AN EVALUATIVE STUDY ON CRIMINALISTICS: STOCK THEFT SCENES

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-Abstract-

The scientific study and evaluation of evidence found at a crime scene have helped in solving criminal cases resulting in the apprehension of potential perpetrators, including stock thieves. The locations to obtain Deoxyribonucleic Acid (DNA) evidence are vast, which consist of clothing, bodily fluids (semen, saliva, sweat, blood), fingerprints, tissue, skin cells and hair roots, among other things. This paper evaluates the policing of stock theft through the application of criminalistics in the form of DNA evidence to link a suspect to stock theft scenes. The sample for this comprises 15 participants of the South African Police Service Stock Theft Units (SAPS STUs) in KwaZulu-Natal (KZN), chosen purposively. A qualitative research approach was adopted for proper analysis.

This paper found that each stock theft scene differs from the next, and each must be approached with its own merits. It can never be prescribed to the first investigator, by means of rules and regulations, on how to proceed with each case. This paper further reveals the value of criminalistics (DNA materials) and policing in investigating

stock theft in the selected SAPS STUs in KZN by confirming that the accuracy of this application is beyond doubt and when done in the correct way, the tests conducted are infallible. This paper recommends that for the effective policing of stock theft by the SAPS STUs in KZN (Newcastle – Bulwer, Ladysmith and Bulwer – Pietermaritzburg) the application of criminalistics (DNA) evidence should be incorporated. This procedure could produce the desired results with regard to an increase in high-quality maintenance of the chain of custody during the investigation of these cases.

Key Words: Crime scene(s), criminalistics, routine activity theory, stock theft, KwaZulu-Natal Stock Theft Units

JEL Classification: O13

INTRODUCTION

This paper has one central objective, namely to conceptualise the debate around "stock theft scenes" across the selected KZN SAPS STUs of South Africa by shifting the analytical focus on popular and policy conceptions that foreground the centrality *of criminalistics* towards understanding the factors and conditions associated with other criminal cases (murder, rape and burglary at residential premises, to name a few). Furthermore, crime scenes involving animals must be investigated using the same principles as any other crime scene. To this course, crime scene investigation entails more than just the Locard principle (this contends that crime scene investigation is based on Locard's exchange principle). This principal was introduced by Dr. Edmond Locard (1877-1966), a French criminalist renowned for being a pioneer in forensic science and criminology. He speculates that every time contact is made with another person, place, or object, it results in an exchange of physical materials.

Locard believed that no matter where a criminal goes or what a criminal does, by coming into contact with an object, a criminal leaves evidence behind, including various DNA sources (fingerprints, footprints, hair, skin cells, blood, bodily fluids, pieces of clothing and fibres, alike), which could lead to the reconstruction of events – an

interpretation of observations can be made and measurements taken from a scene (Chisum & Curvey, 2000:np). This type of investigation involves crime scene reconstruction using scientific methods, physical evidence, logical reasoning, and their interrelationships to increase knowledge that surrounds the commission of an offence, including stock theft, which is the main emphasis of this study (Khajja, Vashistha, Bairwa, Sharma, Sharma, Srivastava & Mathur, 2010:np).

The literature indicates that wildlife crime is a special case of animal crime in which wild animals are the victims, Wildlife crime includes the illegal taking, possession, movement of animals or trade in animals or their derivatives in contravention of international, regional, or national legislation. Examples of wildlife crimes are the killing of wild birds, taking or removing the bird's or turtle's eggs, poaching or illegal hunting, destroying bat roosts, trapping wildlife illegally, poisoning wildlife illegally, illegally importing, exploiting or trading in endangered species and making use of endangered species' body parts in traditional medicines and as ornaments (Cooper, Cooper & Budgen, 2009:np).

The following statistics provide some background to the problems regarding stock theft in the country and the need to utilise sophisticated methods of investigation to improve convictions and consequently the public's confidence in the police. Recently, a total number of 181 cattle and 104 goats were stolen to the value of R2.7 million and only three cattle and two goats were recovered (Mashala, 2013:np). In connection to this statement Gqirana (2017:np) provides that according to crime statistics, the SAPS were not currently (2016/16) winning the fight against stock theft. Norman Sekhukhune, SAPS Head of Crime Research and Statistics, said there had been a 2% increase in stock theft between April and December 2016, in comparison to the previous year. KZN was the largest contributor to stock theft in the country, with 5 362 reported incidents, although the province recorded a 2.8% decrease. The Eastern Cape, Mpumalanga, North West, Free State and Gauteng all reported an increase in stock theft. In contrast, Willie Clack, the chairperson of the National Stock Theft Prevention Forum (in Schoeman, 2017:np), contends that the statistics provided by the police and Statistics South Africa – showing

an increase of 3% of non-reporting and a 2% increase in stock theft – were not accurate.

The impact of livestock theft is mainly economic but the emotional impact on the victims cannot be ignored. Economically, the crime affects the business enterprise livestock producers, irrespective of whether the producer is a commercial farmer or small-scale farmer, and it is the largest obstacle in sustainable livestock production and food security (Khoabane & Black, 2009:np). However, the establishment, involvement and roles of social groups in reducing livestock theft have not yet been studied (Clack, 2013:np). In South Africa, livestock theft is the only crime committed on farms which is indicated separately in the National Crime Statistics. In spite of this, the crime is neglected by academic researchers and the extent and impact of the crime are not understood by the Criminal Justice System (CJS) / Social Sciences or academia (Clack, 2013/2014a:np).

THEORY OF STOCK THEFT CAUSATION

According to Lilly, Cullen and Ball (2011:329), the Routine Activities Theory stresses that even if offenders desire to commit crimes, they cannot do so unless the opportunity to break the law is present. This theory believes that crime is not reduced but rather repositioned to another target or a place, stock theft included. This theory follows the assumption that for a criminal act of any sort to take place three elements have to be present, namely: (1) a motivated offender, (2) a suitable target, and (3) lack of guardianship. These elements all link and contribute to the successful occurrence and execution of stock theft. The notion of this theory is that the presence of these three contributing factors can collectively increase the likelihood that a predatory crime will take place. This theory further shares five predictions whereby livestock owners and other relevant stakeholders increase their livestock victimisation risk if (1) they are located in a high-crime area, (2) they left their livestock unattended late at night, (3) they are seen as easy targets, (4) they are found in a

higher risk isolated area, and (5) if they are without a herd boy or owners to watch over or protect them (Felson, 1997:np).

