities and processes or audit trail to determine the reliability of the findings.

1.13.4 Confirmability

Kumar (2014:366) refers confirmability to the degree to which the results obtained through qualitative research can be endorsed or authenticated by others. Confirmability is comparable to reliability in quantitative research. Confirmability is only achievable if both researchers follow the same process in the same way for the results to be compared (Kumar, 2011:185).

To ensure confirmability the researcher asked all the participants the same questions as they appear in the interview schedule during interviews. The researcher kept a record of all the literature consulted, participants' audio recordings and transcriptions to ensure confirmability. This is to ensure that others can depend on the study and confirmability is enhanced when they use the same interview schedule, listen to the same audio recordings, consult all the literature cited and go through the transcriptions.

1.14 ETHICAL CONSIDERATION

The researcher adhered to the ethical code of the University of South Africa (UNISA), policies, and procedures for postgraduate studies (2007:10), which state that the researcher "should respect and protect the dignity, privacy, and confidentiality of the participants". Ethical considerations were adhered to when conducting the research. Ethical issues were considered when collecting and analysing data by ensuring that all

sources are referenced and acknowledged. According to Leedy and Ormord (2014:106), most ethical issues in research fall into one of the following categories:

- *Protection from harm:* The researcher made sure that the participants were not exposed to physical and psychological harm. The assurance was given that their names would not be used during the research.
- *Right to privacy:* Confidentiality was guaranteed to the participants. To ensure the right to privacy, the participants' names and surnames were not used. Instead, alphabets were used to identify them both during the interview and the reporting stage.
- *Voluntary and informed participation*: The participants were informed of consent to participate or not to participate and that participation in the research was voluntary. The researcher requested permission from the SAPS and participants to conduct the study. The permission to conduct the study was granted by both the operational response Services (ORS) division and SAPS research section.
- *Honesty with professional colleagues*: The researcher reported exactly what happened and did not mislead others about the findings. The researcher ensured that all sources were acknowledged, and all consulted sources were included in the comprehensive list of references.

1.15 RESEARCH STRUCTURE

Chapter layout is as follows:

Chapter 1: General orientation

This chapter entails the topic of the research, the problem statement, aim of the research, purpose of the research, research questions, key concepts to clarify the meaning and the value of the research. This is followed by a discussion of the research design, approach, sampling, target population, data collection, data analysis and methods to ensure trustworthiness. Lastly, ethical consideration is included.

Chapter 2: SAPS Air Wing

This Chapter focused on a literature review of the SAPS Air Wing Unit, in which the history of the establishment of the SAPS Air Wing is discussed, its functions, aircraft fleet , the Mission, equipment, and human capital within the SAPS Air Wing.

Chapter 3: Rhino poaching

The investigation into rhino poaching in South Africa, Southern African Development Community (SADC) and Africa as a whole is discussed and how it affects the species, the wildlife conservations as well as the economy.

Chapter 4: The SAPS Air Wing used as a source in combating rhino poaching

The researcher looks at the use of SAPS Air Wing and its technology as an aid in combating rhino poaching. The types of helicopters, the equipment utilized, their functions, the advantages, and disadvantages were discussed. The effectiveness and efficiency of SAPS Air Wing in rhino combating was discussed in detail.

Chapter 5: Findings and recommendations

In this chapter, the findings are discussed, and recommendations made.

CHAPTER 2:
SAPS AIR WING

2.1 INTRODUCTION

Gardner (1995: np) posits that crime deterrence rests on the visibility theory in that the greater the visibility capability of a conspicuous police patrol vehicle, the greater the perceived threat of detection and apprehension. He further indicates that the helicopter in flight is ten times more visible to persons on the ground than conventional patrol unit. In addition, its capability to be seen is much greater because of its greater patrol speed-60 miles per hour as contrasted to 20-25 miles per hour for ground units. Such helicopter capabilities contribute to a significant deterrent effect, for example, robberies, burglaries, and auto thefts decrease significantly.

It was against this backdrop that the researcher provides an overview of the SAPS Air Wing as an airborne law enforcement wing of the South African Police Service. This Chapter focuses on the establishment of the SAPS Air Wing Unit where a brief history to the establishment is discussed, functions of the Air Wing, aircraft fleet used by the Air Wing, Mission, equipment, and the human capital within the SAPS Air Wing.

2.2 HISTORY OF THE SAPS AIR WING

Bosman (1998:128) explains that the then South African Police Force (SAPF) realised the advantages in the use of helicopters to assist in the combating of crime. In October 1985 the SAPF Air Wing, which is the predecessor to the current South African Police Service Air Wing was established. During the formation of the SAPF Air Wing, the South African Air Force played a pivotal role. Due to lack of technical know-how, skills and knowledge in the SAPF, the South African Air Force seconded several pilots to the police to assist in the establishment of the South African Police Air Wing.

The SAPF Air Wing started with one Unit in Pretoria and 5 pilots seconded from the South African Air Force and 4 helicopters (SAPS, 2018b:1). The SAPS Air Wing has since grown into twelve units across the country, (see figure 2.1) for the number and location of various units, with a total of 36 aircrafts of which 24 are helicopters and 12 are fixed wings (aeroplanes). The focus of this study was on helicopter types, since they form the backbone of crime prevention and specifically used in the combating of rhino poaching. The first four helicopters procured during the establishment of the SAPF Air Wing were

the Messerschmitt-Bolkow-Blohm (MBB) BO 105 twin engine turbine (see figure 2.3), (SAPS, 2018b:1). From 1985 to 1992, the SAPS had already procured a total of 17 aircrafts, thirteen of which were helicopters and thirteen of them were still in commission until they were grounded in 2016 due to age, high maintenance costs and scarcity of spare parts.

As part of increasing its air fleet, from 1985 to 1997 the SAPS procured three MBB/Kawasaki twin engine turbine BK117 helicopters (SAPS, 2018b:1). The SAPS is currently still operating one of the three BK117 helicopters. Two of the helicopters were involved in accidents and damaged beyond economical repair and were disposed of (SAPS, 2018b:1). In addition to the above-mentioned helicopters, between 1990 and 1995, the SAPS procured five McDonnell Douglas MD500 single engine helicopters. The SAPS Air Wing operates two of the five McDonnell Douglas MD500 single engine helicopters and three were involved in accidents beyond economical repairs.

During the period 2001 to 2010 the SAPS procured 16 additional helicopters in the form of Eurocopter AS350 B3 single engine turbine and 6 Robinson R44 Piston engine helicopters. The SAPS currently still operate fourteen of the sixteen AS350 B3 single engine turbine helicopters and six Robinson R44 Piston engine helicopters. Of the two AS350B helicopters, one was involved in an accident beyond economical repair and one was grounded due to age and it was not cost effective to rebuild.

The SAPS Air Wing grew rapidly over the years, and currently it has a total of 12 units, thirty-six aircrafts which consist of 24 helicopter type and 12 fixed wing type. It has also a total of 59 pilots and 54 Airborne Law Enforcement Officers (ALEO's and 8 Aircraft Maintenance Engineers (AME's). This aspect of pilots and ALEO's is discussed in detail later under human capital sub heading 2.7.3.

The vision of the SAPS Air Wing is to render a professional, effective and efficient airborne law enforcement service to all citizens of South Africa and in particular to the different Divisions of the South African Police Service (SAPS, 2011a:np). Its mission is to serve as a strategic airborne law enforcement capacity in support of the South African Police Service crime combating strategy (SAPS, 2011a: np). Therefore, it is important that the SAPS Air Wing lives up to its vision and mission statement, particularly when dealing with the crime of rhino poaching and aiding in combating same.

2.3 FUNCTIONS OF THE SAPS AIR WING

The functions of the SAPS Air Wing are to improve police visibility and increase police response by means of the rendering of air support for:

- Crime prevention and investigations;
- Rapid response to crime incidents;
- Rapid deployment of SAPS personnel;
- Anti-narcotics operations;
- Aerial photography and videos;
- Monitoring of public gatherings and major events;
- Borderline operations;
- Communication flights (transportation); and
- Search and rescue operations.

It was against these functions, as indicated in the Division Operational Response Services Annual Operational Plan 2014/2015, that the researcher investigated the role if any, of the SAPS Air Wing in combatting the scourge of rhino poaching in South Africa.

2.4 GEOGRAPHICAL LOCATION OF AIR WING UNITS

Figure 2.1 depicts the number and the geographical location of SAPS Air Wing Units across the country.

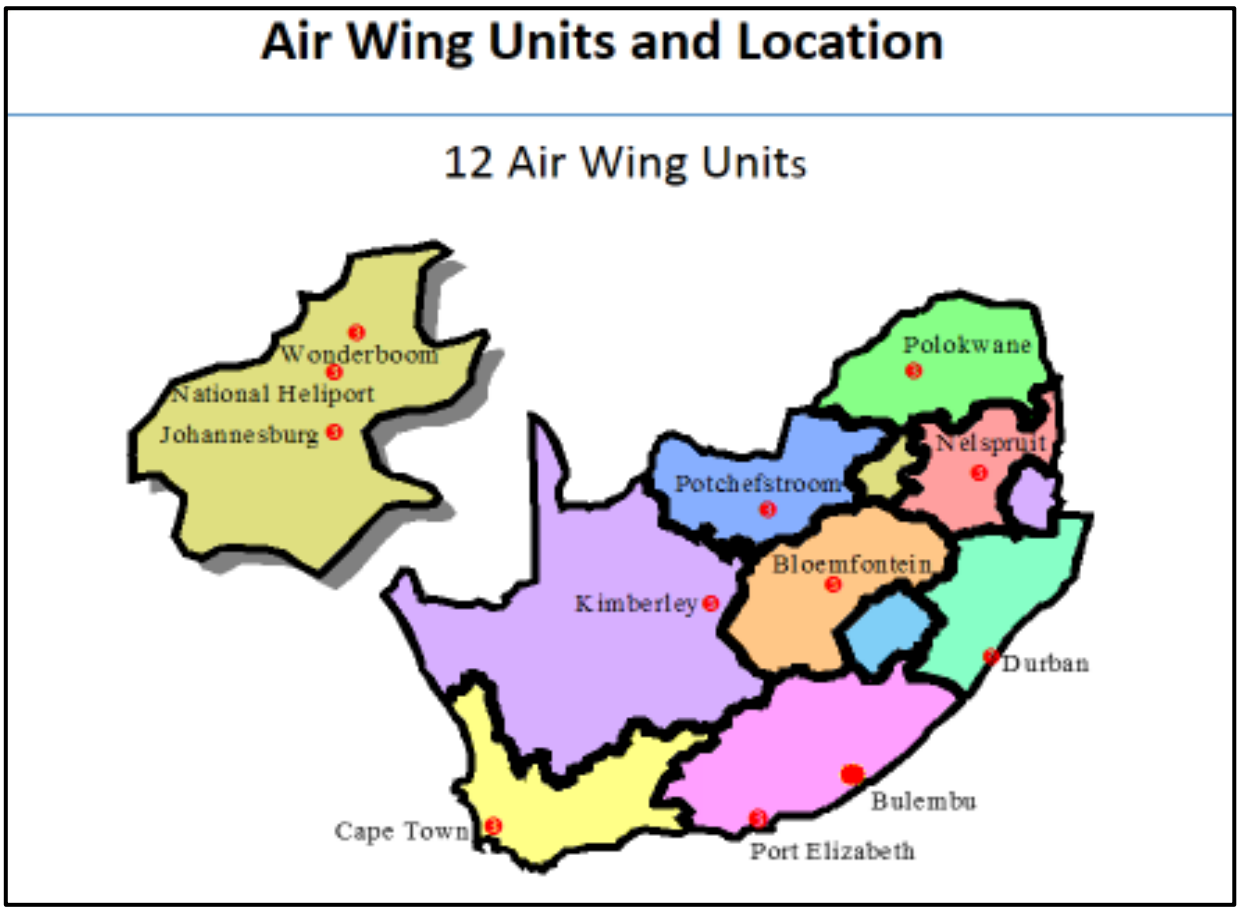

Figure 2. 1: SAPS Air Wing units and location

Source: SAPS, 2019

As indicated, the SAPS Air Wing consists of 12 units across the country with Gauteng Province having three (3), 2 of which are in Pretoria and one (1) in Germiston, east of Johannesburg. The Eastern Cape Province has two units located in Port Elizabeth and East London. The rest of the seven (7) provinces have one (1) unit each.

2.5 SAPS AIR WING HELICOPTER FLEET

As indicated in the preceding paragraphs that SAPS have 24 helicopters within its total fleet of 36 aircraft, the discussion below focuses on the different types of helicopters in SAPS Air Wing. As far as the researcher is concerned, these aircrafts are the backbone in support of policing operations. Figures 2.2, 2.3, 2.4, 2.5 and 2.6 illustrate the types of aircraft that are discussed.

Figure 2. 2: Eurocopter AS 350 B3 Squirrel

Source: SAPS ALEO Training Programme, 2014

The SAPS has procured a total of sixteen (16) AS 350B3 helicopters between the 2001 and 2010. There are currently fourteen (14) of these types of helicopters that are still in operation An AS 350 helicopter is a single turbine engine aircraft with an endurance capacity of three hours inflight. It has a maximum airspeed of 221km/h (120 knots). The aircraft is used for day-to day police crime prevention duties such as crime prevention operations, crime callouts such as armed robberies, cash in-transit heist, etc. It is also used for trooping, cargo slinging, search and rescue operations, crowd management and monitoring of major events. The aircraft carries a maximum of two aircrew and four passengers. The fuel running costs of the aircraft per hour amounted to eight thousand and twenty-six rand (R8 026), (SAPS, 2018b: np).

The aircraft is compatible to mount a cargo sling, hoist, night sun and LEO II observation system with Forward Looking infrared camera system. It also can provide “live streaming” (downlinking) capability when required. This is used mainly during major events to provide live pictures into the command centre or Venue Operational Centre (VOC).

Figure 2. 3: B105 Helicopter

Source: SAPS ALEO Training Programme, 2014

The SAPS has also procured a total of seventeen (17) of these type of aircraft between 1985 and 1992. These aircrafts were decommissioned in 2015 and are no longer used by the organisation. A B105 is a twin-engine aircraft with an endurance capacity of two and half (2, 5) hours inflight. It has a maximum of 212km/h or (115knots/h) airspeed. The aircraft was used for day-to day police crime prevention duties such crime prevention operations, crime callouts such as armed robberies, cash in-transit heist, etc. It is also used for trooping, cargo slinging, search and rescue operations, crowd management and monitoring of major events. The aircraft carries a maximum of two aircrew and three passengers. The fuel running costs of the aircraft per hour amounted to eight thousand rand (R8000.00), (SAPS, 2018b: np).

The aircraft is compatible to mount a cargo sling, hoist, night sun and an observation system such as video camera. It also can provide “live streaming” (downlinking) capability when required. This is used mainly during major events to provide live pictures into the command centre or Venue Operational Centre (VOC).

Figure 2. 4: BK 117 Helicopter

Source: SAPS ALEO Training Programme, 2014

The SAPS has procured a total of three of the type between 1984 and 1987 and only one was still operational during the time when this study was conducted. The two were involved in accidents beyond economical repair. A BK 117 is a twin-engine aircraft with an endurance of two hours inflight. It has a maximum airspeed of 221km/h (120knots). The aircraft is used for day-to day police crime prevention duties such crime prevention operations, crime callouts such as armed robberies, cash in-transit heist (CIT), etc. It is also used for trooping, cargo slinging, search and rescue operations, crowd management and monitoring of major events. The aircraft carries a maximum of two aircrew and six passengers. The fuel running costs of the aircraft per hour amounted to fifteen thousand and five hundred rand per hour (R15500/h), (SAPS, 2018b: np).

Figure 2. 5: McDonnell Douglas MD500

Source: SAPS ALEO Training Programme, 2014

The SAPS Air Wing procured a total of five McDonnell Douglas MD500 single engine turbine helicopters between 1990 and 1995. There were two of the type still operational during at the time the study was conducted. The aircraft has a maximum cruise airspeed of 203km/h (110knots) and an endurance of 2 hours inflight. The aircraft is used for day-to day police crime prevention duties such crime prevention operations, crime callouts such as armed robberies, cash in-transit heist, etc. The two aircrafts that are left are mainly used for cannabis eradication as they are fitted with crop-spraying tanks. The aircraft has the capacity to carry two aircrew and two passengers, with a fuel running cost of approximately seven thousand five hundred rand per hour (R7 500.00).

Figure 2. 6: Robinson R44 Helicopter

Source: SAPS ALEO Training programme, 2014

The SAPS procured a total of six Robinson R44 helicopters in 2008 and all six were still operational when the study was conducted. The Robinson R44 is a piston engine type aircraft with an endurance of two and half hours inflight. They are mainly used for day-to day crime prevention, crime callouts, crowd management, vehicle tracking and monitoring of major events. It has a maximum cruise airspeed of 184km/h (100knots) and it can take two aircrew and one passenger due to mission equipment fitted at the rear sit. The fuel running cost per hour is three thousand two hundred rand. The aircraft is fitted with a Forward Looking Infra-red (FLIR) camera for taking pictures and recording purposes.

2.6 SAPS AIR WING MISSION EQUIPMENT

In order to execute its functions, in addition to being in possession of helicopters, SAPS Air Wing uses other supporting mission equipment. This mission equipment has different functions and are used depending on the mission to be executed. Mission equipment identified and used on a daily basis by the SAPS Air Wing for which the researcher has been trained, is experienced and knowledgeable in their use include the following: night sun, Trakka Beam A800 airborne search light, cargo sling, hoist, long range tanks, LEO

II Observation system which consists of; Forward Looking Infrared (FLIR) Camera, day camera, spotter camera and live streaming equipment.

2.6.1 Night Sun / Search Light

A night sun or search light is used to provide lighting during the night to assist the pilot and Airborne Law Enforcement Officer to see below and on the ground. The SAPS Air Wing currently uses the Carl Zeiss Optronic Trakka Beam A800 Airborne Search Light. The search light can provide between 20 to 30 million candle powers, sufficient to provide adequate lightning for the aircrew (Kotze, 2010:np).

Figure 2. 7: Carl Zeiss A800 airborne search light

Source: Kotze, 2010

2.6.2 Cargo Sling

A cargo sling is a pouch-like apparatus attached to a long line rope used to carry external load and is hooked on the hard points of the helicopter, allowing it to carry the external load, for example Solar powered radio repeaters trailers to the top of the mountain for

SAPS Radio Technical Services, or rescuer on a long line to rescue a drowning person. The details regarding cargo sling will further be dealt with in chapter 4 under heading 4.5. Figure 2.8 illustrate the type of cargo sling used by the SAPS Air wing.

