SOUTH AFRICAN CONSERVATION CRIME AND ROUTINE ACTIVITIES
THEORY: A CAUSAL NEXUS?
Friedo J. W. Herbig & Greg Warchol

ABSTRACT
Over the last few years the wholesale slaughter of rhinos in South Africa has unceremoniously thrust conservation crime into the news. Not only is the wanton massacre of these animals abhorrent in itself, but it becomes even more so when one considers that they are generally being decimated on managed protected areas and nature reserves. During 2010, for example, 333 rhinos were poached across South Africa, 146 of them from within the precincts of the Kruger National Park, South Africa’s premier wildlife conservation area. By April 2011 South Africa had lost a further 114 rhinos to poaching and current estimates are that we will, on average, lose one rhino per day. Conservation law violations encompass many offences against the natural environment, a common one being wildlife poaching. Previous research has often described the extent and impact of poaching as offender behaviour. While it has indisputably contributed to an understanding of this crime and what motivates poachers, more research is needed to examine why protected conservation areas are so easily penetrated and wildlife populations victimised on a regular basis. Theory-based studies focusing on all elements of a crime, would add to the understanding of poaching. This qualitative enquiry examines the efficacy of the Routine Activities Theory to help understand the phenomenon of poaching on protected conservation areas in South Africa. Data collected at conservation areas threatened by poaching, were analysed via the theory. Wildlife custodianship problems were identified with a view to both developing a framework for understanding the challenges being faced in this arena and empowering policy makers to more resourcefully initiate intervention strategies and control illegal hunting on these conservation areas.

INTRODUCTION
South Africa is a nation with a remarkable neoteric history. After undergoing a peaceful transition from an apartheid regime to a truly unified and democratic society in 1994 a period of economic growth was concomitantly ushered in by this era of political change. The expansion of the tourism, mining and finance sectors brought considerable wealth to some segments of the country (Meredith, 2005). Yet during this period, the nation was also beset by a staggeringly high crime rate (Glenny, 2008) and high unemployment among large segments of the black majority (Statistics South Africa, 2007). While the soaring violent and property crime rates in the post apartheid era negatively impacted the South African populace, protected wildlife in national parks, game reserves and farms were also increasingly victimised by opportunistic offenders seeking profit from poaching (Warchol, Zupan & Clack, 2003). Less attention was afforded to conservation crimes due to rampant conventional crime and the need to protect human life. Consequently since the mid 1990s, crimes against wildlife, including illegal hunting, have endured and spread across more conservation areas (Pillinger, 2003; Warchol & Johnson, 2009).

Some may argue that crimes against wildlife have little impact on society. However, that is not the case in South Africa where the crime of poaching goes beyond the threat to the survival of certain species, affecting several aspects of society. Illegal hunting negatively impacts the tourist industry, which relies heavily on revenue generated from public and

1 Professor, Department of Criminology & Security Science, School of Criminal Justice, College of Law, University of South Africa. Email: Herbifjw@unisa.ac.za
2 Professor, Department of Criminal Justice, Northern Michigan University, Michigan, USA. Email: gwarchol@nmu.edu
private game reserves. A prosperous conservation area with diverse and significant wildlife populations attracts tourists whose money supports the reserve and subsequently creates jobs for local residents in and nearby the area. Reductions in the population of certain high profile species (rhino, elephant, buffalo, etc.), animal carcasses in view of tourists, and the potential for violent encounters between visitors and poachers seriously detract from the tourist value of a conservation area. Furthermore, hunting wild game for victuals, better known as bushmeat, has been linked to zoonosis (the transmission of diseases from animals to human populations) in Central Africa (TRAFFIC, 2002). Previous research has recognised that certain types of poaching – ivory, rhinoceros horn, birds, abalone and select plant species (cycads) – is often the domain of organised criminal groups (Irish & Qhobosheane, 2003). Organised and syndicated crime flourished in post-apartheid South Africa forcing the government to focus on policing street crimes (Glenny, 2008). This in turn provided an opportunity for transnational crime networks that deal in any form of valuable commodity, including wildlife, to move rapidly and exploit the opportunities available in South Africa.