In light of the above, the *Fraud Examiners Manual* (2016:4.119) highlights that a variation of the classical theory holds that both the motivation to commit a crime and the supply of offenders are constant. There will always be a certain number of people, motivated by greed, lust, and other forces, who are inclined towards lawbreaking. The determining factor, particularly in predatory crimes such stock theft, are the activities of potential livestock. Three important elements influence this crime, namely:

- The *availability of a suitable target*, referring to various livestock and individuals offering protection to them, in support of this element. Clack (2014b:58) mentions that all stolen livestock (cattle, sheep and goats) have a factor that makes it a more or a less suitable target. In essence, the availability of species in an area needs to be taken into account. For example, cattle are large and is difficult to transport, sheep are regarded as dumb (not intelligent) animals that flock together when herded and normally do not make a noise at night when disturbed, while goats will blaze like crazy;
- The *absence of capable guardians*, such as legislations and security personnel. Clack (2014b:58-59) states that this element is attributed to the legal owner of the livestock, other relevant stakeholders and the CJS holistically. Adherence to the legislative frameworks of the Stock Theft Act (No. 57 of 1959) and the Animal Identification Act (No. 6 of 2002) remains of utmost importance in this regard; and
- The *presence of motivated offenders,* such as unhappy or financially challenged stock theft thieves or herd boys. Clack (2014b:57-58) provides that a lack of research on profiling livestock thieves to suggest what motivates the offender contributes negatively to this element. However, the study conducted by a University of South Africa (UNISA) criminology student, Ms. Cecili Doorewaard, can shed some insight on addressing this element. For speculations motives: Livestock, unlike other commodities, does not lose value when stolen;

livestock does not only have a monetary value – it may provide food on the table for the offender; and the offender may be involved in this crime based on greed or a need to feed the family.

STUDY DESIGN AND METHODOLOGY

This paper was explorative and descriptive in nature, adopting a qualitative research approach. Creswell (2007:37) states that to study an existing research problem, a qualitative research approach can be used to inquire about the natural setting comprising human subjects and places that inform the collection of data, while inductive data analysis establishes the study themes.

The sample size and procedure of this research comprise of Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs): 1 SAPS STUs provincial coordinator – KII (KII Durban Central); 2 KZN SAPS STU members (KIIs Utrecht – Newcastle and Pietermaritzburg) and 12 SAPS KZN STUs members (FGDs Ladysmith). Overall, the population of this paper consisted of 15 participants. Their perspectives were sought on the relationship between criminalistics and stock theft scenes. Non-probability sampling was used, whereby a purposive sample was selected as the members of the population for FGDs and KIIs were chosen randomly. The criterion used for the selection of this sample was based on the number of SAPS STUs members' years of service, which translate to experience and knowledge on the subject matter. Majority (thirteen - 13) of the selected participants were Africans, speaking different languages and two (02) White people - some of these participants were fluent in *IsiZulu* and English, but other languages of communication were also adopted in this paper.

The data collection procedure included a documentary study, FGDs and KIIs (as stated in *Supra*). This was guided by an *Interview Schedule Guide* aimed at ascertaining their viewpoints on the subject under investigation. Before drafting this paper, ethical approval was obtained from the principal of the Tshwane University of Technology (TUT) and the other gatekeeper, the SAPS.

The data analysis process in this paper involved reducing the volume of raw information, sifting significant information from trivia, identifying significant patterns, and constructing a framework for communicating the essence of what the data reveals to reach a structured, reliable and valid conclusion (De Vos, Strydom, Fouche & Delport, 2011:40). During this record-taking process, notes were taken with a view to write a more detailed and complete report afterwards – the four categories of **qualitative documentary analysis** as expressed by Matlala (2012:113,114 & 115) (citing Babbie, 1995; Creswell, 1994; Miller & Brewer, 2003; Krippendorff, 2004; White & Marsh, 2006; Srnka & Koeszegi, 2007; Kahl & Bingham, 2010) were adopted. During the **(1) utilisation process**, a voice recorder was used when focus group discussions en key information interviews were conducted, with a view to transcribing the information gathered at a later stage. The collected data was then organised by categorising it based on themes, concepts, or similar features. For the **(2) coding process**, this paper clustered particular phrases from the said interviews and conceptualised them into descriptive words. During this phase, the identified codes were grouped into categories, but not in order of importance. This process was done manually, without the assistance of computerised or analytical software. To identify the meaningful collaborations, patterns, relationships and structures involved, the retrieved data was further examined to highlight the process followed in this paper, while collecting data to draw a meaningful conclusion – this is called **(3) the categorisation process**.

This paper also included the analysis and interpretation of codes, categories and themes that emerged from the fieldwork findings. The findings of this paper were released to the KZN SAPS STUs for scrutiny and evaluations prior to finalising the study results in line with the identified themes and codes employed, which is called **(4) the clustering of the research themes**.

LITERATURE REVIEW AND PRESENTATION OF MAJOR FINDINGS

In this paper, 15 SAPS KZN STUs were interviewed on the main topic of the investigation of criminalistics and stock theft scenes. Interview questions related to this topic included questions about criminalistics and stock theft scenes investigations, the application of criminalistics on stock theft scenes and the purpose thereof. It was deemed very important for the selected STUs to understand the investigation process with the application of this aid (criminalistics) in order to ensure that evidence collected is maintained and preserved for prosecution purposes.