Figure 2. 8: Cargo sling

Source: SAPS Air Wing ALEO M2C5, 2005-2006

2.6.3 Hoist

Helicopters are used throughout the world to effectively rescue and remove people or property from buildings, ships, mountains, etc. The SAPS helicopters are equipped with hoist which has long cables which make the rescue possible even in the most difficult situations (SAPS, 2005:1). The details regarding hoist operations will further be dealt with in chapter 4 under heading 4.5. Figure 2.9 illustrate the type of hoist used by the SAPS Air Wing.

Figure 2. 9: Hoist

Source: SAPS Air Wing ALEO M2C5, 2005-2006

2.6.4 Long Range Tanks

These are also known as ferry tanks and used as auxiliary fuel tanks that can be installed in B105, MD500 and BK117 helicopters to increase the range of helicopters. Each tank holds a maximum of 200 litres of Jet-A-1 (SAPS, 2005:2).

2.6.5 LEO II Observation System

According Kotze (2010: np) SAPS Air Wing has installed a total of seven (7) LEOII-A5-ES type of camera system. The system is capable of providing live coverage from the helicopter into a designated area such as the command and control centre. The system has also a recording capability to record events as they unfold.

Further information regarding the LEO II camera system will be discussed in chapter 4 under heading 4.5. Figure2.10 below depicts the LEO II-A5-ES with its various components.

The System consists of the Control Electronic unit (CEU), which is the central point for transfer of system signals. The CEU communicates with other system modules and the control of the Airborne Observation system is executed by the laptop unit.

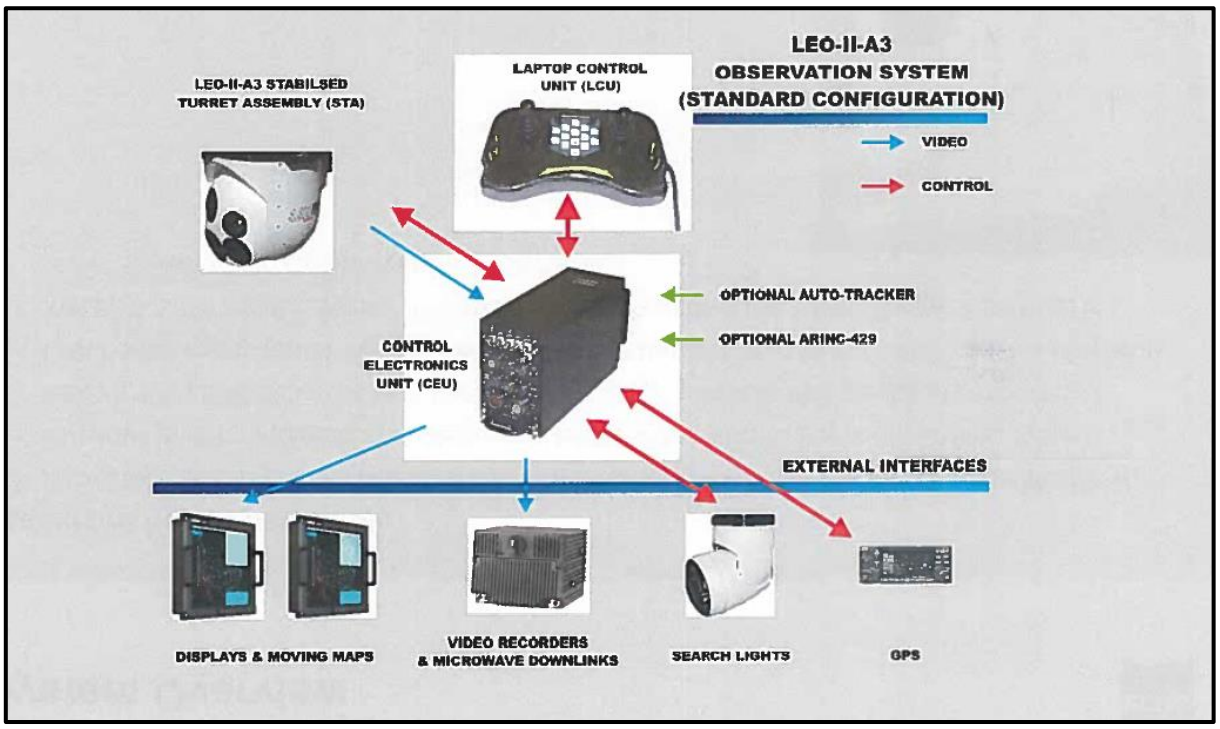

Figure 2. 10: LEO II Observation System Overview: System components (External to system)

Source: Kotze, 2010

2.7 ORGANISATIONAL STRUCTURE OF THE SAPS AIR WING

2.7.1 National Level

The SAPS Air Wing reports to the Divisional Commissioner Operational Response Services (ORS). The Division Operational Response Services consist of five (5) Components which are Component Operational Support, Component National Operational Coordination, Component Border Policing, Component Public Order Policing and Component Specialised Operations.

The SAPS Air Wing is located within the Component Operational Support and reports directly to the Section Head Air Wing, who reports to the Component Head Operational Support. Although the SAPS Air Wing units across the country are national competencies, meaning that they report directly to the national level, they still have a dual responsibility to the Operational Response Services Provincial Head (SAPS, 2016c:6).

2.7.2 Provincial Level

There are currently 12 SAPS Air Wing across the country located at various areas of the provinces (see figure 2.1). As indicated previously that all Air Wing units are of national competency, dual reporting to the provincial level ensures efficient and effective coordination and cooperation at the provincial level.

2.7.3 Human Capital

Although the SAPS Air Wing consists of several disciplines and specialities, the focus of this study is on pilots and Airborne Law Enforcement Officers. The rationale is that the two groups are primarily involved in the day-to-day operational matters.

2.7.3.1 Pilots

By the end of March 2017, there were fifty-two (52) qualified pilots in the SAPS to operate an aircraft fleet of thirty-four aircrafts (SAPS, 2016c: 143). Included in the total of fifty-two (52) pilots, thirty-six (36) were helicopter pilots, nine (9) fixed-wing pilots and seven (7) dual-rated, who can fly both helicopter and fixed-wing.

2.7.3.2 Pilots qualifications and requirements

In order to be enlisted as a senior helicopter pilot in the SAPS Air Wing, part of the requirements include that one must have successfully completed a Commercial Pilot Licence, (CPL (H) on helicopters, have 800 flying hours, of which at least 600 hours must be on helicopters (SAPS, 2016c:8). To be enlisted as a senior fixed-wing pilot part of the requirements include that one must have completed a Commercial Pilot Licence (A) on aeroplanes, with 1000 hours of flying (SAPS, 2016c:8)

2.7.3.3 Roles and Responsibilities of Pilots

The following roles and responsibilities are attributed to the Pilot-In Command that is the Pilot who is a charge of the aircraft and the operation of the aircraft: -

- Be responsible for the safe operation (piloting) of the aircraft and safety of the occupants and cargo during flight time;

- Have authority to give all commands he or she deems necessary for securing the safety of the aircraft and persons or property carried therein, and all persons carried in the aircraft shall obey such commands;
- Have authority to disembark any person, or any part of the cargo, which in his or her opinion, may represent a potential hazard to the safety of the aircraft or its occupants;
- Not allow any person to be carried on the aircraft who appears to be under the influence of alcohol, or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered;
- Ensure that all passengers are briefed on the location of emergency exits and use of relevant safety and emergency equipment;
- Ensure that all operational procedures and checklists are complied with;
- Take reasonable steps to ensure that the aircraft and any required equipment is serviced;
- Ensure that all special purposes equipment is correctly fitted to the aircraft; and
- Take all reasonable steps to ensure that the aircraft mass and balance is within the calculated limits for the operating conditions.

2.7.4 Airborne Law Enforcement Officer

An Airborne Law Enforcement Officer is a trained air crew assisting the pilot-in Command during police operations. There are currently 54 Airborne Law Enforcement Officers spread across various Air Wing units in the SAPS.

2.7.4.1 ALEO qualifications and requirements

To be enlisted as an Airborne Law Enforcement Officer, amongst other qualifications, one must at least have three (3) years functional policing experience, not suffering from acrophobia and claustrophobia, being between twenty-two (22) and thirty (30) years of age. One also needs to pass a psychometric and physical evaluation.

2.7.4.2 Roles and Responsibilities of Airborne Law Enforcement Officer

Amongst others, the primary roles and responsibilities of the Airborne Law Enforcement Officer are to ensure the following:

- Install all the special purposes equipment on the aircraft for specialised operational equipment, including among others:
    - Hoist;
    - Cargo sling;
    - Night sun;
    - Forward-Looking Infrared (FLIR) Camera;
    - Ferry tanks;
    - Fast rope equipment;
    - LEO II Camera;
    - Configure the aircraft according to the aircraft request form as received from the operations room;
    - Refuel the aircraft at and away from the home unit;
    - Perform fuel checks, as required;
    - Prepare the aircraft for flight and position it on the flight line;
    - Ensure that all equipment on board the aircraft is safe and secure and correctly installed. Ensure that all hatches and harnesses are secured; and
    - Conduct full passenger briefings.
    - Command and control all police activities by:
    - Monitoring police radio frequencies;
    - Controlling ground forces;
    - Communicating with the Pilot-In Command regarding operations;
    - Look out for other aircraft, wires and other obstructions;
    - See to the safety and comfort of the passengers;
    - Patter the PIC during all special operations, e.g. hoisting, cargo slinging; confined landings, fast roping, night operations and para-jumps;
    - Operate the night sun and observation systems during special operations; and
    - Complete the flight tasking form.

2.8 TYPES OF OPERATIONS CONDUCTED BY SAPS AIR WING

Based on the experience of the researcher as an Airborne Law Enforcement Officer in the SAPS Air Wing, besides conducting crime prevention, investigation and combating operations, SAPS Air Wing units are also involved in various specialised operations such as hoisting, cargo slinging, trooping, confined landing and fast-roping. These operations

are authorised under the SAPS Air Wing Helicopter Amendment Operational Manual of 2014, issue 3 (SAPS, 2018a:np). See annexure “E”.

2.8.1 Hoisting Operation

The art of hoisting is practiced when circumstances or terrain dictates that the aircraft cannot land or descend low enough for the task e, g rescue to be performed (SAPS, 2005:2). Furthermore, the hoist is used to retrieve or place a person into or out of a confined area, normally inaccessible on foot or by vehicle. This operation may take place on land, at the base of a cliff or water.

This involves the ALEO being attached to the aircraft using a personnel restraint cable, or "monkey chain" and operating the hoist while standing outside the helicopter on the steps, controlling the hoist cable and hoist controller. Once the target has been identified, the aircraft will be moved into a position close to the target. As the target disappears under the aircraft, the pilot will hand over the verbal manoeuvering of the aircraft to the ALEO. The ALEO, through the verbal communication with the pilot as to the progress of the hoist operation, will also have to constantly check on the status of the tail rotor and main tail rotor blades concerning obstacles, as well as the height of the belly of the aircraft above potentially hazardous obstacles. As soon as it is safe, the ALEO will safely hook the object to the hoist cable and signal to the pilot to start pulling the object from the ground to the identified dropping zone. This operation can be conducted for rescue operations in confined areas, valleys and mountainous areas, buildings, vessels, etc., by dropping or picking up any object such as dead bodies, persons, and loads, etc.

2.8.2 Cargo Slinging Operation

Cargo slinging operation can be described as the process when an external hook is attached to the hard points beneath the helicopter, allowing it to carry an external load for example; solar-powered repeaters trailers to the top mountains for SAPS Radio Technical Services, or a rescuer on a long line to rescue a person from drowning in a river (SAPS, 2005:9).

Depending on the type of helicopter and the load to be carried, there exist two methods of cargo slinging (SAPS, 2005:1). The first method is with a qualified and trained ALEO to keep a visual lookout on the load during flight, and the second method is with a strategically placed mirror which is attached externally and below the pilot's feet enabling

him or her to observe the load. The SAPS Air Wing prefers the first method, as it is the safest and secure method.

There are three types of cargo which the SAPS Air Wing may come across during their operations. These include heavy cargo, light cargo and aerodynamic cargo (SAPS, 2005:1). Heavy cargo is the most stable load which may include cement bags. Light cargo is very unstable and difficult to sling and include bodies. Aerodynamic cargo loads are unstable until the forward speed is achieved whereupon stability increases. Example of these loads is solar panels.

For cargo slinging purposes, cargo is generally placed into a cargo net which should be of enough size to maintain the cargo. The cargo or load is attached or hooked on the helicopter cargo hook and uplifted to the identified area.

2.8.3 Trooping or Confined Landings

Trooping operations can be described as the movement of personnel in small groups from one area to another using helicopters and include tasks such as anti-stock theft, cannabis eradication or firearm control operations in rural and urban areas (SAPS, 2005:9). These may include positioning members of the Special Task Force at the crime scene, top of buildings or at uncontrolled landing sites in urban or rural areas.

2.8.4 Fast Roping

The process of fast-roping includes the dropping of members of specialised units such as the Special Task Force and National Intervention Unit by using ropes attached from helicopters and descending into areas where the helicopter cannot land, due to the unconducive terrain (SAPS, 2011b:np). These can take place on top of the building in urban areas or confined areas in rural areas where it is impossible for the helicopter to land.

Taking into consideration that the primary objective of this study was to determine the use of the SAPS Air Wing as an aid in combatting rhino poaching, it was incumbent upon the researcher to also assess the relevancy of the above-mentioned operations in relation to the investigation, combating and prevention of rhino poaching to be discussed later in this study.

2.9 INTERNATIONAL AND NATIONAL OPERATIONS CONDUCTED BY SAPS AIR WING

2.9.1 International Operations

After the first democratic elections and the installation of a democratically elected government, the country was accepted internationally and was expected to take its rightful position in the community of nations (Mahlangu, 2016:3).The author further posits that as a member of the global community South Africa was expected to participate in global activities such as economic, political, environmental, security and social activities.

Several international crime prevention initiatives have been undertaken by the SAPS Air Wing aircrew; most notably the following:

- Mozambique- Operation Rachel
- Haiti- Independence Celebration
- Comoros- National Elections
- Uganda- National Election
- Kenya- ICC Cricket World Cup
- Namibia/Angola- Firearm destruction
- Botswana- the establishment of Air wing.
- Swaziland- cannabis eradication

Some of these operations were sanctioned under the auspices of the Southern African Development Community (SADC) and South African Regional Police Chiefs Cooperation (SARPCCO) Protocols, especially on transnational organised crime. From experience, the researcher can attest to various operations where she participated and assisted the pilot. One such operation involves a Beitbridge border operation undertaken to assist in the identification of motor vehicles that were stolen in South Africa and taken across the border to Zimbabwe and Mozambique.

An operation can be driven by intelligence information whereby the intelligence community provide intelligence information which may lead to an operation being planned and executed. Sometimes an operation can be necessitated by current crime situation or crime statistics at a particular area. A detailed operational plan is developed; informed by situational analysis, the objective of the operation, resources required, command and control, communication protocol, including essential elements and risk associated with

the operation. The operation is closed with a debriefing session that takes place immediately after the operation or days after the operation, depending on the circumstances.

2.9.2 National Operations

As part of its daily operations, the SAPS Air Wing has been involved in a total of 5 287 hours during the period 2015/16 financial year (SAPS, 2016c:154). Of the above-mentioned hours, 4 217.8 were operational hours which were flown for crime-related matters such as callouts (1 566.7), crime prevention (1 130.7), planned operations (999.3) and assistance to specialised forces (521.1). Callout operations include airborne assistance in incidents such as armed robberies, house robberies, hijackings, vehicle theft, stock theft, serious and violent crimes investigations, unrest related incidents and crowd control, operational support to other units and search and rescue incidents.

A total of 1 069.9 hours was flown for flights that were not crime-related, such as communication flights (367.4), air shows (19.3), training (493.8) and maintenance flights (189.4).

As part of the SAPS Cannabis Eradication Programme, a cannabis eradication operation was executed in two areas of Kingdom of Eswatini, namely Nhlangano and Piggs Peaks (SAPS, 2016c:154). A total of 380.7 hectares of cannabis field were sprayed using helicopters from 16 June 2015 to 28 June 2015.

Although there are numerous instances of success achieved by the SAPS Air Wing during various national operations, these achievements are recorded under the various units supported by the SAPS Air Wing, for the simple reason of avoiding double reporting which may provide incorrect crime statistics. Therefore, this study only has the intention to provide successes achieved by the SAPS Air Wing in KNP and not any other operational successes. In most cases, the SAPS Air Wing plays a supporting role to other police units on the ground.

During the period 1 April 2016 to 31 March 2017, the SAPS Air Wing flew a total of 6 026.9 hours (SAPS, 2017:143). This was more compared to 5 287.7 hours flown during the same period in 2015/16. This includes 4 603.2 operational hours for crime-related matters such as callouts (1 748.9 hours), crime prevention (1 038.4 hours), planned operations (1 332.8 hours) and assistance to specialised forces (483.2 hours). A total of

1 423.6 hours was flown for non-crime related flights including communication flights (465.1 hours), shows (93.3 hours) training (659, 4 hours) and maintenance flights (205.8 hours).

As part of the national operations for the period April 2017 to 31 March 2018, the SAPS Air Wing flew a total of 4 854.8 hours (SAPS, 2018b:133). This was far less compared to the same period during 2016/17. The operational hours decrease from 4603,2 to 4053,3. As it is not part of the scope of this study to investigate the reasons for such a decrease, it was interesting to note such variance which calls for future investigation.

2.10 SUMMARY

Rhino poaching is a challenge which is resolved by interventions from a single government agency or affected private companies. It is important to highlight the fact that multiple interventions are required to deal with the problem. Therefore, this chapter provided an overview of the SAPS Air Wing as one of policing units which play a very important role in providing air support to various stakeholders involved in combating rhino poaching.

This chapter outlined the capabilities of the SAPS Air Wing including its operational structure. The chapter further highlighted the SAPS Air Wing which is equipped with different equipment which is installed in helicopters for use during crime prevention, investigation and combating operations such as rhino poaching. The chapter shows that SAPS Air Wing has a total of 12 Air Wing units around the country and a total of 24 helicopters which help them fulfil their functions, both nationally and internationally. The following chapter discusses the investigation into rhino poaching.

CHAPTER 3:
THE INVESTIGATION OF RHINO POACHING

3.1 INTRODUCTION

The investigation into rhino poaching is twofold, namely, it involves criminal investigation and forensic investigation. The South African Police Service (SAPS) is at the forefront of forensic and criminal investigations into rhino poaching cases in the Kruger National Park (KNP). The SAPS is mandated in terms of section 205 of the Constitution of the Republic of South Africa (Act 108 of 1996) to detect, investigate and prevent all forms of organized crime in South Africa (SA) which include rhino poaching cases and wildlife crime trafficking (South Africa, 108 of 1996). Geldenhuys, (2016:44) states that the Minister of Environmental Affairs approached the Minister of Police for assistance concerning the increase of rhino poaching in KNP. The collaboration between the two departments resulted in the detached duties by various SAPS units, namely, SAPS Air wing, Special task force, Local Criminal Record Centre (LCRC), K9 unit and Crime Intelligence. However, Investigations into rhino poaching are not limited to law enforcement and involve other role players such as the South Africa Revenue Service (SARS), South Africa National Parks (SANParks) and South Africa National Defence Force (SANDF).