In order to identify the causes of poaching and develop solutions, earlier research focused on this problem. Studies attributed poaching to poverty in African communities resulting in individuals hunting for food or profit (Jackson, 2008; Knecht, 2006). There has also been an overseas demand for exotic animals as live pets or their constituent parts for use as traditional medicines and decorations (Warchol, Zupan & Clack, 2004). Several researchers applied economic theories to understand the problem, focusing on supply and demand (Wilkie & Carpenter, 1999; Bulte & Horan, 2002). Other studies, though fewer in number, examined poaching by the application of criminological theory focusing on offenders (Eliason, 2003; Eliason & Dodder, 1999).

While this has helped to develop an understanding of what motivates individuals to poach, less has been done to examine why protected conservation areas are so easily penetrated and their wildlife populations victimised on a regular basis. Therefore, this empirical enquiry takes an alternative approach by examining the potential of the Routine Activities Theory to explain poaching on protected areas in South Africa. Data was collected via interviews and observations over a period of three years (2008-2010) at seven conservation areas threatened by poaching and analysed via the Routine Activities Theory. Several causal factors were isolated through the analysis, together with their related policy implications for controlling illegal hunting on conservation areas.

HISTORICAL BACKGROUND
Poaching is defined as a game law violation (Beattie, 1976); the unlawful taking of wildlife from a landlord’s property (Siegel, 2007); and the taking of a game animal out of season or through illegal means (Clifford, 1998). Poaching was first criminalised in England during the Middle-Ages when wild game became the property of wealthy landowners and the Crown. With the creation of poaching laws, the economic needs, cultural traditions, and customs of the working classes often clashed with the interests of the wealthy citizens and the state to the point where some people openly disregarded game laws and treated poachers as heroes, even protecting them from the authorities (Jones, 1979).

Similar to England, the documented history of poaching in Africa dates back to its colonial period, where with the advent of new poaching laws, the economic, social and cultural values of the indigenous populations often conflicted with the Europeans who enacted them (Steinhart, 1989). Poaching in Africa is done for a variety of reasons, the most general one being to obtain meat which is commonly known as bushmeat (TRAFFIC, 2002). Bushmeat
hunting is widespread and is undertaken on both an individual subsistence level and a commercial level in South Africa where poachers sell their catch in local villages (Jackson, 2008; Knecht, 2006; McMullan & Perrier, 2002). Poaching is also done to obtain plants, and live animals, generally birds and reptiles (Herbig 2003), for collectors of exotic and rare pets, and to a limited extent, for sport hunters illegally pursuing trophy game in national parks (Davis, 2005). Finally, and perhaps the type that is most publicised, poaching is done to supply specific animal parts such as ivory tusks, horns or pelts for sale as decorations or traditional medicines (Warchol, et al, 2003). When rhino horn is being passed off as a cure for certain cancers in the middle-east and resultantly fetches ridiculously high prices (Rhino horn myths: then and now, 2011; Swart 2011).

Previous research has also classified the motivations of poachers and offered explanations for the phenomena via different theoretical approaches (Muth & Bowe, 1998). These included explanations of the bushmeat trade based on economic supply/demand models, bushmeat consumption and sustainability (Wilkie & Carpenter, 1999; Muchaal & Ngandjui, 1999; Robinson & Bennett, 2004), the relationship between population growth and overexploitation (Bulte & Horan, 2002) and changes in hunting practices (i.e. from snaring to using firearms) based on increased demand for the animals (DAMANIA, MILNER-GULLAND & CROOKES, 2005) or as an means of income (LOBOOKI, HOFER, CAMPBELL & EAST, 2002). Some studies even concluded that the imperfect labour markets, coupled with static agricultural production and subject to environmental shocks, led to increased poaching (Barrett & Arcese, 1998). Further research concentrated on the prevention of poaching rather than identifying the causes (Rowcliffe, deMerode & Cowlishaw, 2004).

Although poaching is a crime, explanations of this via criminological theories are more limited in number. Eliason (1999) discussed the different methodological and theoretical approaches to further contribute to the literature on poaching.