Against the above background, the Stock Theft Act (No. 57 of 1959) is implemented by the SAPS. Its objective is to consolidate and amend the law relating to theft of stock and produce, where produce means the whole or any part of any skin, hide, horn or egg of livestock or any wool or mohair. This Act achieves one of the following principles:

> *"… The Investigation Officers (IOs) who investigate stock theft must understand this Act and know under which circumstances they must investigate cases of stock theft and how to deal with suspects, witnesses and animals involved. The collection of evidence and which evidence must be collected and who must be present during the collection of evidence, are well stipulated in the Act"* (Department of Justice and Constitutional Development – DoJ & CD, 2015:np).

The investigation phases: stock theft scenes

Geldenhuys (2013:56) indicates that no two crime scenes are the same and must be handled accordingly – stock theft scenes are no different. However, there are guidelines that have to be followed to ensure that these crime scenes are properly managed, controlled and documented, and that the integrity of valuable items is guaranteed. Therefore, the most essential principle of this stage will be to determine the major sources of DNA in blood, bones and animal/suspect skin cells in an effort to link the suspect(s) to the crime scene. Objects from which skin cells of the suspect(s) can be obtained will seriously be taken into account and will include the following: cans, cups, bottles, cigarette butts, chewing gum, knifes and ropes.

To this end, the investigation process on stock theft scenes can be divided in three phases:

(I) **The preliminary investigation:** Gilbert (2007:56) highlights that the preliminary investigation (*of the stock theft scene*) involves the first exposure of the criminal offense (*stock theft*) to the investigation effort. This step is vital to the success of any investigation, stock theft cases included. The preliminary investigation serves as the foundation for the (*stock theft*) case and it must therefore be a proper foundation, otherwise the entire investigation is in jeopardy.

(II) **The in-depth investigation:** Gilbert (2007:60) asserts that the second investigative stage in the case of a criminal offense (*stock theft*) is the follow-up, or the continuing inquiry. The in-depth investigation phase follows up initial leads stemming from the preliminary investigation. Traditionally, this stage of the inquiry has been the sole responsibility of the detective because the continuing investigation is frequently defined as occurring when the patrol division yields responsibility to the detective division.

(III) **The concluding investigation** or final stage is the direct outgrowth of the previous two stages. If the preliminary and in-depth investigations have been unsuccessful in identifying, locating and arresting a suspect, certain administrative decisions concerning the continuation of the *stock theft* case must be made (Gilbert, 2007:62).

Lochner and Zinn (2015:34 & 35) provide that a scene can naturally be classified into five types, namely: primary (the place or area in the immediate vicinity of the occurrence or incident and where the majority of physical evidence – proving the elements of the crime under investigation – would be found); secondary (this can be a location, not in the same vicinity as the primary scene, and some distance from the primary scene); extended (a scene where several unlawful actions occur at different places while the offence is being committed); macroscopic (the classification of a scene based on its size – this is not just a scene but can also include livestock carcasses); and microscopic (any small or minute object or piece of physical

evidence related to the case being investigated). For the purpose of this paper, the typical stock theft scenes can be found outdoor, indoor and mobile. Accordingly, this can be divided as follows:

- The livestock may be found at the location where they were slaughtered (*outdoor and indoor scenes*);
- The livestock may be slaughtered in a specific location to be transported by a suspect to another location for selling (*mobile scenes*); and
- The livestock may be stolen and moved to another location and to another owner for further illegal rearing, which may later be discovered (*mobile scenes*).

Against this background *(Supra)*, the Forensic Working Group [FWG] (2014:7-8) reveals that assessing whether a criminal offence (*stock theft*) has taken place may not always be straightforward, and that other possibilities such as natural deaths, predation and legal hunting should be considered. On attendance at a wildlife crime scene, investigators should always be alert to the potential value of forensic evidence. There are now a variety of techniques available to try to link a suspect or a victim with a crime scene or to illegally held items. The strength of that link will vary in accordance with the technique and the quality of the evidence gathered.

DNA analysis of human blood, body fluids and other material is now very sophisticated and can be performed on minute samples. These investigators should always consider whether the offender has cut himself, or left behind cigarette ends or other sources of body fluid (*at the stock theft scene*). In most instances, a police crime scene investigator (CSI) will undertake the collection of this type of evidence. In the United Kingdom (UK), since November 2013, the *National DNA regulatory guidance* requires all human DNA recovery to be carried out at the primary scene. CSIs and others will not be able to open and examine any exhibits for human DNA away from a scene unless it is in a laboratory accredited to the International Standardisation for Organisation (ISO) 17025 standards.

This is applicable to South African forensic DNA databases, which are expected to provide investigative leads to identify stock theft suspects where genetic materials have been left at the scene. This refers to a collection of forensic DNA profiles obtained from crime scene samples, suspects and convicted offenders and is used to perform comparative searches in order to establish an investigative lead (Smith & Zinn, 2015:405).

Crime scene management: stock theft cases

For the initial stages of stock theft investigation, it is proposed for the members of KZN SAPS STUs members to establish a distinction between primary and secondary crime scenes for the identified outdoor, indoor and mobile stock theft scenes. However, there may be more to a crime scene than first meets the eye, something that these members should seriously consider. In fact, more than one crime scene or *stock theft scene* may exist, depending on how the crime (*stock theft*) was committed. Crime scenes (*stock theft scenes*) are therefore considered as either primary or secondary. The primary crime scene is where a crime actually occurred and a secondary crime scene is in some way related to the crime but is not where the actual crime took place (Boisa, 2013:4). In a case of stock theft, for example, the *kraal* (or pen*)* may be the primary scene, but the vehicle used for transportation and the stock thief's hideout are secondary scenes. In the case of a stock thief who slaughters livestock in the bush but transports the meat to another location to sell it, the identified location in the bush is the primary scene, and the stock thief's vehicle and the pension point at which the meat is sold referred to secondary scenes. However, it should also be acknowledged that primary scenes typically yield more usable evidence than secondary scenes, but not always. Sometimes the only crime scene investigators have to work with is a secondary scene, like the place where the livestock meat is sold or the location of discovery.