This chapter deals with rhino poaching in South Africa, particularly in Kruger National Park (KNP). Rhino poaching is a huge challenge in South Africa, especially at the KNP which is the home of the largest population of black rhino (*Diceros bicornis*) and white rhino (*Ceratothrium simum*). The discussion of forensic investigation and criminal investigation, as reactive methods in combating rhino poaching, is discussed to understand the importance of these themes in the investigation of rhino poaching crimes. The investigation of rhino poaching by both the South African Police Service (SAPS) and the South African National Parks (SANParks) will be explained to understand how these authorities are working to combat the illegal killings of rhinos.

The method used by poachers including understanding rhino poaching as an organized crime will be explained. Furthermore, the legal framework about wildlife poaching, for example, the International Convention on the trade in Endangered Species of Wild Fauna and Flora (CITES), The National Environmental Management Act (NEMA) and The National Environmental Management Biodiversity Act (NEMBA) are also discussed.

Various prevention methods by the Southern African Development Community (SADC), South Africa and the international community are discussed.

3.2 INVESTIGATION OF RHINO POACHING

The Investigation of rhino poaching crimes emanated from international legislation as stipulated by the Convention on the International Trade in Endangered Species of Flora and Fauna (also known as CITES) which covers the illegal trade of endangered species and pronounces which species are protected (Taylor & Francis, 2009: 62). Poaching is an illegal activity which ranges from hunting for survival with traps and snares. This includes hunting for birds or animals to provide food, as well as hunting in order to acquire wildlife products, such as rhino horn and ivory, which are extremely profitable (See Brockington, Duffy & Igoe, 2008: 77, Booth, McCullum, Mpinga & Mukute, 1994: 167). Wildlife crimes include the taking, possession, trade or movement, processing, and consumption of wild animals and plants or in contravention of any international, regional or national legislation (Natarajan, 2013: 9). The rhinoceros is part of the wildlife and therefore susceptible to the crime of poaching.

The rhinoceros is described as a very large herbivorous mammal with very thick skin and one or two horns on its snout and is native to Africa and Asia (Encarta World English Dictionary, 1999: 1609). The investigation into rhino poaching is twofold, namely, criminal investigation and forensic investigation. Both investigations methods complement each other in finding a solution to the crime with the help of objective and subjective clues (Du Prize, 1996:1). The criminal investigation into rhino poaching is reliant on crime scene management, intelligence information, collection of exhibits and the tracing and arrest of suspects while forensic investigations include the scientific analyses of exhibits.

3.3 CRIMINAL INVESTIGATIONS INTO RHINO POACHING

3.3.1 Criminal Investigations

According to Gilbert (2010:34), “The criminal investigation is a logical, objective, legal inquiry involving a possible criminal activity”. Sharma (2006:4) defines criminal investigations as the evidence collection *vis-a-vis* a crime, in an effort to find out the truth and to provide legal evidence against the perpetrator(s) of the criminal act(s). Palmiotto (2013:4) elaborates that criminal investigation is a thinking and reasoning process. Palmiotto further states that the primary objective is to collect facts about a criminal

situation. Becker and Dutelle (2013:7) state that criminal investigation involves applying scientific methods to the analysis of a crime situation. The literature reviewed defines criminal investigation as the reconstruction of a past event by discovering, collecting, preparing, identifying and presenting evidence to solve the crime and institute successful prosecution.

Brandl (2008:4) states that the most usual and relevant reasons for a criminal investigation are to:

- Resolve the crime;
- Supply evidence to support the conviction in a court of law; and
- Provide a level of service to satisfy crime victims.

Palmiotto (2013:14) and Gilbert (2010:56) states that the investigation of criminal offences by the police can be divided into three phases, namely;

- The preliminary investigation;
- The in-depth investigation; and
- The concluding investigation.

3.3.1.1 Preliminary investigation in rhino poaching

Gilbert (2010:56) mentions that a preliminary investigation consists of the first disclosure of the criminal offence to the investigation. While Becker and Dutelle (2013:152) describe the preliminary investigation as the police agency's first response to report that a crime has been committed. According to the researcher's experience, members of the SAPS Air Wing in most cases are the first to be exposed to preliminary rhino crime scenes and are the ones who are able to locate the poachers. Palmetto (2013:14) elaborates by mentioning that a preliminary investigation is initiated when a police officer answers a citizen's complaint of a record crime. The preliminary investigation provides the foundation for the criminal case. The author further states that it is aimed at identifying the offender, determining what occurred, locating witnesses if available, and obtaining physical evidence.

According to ten (10) participants interviewed from a samples A, B and C, specific information about the crime should be accumulated during preliminary investigations and include:

- Searching for evidence such as weapons, cartridges and shoe prints;
- Questioning suspects, victims and witnesses;
- Recording all statements;
- Identifying and individualising evidence at the scene;
- Examining signal using scientific methodology, for example conducting an autopsy on the carcass of the rhino at the crime scene; and
- Collecting, and processing physical evidence and photographs.

Becker and Dutelle (2013:152) mention that the primary objectives of preliminary investigation are to determine that a crime actually occurred, discover who committed the crime, ensure that all evidence discovered is handled to foster admissibility at the time of trial, apprehend the offender and obtain conviction (also see Palmetto: 2013:14). The researcher's view is that, in order to discover whether the crime was committed, one must first recover the rhino carcass and apprehend the offender. Preliminary investigation is the most important aspect of the criminal investigation process and follow-up investigation should be continued (Palmetto, 2013: 15, Becker & Dutelle, 2013:152).

To the question, "What is the role of preliminary investigations in criminal and forensic investigations in rhino poaching?'', five (5) participants from sample A and two (2) participants from sample C stated that the role involves the first exposure of the criminal offence to the investigative effort and it involves one of the following points:

- Offence determined;
- Suspect arrested;
- Crime scene protected;
- Crime scene processed;
- Basic statements taken; and
- Victims and witnesses identified.

Three (3) participants from sample B were not asked about the above question because it was irrelevant to them.

As an Airborne Law Enforcement Officer (ALEO) in the SAPS Air Wing based in Pretoria West, the researcher postulates that the SAPS Air Wing is involved mainly with the first phase of the investigation, namely, preliminary investigation. This is because the SAPS

Air Wing is part of the team that responds to the initial callout when the Rangers are in contact with the poachers.

3.3.1.2 In-depth investigation in rhino poaching

The follow-up or in-depth investigation indicates the existence of solvability factors or leads for a detective to continue (Palmetto, 2013:15). The purpose is to identify leads and follow them as far as possible toward apprehending the criminal. The detectives also compare the case under investigation with similar cases in hopes of linking similar crimes together. The objectives of solving each case depend upon the case and the individual investigator. The detective has the final responsibility for preparing the case for prosecution.

Becker and Dutelle (2013:157) state that once the initial report of a crime is received, an investigator is assigned, and follow-up investigation begins. The author's further state that any evidence collected as part of the investigation is to be sent to the crime laboratory for comparison and testing. Gilbert (2010:61) states that the in-depth investigation is the sole responsibility of the detective and usually involves a longer period than the preliminary investigation.

According to the two participants from sample C (detectives), their role in investigations into rhino poaching entails the following elements:

- A search for the crime scene;
- Photographing and sketching the crime scene;
- The collection and processing of physical evidence in such a way that the integrity of the evidence is not compromised during the process;
- The interrogation of suspects;
- Keeping up-to-date field notes and writing preliminary, follow-up, and supplementary reports, as well as reporting on all arrests made;
- Keeping a close watch on suspects and known criminals;
- Obtaining DNA analysis from rhino carcass;
- Arresting perpetrators;
- Preparing the case for court; and
- Testifying in court

The five (5) participants from sample A and three (3) participants from sample B were not able to make a point because the question was irrelevant to them.

Palmiotto (2013:6) mentions that the responsibility of investigators is to gather all the facts that may relate to solving the crime. They seek the truth about a specific event. Palmetto further explains that to be successful, the investigators must develop cooperation with the patrol force and crime lab personnel and be able to communicate with the people in all socio-economic classes and professions (also see Palmetto, 2013: 6, Becker & Dulette 2013:17, 2009:12 Bennet & Hess, 2004:5-6).

A summarised response from sample C participants shows that the role of the criminal investigator is to locate only the relevant evidence and thereafter to hand it over to trained technicians for processing. The criminal investigator not only finds evidence but is also the individual who is responsible for maintaining all the evidence that is collected at the crime scene, which includes photographing and tagging the evidence (also see Becker & Dutelle, 2013:18).

According to the researcher's experience, the role of the detectives at KNP is to receive the poachers handed to them by the SANParks officials, SAPS Air Wing or the Local Criminal Record Centre (LCRC) official, when an arrest is made. They are then required to register a case at Skukuza Police Station. The reasons for this are attributed to the rhino crime scenes which are often located in thick dense bush and that the terrain is challenging when trying to access on foot which would take a long period to access. Officials who often attend such crime scenes include two members from SAPS Air Wing, an investigator, a member from the LCRC and an official from SANParks Environmental Management Inspectorate (EMI).

3.3.1.3 The conclusion phase of the investigation in rhino poaching

Gilbert (2010:63) points out that the concluding stage is the outgrowth of the preliminary and the follow-up investigation. A summarised response from participants in sample C shows that during the concluding inquiry, the investigation officer works closely with the prosecutor in the preparation of the criminal case. Zinn and Dintwe (2015:250) further elaborate by mentioning that the concluding phase is also called the judicial phase of investigation or the rounding off phase, which includes the submission of official reports and forms, disposal of exhibits and closure of file or cases. The authors further state that

the judicial phase of a forensic investigation is the final stage of investigation where the evidence that has been obtained during the preliminary and further investigation is presented and tested in court.

Expert witnesses in rhino poaching cases are very important as most of the evidence is the results from the laboratory, expert witnesses include ballistics, criminology, biology, etc. (Zinn & Dintwe, 2015:271). According to all ten participants, the laboratory results are very crucial in a court of law, as they link the deoxyribonucleic acid (DNA) sample obtained from the rhino horn in the possession of the suspects and the DNA sample obtained from the rhino carcass. As part of the conclusion phase, participants stated that every person who plays a specialised role in the investigation phase may be required to give evidence in a court of law.

3.3.2 The Role of South African Police Service Local Criminal Record Centre (LCRC) in Rhino Poaching Investigations

Omar (2008:29) explains the function of the LCRC as the management of criminal records and the application of sophisticated techniques to recover physical evidence from rhino crime scenes. The author further states that there are Local Criminal Record Centres (LCRC) in all nine provinces. The duties carried out by the Criminal Record Centres (CRC) are as follows:

- The collection, processing and provision of information about arrested and convicted criminals which supports the investigations and the subsequent court proceedings;
- The provision of information taken from various databases regarding persons, vehicles, firearms and stolen goods for the investigation and clearance purposes; and
- Using a scientific approach and other scientific skills during the investigation of criminal activities.

Racine and Fellag (2012:vii) mentioned that many kinds of physical and biological evidence can be found during a criminal investigation. According to Palmetto (2013: 30), real evidence or physical evidence consists of physical objects, for example; handguns or fingerprints. It can be as small as a gene and as large as an automobile (Becker & Dulette, 2013:202). Gilbert (2010:53) describes physical evidence or real evidence as

being any type of object that is linked to the investigation, and that it must be a physical, concrete item, different from other forms of evidence that may result from sensory observation inference.

According to the researcher's experience, the physical evidence encountered at the rhino crime scenes, which are documented, and evidence collected by the EMI participants and LCRC official includes cartridges, rifles, axes, knives, and projectiles (see figure 3.2, 3.3 and 3.4). Biological evidence collected by the EMI participants from the rhino carcass is obtained from the ear, the tail, blood if it's a fresh carcass, the remains of the horns, the skin and the tissues.

From experience, the researcher can attest that criminal investigation of rhino crimes by LCRC official begins when suspects are arrested in KNP with physical evidence which includes, knives, ammunition, axe, rifles, and rhino horns (see figure 3.2, 3.3 and 3.4 respectively).

3.3.3 Role of Organised Crime Unit in Rhino Poaching

Before the role of the organised crime unit is provided, one has to look at rhino poaching as organised crime. Gilbert (2007:418) states that organised crime pertains to any group of suspects who have formed a highly organised, disciplined association engaged in criminal activities. The author further states that such a group may be small, but they usually consist of many persons who are involved with the planning and execution of unlawful activities. A truly organized crime group needs constant commitment and loyalty from its members. Organized crime groups have economic gains as their fundamental goal.

According to Endangered Wildlife Trust (EWT) (2013: np), most rhino poaching, and horn smuggling come directly from organised criminal syndicates. The assertion is premised on knowledge gained through investigation. Furthermore, a summarised response from five (5) participants from sample A and two (2) participants from sample C show that organised criminal syndicates are responsible for most of the killings of rhinos in the KNP while three (3) participants from sample B do not have any knowledge of organised crime in rhino poaching.

Linacre (2009:14) explains that there are many indications that show that organised crime groups or criminal networks are occupied or associated with wildlife crimes. These are evident in the following factors:

- The organised structure of the poaching activities, including the use of gangs and the supply of vehicles, weapons and ammunition;
- The manipulation and exploitation of local communities;
- The amount of money paid for organised crime groups;
- The use of phoney or front companies to conceal criminal activities;
- Financial investment in "start-up" companies and the technology required for processing and marketing;
- The complex and sophisticated smuggling techniques and routes;
- False advertising of wildlife with extensive use and exposure on the Internet;
- Previous convictions for other types of crimes; and
- Enormous profits.

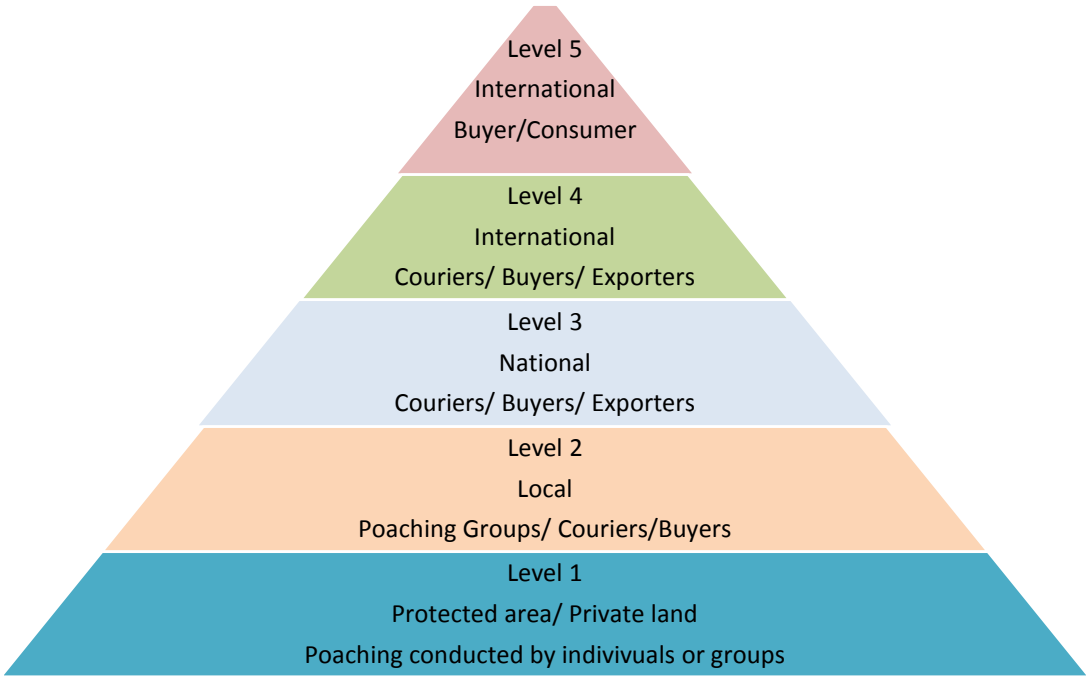

Figure 3. 1: Levels of organised crime involved in rhino horn trade

Source: Milliken and Shaw, 2016

Bending (2015:132) states that criminological profiles of syndicates are involved in poaching organisations. The author further stipulates that TRAFFIC created this profile which highlights the five-level pyramid structure of rhino horn trade syndicates which is

used by the South African National Wildlife Crime Reaction Unit (SANWCRU) at an operational and strategic level to combat rhino poaching. Crime syndicate organisations, according to Bending (2015:132), are in most cases led by various African nationals and are directly involved in acquiring rhino horn and its unlawful movement out of Africa to markets in Asia, especially Vietnam. Rhino poaching as an organised crime requires the organised crime unit to deal with the rhino crime.

The role of organised crime unit with regards to response to rhino poaching as organised crime is dealt with by the Directorate for Priority Crime Investigation (DPCI), also known as the "Hawks," a unit established as an independent directorate within the SAPS (Directorate for Priority Crime Investigation, 2014). It includes disruptive teams like; tactical response team (TRT), local criminal record centre, DPCI Digital Forensic Laboratory and crime intelligence. According to (SAPS, 2016a:np) "Its mandate is to combat serious corruption and the investigation of the national priority offences".

Palmetto (2013:15) elaborates by stating that Special-subject investigation (organised crime units) concentrates on sensitive areas such as organised crime, vice, and narcotics. It also focusses on developing informants to identify crime patterns that can lead to apprehension. Intelligence gathering is an important objective of the special investigative process. The investigation by DPCI, (SAPS, 2014a:33) reported that 104 persons were arrested and 46 convicted for rhino poaching and abalone cases. Furthermore, different operations were conducted and the following were achieved;

- 1872 charges of racketeering and R55million worth of assets were restrained;
- Seizures of 20 rhino horns and 5.5 tons of ivory, 630 400 US dollars and 1 120 000 Vietnamese Dong, and a 10-year prison sentence for a Zimbabwean rhino poacher; and
- Five criminals, who smuggled abalone from the Eastern Cape to Mozambique were sentenced collectively to 46 years. Accused No. 1 sentenced to 18 years, accused No. 2 sentenced to 7 years, accused No 3 sentenced to 8 years, accused No 4 sentenced to 18 months and accused No 5 sentenced to 3 years imprisonment.

Furthermore, the following sentences have been achieved in the KNP from January 2015 to December 2015:

- S v A Sithole, W Nyathi, and B Nugere (all Mozambican citizens) on the charges of trespassing in KNP, possession of firearm and ammunition. Sentenced to Nine (9) years imprisonment.
- S v PJ Mgwenya, S Mpangane, TG Mchunu, and C Zitha (all South African citizens) on charges of trespassing in KNP, possession of firearm and ammunition. Sentenced to Fifteen (15) years imprisonment (SAPS, 2016b: np).