DIFFERENT THEORIES ON POACHING

The Neutralisation Theory was employed to explain how poachers in the United States rationalised their actions (Forsyth, 1993; Eliason & Dodder, 1999) and as “a cognitive dissonance reduction strategy, whereby individuals who use it are able to successfully alleviate guilt that would normally be associated with law violating behavior by neutralising any definition of themselves as criminals” (Eliason, 2003:225). The Neutralisation Theory was also used to explain poaching in Canada, finding that violators avoided and manipulated existing laws and that poaching became a part of the social structure (McMullan & Perrier, 1997; 2002).

The General Deterrence Theory was used by Milner-Gulland & Williams (1992) to model poacher behavior who found that organised hunters were only deterred at very high levels of enforcement and concluded that penalties should be related to the “quantity of output of a poacher”.

The longitudinal study by Hilborn, et. al. (2006) found that since 1977, expanded law enforcement budgets and anti-poaching patrols in the Serengeti National Park in Tanzania allowed the populations of certain animals to rebuild. While these studies have contributed to understanding various types of illegal hunting, the existing literature has been somewhat fragmented in providing the academic community and policy makers with a comprehensive understanding of the juxtaposition of all the contributing elements to poaching. Another approach may help facilitate a better understanding of the phenomena.
Routine Activities Theory
The Routine Activities Theory contends that crime is opportunistic and dynamic in nature (Cohen & Felson, 1979). It suggests that crime is more likely to occur, though not inevitable, when three conditions are satisfied: (1) the presence of a motivated offender, (2) the presence of a suitable target, and (3) the absence of capable guardians (Felson in Shane, 2010). The presence of a motivated offender is a given; the theory presumes an offender is predisposed to acting on his or her criminal inclinations, for without an overt act, there would not be a crime. In other words people are regarded as inherently self-centered and hedonistic – prepared to steal. Once an offender is sufficiently motivated, they must find a suitable target.

Suitable targets typically exhibit four qualities that structure an offender’s choice in selecting it:
- value,
- inertia,
- visibility, and
- access (Felson, 1998).

Different types of offenders see value (or desirability) from different perspectives, which can be clarified by using an archetypical crime example contrasted in each case with its conservation crime equivalent. Joy riders and carjackers, for instance, target cars that have a high symbolic value (e.g. fast/powerful, sporty, popular), whereas professional thieves go after vehicles or vehicle parts that are easily converted to cash. By the same token bushmeat poachers will target species that provide suitable sustenance while the more professional/organised poacher will target animals with high value parts and a ready market such as rhino horn, elephant tusk or abalone flesh. Value is therefore, dependent upon the person assessing the object and does not depend on the actual economic worth of that object.

Inertia, on the other hand, refers to the target’s weight or size and how easily it can be carried away or disposed of. In the case of a whole car, it is inherently mobile and can be easily moved around. As for vehicle parts, most of them can be quickly removed and transported or disposed of, which partly accounts why auto stripping is such an attractive crime. Similarly an animal poached for bushmeat is easily and quickly dissected and disseminated while horns and tusks are also easily moved and rapidly disposed of.

Visibility is the degree to which the target can be seen and clearly identified and/or whether or not the offender knows that the target is there. Obviously, a car is easily spotted while parked at the curb or at a parking facility by someone on foot, on a bicycle, or while slowly cruising through the area. Wildlife is also easily spotted or located, particularly when a suitable habitat, home ranges and/or feeding regimes are taken into consideration.

Accessibility relates to an offender having access to the target and if they can retreat or escape. Because the overwhelming majority of vehicles are stolen from an outdoor location, they can be easily accessed. Thieves can also gain interior access rather easily by defeating the often primitive locking system with very rudimentary tools. Wildlife can also be accessed with relative ease in their natural habitat, which simultaneously provides good cover for poaching and escape.