Under these circumstances, investigators may not know where the actual slaughtering of the livestock took place and therefore have to use evidence they find at the secondary scenes to help them identify the person who slaughtered the livestock under investigation, or to

locate the primary scene. They may be able to use receipts, permits and meat they found on the seller to identify the original owner, and ultimately a list of buyers or locations where the meat was sold. Doing so can greatly narrow the focus of the investigation and lead police to the primary crime scene and the perpetrator. The size of the area where a crime (stock theft) occurs varies from scene to scene, and the police must be prepared to quickly determine the size and boundaries of a crime scene. This task is not as easy as it seems. A crime scene may be a single *kraal* or an entire farm and everything on the property, to name just a few. At a minimum, the crime scene includes:

- The exact spot where the offence (*stock theft*) took place;
- Areas from which the site can be entered, exited, or even escaped (*car, kraal or open field*); and
- Locations of key pieces of evidence (*physical evidence and DNA materials*) (Boisa, 2013:5-6).

As described in this paper, some of the KZN SAPS STUs' functions and roles to assist in the investigation of stock theft scenes will include the above as listed by Boisa (2013:25). Therefore, the primary purpose of stock theft scenes management is to take control of the located scene and secure it; to ensure the integrity and originality of evidence and exhibits; to investigate and process this scene thoroughly and undisturbed; to coordinate and maximise the collection of exhibits; to utilise the investigation support sources optimally; to record facts and events properly; and to ensure that this scene remains under police protection for the necessary period, which is to be determined by the stock theft scene manager. Lochner and Zinn (2015:41-48) discuss a model for handling physical evidence as adapted from Marais (1992). They emphasised that this model should not be seen as the only acceptable process in terms of when and how to handle physical evidence.

However, this model can provide investigators with a very good indication of the process that physical evidence must pass through, from the time it is identified at the scene until it is presented as

evidence in court. This model highlights the following six (6) steps: recognition – looking for physical evidence that is related to stock theft upon arrival at the scene to be used as evidence; protection – to protect and preserve the relevant physical evidence in its original position and condition; recording – recording physical evidence as a source of information at stock theft scenes; collection – after thoroughly documenting stock theft scenes, the identified evidence should be collected, preserved and contained within a secure storage for examination, testing and presentation in court; packaging and transporting – all the physical evidence that will be sent for analysis once properly collected must also be appropriately packaged and labelled to protect it until next required in a chain of custody; and marking physical evidence – physical evidence that is discovered should be marked with the date, case number and initials of the investigator in such a way that its evidential value is not destroyed and this should be exercised as soon as possible after it has been discovered.

Typical stock theft crime scenes

As previously illustrated, the summation of Dr Edmond Locard (1877–1966) reveals that "every contact leaves its trace". Therefore, a stock theft scene is a location at which a suspected offence relating to this crime has occurred. Processing this scene is normally one of the most important phases of the investigation. It is here that the investigator focuses on the search for physical evidence. All stock theft scenes, to a varying degree, contain physical evidence. This may be visible to the naked eye, or minute, to the point of being microscopic.

Physical evidence comprises all objects and material found in connection with investigations that are instrumental in discovering the facts. The investigator must be prepared to apply crime scene skills virtually anywhere. Crime is pervasive, it knows no boundaries: "It is a common misconception that most crimes conveniently occur indoors, in spacious, well-lighted rooms. Unfortunately, they do not. Criminal offenses (*stock theft included*) occur in nearly every locality

imaginable: indoors, outdoors, in automobiles – literally in any place, at any time." (Gilbert, 2007:81).

The true challenge of the crime scene (*stock theft scene*) is in the area of detection. Again, evidence that could solve the crime (*stock theft*) will frequently be present at the scene (*stock theft scene*). Successfully locating this evidence is essential, for such tracing clues can often aid locating the perpetrator of this crime, or evidence obtained may help investigators determine the type of criminal offence (stock theft) that took place. This evidence may further identify a victim, if this victim's identity is not known yet. The officer should not totally limit the search for physical evidence to the location of the crime scene. Physical evidence can also be found on the person of the victim or suspect, or within their immediate environment (Gilbert, 2007:79-80). When a crime (*stock theft*) is reported to a police agency, a patrol officer is notified by radio to proceed quickly to the scene. Rapid response time is frequently instrumental to the success or failure of an entire investigation, for the longer a crime scene remains unprotected, the greater the chance of crime scene contamination. Contamination of the scene (*of the stock theft scene*) takes place when evidence is altered, removed, or destroyed in any manner (Gilbert, 2007:81).

Figure 1: Outdoor stock theft scenes

Sources: Clack (2015:np) and Google images (2015:np) and Letaba Herald (2015:np)

- **Outdoor stock theft scenes**

Dillon, Figarelli, Sylvester and Tilstone (S.a:np) stress that outdoor stock theft scenes are the most vulnerable to loss, contamination and damaging effects on biological evidence in a short period of time. Individuals with access to this scene can potentially alter, destroy or contaminate evidence. The risk is greatest when the stock theft scenes are not properly secured. Destruction or deterioration of evidence due to environmental conditions, such as heat, cold, rain, snow and wind, calls for rapid and effective protection of biological evidence. Evidence that cannot be protected under these conditions should be collected quickly without compromising its integrity. When encountering a combination of an indoor and outdoor scene, the outdoor component should be processed first. For a night-time, outdoor stock theft scenes are especially problematic. Regardless of the quality of the light source used to illuminate these scenes, the lack of sunlight can increase the possibility of missing or destroying evidence.

Whenever possible, the investigators (KZN SAPS STUs) should hold and secure outdoor stock theft scenes for processing until daylight. It is notoriously difficult for law enforcement personnel, stock theft scenes technicians and responsible parties to preserve outdoor stock theft scenes. When stock theft occurs outdoors, the factors that can compromise this scene increases dramatically and valuable evidence can be lost. Law enforcement personnel are usually the first to arrive at an outdoor stock theft scene and it is their job to make sure that no one is allowed to compromise it (Boisa, 2013:8 & 9).