3.3.4 Role of SAPS Air Wing in Combating Rhino Poaching

The SAPS Air Wing forms part of a multidisciplinary team that assists the SANParks with combating the rhino poaching crime through effective investigations in the KNP (SAPS, 2016a: np). The SAPS Air Wing plays a supporting role by using the helicopter and its equipment in investigating and combatting of rhino poaching. This is a planned project that is initiated between SAPS and SANParks, and the process involves the National Joint Operational and Intelligence Structure (NATJOINTS) and Mission Area Joint Operational Centre (MAJOC) Skukuza (SAPS, 2016a: np). The aim is to combat, investigate and prevent rhino crime at Kruger National Park. Projects are given a life span which is between three to six months.

From experience, the SAPS Air Wing's role is to provide air support to tactical operations and assist with transporting of crime scene experts to carcasses and other crime scenes. Ground forces supported include; SANParks rangers, SANParks EMI, operational members of Special Task Force (STF) and National Intervention Unit (NIU), forensic experts, Crime Intelligence, K9 unit, detectives and Special Forces of SA army. The specialised units are utilised during the chase of fleeing poachers from rhino crime scenes. Furthermore, air support is provided to SANParks EMI when there is a backlog of processing the old rhino crime scenes.

3.3.5 Investigation of Rhino Poaching by SAPS and SANParks.

According to the provisions of section 205 of the Constitution of the Republic of South Africa (South Africa, 108 of 1996), the SAPS is mandated "to combat and investigate all crimes". Section 13 (1) of the SAPS Act No.68 of 1995, permits police officials to exercise their powers, and perform duties and functions as assigned to them by the laws of the country. Extensive investigative powers have been conferred on the South African Police Services by the Criminal Procedures Act 51 of 1977.

The official investigation of the rhino crime scene can only be done by police officials or an Environmental Management Inspector (EMI), following the operating standard procedures as set out by the authorities (Endangered Wildlife Trust, 2013:28). The EMI is mandated in terms of the National Environmental Management Act (NEMA) of 1998, the EMIs has powers to:

- Investigate: take samples, photographs, audio-visual recordings, and remove waste, inspect and remove articles, question witnesses and arrest suspected poachers;
- Inspect and search any properties premises to determine whether legislation is being correctly followed and to confiscate any evidence of criminal activity;
- Enforce the law by carrying out examinations and investigating premises, vessels, vehicles, containers, aircraft and pack animals; confiscating any evidence and smuggled goods; establishing roadblocks and making arrests; and
- Administration by the "issuing of compliance notices and admission of guilt fines".

The investigation into rhino poaching is further assisted by SANParks Air Wing, SANParks K9 unit and special rangers which are considered assets of SANParks and are utilised all over the country when necessary. They are based in the KNP (Skukuza) because the majority of poaching incidents happen in this park (Geldenhuys, 2016:15).

From experience, the researcher can attest that once a crime scene of either the rhino carcass or the poachers has been identified, the aircrew is duty bound to assist by airlifting the SAPS LCRC, Special Task Force (STF), crime intelligence, EMI, Special ranger's, K9 unit and detective to the crime scene. This is done for purposes of crime scene management which includes the collection of evidence. However, it must be noted that the main task of the SAPS Air Wing is to assist in the search of the rhino poachers.

EWT (2013:28) mentions that the investigation of a crime situation is about gathering all the available evidence in such a way that the integrity of the exhibits is not compromised in order that they can be presented in a court of law by linking them to the suspects and the crime scene for the purpose of conviction. Furthermore, the collection of such evidence includes a systematic search for the correct identification of information, objects or people, for example clues, exhibits, witnesses or suspects connected to the crime (EWT, 2013:26).

However, it is important to note that the evidence collected at a crime scene should be handled with care and the maintenance of the chain of custody is not compromised. Contaminated evidence can lead to an unsuccessful prosecution of an accused. Gilbert (2010:52) describes evidence as “anything properly admissible in a court that will aid the function of a criminal proceeding in establishing guilt or innocence”. Evidence is further defined as information which can be placed before a court of law and which can be used to prove or disprove facts pertaining to the case (Karagiozis & Sgaglio, 2005:63). One of the categories of evidence is physical evidence or real evidence. Real evidence can be described as any kind of object associated with the investigation, but it must be a physical and tangible item (Gilbert, 2010:53). In rhino poaching crime scenes, such evidence may include a gun or a knife. Figure 3.2 illustrates physical evidence found at a rhino poaching crime scene as per Skukuza Case No:20/4/2012.

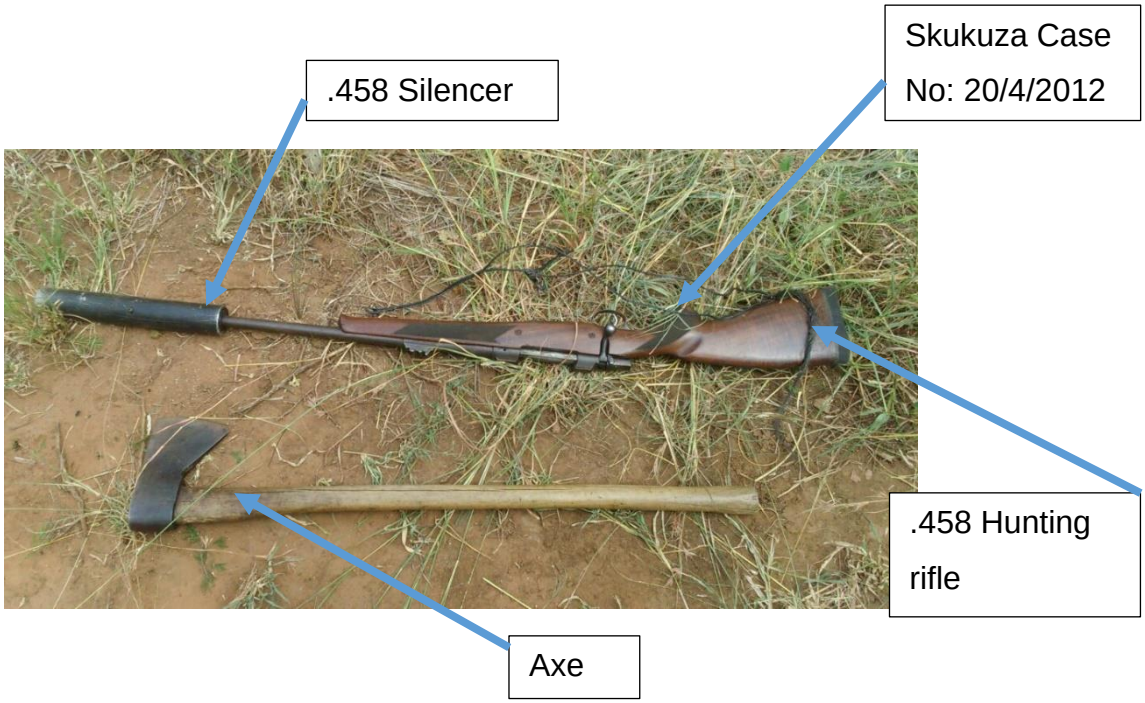

Figure 3. 2: Exhibits at a rhino poaching crime scene

Source: Skukuza SAPS CAS: 20/04/2012

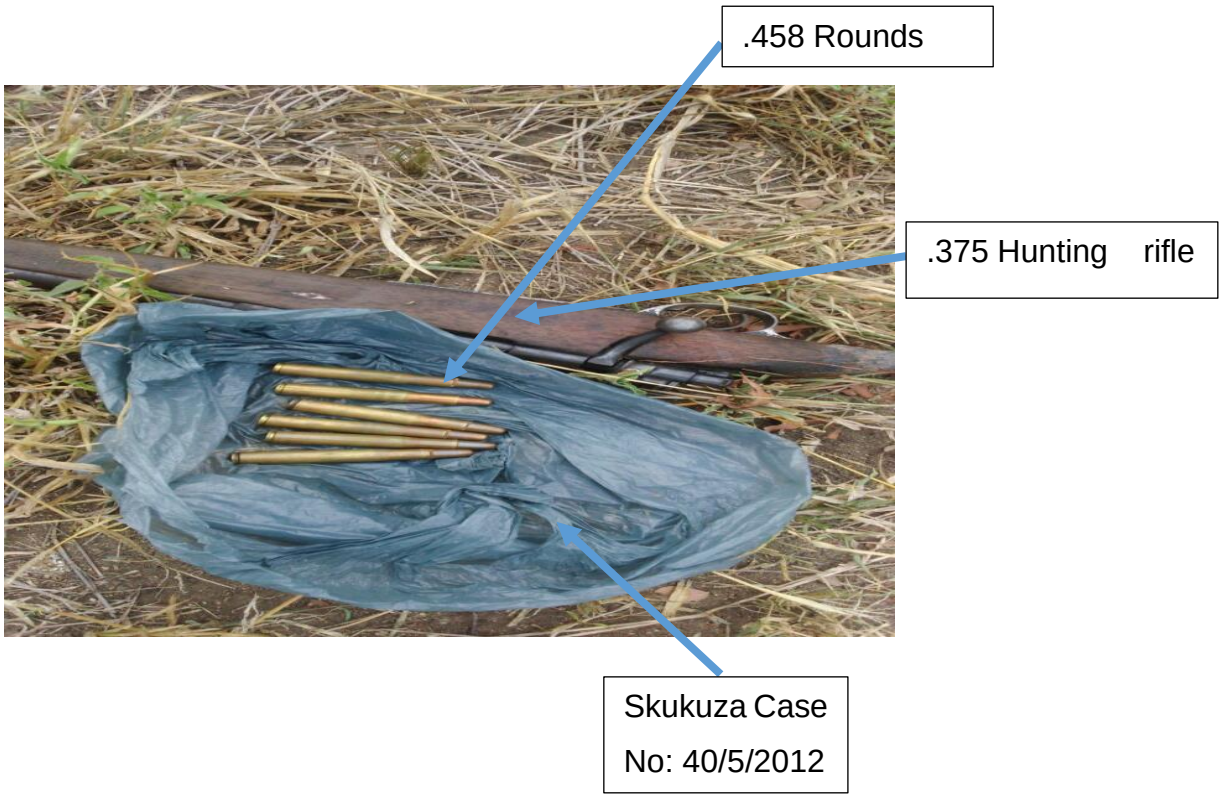

Figure 3. 3: Exhibits, rhino poaching crime scene

Source: Skukuza SAPS CAS: 40/05/2012

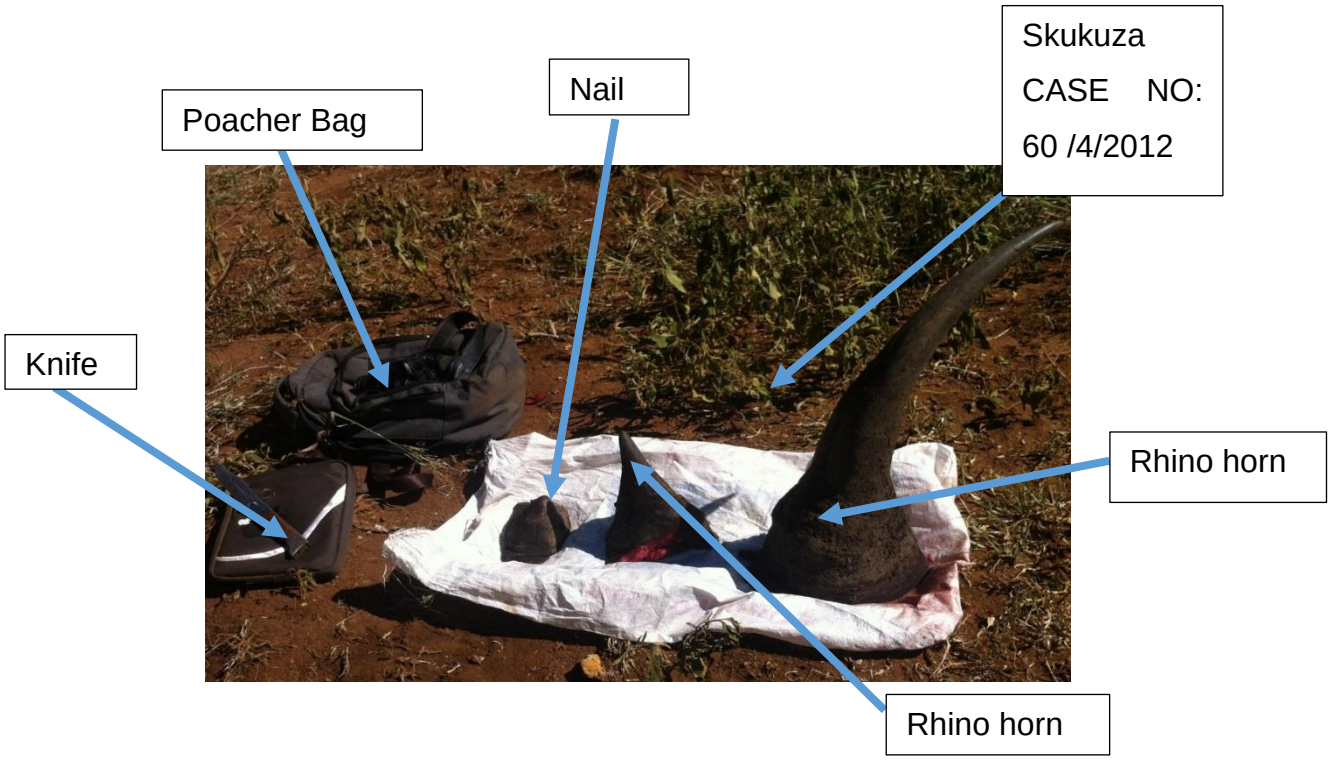

Figure 3. 4: Exhibits at a rhino poaching crime scene

Source: Skukuza SAPS CAS: 60/04/2012

From experience, it has been observed that the EMI, the detective and LCRC police official also document and collect physical evidence at the scene of a crime through taking photographs of the evidence and the crime scene and performing DNA sampling on the rhino carcass. Jackson and Jackson (2011:3) state that “the forensic analysis of particular types of evidence may help to establish the identity of an individual suspected of committing a crime”.

3.4 METHOD OF RHINO POACHING

The methods of rhino poaching or the modus operandi of poachers as it is commonly referred to can be varied and evolving (Lemieux, 2014:24). The modus operandi is often the means of identification. This is because many offenders are inclined to use the same method, time and again when committing a crime (Van der Westhuizen, 1996:32). The author further states that different methods and organisational structures used by poaching operations to target rhinos can be grouped into four categories, namely; subsistence, commercial, skilled and chemical. Lemieux (2014:24) further adds that commercial poachers are thought to be responsible for most of the rhinos poached in South Africa.

The poachers operate in a group of three or more persons and are armed with 458 and 375 rifles (Geldenhuys, 2016:11). More sophisticated poachers who operate in smaller groups of two or three persons are transported from Mozambique via Lebombo Port of Entry (POE) and enter the KNP at Crocodile Bridge gate near Komatipoort, they also enter at Malelane gate and through Manyeleti on the western border (SAPS, 2015a:np).

A summarised response from all ten (10) participants from sample A, B and C shows that poachers used rifles, axes, and knives to kill rhinos (see figure 3.2, 3.3 and 3.4). The ten participants’ points of view are similar to those of Montesh (2012:6) who stated that the killings of rhinos typically involve shooting with guns, usually AK47 assault rifles. According to the SAPS (2015a:np), the rhino horn syndicates use Air services to transport rhino horns from Maputo: Maputo to Kenya, Maputo to Ethiopia and Maputo to Qatar (Thailand, Hong Kong, and Vietnam). The DPCI further acknowledges that the method of smuggling the rhino horn out of SA has to date not been exposed sufficiently.

3.5 FORENSIC INVESTIGATION INTO RHINO POACHING

Forensic investigation and forensic science have some type of critical connection in criminal investigation, especially as they are both significantly involved with the search for the truth in an investigation (Tong, Bryant & Horvath, 2009:183). The word “forensic’’ comes from the Latin word forensic meaning forum (Tong et al., 2009:183-184). Palmetto (2013:259) states that the word forensic comes from the Latin word which means forum, the dwelling where trials were conducted in Rome.

Forensic investigation is considered to be an investigation which is focused on instituting court proceedings for criminal, as well as civil cases, and where certain scientific knowledge is directed and utilised for a legal problem (Pollex, 2001:93). The essence of every forensic investigation is dependent on the meticulous recognition, identification, and individualisation of the physical evidence in order for the forensic examiner to be able to “offer an expert opinion on the nature and relevance of the evidence in question” (Karagiozis & Sgaglio, 2005:3).

The primary objective of forensic investigation is to identify the victim, the offender, the fake documentation, or the weapon (Ramsland, 2007:xiv). Tong et al. (2009:190) further explain that “forensic investigation may provide opportunities for developing a criminal investigation by helping to develop the lines of an inquiry”. A typical example of this would be of a DNA profile developed or produced from material found at the crime scene and which can then be matched to an existing profile on the national DNA database.

Zinn and Dintwe (2015:11) state that the reason for a forensic investigation is “to investigate evidence scientifically and to determine how evidence can be used to prosecute the perpetrator”. Zinn and Dintwe (2015:12) further mention that the main purpose is to trace offenders by using scientific techniques or approaches or to detect alleged offenders by furnishing scientific proof of their involvement in a crime.

3.5.1 Role of Forensic Science Investigation in Rhino Poaching

Karagiozis and Sgaglio, (2005:3) define forensic science as the application of the natural sciences to matters of law. Forensic science is associated with the application of science to legal contexts (Tong et al., 2009:183). Houck (2007:1) explains that forensic science as the science that associates people, places, and things that are occupied with criminal

activities and that these scientific disciplines aid in the investigation and adjudication of both criminal and civil cases.

Forensic science is the application of scientific perspectives and techniques to the legal process, including investigations and courtroom protocol (Ramsland, 2007:xv). The story of scientific science unites both science and law (Ramsland, 2007:xiv). Racine and Fellag (2012:vii) believes that “forensic science is the application of a broad spectrum of science to answer questions of interest to a legal system”.

Forensic science plays a vital role in most criminal prosecution, especially those of a more serious nature (Jackson & Jackson, 2011:1). The authors further mention that the involvement of forensic science in the investigation of criminal offences begins at the crime scene. Forensic science is concerned with establishing whether or not there any links between the suspect, the rhino horn and the crime scene (Jackson & Jackson, 2011:3).

Palmetto (2013:259) mentions that regardless of their discipline, forensic experts contribute evidence and arguments resulting from their specialized knowledge to aid the courts in obtaining legal decisions. For example, when a suspect is arrested with rhino horn, and after analysis, the horn is linked to the rhino carcass sample found in Kruger National Park or any other park, the expert can present evidence in court on how the results were obtained.