The last segment of the Routine Activities Theory is the absence of capable guardians. The motivation to commit a car theft follows Hirschi’s (1969) line of thought that crime occurs when controls are weak or absent. When temptations are high and controls are low, a
A motivated car thief can strike more easily with the reduced probability of being caught. A capable guardian is not necessarily a formal agent (e.g. police officer or security guard), but anyone who can serve as a reminder that someone is watching who may be able to identify the offender. This may include for example peering citizens, building superintendents, parking lot attendants, store owners or other physical deterrents such as a fence or security systems. Since most vehicles are stolen while unattended, it is understandable that thieves can strike quickly and leave without a trace. This applies *mutatis mutandis* to wildlife. Routine activities can be defined as the day to day activities that characterise a particular community. “In disorganised communities, the routine activities are such that they practically invite crime” (Walsh & Ellis, 2007:66).

The theory is, at least in part, conterminous with the Rational Choice perspective (Cornish & Clark, 1987; Burke 2009), since one of its core assumptions is that individuals make rational decisions to commit crimes, weighing up both the benefits and risks associated with crime before deciding to engage in the event (Walsh & Ellis, 2007). Unlike other theories that may concentrate on the offender, the Routine Activities Theory treats the motivated offender as only one element of the criminal event, looking at other factors that contribute to the crime equation. The premise is that crime occurs in a social system where criminals feed on and depend upon the patterns of everyday life (Winslow & Zhang, 2008). It also looks at the structural conditions that may explain the distribution of crime in society, and is not concerned with the personal histories of offenders. Instead it considers the crime’s situational characteristics and the involvement of particular persons or objects as well as the target’s degree of attractiveness in the context of levels of guardianship (Cohen & Felson, 1979).

The focus of this theory on the three key elements of the criminal event has led to it being applied to explain a variety of offences. For example, Wright and Decker (1994) examined residential burglary via the Routine Activities Theory. Mannon (1998) applied the theory in his study of domestic violence, while Messner and Tardiff (2006) analysed how socio-demographic characteristics in conjunction with time of day, week and month related to urban homicide via the Routine Activities Theory. Akers and Sellers (2004) are of the opinion that the theory has played an important role in illuminating internet crimes and natural disasters. Finally, studies have expanded the theory to focus on offenders, not just the nature of victimisation (Gilbertson, 2006; Meith & Meier, 1994).

The Routine Activities Theory is obviously not without criticism. Eck (2003), for example, states that the Routine Activities Theory cannot explain problems, but then again neither can theories that address fewer elements. Nevertheless, it can help develop a framework for understanding problems.

The Routine Activities Theory may well provide a suitable and unique theoretical framework for examining poaching on conservation areas. As a rule South Africa’s game reserves are located in close proximity to human populations, often with high unemployment and crime rates providing a pool of motivated offenders. Capable guardians refer to the compliance management staff and the natural and man-made barriers in the conservation areas. Finally, suitable targets are the wildlife. As with humans, wildlife follows, or are predestined to follow, very predictable patterns of behaviour during their day to day activities.
METHODOLOGY
Research sites
Although unfeasible to portray in any great detail, the data for this study were collected at seven sites (see Figure 1) located in the Limpopo, Mpumalanga, KwaZulu-Natal, and the Western Cape Provinces of South Africa.

Figure 1: Pictorial orientation of the relevant study sites

The study sites included two national parks, three provincial parks, and two private game/nature reserves. These sites were selected for the following three reasons: 1) the sites were all located in close proximity to human settlements with their populations of potential motivated offenders (a situation commonly encountered in South Africa); 2) the sites varied in size, ownership and type of wildlife allowing for interesting comparisons; and 3) the sites provided excellent cooperation with the researcher allowing access to relevant compliance management personnel and criminal investigators.

The national parks comprised the Kruger National Park (KNP) and Table Mountain National Park. KNP is located mainly in the Limpopo Province bordering Mozambique to the east and Zimbabwe to the north. Being a sizeable park of approximately 19,000 square kilometers, KNP has extensive wildlife populations, for example, 147 mammal species, 2000 plant species and over 500 bird species. The populations of the so-called high profile or status species, includes roughly 14,000 elephants, 17,000 wildebeest; 5,000 white rhino; and 32,000 zebra (South African National Parks, 2008a). Other somewhat less common species are also present in significant numbers.