- **Preserving an outdoor crime scene: weather conditions**

The weather conditions are one of the major factors that can compromise outdoor stock theft scenes. For example, in extreme hot or cold temperatures, the decomposition rate of a carcass will be

affected, complicating the investigator's job of determining the time of death. If it is windy, important trace evidence can be scattered, making it more difficult to find. Snow also complicates the process of finding trace evidence as well as recovering bullets and cartridges and it is much more difficult to cast foot impressions in snow than it is in soil or sand.

- **Preserving an outdoor crime scene: curiosity**

When stock theft is discovered outdoors, it is usually found either by police patrolling an area or a community member, both of whom are likely to be curious and to disturb the crime scene. For example, if a car were to be found by the side of the road with no one inside, an investigator (KZN SAPS STUs) or member on patrol duties or a community member might open the doors to look in the glove compartment for the registration. If stock theft had been committed and that car had been used, much of the evidence such as fingerprints would be compromised (Boisa, 2013:9).

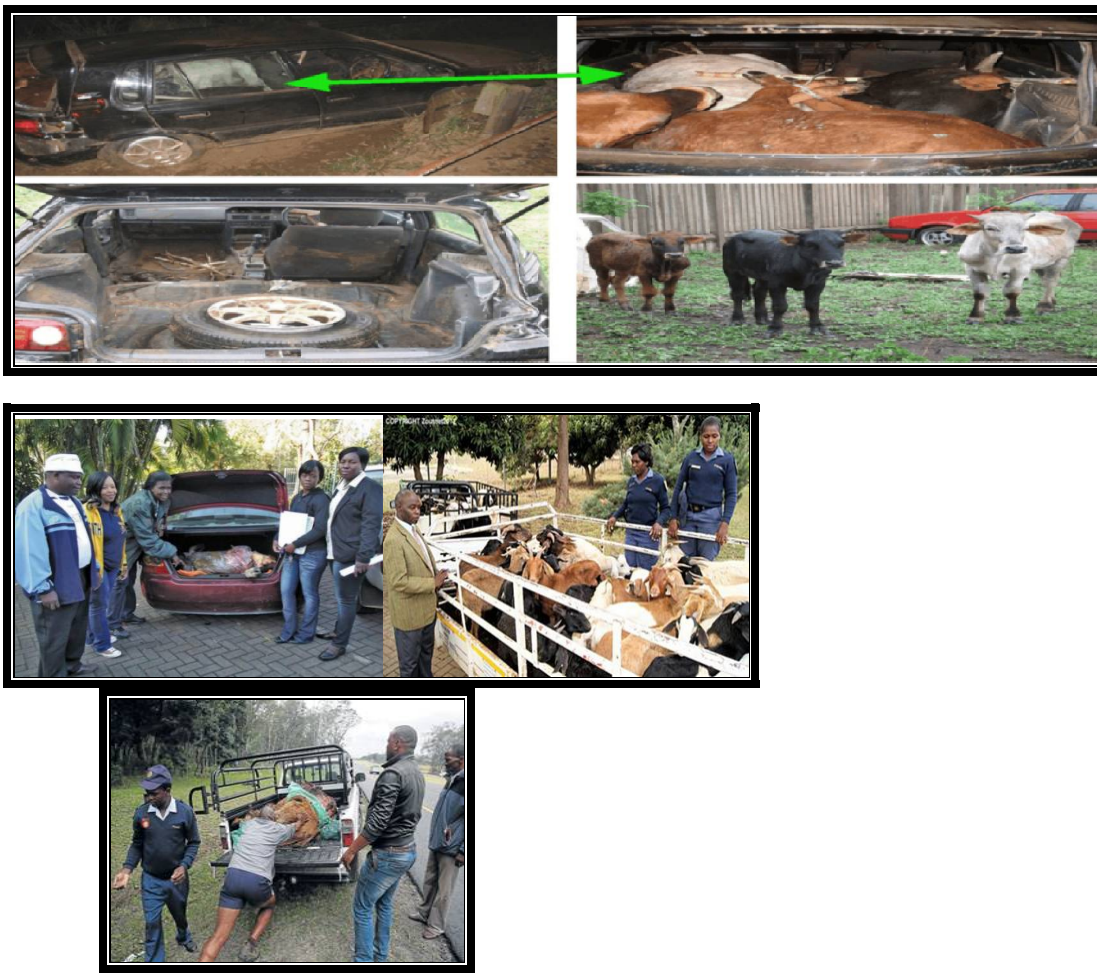
Figure 2: Indoor stock theft scenes

Source: Singh and Du Toit (2015:2)

- **Indoor stock theft scenes**

Compared to an outdoor stock theft scene, evidence at an indoor stock theft scene is generally less susceptible to environmental loss and weather changes. The possibility of loss and contamination from multiple people accessing the scene is greatly decreased. Limiting access and collecting known reference samples from individuals with access to this scene are a priority (Boisa, 2013:9). Evidence at an indoor scene (*stock theft scene*) is generally less susceptible to loss, contamination and deleterious change. Indoor crime scenes (*stock theft scenes*) are usually easier to secure and protect, and securing a *stock theft* scene can be as simple as closing a door. The methods used by forensic laboratories have evolved to such an extent that very small amounts of biological (DNA) materials can produce a usable DNA profile. This, however, means that the potential for detecting DNA traces deposited by contamination at crime scenes (*stock theft scenes*) becomes a factor (Webb, 2008-2017:np).

Figure 3: Mobile stock theft scenes



Sources: Google images (2015:np)

- **Mobile scenes**

Other academic researchers refer to this type of crime scene as a "conveyance crime scene" (*stock theft*) and it is defined as "something that serves as a means of transportation". Crime such as stock theft can be committed in this fashion. Therefore, it is important

that the stock theft scene investigator (KZN SAPS STUs) recognises that physical evidence and DNA materials recovered from these scenes may extend well beyond the conveyance itself. The escape route of the perpetrator may reveal evidence important to the investigation. For example, impression evidence such as shoe or footprints in soil may be found leading away from the scene, and property removed from the conveyance may be deposited or dropped as the perpetrator flees the scene. Cigarette butts are sometimes found in and around the conveyance. The nature of the crime may give the investigator an idea of the type of evidence present (Dillon *et al.* S.a:np).