Linacre (2009:vii) argues that the wildlife crimes are in essence no different from any types of crimes, and the entire scope of forensic science expertise and support has the potential to stop the illegal trade cycle, the following are examples of forensic science expertise:

- Ballistics are tested to connect bullets recovered from rhino carcasses, or cartridge cases found at a poaching scene, with guns and rifles taken from the suspects. Likewise, bullets which match those recovered at different poaching locations reveal the involvement of repeat offenders and cross border poaching.
- DNA profiling is increasingly used in helping to reveal the geographical origin of a specimen (rhino).

3.5.2 Organisations Involved in the Investigations of Wildlife Crimes

Linacre (2009:8-9) mentions that several international organisations are able to supply information through their websites or assist with analysis. Below are details of some of these organisations.

- In 1961, the Worldwide Fund for Nature (formerly called the World Wildlife Fund) was founded in Switzerland. To date, it is still the foremost international organisation which highlights and raises funds “for the protection of wildlife throughout the world”. In the United States and Canada, the organisations still goes by WWF (Linacre, 2009:8). The website www.wwf.org provides further information.
- The Convention on the International Trade in Endangered Species of Flora and Fauna (also known as CITES). More information can be found at www.CITES.org.
- TRAFFIC is an organisation also concerned with nature conservation. They monitor the trade in wild plants and animals. As such, they are linked to the work of the WWF and CITES. More information can be found at www.traffic.org.
- The World Society for the Protection of Animals (WSPA) is mainly involved in the protection of animals from cruelty which inevitably violates national legislation in this regard. WSPA supports “the development of scientific tests to aid in the investigation of cruelty and the use of protected species, such as bear species used in the production of bear bile”. Further information is available on their website at www.wspa-international.org.
- The International Fund for Animal Welfare (IFAW) was set up with similar objectives to those of WSPA. The fund concentrates very much on “the protection of animals in wild populations that are affected by the activity of man”. More information can be found at www.ifaw.org.
- The U.S. Fish and Wildlife Service is the leading organisation which assists in investigations of wildlife crimes. Their laboratory in Oregon has developed many tests that are now used by various protection agencies. Further information can be found on their official website www.fws.org.
- TRACE is “an organisation that aims to provide integrated methods in investigations of wildlife crimes and acts as a reservoir of useful information”.

TRACE is able to give advice in cases relating to wildlife crimes. More information can be found at www.tracenetwork.org.

During interviews, five (5) participants from sample A and the two (2) from sample C were asked what investigations are conducted in rhino poaching in terms of criminal and forensic investigation. The participants from sample A's responses included the following;

- Three participants mentioned that in terms of criminal investigation, the investigation into rhino poaching is conducted by obtaining statements from witnesses and experts who assist with the investigation, for example from members of the local criminal record centre who photograph the rhino crime scene must depose of an affidavit. The participants also stated that it includes arrest and charging of the accused persons.
- Two participants also stated that forensic investigation deals with the DNA of a rhino carcass wherein SAPS forensic experts help to collect evidential materials for ballistics such as firearms, spent cartridges and projectile for forensic investigation. They also collect other items which carry evidential value such as knives, axe, and other equipment belonging to the poachers or any other objects that are found to be foreign to the wilderness.

Participants from sample C responded as follows:

- Two participants stated that Forensic experts obtain evidence from the rhino crime scene like blood, fingerprint traces from the firearm and footprints, and by means of analysis can link/identify the accused persons. The evidence is also used in courts wherein the forensic experts depose of a Section 212 statement in terms of the Criminal Procedure Act 51 of 1977. The participants also stated that a new Rhino DNA Index system allows individuals rhinos to be identified from blood, horn and tissue, which helps trace the origins of the rhino.

Three (3) participants from sample B were not asked the question because it was not relevant to them.

From the participants' responses, it was noted that their understanding of criminal and forensic investigation into rhino poaching is similar to literature of Cheteni (2014:68) who explains that South Africa has already rolled out a forensic project that would help in combating wildlife crimes. The author further states that the use of seized wildlife products

to crime scenes and implicated criminals would help in the persecution of poachers. Furthermore, the new Rhino DNA Index system allows individuals rhinos to be identified from blood, horn, tissue, etc. DNA sampling has been found to be effective in South Africa with regard to the illegal trade of wildlife products, and more recently, a Kenyan investigation was assisted by DNA analysis.

Chandra (2005:v) elaborates by explaining that “forensic science encompasses a wide variety of scientific disciplines. Its purpose is to offer unprejudiced, scientific support for use in courts of law”. It is compulsory to use the scientific analysis of physical evidence to assist the police in their investigation. This examination includes blood, saliva, semen, and other body fluids. Determination of the origin of species from blood stains. The use of DNA profiling is to compare the unidentified samples for Identification of site and origin of species. Scientists work closely with the police and on certain occasions, they may even have to visit the scene of crime to obtain certain relevant information about the crime. The forensic scientists only give evidence in court, which may be of great use.

3.6 LEGISLATIVE FRAMEWORK IN COMBATING WILDLIF POACHING

The constitution of the Republic of South Africa, Act 108 of 1996 (the Constitution) assigns custodianship of the natural resources on the state. The state has the authority to legislate on issues regarding the conservation and protection of the country’s wildlife. The protection of wildlife, for example, rhino and other endangered species, has become a critical issue in recent years (EWT, 2013:9).

Figure 3.5 below provides an overview of the United Nations (UN), African Union (AU) and South African national legislation relevant to wildlife with a specific focus on rhino poaching management.

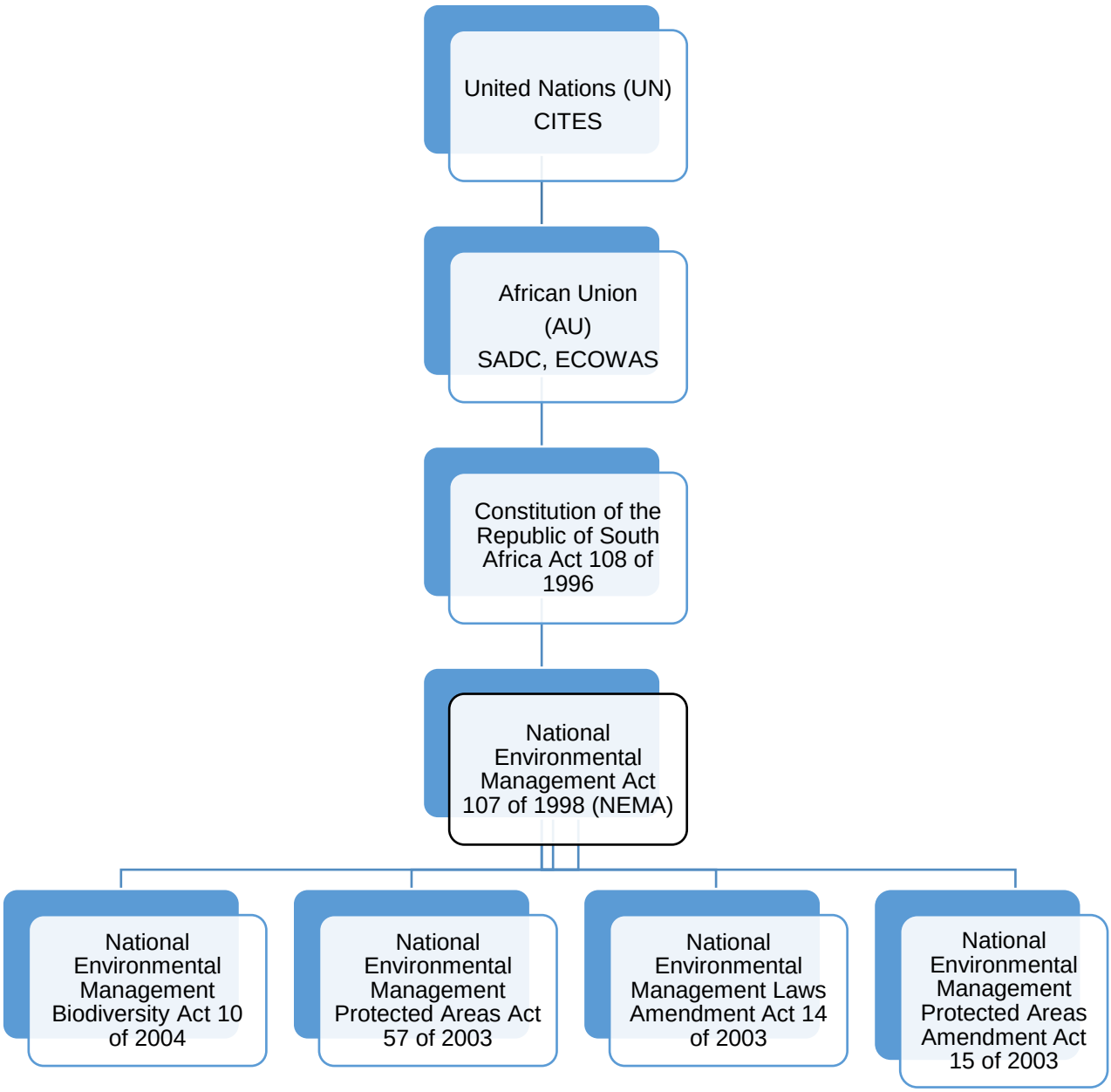

Figure 3. 5: Overview of legislation

Source: Endangered Wildlife Trust, 2013

Globally, the provisos of the International Convention on the Trade in Endangered Species of Wild Fauna and Flora (CITES), are directed at ensuring that international trade in specimens of animals and plants does not have a negative effect on their survival in the wild (EWT, 2013:21). “These provisions have to be effected in terms of national legislation, hence the development of the CITES Regulations in terms of NEMBA” (EWT, 2013:21). South Africa is a signatory to the International Convention and, as such, has agreed to comply with the rules and guidelines laid down by the CITES Secretariat.

Linacre (2009:12) submits that whilst a number of international treaties were drafted, and some even rectified, most Environmentalists agree that it was with the signing of a draft convention by 21 countries, in Washington, DC on 3 March 1973 that the first effective steps in regulating wildlife use truly began at a global level. From 1 July 1975, it was referred to as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES is widely regarded as one of the most successful of all convention treaties and has 172 signatory states (known as parties).

A crucial element of the Convention is found in its three appendices namely appendix I, ii and iii. CITES as a world body dealing with international trade in endangered species, is the organization that categorizes endangered species in classifications called Appendix. The rhinoceros fall under classification Appendix I and II of the CITES classification. The three appendices list the species controlled by CITES and determine the level of control, as follows:

- Appendix I lists species threatened with extinction that are or could be affected by trade. The black rhino is listed here and cannot be traded internationally;
- Appendix II list species which may not necessarily threatened with extinction, but which could become so if trade in them was not strictly regulated; and
- Appendix III lists species that individual parties to the Convention choose to be included in the regulations and which, therefore, require the cooperation of other parties in controlling trade. (EWT, 2013:22).

Moreover, the Convention is implemented by South African National Management and Scientific Authorities. These bodies are supported and helped by the CITES Secretariat. According to the Constitution (The National Environmental Management Act, 107 of 1998 (NEMA), which was passed in 1998 and came into effect in 1999) “legislating on environmental matters is a concurrent function between the national government and the nine provincial governments”.

The National Environmental Management Biodiversity Act, 10 of 2004 (NEMBA) “regulates the management and conservation of South Africa’s biodiversity and its component and affords protection to species and ecosystems that require national protection”. Chapter 4 of NEMBA, as well as the accompanying Threatened or Protected Species Regulations (ToPS), are explicitly concerned with the protection and conservation of those threatened or protected species which are listed, as well trade in

known threatened species. Section of 56 of NEMBA specifies species that are threatened or in need of national protection; both the white and black rhino are listed. Under the listing of endangered species is the black rhino (*Diceros bicornis*) and the white rhino (*Ceratotherium simum*) which are listed as a protected species.

Regarding rhino poaching, increased sentencing in South African courts is improving. Prosecutors are obtaining long prison sentences for convicted rhino poachers by applying additional sections of legislation which are pertinent to the crime committed (see discussion in 3.3.3). Furthermore, additional charges in relation to poaching include trespassing in a protected area in terms of the National Environmental Management: Protected Arrears Act, 2003 (Act 57 of 2003), possession of an unlicensed firearm and ammunition in terms of the Firearms Control Act 60 of 2000 and attempted murder and murder imposed by means of South African common law principle of *Dolus Eventualis* (Aucamp, 2016: np).

The DPCI is mandated by the Protection of Organised Crime Act (POCA), 1998 (Act 121 of 1998) regarding the endangered species (SAPS, 2014a:np). Furthermore, all DPCI self- generated wildlife cases are in terms of National and Transnational Wildlife trafficking with the focus on rhino horn, elephant ivory, cycads and abalone. In conjunction with the legislative framework, the overview, and prevention of rhino poaching internationally, SADC region and National level need to be highlighted to understand the level of poaching as well as the level of prevention (SAPS, 2014a:np).

3.6.1 International Level: Overview of Rhino poaching

Rhino poaching is a huge concern globally, particularly in the conservation fraternity which regards rhino poaching as a global problem that must be dealt with at global level. Geldenhuys (2016:17) provides further clarity by stating that neither the firearms used to kill rhinos are manufactured in South Africa, nor the end users of rhino horn residents of SA. Poaching of endangered and protected species needs to be addressed at a higher level. Montesh (2012:22) states: “The rhino poaching crisis has been identified as a critical problem in South Africa by CITES and other International conservation forums”**.**

This classification or Appendix also covers species whose trade is banned because they are endangered and threatened with extinction, for example elephants, tigers, and leopards. Bending (2015:129) elaborates on this by stating that under CITES Appendix

(classification), all species of rhinos (*Rhinocerotidae)* are included, except for the white rhinoceros populations found in South Africa and Swaziland which are included in classification II.

An example of successful combating of rhino poaching can be found in the Gorumara National Park and Jaldapra Wildlife Sanctuary in West Bengal, India. Martin and Vigne (2014:62) state that since 1992 there has been no recorded incidents of rhino poaching in the parks and explained that the success of conservation in West Bengal for the last 20 years is due to the fact that the West Bengal Forest Department has been spending larger sums of money than any other government in the world in their management of rhinos. Furthermore, the Forest Department generously gives assistance to eco-development projects for the large population of poor people who live in small villages in the areas that surround Gorumara national Park and Jaldapra Wildlife Sanctuary in West Bengal, India.

In addition, the Forest Department employs the villagers to clear the habitat within the wildlife areas, as well as planting trees and the maintenance of roads. Furthermore, they are involved in developing tourist eco-lodges that the villagers manage (Martin & Vigne, 2014:63). The combination of these factors have contributed to a reduction in rhino poaching in West Bengal.

3.6.2 Regional Level: Rhino poaching in Southern African Development Community

Clive and Anton (2012:100) point out that rhino poaching increased dramatically in Zimbabwe, especially in the Zambezi Valley which progressively threatened the country's rhinos due to the independence in 1980 and the change of Government.

They also pointed out: “Since 2006, 95% of all detected or presumed rhino death in Africa from illegal killing has occurred in Zimbabwe and South Africa”. According to Montesh (2012:4), these two countries constitute the centre of a relentless poaching crisis in Southern Africa. Montesh (2012:4) further indicates that by 2008, both countries were experiencing a major upsurge in rhino poaching. Zimbabwe rhino killings increased from 12 in 2014 to at least 50 in 2015 and Namibia was no exception with the number of killings increased from 24 in 2014 to 80 in 2015.

Southern African Development Community (SADC) Member States (South Africa, Botswana, Namibia, Zimbabwe, Malawi, Mozambique, Lesotho, Madagascar, Mauritius, Zambia, Tanzania and Swaziland) through ministers responsible for the Environment and Natural resources has, over the years, been working on strengthening the management of wildlife and natural resources both in their respective jurisdictions and in collaborative efforts in their region (SADC, 2017:np).

The SADC Member states further explain that these efforts are continuously being severely compromised by increased illegal killing and trade in wild species of fauna and flora and their products. This is of particular concern to the SADC region which is home to the largest remaining populations of elephants and rhinos and that the current trends, if they remain unattended, could threaten the survival of these species, amongst others.

These challenges have culminated in the development and approval of a strategy known as the SADC Law Enforcement and Anti-Poaching (LEAP). Strategy 2016-2021 was approved by Ministers at Gaborone, Botswana (SADC, 2017:np). Furthermore, the strategy derives its mandate on the already existing SADC treaties and strategies such as the SADC Protocol on Politics, Defence and Security, the revised Regional Indicative Strategies Development Plan (RISDP) and the Strategic Indicative Plan of the Organ (SIPO).

The overall objective of the LEAP strategy is to drastically decrease the levels of poaching and the unlawful trade in wildlife fauna and flora and to increase the capacity of law enforcement within the SADC region by 2021 (SADC,2017:np). The SADC (2017:np) document further identifies priority areas of action, by:

- Enhancing legislation and judicial processes;
- Minimising wildlife crime and illegal trade;
- Improving and strengthening field protection;
- Integrating people and nature in the management of natural resources; and ensuring sustainable trade and the use of natural resources.

3.6.2.1 Southern African Development Community (SADC): Prevention of rhino poaching

According to two (2) participants from sample C, SADC countries prevented rhino poaching by working with local communities, by dehorning the rhinos and increasing the

sentences of perpetrators. Five (5) participants from sample A indicated that they have heard of dehorning of the rhino's and increases of sentences but never heard of local communities working with SADC. While three (3) participants from sample B never heard of how SADC countries prevented rhino poaching.

Namibia has had very successful rhino protection (Martin & Vigne, 2012:64). The authors state that for many years, the local communities have been made aware of rhino conservation, and even though they are poor, they work together with the Government and Non-Government Organisation (NGO's) in their efforts to protect the rhinos. Hanks (2015:234) states that the dehorning of rhinos as a deterrent to poachers was first practiced in Namibia from 1990 to 1995.

Zimbabwe's translocation operations have been successful in protecting rhinos in Zimbabwe (Lemieux, 2014: 39). Another prevention method was introduced in 1994 in Zimbabwe, which saw an increase in security for rhinos. This included the amalgamation of areas into several intensive Protection Zones and undertaking large scale dehorning operations (Montesh, 2012:4). Prison sentences in Zimbabwe are now much more severe and this is helping to act as a deterrent.

Geldenhuys (2016:17) points out that SANParks is working closely with the **Mozambique** National Parks and police in anti-poaching operations. Furthermore, Mozambique has established an environmental police unit to address the poaching issue in the Limpopo National Park which is situated in Mozambique. Geldenhuys further states that if a poacher is arrested on the Mozambican side, the authorities work according to their legislation, and they would not extradite the poacher to South Africa.