To protect the stock theft scene against inclement weather and other factors that may contribute to evidence loss and destruction, a conveyance such as a vehicle may be transported to the laboratory after proper documentation has been completed (Webb, 2008-2017:np).

The application of criminalistics on stock theft scenes

Moreover, the FWG (2014:38-39) advocates that the analysis of human DNA recovered from crime scenes has revolutionised criminal investigations. However, DNA is the building block of life and is therefore not limited to humans. DNA is present in animals, plants and fungi and the analysis of non-human DNA can provide crucial evidence in wildlife crime investigations. Wildlife crime scenes should be examined to look for potential sources of human DNA.

These may provide a direct link to a known suspect or to an individual already held on a national DNA database. A range of examples includes

- Discarded cigarette butts, chewing gum and beverage cans;
- Blood stains due to injuries received following the use of tools, climbing trees or handling animals;
- Items that may have been handled and dropped, such as tools, gloves, baseball caps, to name a few; and

- Saliva from envelopes or stamps.

In the South African context, it is of great concern that the first people (investigators) to arrive at a stock theft scene are often not qualified to investigate the committed crime (stock theft). The DNA Project (2015a,b,c:np) accordingly advocates that the South Africa public should and must familiarise themselves with the proper procedure when securing a crime scene in order to ensure proper identification, preservation, and collection of biological evidence that could render a criminal's DNA profile in line with the Criminal Law (Forensic Procedures) Amendment Act [No. 37 of 2013] (the "DNA Act"). Thus, the South African government should sensitise livestock farmers on this technological advancement. An investigating officer has only one chance to collect proper evidence at a crime scene and this job is regularly thwarted by the destruction of a crime scene due to the negligence and ignorance of all or some of the public and lower-level police officers, who arrive at the scene before the investigating officer has a chance to collect the necessary evidence of the crime committed.

Evidence not identified at the crime scene loses its value due to degradation and destruction caused by factors such as the environment or contamination of the crime scene. Failure to collect evidence, as well as evidence collected under incorrect protocols, may render erroneous results, if any at all. There is a need to educate the responsible investigators (KZN SAPS STUs) on what to do in the event of stock theft, whether they are victims themselves or come across a stock theft scene. It is vitally important for the public to be aware of what should and should not be done in these circumstances, as well as to ensure that people in the immediate area adhere to these basic guidelines to preserve physical evidence. Other DNA materials, for example blood and hair, can easily be transferred between the livestock and suspect and to the environment. This contact of the suspect with the livestock and the crime scene will leave physical evidence, proving his/her presence at the crime scene (stock theft). Depending on the crime, there may be two crime scenes, namely the livestock carcass and the location where the stock theft occurred (Boisa, 2013:13-14).

Maintaining chain of custody: stock theft cases

The chain of custody must be maintained unbroken from the time of collection of the evidence until it is presented in court. This chain of custody must be kept to a minimum – it should ideally consist of only one person. However, this is not normally practical at large stock theft scenes. Investigators (KZN SAPS STUs) must remember that a chain is only as strong as its weakest link. If one person involved in the custodian chain allows the evidence to become contaminated, altered, misplaced or lost for any period of time, the evidence, once this factor is known, will probably not be admitted in court. Boisa (2013:13-14) further argues that anything that might lead to the identification of the suspect(s) to clarify how the crime was committed is important as evidence. Therefore, it is not the purpose of this paper to attempt a full treatment of the vast field of physical evidence and other DNA materials as it would deeply involve criminalistics and its many areas of scientific application.

It is more appropriate here to offer some basic examples of physical evidence, its collection, recording, preservation and disposition. In support of this statement, Van der Watt (2014:117) mentions that the continuous safekeeping of physical evidence is of great importance when conducting investigations and stock theft scenes are no exception. This process starts at the scene of a crime when an object such as a clue or exhibit is found, and ends when the object is accepted as proof in any formal proceeding stemming from that investigation. The investigator must prove that the integrity of an object that is tendered as an exhibit is intact. This means that the article has not become contaminated through contact with other articles. The handling of physical evidence and DNA materials may be subject to scrutiny or critical evaluation during a criminal trial or other proceeding. The chain of evidence starts at the crime scene and ends in court or other proceedings, so the handling of physical evidence must be conducted with care. On the other hand, clues such as physical evidence and DNA materials are usually found at a crime scene or scene of incident, which may help an investigator to solve a

case. The following considerations apply to an investigator when dealing with a crime scene or scene of incident:

- An investigator (SAPS STUs for this paper), must know what to search for – and also determine whether he/she knows the elements of the crime [stock theft in this paper] under investigation, or what is needed and relevant to prove a case;
- The investigator must know how to search – how to approach the scene, with determents of expertise to search for [the] specific evidence material;
- The investigator must know how to identify and collect evidence – this may be a highly specialised field and is usually conducted by specific personnel trained in that field; and
- All relevant actions and evidence collected at a crime scene have to be processed into statements and reports (Van der Watt, 2014:114-115).

In its physical form, a crime scene or scene of incident may include a person, place or premises, including vehicles, boats or aircrafts where some physical action has occurred and where there is a likelihood that transference of evidential material has taken place (Trueman, 2009; in Van der Watt, 2014:115). Crime scenes or incident scenes (*stock theft scenes included*) can therefore take various forms and manifest in different shapes and sizes. Irrespective of how such a scene presents itself, information must be gathered for the purpose of analysis, interpretation and individualisation (Van der Watt, 2014:15).

Protecting a crime scene: stock theft

Van der Watt (2014:117) highlights that cordoning off the scene of an incident is fundamental to the forensic investigation process and, more specifically, the continuum of evidence preservation. A well cordoned-off scene (*stock theft scene*) creates an impression of professionalism and competency. On the other hand, a scene of incident (*stock theft scenes*) that is not cordoned off usually displays a lack of control and proficiency on the part of investigators and responding personnel. The first official arriving at a crime scene is

responsible for protecting it. This is usually done by cordoning it off and restricting access to it. Note that the boundaries of the cordon must be adequate to ensure that undiscovered physical clues and impressions are protected. The cordon should not be removed until all objects and anything with evidential value have been located, sketched, photographed, identified, marked, labelled and removed.