The kingdom of **Swaziland** has a relatively small population of white and black rhinoceros and is easier to manage and their numbers are stable. The conservation of rhinos is being managed in two well protected areas by one committed Swazi family who has the full support of the king. Punishment for a rhino poacher or trader is severe, with prison sentences ranging from a mandatory five years to 15 years, without the option of a fine (Martin & Vigne, 2012:64-65).

3.6.3 National Level: Overview Rhino Poaching in South Africa

Wildlife crime, and in particular rhino poaching, is a huge concern in South Africa and has become a National crisis (see discussion in 1.1 and 1.2). The majority of rhino poaching

incidents occur in the Kruger National Park. Discussed below is the South African combating perspective and the level of poaching in KNP.

3.6.3.1 South Africa's combating perspective

The cross-sectional National Biodiversity Investigation Forum was launched in March 2009 as "a contact point for exchanging and discussing law enforcement information on Biodiversity issues" (TRAFFIC, 2011:24). Montesh (2012:13) mentions that the government has also developed the National Strategy for the safety and security of rhinoceros populations and horn stocks in South Africa. This has been designed to reduce and fight the increasing threat of poaching in the country. The Department of Environmental Affairs (DEA, (2013: np) explains that the strategy outcomes are as follows:

- "Implementing an immediate action plan aimed at mitigating the current threat to the rhino population posed by the escalation in poaching and the illegal trade in rhino horns and associated by-products";
- "Securing the shared commitment of government (at the national and provincial level), private landowners, local communities and international stakeholders, as well as the necessary financial and manpower resources and political will to implement this policy";
- "Supporting the establishment of a national coordination structure for information management, law-enforcement response, investigation, and prosecution";
- "Developing an integrated and coordinated national information management system for all information related to rhino species in order to adequately inform security-related decisions"; and
- "Investigating proactive security-related measures aimed at possibly facilitating a better understanding of any possible future regulated and controlled international trade in the species, and any associated by-products".

According to all ten (10) participants from sample A, B and C, their point of view is that South Africa has established anti-poaching operations in and around Kruger National Park called "operations rhino" (also see Montesh, 2012:24). National Joints and Intelligence Structure was established and launched on 27 January 2011 to address the situation on a national and international level with immediate effect (DPCI, 2015).

SANParks is working closely with Mozambique National Parks and the police in anti-poaching operations (Geldenhuys, 2016:17).

For further prevention perspective by South Africa, In April 2012, South Africa refused to issue any more hunting permits to Vietnamese applicants believing the extent of pseudo-hunting by this group was too large (Lemieux, 2014:22). The other prevention for rhino poaching by SA is outlined by Hanks (2015:231), that the Rhino DNA Index System (RhODIS) is a project that was developed by the University of Pretoria‘s Veterinary Genetics Laboratory based in Onderstespoort, Pretoria in order to help with the dilemma of rhinos.

The author further states that the rhino horn sample is used to build up the Rhino DNA Index System (RhODIS), which intends building up a database of rhino samples. This will deter poachers and assist in forensic prosecutions. Bending (2015:68) supports Hanks by mentioning that the conservation officers have been trained in the handling of DNA samples that could be used in court and the new technology can be used in the prosecution of criminals.

From the summarised responses of ten (10) participants and researcher’s experience, it was determined that the South African Government is doing its utmost best to prevent and reduce rhino poaching by engaging in anti-poaching operations, the deployment of police officials, the donation of helicopters, as well as the introduction of trained dogs and handlers to support and assist in searching for the poachers in South Africa, particularly in the Kruger National Park.

3.7 LEVEL OF RHINO POACHING IN KNP

Poachers are drawn to South Africa particularly in Kruger National Park (KNP), because of a large number of rhinos available. KNP is the size of nearly 20 000 km², the same size as Sweden, Swaziland, the Netherlands and Israel. This massive size and high concentration of rhinos is an attractive target for poachers (Lemieux, 2014:26, Freitag-Ronaldson & Venter, 2008:27).

The participants were asked, “What contributes to the high level of rhino poaching in KNP?” The participants from sample “A’’ responded as follows:

- Two participants stated that KNP is a large land area with a high concentration of rhinos
- One participant stated that there is a lack of money (opportunity to make income)
- Two participants mentioned that the lack of police to patrol along the eastern borderline may contribute to a high level of poaching.

The participants from sample B answered as follows:

- Two participants mentioned that poverty contributes to the high level of poaching in KNP.
- One participant mentioned that the lack of police to patrol along the eastern borderline may contribute to a high level of poaching.

The participants from sample C answered as follows:

- Two participants stated that market for eastern countries like China and Vietnam, a Chinese belief that the horn is used as medicine for impotence and healing (also see Montesh, 2012:2).

All participants from sample A, B and C's viewpoints are similar to those of the literature. However, two participants from sample C shared the same view as Lemieux (2014:19), who stated that rhino horns are in demand as an ingredient for traditional Asian medicine than any other collective group in the world although this has been denied by both China and Vietnam. It has also been claimed that rhino horn possesses cancer curing properties as well as the ability to cure impotence, there is no medical evidence to support the assertion (also see Montesh, 2012:2). The above causes bring challenges in combating rhino poaching.

3.8 SUMMARY

Environmental crime and, in particular rhino poaching is a huge concern in South Africa and has become a national crisis. This chapter addressed the investigation of rhino poaching in South Africa, particularly in the Kruger National Park. criminal investigation and forensic investigation were jointly used to investigate rhino poaching. The results of the above investigative methods indicate that forensic investigation plays a vital role in the prosecution of the offenders. The application of legislative framework in combating rhino poaching shows the improvement of sentencing in South African courts.

Southern African Development Community shows that the development and approval of a strategy known as the SADC Law Enforcement and anti-poaching strategy has shown drastically decrease in the levels of poaching. The results in this chapter indicate that there is a need for SAPS Air Wing to be involved in combating rhino poaching. The next chapter, therefore, moves on to discuss the role of SAPS Air Wing in combating rhino poaching.

CHAPTER 4:
THE SAPS AIR WING AS AN AID IN COMBATING RHINO POACHING

4.1 INTRODUCTION

The primary objective of this study was to determine the role of the SAPS Air Wing as an aid in combating rhino poaching. In order to achieve this objective, the researcher anchored the study on the research question: How can the SAPS Air Wing be used as an aid in combating rhino poaching? After understanding the role of the SAPS Air Wing, including the equipment, type of operations conducted and human capital involved, the next step was to see how it can be used as an aid in combating rhino poaching. Therefore, this chapter focuses on the use of the SAPS Air Wing in combating the crime of rhino poaching, particularly in the Kruger National Park.

In determining how the SAPS Air Wing could be used as an aid in combating rhino poaching, the researcher used her experience as an Airborne Law Enforcement Officer for the past ten years, a comprehensive literature review was conducted as well as feedback obtained through interviews with various participants. During the data analysis process, it was revealed that the SAPS Air Wing can be used in three categories or phases related to the crime of rhino poaching. These three phases are prevention, combating and investigation. The discussion will, therefore, be categorised under the three phases or stages of prevention, combating and investigation in which the SAPS Air Wing is used as an aid in combating rhino poaching.

4.2 SAPS AIR WING AS AN AID IN THE PREVENTION OF RHINO POACHING

4.2.1 Crime Prevention

Lab (2003:23) states that crime prevention incorporates the ideas of lessening the actual level of crime or prohibiting further increases in crime. According to the South African Department of Safety and Security White Paper on Safety and Security (1998:np), crime prevention is all activities which reduce, deter or prevent the occurrence of specific crimes. The white paper further states that "In effect, crime prevention is about stopping crime from happening and it is the major responsibility of the police rather than waiting to respond once the crime has been committed".

For the purpose of the study, crime prevention is defined as the practical method which is designed to prevent the occurrence of a crime. Furthermore, it involves analysing the

manner in which the crime is committed and designing specific actions within the environment in order to manage the crime risk.

The above explanations are also supported by the researcher and all participants in Sample A (5), B (3) and C (2). When asked, how the SAPS Air Wing can be utilised as an aid in preventing the crime of rhino poaching, the participants responded as follows:

- Five participants from sample A mentioned that poachers need to be deterred in order to prevent them from poaching animals by being in the air and patrolling the area and be able to identify poachers in the KNP from the skies. All participants further mentioned that the helicopters may be used by flying along the borders or areas where there is a high concentration of rhinos thereby deterring poachers.
- Three participants from sample B stated that the helicopters can be used for patrolling all identified areas where rhinos are known to frequent.
- Two participants from sample C stated that accurate data can be collected by ALEO and investigators specific to the time patterns during which poachers are likely to be in the park and operations can be planned to concentrate on the particular times identified.

The participants' view on the utilisation of the SAPS as an aid in preventing the crime of rhino poaching is congruent with the definition of crime prevention and the activities that are involved in crime prevention as obtained through literature review. Burger (2007:12) explains crime prevention as any action designed to reduce either the actual level of crime or the perceived fear of crime. Van Heerden (1992:158) posits that crime prevention is mainly concerned with the proactive nature of policing and includes taking action before public order is violated.

Therefore, the proactive use of the SAPS Air Wing, especially taking into account the size of the Kruger National Park which provides the necessary visibility as the helicopter is able to cover a broader area. Although the researcher has been involved in several crime prevention activities in the Kruger National Park, where the SAPS Air Wing was involved, conducting a scientific investigation was always necessary in order to confirm if crime prevention activities were indeed necessary. Furthermore, crime prevention by the SAPS Air Wing helped to determine the modus operandi and type of weapons used to carry out poaching activities.

4.3 SAPS AIR WING AS AN AID IN COMBATING THE CRIME OF RHINO POACHING

The SAPS Air Wing forms part of a multidisciplinary team that assists the SANParks in combating the crime of rhino poaching. The SAPS Air Wing plays a supporting role by using the helicopter and its equipment in combating the crime of rhino poaching. Projects are planned and initiated between SAPS and SANParks, and the process involves National Joint Operational and Intelligence Structure (NATJOINTS) and Mission Area Joint Operational Centre (MAJOC) Skukuza (SAPS, 2016a:np).

The role of the SAPS Air Wing is to provide air support to tactical operations and assist with transporting crime scene experts to carcasses and other crime scenes. Furthermore, the SAPS Air Wing is ably supported by ground forces which include; SANParks rangers, SANParks EMI, operational members of the Special Task Force (STF), National Intervention Unit (NIU), forensic experts, Directorate for Priority Crime Investigation (Hawks) DPCI, Crime Intelligence, K9 (dog unit), detectives and Special Forces of the SA army. These ground forces are assisted by operational techniques such as hoisting and trooping (to drop) resulting in tactical response teams moving quickly using the helicopter to areas where poachers may be identified.

To the question, how the SAPS Air Wing can be used as an aid in combating rhino poaching, the following responses were noted:

- Two participants from sample C mentioned that helicopters can be used to rapidly deploy ground forces and track poachers in the park.
- Five participants from sample A and three from sample B stated that the Air Wing can be used to provide live down-linking coverage to the Command Centre by using Observation Systems such as LEO II and FLIR Cameras.

4.4 SAPS AIR WING AS AN AID IN THE INVESTIGATION OF THE CRIME OF RHINO POACHING

In determining the use of the SAPS Air Wing as an aid in the investigation of the crime of rhino poaching, it was important to distinguish between criminal investigation and forensic investigation. The two concepts will not be repeated here as they have been dealt with in Chapter three under heading 3.3 and 3.5 respectively, however, the involvement of the SAPS Air Wing in both aspects of investigation is assessed.

4.4.1 Criminal Investigation.

In terms of responses from participants, the SAPS Air Wing can play a vital role during the investigation of the crime of rhino poaching. Their responses on the question of how the SAPS Air Wing can be used as an aid in a criminal investigation of rhino poaching, responses were as follows:

- Five participants from sample A mentioned that searching for evidence which might not be visible from the ground such as clothing, firearm and carcasses using a helicopter played a big role in a criminal investigation. This is because the ALEO can identify evidence mentioned with the use of high-powered LEO II cameras if utilised.
- Two participants from sample C mentioned that the investigators are transported to various crime scenes which are sometimes very remote or inaccessible by foot or vehicle in order to carry out the criminal investigation.
- Three participants from sample B stated that they don't have much knowledge about how the SAPS Air Wing can be used in a criminal investigation. The researcher also concurs with the views of the seven participants in as far as using the SAPS Air Wing during criminal investigations. It is the researcher's experience that the SAPS Air Wing has been used on many occasions in deploying or transporting investigators to various crime scenes in the Kruger National Park. From experience, the researcher can attest that once a crime scene of either the rhino carcass or the poachers has been identified, the aircrew is duty-bound to assist by airlifting the SAPS LCRC, the detective, Special task Force (STF), crime intelligence, EMI, Special rangers and K9 unit to the crime scene.

Table 4.1 illustrates the successes by SAPS Air Wing in assisting ground units in combating rhino poaching in the KNP in which suspects were arrested and evidence/equipment recovered during rhino operations and crime callouts in Kruger National Park for the period 2012-2015.

Table 4. 1: Successes achieved by SAPS Air Wing in KNP

PERIOD	SUSPECTS ARRESTED	FIREARM RECOVERED AND LIVE AMMUNITION	POACHING EQUIPMENT RECOVERED
JULY 2012	3		
OCTOBER 2012	1	1X FIREARM	
DECEMBER 2012	5	1X 1.375 RIFLE 1X .404 HUNTING RIFLE	2 AXES
MARCH 2013	2		
MARCH 2015	5	1X RIFLE POINT 375 12X LIVE ROUNDS	1X AXE 1X BUSH KNIFE
JUNE 2015	7	2X HUNTING RIFLE 1X R5 35X LIVE ROUNDS	3X AXES
TOTAL	22	7X RIFLES 47X LIVE ROUNDS	5X AXES 1X KNIFE

Source: SAPS AIRWING ARCHIVES, 2012-2019

4.4.2 Forensic Investigation

The SAPS Air Wing has a role to play in assisting the forensic investigation process, especially during the preliminary phases of the investigation at the crime scene. These include providing transportation to remote areas of the park and assisting in locating rhino carcasses, forensic evidence such as firearms, clothing items, aerial photos of the crime scene, video footages, etc.

The views of all participants were supportive of the role that is played by the SAPS Air Wing in the forensic investigation part of the rhino poaching crime. On the question of how the SAPS Air Wing can be utilised as an aid in the forensic investigation of rhino poaching, the following responses were noted:

- Three participants from sample B mentioned that SAPS Air Wing assist in the location and transportation of forensic evidence such as carcasses, firearms, ammunition, etc.

- Five participants from sample A explained that SAPS Air Wing is utilised by providing aerial coverage and video footage for court purposes using the Leo camera system. Participants further mentioned that the SAPS Air Wing use cargo sling for other forensic investigation that needs to be done in an inaccessible area by airlifting the rhino carcass to the accessible area.

The researcher concurs with the views of the participants and based on experience as an ALEO who is involved in many investigation operations within the Kruger National Park, by stating that during the researcher's participation in the identification of rhino carcasses (crime scenes), members of the forensic investigation teams were transported by means of helicopters. The investigation teams were dropped at various spots within the park where rhino carcasses were located.

Forensic evidence such as bloodstains, weapons, carcasses, etc., was airlifted from the scene for ballistic and biological analysis by forensic experts. Some of the forensic evidence is depicted in Chapter 3 Figure 3.2, 3.3 and 3.4 respectively as per Skukuza CAS: 20/04/2012, 40/05/2012 and 60/042012 (see discussion in 3.3.3 specific to sentencing of accused).

4.5 EQUIPMENT USED BY THE SAPS AIR WING AS AN AID IN PREVENTING, COMBATING AND INVESTIGATING OF RHINO POACHING.

The SAPS Air Wing boasts several types of equipment that it can use in the prevention, combating and investigation of the crime of rhino poaching. The following equipment, according to all participants, are vital in combating rhino poaching:

- *Night Sun*: is a searchlight that can be used to search for poachers in the park at night.
- *LEO II Observation System:* consists of FLIR camera system, the spotter camera, the day camera and live streaming. FLIR camera is used during the night to search for suspects and for surveillance at a distance to detect whether suspects are in the area. This is for the purpose of avoiding getting too close to the suspects, in order to prevent them from hiding away and to ensure the element of surprise in police or military operations. The spotter allows the ALEO to cover the large area when searching for suspects.

- *Hoist:* is used for the search and rescue operations, however, in combating rhino poaching the hoist is utilised to drop off personnel/ experts of various disciplines such as forensic, EMI, veterinarians SANParks personnel in an accessible area in order for them to process the rhino crime scene.
- *Cargo Sling:* is used in instances where the rhino carcass is situated in an area that is not accessible by the vehicle or the area where the helicopter won't be able to land. The cargo sling can be used to airlift the rhino carcass to be dropped at an accessible place. The cargo sling is also used to airlift generators and other types of equipment such as two-way communication radio equipment for policing to the high lying and mountainous areas where they are required in the KNP for the radio technician to either install or service the equipment.

When asked what technological equipment the SAPS Air Wing can utilise in combating rhino poaching, the following responses were furnished;

- Two participants from sample A stated Surveillance cameras such as Forward Looking Infrared (FLIR) cameras, e.g. LEOII or Goshawk cameras are used in combating rhino poaching.
- Two participants from sample A mentioned that the Observation System for down-linking capability is a good tool to be used for live streaming.
- One participant from sample A stated that Cargo sling is used for airlifting the carcass from the remote area to the safe area where the expert teams can be able to process the scene.
- Two participants from sample B mentioned that the Night Vision Goggles are vital equipment to use.
- One participant from sample B stated that hoist is utilised for rescue operations.

The other two participants from Sample C did not have much knowledge about the type of equipment used by the SAPS Air Wing since they are not familiar with the environment. Two participants also mentioned Night Vision Goggles, however, the technology has not been used by the SAPS Air Wing. Those familiar with the technology including the researcher were as a result of their involvement with their counterparts in Botswana. The Botswana Air Support Branch is currently using the Night Vision Goggle capability. The capability is advantageous in weather conditions when there is no full moon during the

night in remote areas. It is an ideal capability to have, especially during the night in areas such as the Kruger National Park.

4.6 CHALLENGES FACED BY THE SAPS AIR WING IN THE PREVENTION, COMBATING AND INVESTIGATION OF RHINO POACHING

Like any organisation especially in the current financial crisis globally the SAPS Air Wing faces a number of challenges which are inhibiting in the provision of effective, efficient and professional airborne support. During the data analysis process and preliminary investigation conducted when this study was conceived by the researcher, many challenges emerged. These challenges can be grouped into several categories or themes which include the following:

4.6.1 Physical Resources (equipment)

Equipment such as helicopters, hoists, observation systems and cargo nets were some of the equipment that pose a great challenge to the SAPS Air Wing. All ten participants indicated that the lack of helicopters to conduct operations in the Kruger National Park in providing crime prevention capability poses a challenge. All 10 (ten) participants indicated that having one helicopter to patrol or transport ground forces is not sufficient. A helicopter has limitation such as flying time as well as refuelling. The would-be criminals will know the duration of the helicopter and enter the park while the aircraft is on the ground.