Evidence found at a crime scene: stock theft

According to Manamela, Smith and Mokwena (2015:118) it is critical in a case to know the type of body fluid and the investigator must communicate this information to the testing laboratory. A match between the DNA found at a crime scene and that of a suspect(s) (or other person of interest) is essentially a positive identification, except in the case of identical twins. Furthermore, DNA evidence is well accepted in courts of law. It provides the investigator with a means of linking a suspect(s) to a crime scene, excluding a person from further investigation, establishing a paternity relationship or assisting in determining the identity of a missing person.

Thus, the investigator must always consider the DNA evidence in the context of a case. In order to prosecute a case, the DNA evidence must be supported by other evidence. DNA analysis techniques are becoming increasingly sensitive and less labour-intensive to perform. It may not be long before DNA analysis will no longer be restricted to a laboratory but can be performed in close proximity of the scene of incident and on the same day. In general, people are very curious when coming across or observing the actions of those responding to a crime scene. This curiosity could result in people trampling a crime scene and in the process destroying, damaging or contaminating evidence.

Fingerprints, footprints, palm prints, knee prints, hair, fibres, clothing, broken glass, handwriting, tool marks, saliva, paint smudges, blood, semen and weapons are all examples of physical trace evidence. However, no matter how small every piece of evidence found at a crime scene (*stock theft scenes*), it should be regarded as relevant until proven otherwise.

Some pieces of evidence are obviously significant – for example, a firearm found on the scene of a shooting. Identifying, gathering and preserving the integrity of physical evidence is the responsibility of the investigator from the time the evidence is discovered until the time it is presented at a relevant trial or tribunal. Preservation implies keeping the evidence in its original state, so that it cannot be altered, tampered with, contaminated, lost or damaged. Preserving the integrity of evidence at the crime scene means that it must not become contaminated.

There are a number of things that an investigator should not do at a crime scene (*stock theft scene*), like the following (not in order of importance):

- Do not touch or pick up any object unnecessarily;
- Do not touch anything without wearing gloves;
- Do not use a telephone or cellular phone found at the scene;
- Do not smoke, drink or eat at the scene;
- Do not use any facilities such as a toilet; and
- Do not allow suspects, witnesses or any other unauthorised people at the scene (Van der Watt, 2014:117-118).

In light of this submission, during the process of collecting and packaging of samples (physical or DNA materials) located at possible stock theft scene, the responsible investigator should, if possible, collect the most fragile forensic evidence first at a discovered crime scene. The evidential value of an exhibit must be established before collection, as it is useless to collect evidence with no evidential value. The context of the items such as exhibits found on the scene of incident must be kept in mind. Forensic scene of incident examiners processing a scene of incident must collect, store and transport fluids in accordance with prescripts that will not compromise the exhibit material. Exhibits may be compromised by contamination or by not maintaining the chain of custody. The location of the exhibits at the scene must be well documented and photographed.

Where appropriate, exhibits removed from the scene of the incident should be packaged in evidence-sealing bags or appropriate

containers, sealed and properly labelled. It is advisable to package exhibits in paper, an envelope or cardboard box before packaging them in an evidence-sealing bag so that the exhibits do not "sweat" and cause the DNA to degrade. The paper or cardboard will absorb the moisture during "sweating". Dedicated evidence collection kits have been developed by law enforcement agencies to facilitate the taking of samples and the packaging and storage of various exhibit materials. These evidence collection kits ensure that samples are taken appropriately, that exhibit material is not contaminated during storage, and that the sample is taken in the correct manner and preserved. A DNA swabbing kit ensures that skin cells are collected by using the correct type of swab to ensure a DNA result. DNA reference collection kits to collect DNA samples from the suspect or victim are the evidence collection kits made available by the SAPS to facilitate the packaging of exhibits to be used by investigating officers or scene incident examiners (Manamela *et al*. 2015:103). This paper includes the performance of forensic DNA analysis to determine the various forensic DNA profiles of evidence material, such as crime samples, and to compare these profiles with control samples of the persons allegedly involved. Furthermore, a forensic DNA profile that is used in criminal investigations is a string of alphanumeric characters that denotes identity. This sequence of alphanumeric numbers is nothing more than biometric information of a purely objective and irrefutable character. Reference samples (non-intimate buccal samples or fingerprints) of the persons involved in the alleged crime, such as the victim(s), suspect(s) or other parties who have to be excluded, must be collected for comparison to the crime samples. The identification subject only has value when it is compared to another forensic DNA profile (Manamela *et al*. 2015:112-113).

The selected participants in the KZN SAPS STUs were asked to provide their opinions regarding the challenges facing the SAPS when it comes to maintaining the chain of custody while investigating stock theft cases and how criminalistics can be linked to stock theft cases. These are their verbatim responses:

"Vigilante groups or communities quite often act upon themselves before engaging SAPS, thus, in the process handle and contaminate exhibits" (KII-06-01-01).

"If investigators do not follow the chain of custody properly when they get to court it will be difficult as there will be no chain of evidence and no chain of protection of evidence (preservation). The advocates specifically will take them to task. They are strict rules that one should adhere to" (KII-5:1:1).

"If stock theft investigators think what they doing and concentrate on it, it is not difficult to maintain the chain of custody. It must be acknowledged that our local courts consider DNA evidence very important. If SAPS stock theft investigators/detectives get positive DNA results, the courts will accept it and close the case immediately, this relates to the probative value of a statement made in terms of section 212(4) of the Criminal Procedure Act [CPA] (No. 51 of 1977). I urge the other STU members to try and get DNA evidence at all times. I have got a case pending at this stage, I sent eight (8) samples of which six (6) came back positive linking four (4) of the accused and it should be said that this is good evidence indeed" (FGDs-04:16:7).