The researcher can attest to the views of participants as it has happened many times where they had to deploy only one helicopter.

It is not always possible to carry or mount all equipment at the same time as it will have an impact on the weight and balance of the aircraft. Therefore, certain equipment will be installed and configured according to the mission to be executed. Not all SAPS Air Wing helicopters are equipped with observation systems such as LEO II Cameras or FLIR cameras. According to one of the participants, (a manager) in the Air Wing indicated that most of their equipment such as hoist and cargo nets need servicing and refurbishment. Due to lack of financial provision, most of this equipment could not be serviced for some time and therefore cannot be used.

The researcher is aware of the grounding and disposal of 13 helicopters in the SAPS. These have drastically reduced the number of helicopters and put a strain on the

remaining fleet. According to the SAPS (2017:133), the 13 B105 helicopters have been removed from service, due to ageing and serviceability constraints.

A summarised response by participants indicates that there is a need to procure 7 additional cameras and 3 hoists in order to capacitate the SAPS Air Wing helicopter fleet. During the interviews, it came to the attention of the researcher that the SAPS Air Wing has made a proposal which has been approved by Top Management to buy additional helicopters to alleviate pressure on the current helicopter fleet.

4.6.2 Financial Resources

The SAPS Air Wing has a total of 14 Airbus H125 helicopters which are mainly used for rhino poaching prevention, combating and investigation operations.

In order to operate these aircraft for a day (24 hours), it will cost the organisation approximately R192 624. The aircraft Maintenance budget for the financial year 2018/2019 was R68, 196, 264 (SAPS, 2019b:4). This could mean that the entire maintenance budget could only be spent on rhino poaching prevention or combating operations. Financial constraints were highlighted by eight Participants from sample A and B. On the question of the challenges facing the Air Wing, their responses pointed to financial constraints. Their responses can be summarised as follows:

- Four participants from sample A and one from sample B stated that it is very expensive to use helicopters.
- Two participants from sample B stated that the Maintenance costs are very high.
- One participant from sample A mentioned that fuel costs are very expensive compared to vehicle patrols.

The views of the participants from samples A and B are supported by the researcher and documents consulted indicating the escalating costs of aircraft maintenance and repairs. The question was not posed to Sample C participants as it was not relevant to their line of duties. According to SAPS (2019b:4), Section Air Wing submitted an estimated maintenance and repair budget of R119 026,000, however, R 68 196 264. 00 was allocated. The allocated budget was depleted in August 2018 (the second quarter) of the financial year (SAPS, 2019b:4). The Section requested additional funds and was allocated R 22 000.000. (SAPS, 2019b:4). The Section does encounter financial

challenges when it comes to using aircraft for the prevention, combating and investigating crime relating to rhino poaching.

Despite the running costs of aircrafts, the Section also experienced other costs related to accommodation, subsistence and travel allowances. In order to sustain crime prevention, combating and investigation in the Kruger National Park, it will be important to provide daily accommodation and other allowances. These will have huge financial implications on the Section.

4.6.3 Operational Demands

The SAPS Air Wing is faced with other competing operational demands such as serious and violent crimes, service delivery protests, cash in transit heists, armed robberies, etc. As highlighted by one of the participants, preventing rhino poaching is not the primary function of the SAPS, but that of the SANParks. During the period 1 April 2018 to 31 March 2019, the SAPS Air Wing approved and attended to 3229 requests for air support from various units within the SAPS (SAPS, 2019a:np).

From experience, the researcher can attest that there were instances where requests for air support could not be provided in the Kruger National Park due to aircraft deployed and prioritised for other operational demands. The level of cash-in-transit heists and armed robberies (business) tend to escalate during October and December months. These result in more helicopters dedicated and deployed to provide the most needed air support during such operations.

The views of eight (8) participants were supportive of the above statement and two (2) could not provide views since they are not involved in SAPS Air Wing operational matters.

4.6.4 Aircraft Serviceability

Depending on the type and level of service to be conducted on the aircraft it can take between three months to 24 months to release an aircraft to service. Most of the aircrafts, especially the helicopter type undergo Mandatory Periodic Inspection after every 100 hours of flying. In case where there is a need to fly approximately eight hours a day, it will mean the aircraft must undergo an inspection every two and a half weeks. The turnaround time for periodic inspection will be very quick and will require more helicopters to be deployed. As indicated previously in point 4.3.2, that the maintenance costs are very high,

it will be a challenge for the Section to sustain and maintain a serviceable air fleet for dealing with rhino poaching.

All participants indicated that it will not be sustainable to ensure serviceable aircraft at all times, for the prevention, combating and investigation of rhino poaching.

4.7 SUMMARY

This chapter addressed the third research question of this study in as far as the use of the SAPS Air Wing as an aid in combating the crime of rhino poaching is concerned. Various operational equipment including advance technological equipment used by the Unit was highlighted with the objective of ascertaining the capability and the role that could be played by the SAPS Air Wing in combating the crime of rhino poaching in South Africa in general and in particular the Kruger National Park. The research shows that SAPS Air Wing has all the necessary equipment that can be utilised for crime prevention, combating and investigation of rhino poaching. The chapter highlighted successes by the SAPS Air Wing in combating rhino poaching.

However, the SAPS Air Wing has not utilised the equipment fully during Rhino operation in KNP because the helicopters that are deployed at the park are not configured with the equipment. Similarly, a number of challenges are faced by the SAPS Air Wing. Furthermore, the section cannot sustain the serviceability of the helicopters which impacts negatively on the combating rhino poaching. However, despite all the challenges, the SAPS Air Wing is a successful aid in combating rhino poaching in the KNP. The next chapter will deal with the findings and recommendations of the study.

CHAPTER 5:
FINDINGS AND RECOMMENDATION

5.1 INTRODUCTION

The research was conducted with the aim of evaluating the use of SAPS Air Wing in combating rhino poaching in the KNP. Furthermore, the research addressed the prevention and investigation of the crime of rhino poaching. In order to address the problem, the researcher identified three primary questions that guided this study. These questions entailed:

- What does the SAPS Air Wing entail?
- What does the investigation into rhino poaching entail?
- How can the SAPS Air Wing be used as an aid in combating rhino poaching?

In order to address and achieve the aim of the study, which was to evaluate the use of the SAPS Air Wing as an aid in combating rhino poaching in the Kruger National Park, the researcher obtained data through interviews, personal experience and literature reviews. Based on the analysis of the data collected, the findings and recommendations are provided in this Chapter.

The findings, which are related to the three primary research questions, are presented as primary and secondary findings.

5.2 PRIMARY FINDINGS

5.2.1 Research question 1

What does SAPS Air Wing entail?

During the research it was established that:

- SAPS Air Wing's vision is to render a professional, effective and efficient airborne law enforcement service to all citizens of South Africa and in particular the different divisions of the South African Police Service (SAPS, 2011a:np).
- Its mission is to serve a strategic airborne law enforcement capacity in support of the South African Police Service crime combating strategy (SAPS, 2011a:np). Therefore, it is important that the SAPS Air Wing lives up to its vision and mission statements, particularly when dealing with the crime of rhino poaching.

5.2.1.1 The functions of the SAPS Air Wing

The functions of SAPS Air Wing are to improve police visibility and increase police response through the rendering of air support for:

- Crime prevention and investigations;
- Rapid response to crime incidents;
- Rapid deployment of SAPS personnel;
- Anti-narcotics operations;
- Aerial photography and videos;
- Monitoring of public gatherings and major events using LEO II camera system;
- Borderline operations;
- Communication flights (transportation); and
- Search and rescue operations.

5.2.2 Research question 2

What does the investigation into rhino poaching entail?

Information obtained through interviews and literature review revealed a number of phenomena relating to investigation, particularly rhino poaching investigation.

- The investigation into rhino poaching is two-fold, namely, it involves criminal and forensic investigation.
- The common and significant purpose of a criminal investigation is to solve the crime, produce evidence to support a conviction in a court of law and provide a level of service to testify for crime victims
- It was established that the investigation of criminal offences by the police can be divided into three phases, namely:-
    - Preliminary investigation;
    - In-depth investigation and; and
    - Concluding investigation.
- Forensic investigation includes collecting of suspects' blood, the other types of DNA obtained from the rhino carcass on the rhino crime scene, to be analysed and then be matched to an existing profile on the national DNA database.

- It was also established that the wildlife crimes are in essence no different from any types of crimes, and the entire scope of forensic science expertise and support has the potential to stop the illegal trade cycle, the following are examples of forensic science expertise:

    - Ballistics are tested to connect bullets recovered from rhino carcasses, or cartridge cases found at a poaching scene, with guns and rifles taken from the suspects. Likewise, bullets which match those recovered at different poaching locations reveal the involvement of repeat offenders and cross border poaching;
    - DNA profiling is increasingly used in helping to reveal the geographical origin of a specimen (rhino);
    - It was established that the crime of rhino poaching can also be linked to organised criminal activity which involves more than one person. Gilbert, (2010:431) states that organised crime pertains to any group of suspects who have formed a highly organised, disciplined association engaged in criminal activities;
    - It was established that the crime of rhino poaching involves a group which is organised and has an economic gain as a fundamental goal since most of the rhino horn is set to be sold for financial gain; and
    - Therefore, the investigation of the crime of rhino poaching entails a crime that must be investigated as organised crime. In all arrests and prosecutions on rhino poaching, it has been revealed that the crime is committed by organised grouping with the links across the globe.

It was discovered that the role of organised crime unit with the response to rhino poaching as organised crime is dealt with by the Directorate for Priority Crime Investigation (DPCI).

5.2.3 Research Question 3

How can the SAPS Air Wing be used as an aid in combating rhino poaching?

The role of the SAPS Air Wing in combating rhino poaching could be categorised into three phases or categories as established through interviews and literature review. These phases or categories relate to prevention, combating and investigation.

5.2.3.1 Prevention

The SAPS Air Wing is used as an aid in a pro-active manner which involves providing police visibility in and around the Kruger National Park. The aerial visibility policing by SAPS Air Wing includes:

- Crime prevention and high visibility inside and outside the mission area;
- Roadblocks and vehicle check point on identified routes; and
- Frequent aerial patrol along the border line and around the active identified hotspots deters poachers in a major way.

5.2.3.2 Combating

It has been established that various capabilities and equipment are used by the SAPS Air Wing in combating rhino poaching.

- The rapid deployment (trooping) of members of various specialised units into the park is an attestation to the combating role that could be played by the Air Wing.
- The use of technological resources such as LEO II observation camera systems, hoist and cargo slinging can be used in the combating of rhino poaching.
- Airborne support for quick operational response.

5.2.3.3 Investigation

Transportation of the investigating teams, uplifting and transportation of physical evidence for further investigation and analysis are done by using SAPS Air Wing members and equipment. This is important when investigating in terrains which are difficult or inaccessible through vehicles or on foot.

5.3 SECONDARY FINDINGS

The results below address the secondary findings to the research questions.

5.3.1 Research Question 1

What does SAPS Air Wing entail?

During the study, the following information was established:

5.3.1.1 SAPS Air Wing helicopter fleet:

- BO105
- McDonald Douglas MD500
- Eurocopter AS 350 B3 Squirrel
- BK 117
- Robinson R44

5.3.1.2 SAPS Air Wing mission equipment:

- It was found out that Cargo sling; used to airlift the rhino carcass to the accessible terrain for the processing of the scene.
- The hoist is used to hoist the personnel to the inaccessible areas for the processing of rhino crime scene.
- Night sun / Trakka beam a800 light provides the light during night operation.
- LEO II Observation system with FLIR system, day camera and spotlight are capable of providing live coverage from the helicopter into a designated area such as the command and control centre.

5.3.1.3 National and international operations conducted by SAPS Air wing: International operations include the following:

- Haiti- Independence Celebration
- Comoros- National Elections
- Mozambique- Operation Rachel
- Uganda- National Election
- Democratic Republic of Congo- ICC Cricket World Cup
- Namibia/Angola- Firearm destruction
- Botswana- the establishment of Air Wing
- Swaziland- cannabis eradication.

Some of these operations were sanctioned under the auspices of the Southern African Development Community (SADC) and South African Regional Police Chiefs Cooperation (SARPCCO) Protocols, especially on transnational organised crime.

5.3.2 Research Question 2

What does the investigation into rhino poaching entail?

In answering this question, the researcher discovered a number of secondary findings. These secondary findings relate to the following:

5.3.2.1 Organised crime

It was discovered that the crime of rhino poaching is an organised criminal activity which involves more than one person. Gilbert (2010:431) states that organised crime pertains to any group of suspects who have formed a highly organised, disciplined association engaged in criminal activities. The author further states that such a group may be small, but they typically involve a sizable number of individuals in the planning and execution of illegal acts. A true organized crime group requires continuous commitment by its members. Organized crime groups have economic gain as their fundamental goal.

5.3.2.2 Criminal investigation

The study revealed that the investigation of rhino poaching involves both general criminal investigation and forensic investigation (see discussion in 3.3 and 3.5). The literature reviewed define criminal investigation as the reconstruction of a past event by discovering, collecting, preparing, identifying and presenting evidence in order to solve a crime and institute successful prosecution. Brandl (2008:4) states that the most common and significant purposes of a criminal investigation are to:

- Solve the crime;
- Produce evidence to support a conviction in a court of law; and
- Provide a level of service to satisfy crime victims.

The study has answered the question regarding what the investigation into rhino poaching entails. It can, without a doubt, be concluded that it does entail general criminal investigation.

5.3.2.3 Forensic investigation

Another secondary finding relating to the primary question is that the investigation into rhino poaching also involves forensic investigation. This was confirmed by all the

participants and supported by literature, observations by the researcher including physical assistance during the collection and transportation of forensic evidence by forensic expert.

5.3.2.4 Modus operandi

The study could reveal that the investigation into rhino poaching involves understanding the methods used by the criminal groups in poaching the rhino including transactional methods. Various modus operandi used by the criminal groupings in rhino poaching were discovered through interviews and literature review.

- It was also found that the legislative framework utilised in combating rhino poaching is as follows:

    - National Environmental Management (NEMA) Act (Act No. 107 of1998)
    - Prevention of Organised Crime Act (POCA), 1998 (Act No.121 of 1998)
    - Firearm control Act (Act No. 60 of 2000)
    - NEMBA Protected Areas Act (Act No.10 of 2004)
    - National Environmental Management Protected Areas Amendment Act (Act No. 15 of 2003)
    - It was further established that legislation on environmental matters is a concurrent function between the national government and the nine provincial governments
    - The national and regional level of poaching was established, that lead to the development and approval of the strategy known as Law Enforcement and anti-poaching by the SADC members.

5.3.3 Research Question 3

How can the SAPS Air Wing be used as an aid in combating rhino poaching?

It was also established that SAPS Air Wing faced challenges in the prevention, combatting and investigation of rhino poaching. These challenges as raised by participants, literature and other documentary evidence, can be broadly presented as follows:

- Physical resources;
- Financial resources; and

- Operational demands.

Furthermore, the study has revealed that the SAPS Air Wing is not sufficiently utilised in the efforts to prevent, combat and investigate rhino poaching.

5.4 RECOMMENDATIONS

Based on the findings obtained through interviews, literature and personal experience of the researcher, the following recommendations are made: -

- It is recommended that SAPS Air Wing be optimally utilised in the prevention, combating and investigation of rhino poaching. This can be possible through proper pro-active planning, proper budgetary projections and apportioning.

5.4.1 Use of Technology

The evolution of technology has made it possible to use it as a force multiplier for law enforcement agencies.

- It is recommended that the introduction of drones especially as part of the Fourth Industrial Revolution will alleviate the pressure and running costs on aircrafts. It will be more cost-effective to use drones as opposed to aircrafts. Therefore, instead of the SAPS Air Wing using helicopters, they can substitute them with drones and use the helicopters on other operational demands.
- It is also recommended that the installation of Radio Frequency Identification devices (RFID) on "chips" on the animals (rhinos) can assist in tracking the whereabouts of the animals and further it can be linked to the Park's Operational Room as well as tracking devices on board SAPS Air wing helicopters where it could always be monitored.
- It is recommended that SAPS Air wing and SAPS as a whole ensure that the members who are deployed to KNP for rhino poaching should be financially secured, properly accommodated with sufficient resources to be utilised and helicopters should have sufficient funds for serviceability.

5.5 CONCLUSION

The study aimed to evaluate the role of the SAPS Air Wing as an aid in combating rhino poaching. The processes and the methodology applied by the researcher during the study

have addressed the questions raised by the study, aim and the purpose. Although the focus of the study was mainly on National Heliport Air Wing Unit (Pretoria Air Wing), the findings may apply to any Air Wing Unit in the South African Police Service. Therefore, the information obtained apply to all SAPS Air Wing Units.

From the researcher's perspective, the study has confirmed that the SAPS Air Wing has a role to play in the prevention, combating and investigation of the crime of rhino poaching. It has provided the researcher with more insight into the crime of rhino poaching. The findings of the study can be used as a basis for further research in the use of airborne law enforcement units in the prevention, combating and investigation of the crime of wildlife poaching either nationally or internationally.

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ANNEXURES

ANNEXURE A: THE OFFICIAL SAPS LETTER TO CONDUCT RESEARCH

SUID-AFRIKAANSE POLISIEDIENS **SOUTH AFRICAN POLICE SERVICE**

Privaatsak/Private Bag X 94

Verwysing/Reference:	3/34/2
Navrae/Enquiries:	Lt Col Joubert Intern Mahamba
Telefoon/Telephone:	(012) 393 3118 (012) 393 2423/4370

DIVISION: RESEARCH
SOUTH AFRICAN POLICE SERVICE
PRETORIA
0001

NM Maluleke
UNIVERSITY OF SOUTH AFRICA

RE: PERMISSION TO CONDUCT RESEARCH IN SAPS: AN EVALUATION OF THE USE OF SAPS AIRWING AS AN AID IN COMBATING RHINO POACHING: MASTERS STUDY: UNIVERSITY OF SOUTH AFRICA: RESEARCHER: NM MALULEKE

1. The above subject matter refers.

2. You are hereby granted approval for your research study on the above mentioned topic in terms of National Instruction 1 of 2006.

3. Further arrangements regarding the research study may be made with the following office:

3.1. Divisional Commissioner: Operational Response Services:

- **Contact Person:** Lt Col TA Nair
- **Contact Details:** (012) 400 6351

4. Kindly adhere to par 6 of our letter signed on the **2016/07/18** with the same above reference number.

LIEUTENANT GENERAL
DIVISIONAL COMMISSIONER: RESEARCH
DR BM ZULU

DATE: 2016/11/11

ANNEXURE B: COPY OF INFORMED CONSENT FORM

PARTICIPANT NUMBER: _____

INFORMED CONSENT FORM

TITLE OF THE RESEARCH

An evaluation of the use of SAPS Air Wing as aid in combating rhino poaching

RESEARCHER

Name : _____

Institutional affiliation : _____

Phone : _____

Email : _____

- **INTRODUCTION**

You are being invited to take part in an academic research study. Before you decide to participate in this study, it is important that you carefully read and understand the following information. Please ask the researcher if there is something you do not understand clearly.

- **PURPOSE OF THE RESEARCH**

The primary purpose of this research is to evaluate the existing role and technology used by the SAPS Air Wing in combating rhino poaching, with the intention to determine strengths and weaknesses, and to consider how things can be improved. The secondary purpose is to make recommendations for good practice based on the results of the data analysis that addresses the problem and enhances the effectiveness and efficient airborne law enforcement of the SAPS Air Wing in combating rhino poaching.

- **RESEARCH PROCEDURES AND DURATION OF THE STUDY**

The study is based on the existing role of SAPS Air Wing in combating rhino poaching. We are conducting this study to learn more about this topic since research on this topic has not been done in the past. The amount of time required by a participant per session will not be longer than 2 hours. Participants will have one-on-one interview which will be tape recorded

Participant initials: _____ 1

and transcribed for the analysis of data. You may peruse the transcriptions of the recording of the interview in which you participated in, at anytime.

- **PARTICIPANT'S ROLE**

Your role will be limited to a one-on-one interview. The interview should serve as a means to gain insight and knowledge from your respective field and the role you play in combating the poaching of rhino's in South Africa.

- **RISKS AND DISCOMFORTS**

There are no predetermined risks accompanying this study. The research participant is merely providing the researcher with knowledge about this subject matter.

- **BENEFITS**

There will be no direct benefit to you for your participation in this study. However, we hope that others may benefit in the future from the information we find in this study. However, it can be proposed that the research participant will benefit in some way through the processing of knowledge production and teaching.

- **VOLUNTARY PARTICIPATION / RIGHTS**

Your participation in this research is voluntary and you may at anytime stop participating without giving any reason. If you do decide to participate, you will be ask to sign a consent form and must keep a copy of the signed document, in your own possession.

- **CONFIDENTIALITY**

The participant's responses will be strictly confidential. All information will be regarded as personal and confidential. The researcher will not disclose participant's names or contact details unless permission is obtained from the participant.

- **DATA STORAGE AND DISSEMINATION OF FINDINGS**

Data collected will be kept in a locked file cabinet and also electronically in encrypted files stored (password protected) in a computer by the researcher. Only the researcher will have access to the data collected from participants and the findings of the research will be documented in the form of an academic dissertation.

- **PARTICIPANTS ACCESS TO STUDY**

The access to the study will be made available to the participant's at their request, only once completed.

- **CONTACT INFORMATION**

If you have any questions at any time about this study, or you experience adverse effects as the result of participating in this study, you may contact the researcher Ms N.M Maluleke, a MTECH Forensic Investigation student at the University of South Africa (UNISA), under the department of Police Practice, Cell: 083 722 5813, email address: nkhensi25@gmail.com.

You are welcome to contact the supervisor of this researcher (N.M. Maluleke) for any questions or concerns to Dr T.Budhram, Tel: (012) 433 9462/ 9400, email address: budhrt@unisa.ac.za.

- **CONSENT**

I have read and understand the information provided to me. I was given sufficient time to ask questions. I understand that my participation is voluntary and at any stage, without giving reason, without cost, withdraw my consent and participation in this research with immediate effect. I understand that I will be given a signed copy of this consent form as well.

Participant signature _____ Date _____

Researcher signature _____ Date _____

Researcher contact information: Name: Ms N.M Maluleke

Cell: 083 722 5813

Email: nkhensi25@gmail.com

Participant initials: _____

ANNEXURE C: INTERVIEW SCHEDULE FOR SAMPLE A, B, AND C

INTERVIEW SCHEDULE

Topic: An evaluation of SAPS Air Wing as an aid in combatting rhino poaching

SECTION A: Biographical information

Date:

Participant Number:

Interviewer:

Interviewee:

Age:

Gender:

Organisation:

Position:

Occupation:

Years of service:

Academic qualifications:

SECTION B: Rhino poaching

1. What is your understanding of rhino poaching?

2. What investigations are conducted in rhino poaching in terms of criminal and forensic investigation?

3. Which method of operation are used by poachers to perpetrate the crime of rhino poaching?

4. According to your knowledge and experience, what causes rhino poaching?

5. What contributes to the high levels of poaching in KNP?

6. Which methods are currently used by both SAPS and SANParks to investigate Rhino Poaching?

7. In your view, what kind of expertise is required to combat, prevent and investigate rhino poaching?

SECTION C: The role of SAPS Air wing as an aid in combatting rhino poaching

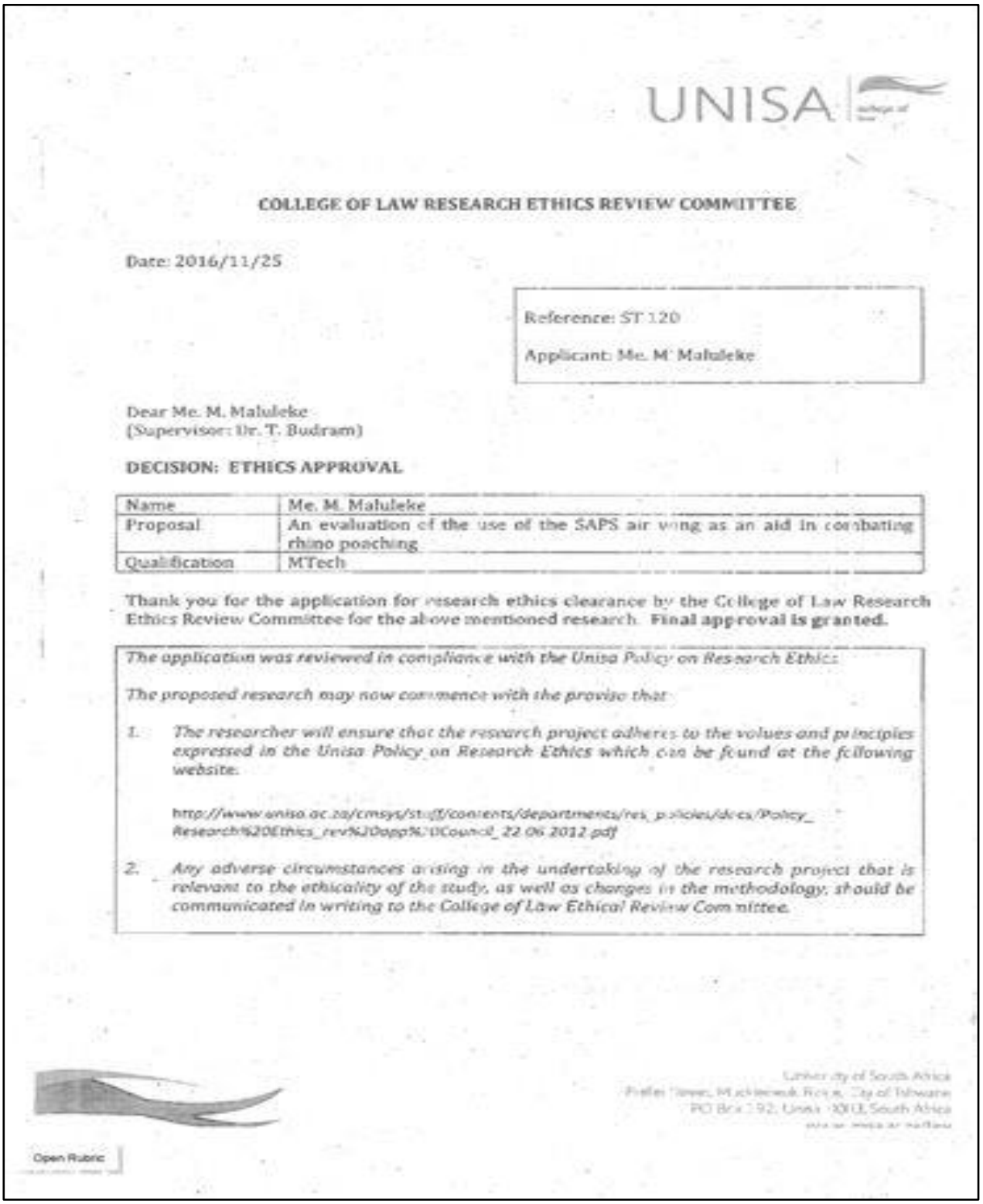
8. How can the SAPS Air wing be utilised as an aid in preventing, combating and investigating the crime of rhino poaching?

9. What technological equipment can the SAPS Air Wing utilise in combatting rhino poaching?

10 What challenges does SAPS Air Wing face while working in KNP that may prevent them from operating effectively and efficiently?

11. What impact can the SAPS Air wing have when deployed on anti-rhino poaching operations in KNP?

ANNEXURE D: ETHICAL CLEARANCE CERTIFICATE



UNISA

COLLEGE OF LAW RESEARCH ETHICS REVIEW COMMITTEE

Date: 2016/11/25

Reference: ST 120

Applicant: Me. M Maluleke

Dear Me. M. Maluleke
(Supervisor: Dr. T. Budram)

DECISION: ETHICS APPROVAL

Name	Me. M. Maluleke
Proposal	An evaluation of the use of the SAPS air wing as an aid in combating rhino poaching
Qualification	MTech

Thank you for the application for research ethics clearance by the College of Law Research Ethics Review Committee for the above mentioned research. **Final approval is granted.**

The application was reviewed in compliance with the Unisa Policy on Research Ethics.

The proposed research may now commence with the proviso that:

1. *The researcher will ensure that the research project adheres to the values and principles expressed in the Unisa Policy on Research Ethics which can be found at the following website:*

   http://www.unisa.ac.za/cmsys/staff/contents/departments/res_policies/docs/Policy_Research%20Ethics_rev%20app%20Council_22.06.2012.pdf

2. *Any adverse circumstances arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Law Ethical Review Committee.*

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392, UNISA 0003, South Africa

Open Rubric

An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3. *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

Note:

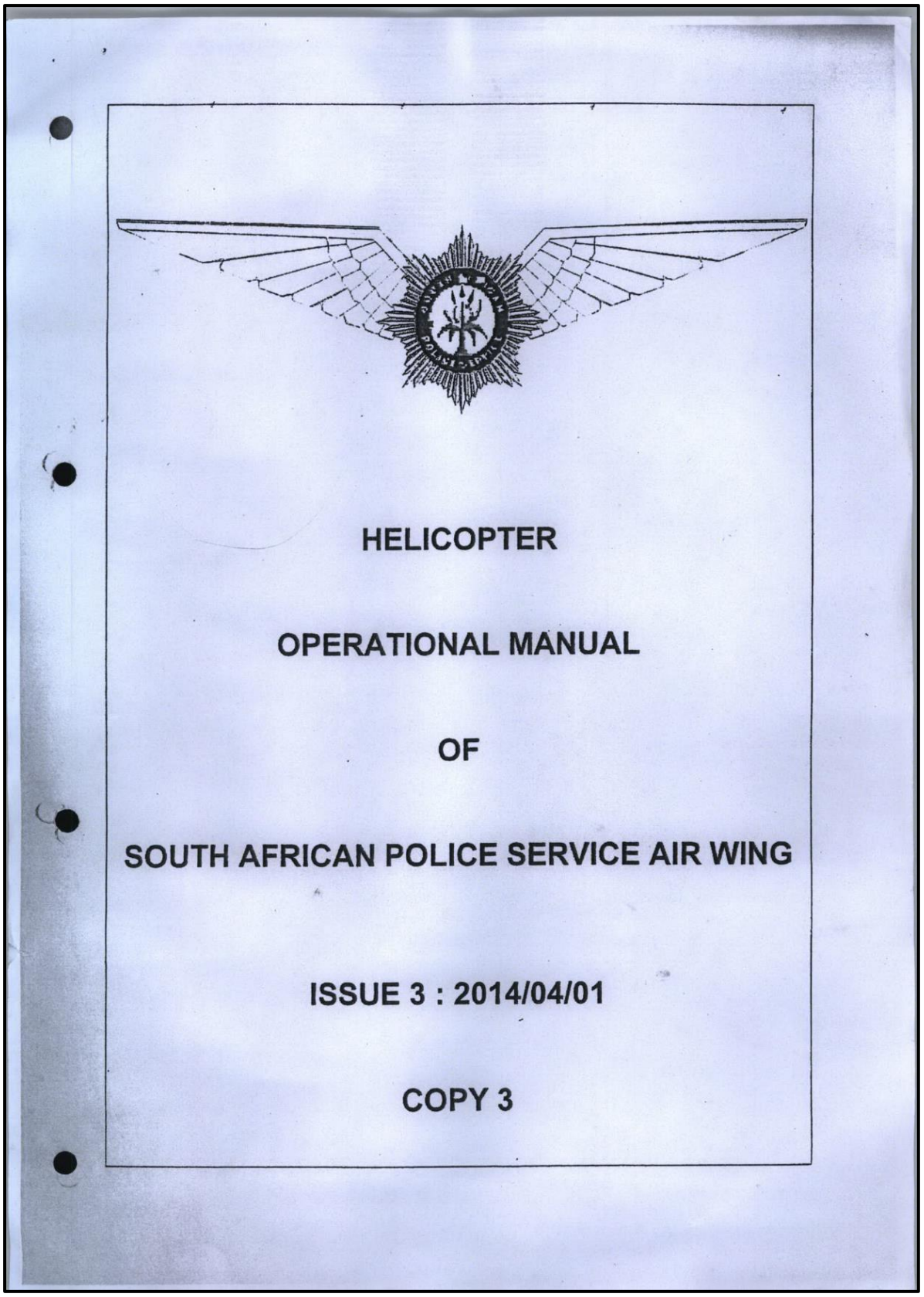
The reference number (top right corner of this communique) should be clearly indicated on all forms of communication (e.g. Webmail, E-mail messages, letters), with the intended research participants, as well as with the UREC.

Kind regards

PROF B W HAEFELE
CHAIR PERSON: RESEARCH ETHICS
REVIEW COMMITTEE
COLLEGE OF LAW

PROF R SONGCA
EXECUTIVE DEAN:
COLLEGE OF LAW

ANNEXURE E: HELICOPTER OPARATIONAL MANUAL OF SOUTH AFRICAN POLICE AIR WING ISSUE 3: 2014/04/01



(x) the PIC shall ensure that a continuous listening watch is maintained on the appropriate radio frequencies at all times during the various phases of flight.

2.9 RESPONSIBILITIES AND DUTIES OF THE AVIATION SAFETY OFFICER

Responsibilities:

(a) Ensure that the **SAPS AIR WING** operates in a safe and reliable manner.

(b) Ensure that the **SAPS AIR WING** complies with the provisions of the Civil Aviation Offenses Act, 1972 (Act No. 10 of 1972), as amended, and the Civil Aviation Safety Regulations, 1981, as amended.

(c) Ensure that all personnel have the appropriate knowledge, qualifications, skills, experience and training to perform or supervise their assigned duties in respect of civil aviation safety.

(d) Review, in conjunction with the relevant responsible person, this Operations Manual as and when required.

(e) Identify, record and report any safety, or security problems.

(f) Execute in conjunction with the relevant responsible person, audits of the procedures detailed in this operations manual.

(g) Ensure that all or any accidents and/or incidents which might be related to flight safety are reported directly to the Section Head and the Civil Aviation Authority.

(h) Implementation and maintenance of an Aviation Safety Programme.

(i) Conduct regular audits on the flight safety within the **SAPS AIR WING**.

(k) Supervise and assist the Unit Safety Officers.

This officer shall furthermore have the authority to:

(a) Stop or prohibit any action or operation which could jeopardise aviation safety; and

(b) Stop or prohibit any action that is unsafe or unreliable.

In the absence of the so designated **Aviation Safety Officer** his authority and responsibilities will be taken over by the acting officer appointed by the **Section Head Air Wing.**

2.10 RESPONSIBILITIES AND DUTIES OF THE AIRBORNE LAW ENFORCEMENT OFFICER (ALEO)

The ALEO shall:

(a) Install all the special purposes equipment on the aircraft for the specialised operations as required:

(i) hoist;
(ii) cargo sling;
(iii) night sun;
(iv) FLIR camera;
(v) ferry tanks;
(vi) fast rope equipment;
(vii) LEO camera;
(viii) spray tanks.

A pilot must supervise the installation of specialised operational equipment and sign it out as serviceable in the flight folio.

(b) Configure the helicopter according to the aircraft request form as received from the operations room.

(c) Refuel the helicopter at and away from the home unit.

(d) Perform fuel checks, as required.

(e) Prepare the aircraft for flight and position it on the flight line.

(f) Place covers on the aircraft when so required and conduct compressor washes.

(g) Ensure that the aircraft are cleaned after each flight.

(h) Ensure that all equipment on board the aircraft is safe and secure and correctly installed. Ensure that all hatches and harnesses are secured.

(i) Conduct full passenger briefings.

(j) Command and control all police activities by:

(i) monitoring police radio frequencies;
(ii) controlling ground forces;
(iii) communicating with the PIC regarding operations.

(k) Look out for other aircraft, wires and other obstructions.

(l) See to the safety and comfort of the passengers.

(m) Patter the PIC during all special operations eg. Hoisting, cargo sling, confined landings, fast roping, night operations and para-jumps.

(n) Operate the rescue hoist during hoisting exercises.

(o) Operate the night sun and the FLIR or LEO camera during special operations.

(p) Complete the flight tasking form.

ANNEXURE F: EDITOR CERTIFICATE

07 March 2020

TO WHO IT MAY CONCERN

Sir/Madam

This serves to confirm that I have proof-read Ms N.M. Maluleke's dissertation titled, **"AN EVALUATION OF THE USE OF SAPS AIR WING AS AN AID IN COMBATING RHINO POACHING".**

The proof-reading entailed editing some parts of the document; for example, to avoid wordiness, redundancy, sub-dividing sentences, and so on, to enhance the readability of the document and make it more understandable.

However, I have not tampered with the content of the document, except where this constituted repetition or made the document confusing.

The dissertation is presently ready for examination.

Sincerely

.....

Mr. F. Mahori
Lecturer
Department of English

ANNEXURE G: TURNITIN REPORT

turnitin

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Nkhensani Mildred maluleko
Assignment title:	Complete dissertation/thesis for exa...
Submission title:	Complete Dissertation
File name:	Nkhensani_Dissertation_final_2020...
File size:	6.88M
Page count:	95
Word count:	25,818
Character count:	139,758
Submission date:	22-Jun-2020 09:29AM (UTC+0200)
Submission ID:	1347919830

CHAPTER 1: GENERAL ORIENTATION

1.1 INTRODUCTION