In view of these responses, it is clear that the effective use of DNA technology by the SAPS STUs in KZN to combat stock theft could produce the desired results with regard to an increase in high-quality maintenance of the chain of custody during the investigation of stock theft cases. This will obviously result in detailed DNA technology investigations, enhance the quality of dockets and improve conviction rates.

This process of maintaining the chain of custody should be integrated with the new case-flow management system in the KZN lower courts where the majority of stock theft cases are tried, as implemented by the South African judiciary. To this end, Botswana and the United States (US) have successful case studies for effectively prosecuting this scourge. This system is believed to ease the burden on court rolls and reduce the previous long wait for cases to be heard in court, while

placing more emphasis on the assignment and allocation of cases to a judicial officer at the earliest opportunity, and allocating the responsibility of managing the flow of cases in an efficient and effective manner to ensure their speedy finalisation. The system in question is led by a Judicial Case Flow Management Committee (JCFMC), comprising judges from all divisions of the High Court, Supreme Court of Appeal (SCA) and the Constitutional Court – currently chaired by the former Deputy President of the SCA, Judge Kenneth Mthiyane, after the inaugural chairperson, the current Chief Justice of South Africa (2018), Mogoeng Thomas Reetsang Mogoeng, was appointed (Pule, 2015:54).

RECOMMENDATIONS AND CONCLUSION

The proposed golden rules for KZN SAPS STUs for understanding the use of criminalistics on stock theft cases and effective crime scene management should be aligned to the following:

- The stock theft investigators should never rely on their memory. They should make notes in their pocketbooks and use crime scene log sheets for everything they observe;
- They must know the definitions and elements of crimes (stock theft);
- Complaints must be given immediate attention. There is no excuse that justifies disregarding this rule;
- A scene of crime (stock theft) must be visited, secured, protected and processed as soon as possible;
- The relevant crime scene jackets must be worn at the stock theft scene;
- The media should be courteously requested to remain outside the outer cordon of the stock theft scene. Refer all media enquiries to the media liaison officer; and
- Never hesitate to summon help and utilise experts where it is necessary (Boisa, 2013:15-16).

Therefore, an effective relationship to encourage the retention of evidence is strongly advised by this paper. The stock theft scene is the source of essential evidence to solve the crime committed, and livestock farmers should acknowledge its importance and know how to handle it for the proper collection of evidence.

Evidence found at stock theft scenes may include the following:

- Carcasses;
- Vehicles;
- Firearms;
- Sources of DNA such as blood, bloodstains, hair, meat or other tissue;
- Fingerprints;
- Footprints;
- Equipment(s) used during stock theft; and
- Clothes (National Stock Theft Prevention Forum [NSTPF], 2016:32)

Thus, when a farmer realises that he has been the victim of stock theft, the KZN SAPS STUs suggest the following:

- Secure the stock theft scene immediately;
- Do not shift or remove anything from the stock theft scene;
- The stock theft investigators should not try to investigate this crime themselves – important evidence must be left in the *kraal* until officials from the stock theft units have arrived and started their investigation. Important clues such as footprints found and marks will be destroyed when the animals leave the *kraal*;
- Footprints found at the stock theft scene must be protected from rain, wind, animals and people by covering it with half a steel drum or a cardboard box;
- Stock owners must not follow the tracks or send out the workers to look for and follow the tracks. Rather leave it to the police and their dogs;
- Cut fences must not be repaired before fence samples have been taken;

- Cut chains and locks must be kept as evidence;
- Slaughter carcasses must not be removed until the meat has been sampled and the stock theft scene photographed;
- If materials that possibly belong to the thief are found at the stock theft scene, they must not be touched or removed;
- Unknown objects found at the stock theft scene must not be touched or removed until they have been shown to the investigating officer. The forensic laboratory of the SAPS can compare such items to the evidence found at the secondary crime scene, or in possession of the criminals;
- If a suspect is caught red-handed and makes comments to the owner of the stolen animals that could amount to a confession, mention this to the investigating officer. Be careful not to contravene Section 35 of the Constitution of the Republic of South Africa (No. 108 of 1996) and Section 39 of the CPA (No. 51 of 1957) that deal with the arrest; and
- Do not assault the suspect. Any possible assault can render an investigator liable to possible criminal prosecution (NSTPF, 2016:32-33).

The investigation officer will take into account factors such as heat, cold, rain, wind and people who trample the scene. As a last resort to preserve evidence, the police could move evidence to a safer place. The original place where it was found must then be recorded clearly. As many pieces of evidence as possible will be collected and processed by the police. Samples and pieces of evidence in forensic bags will be signed in at the police station for use during the investigation (NSTPF, 2016:33).

Each stock theft scene differs from the next, and each must be approached and dealt with on its own merits. It can never be prescribed to the first member or the investigator, by means of rules and regulations, exactly how to proceed in each case. The eventual success depends entirely on his/her personal initiative, will to work and attitude towards his/her task. If the prescribed procedures are

followed, the solving of a case can possibly be facilitated thereby. Never lose sight of the fact that circumstances often differ from scene to scene. The methods used by criminals change and develop over time, therefore the first member or investigator on the crime scene must always be prepared to learn, to replace old methods with new ones, and to devise and apply new methods. Always remember to approach the scene rationally and calmly. Cases are solved because criminals make mistakes due to being overhasty. Do not make the same mistakes. Beware of becoming too self-assured. Nobody can always work alone. The first member and investigator on the crime scene must seek advice from others and make use of investigative aids where necessary. The importance of the correct action at a crime scene cannot be over-emphasised. The action taken at the scene of the crime by the first member and investigating officer must always be correct, judicious and scientific.

This paper reveals the value of criminalistics (DNA materials) in investigating stock theft in the selected KZN SAPS STUs by confirming that the accuracy of this application is beyond doubt. When done in the correct way, the tests conducted are infallible. However, the local selected KZN SAPS STUs should avoid mistakes in the sample collection or test procedures. They should ensure that the results are accurate by following all procedural measures and lay down guidelines for maintaining the chain of custody to ensure that the DNA tests become conclusive.

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