The Table Mountain National Park, located in the Western Cape Province, is approximately 221 square kilometers in size and includes an extensive ocean shoreline. Its wildlife populations include large and small mammals such as eland, red hartebeest, Cape mountain zebra, and Cape fox, numerous reptile, amphibian, insect and bird species, and marine life in the Table Mountain National Park Marine Protected Area. This region is home to some high profile marine species such as abalone (perlemoen), rock lobster (crayfish), hake, Cape salmon, snoek and of course the great white shark.
The smaller provincial parks included Jonkershoek Nature Reserve, Ndumo Game Reserve and Tembe Elephant Park. Jonkershoek, which is about 9,800 hectares in size, is also located in the Western Cape Province. The reserve’s mammal population includes leopard, honey badger, baboon, klipspringer and an assortment of smaller animals such as mice and shrews. It is also home to a miscellany of herpetofauna and more than 1,100 plant species, many of which are either indigenous or endemic and exceptionally rare (CapeNature, 2009).

Tembe Elephant Park is located in northern KwaZulu-Natal and is approximately 20,000 hectares in size. It forms part of the border with southern Mozambique with its primary attraction being the resident population of roughly 220 elephants. It is, however, also home to numerous other species including common grazers and browsers along with the big five – lion, leopard, buffalo, white rhino and of course elephant (Tembe Elephant Park, 2004). Adjacent to Tembe is the 10,000-hectare Ndumo Reserve also bordering Mozambique on the Usuthu River. Although Ndumo lacks lions or elephants, its wildlife population includes more than 420 bird species, as well as dynamic populations of hippo, giraffe, black and white rhino, leopard, red duiker, and numerous other small mammals (Kohler, 2004).

The final two sites were a private nature reserve located in southern KwaZulu-Natal and a private game farm, which is approximately 80 kilometers south-west of the KNP (the names of both concerns are withheld at the request of their management). Both of these are privately owned operations with the 6,000 hectare nature reserve catering to tourists, while the game farm is a small commercial operation that breeds common and endangered wildlife for sale to other game reserves. The reserve supports the big five along with a variety of smaller mammals, though in fewer numbers than the other public reserves and parks. The private game farm was the smallest of the sites at just a few hundred hectares. Its wildlife population, which includes rhino, giraffe, kudu and impala, is considerably smaller due to its reduced size.

**Sampling and interviewing**

The research sample, comprising of 34 individuals, consisted of those persons identified as directly overseeing and specialising in, monitoring and preventing illegal hunting, as well as apprehending poachers. This was approximately 65% of the entire enforcement/compliance management corps which were available at the research sites. This excluded those whose function was not predominantly enforcement leadership focused, for example, extension officers, administration and maintenance staff. The sample included the managers of field ranger units, supervisory section rangers, anti-poaching rangers and criminal investigators. While all the sites maintained a ranger staff, their organisation fluctuated depending on the park and the nature of the poaching threat.

For the sake of perspicuity larger game parks (such as KNP and Table Mountain National Park) are often divided into sections headed by a supervisory ranger, i.e., a section ranger. This individual commands a staff of field rangers of varying number depending on the size of the park, who patrol a designated section. Section rangers are responsible for ensuring that their area is patrolled; illegal incursions are prevented or detected; and intruders are apprehended (South African National Parks, 2008b). Section rangers often assimilate a very detailed overall picture of the state of poaching in their region. They are excellent sources of information on poaching and park security. Anti-Poaching Units or APUs are highly specialised units consisting of well-armed and trained field rangers particularly proficient in detecting, tracking, confronting and apprehending poachers. They are distinctly paramilitary oriented whose mission includes the use of deadly force. Such or similar anti-poaching units
are operating in the national and provincial parks as well as in the private game reserves affected by illegal hunting, however, not all conservation areas have dedicated APUs. In the KNP for example, all their field rangers act in this capacity due to the heavy poaching pressure in the park. Only the private game reserve employed a dedicated APU at the time of this research.

Criminal investigators also play a role in wildlife conservation. In this study, only KNP maintained an intelligence unit called the corporate investigation service or CIS. This highly specialised and talented unit supports the section rangers by intelligence gathering inside and outside the park, threat analysis, poaching data collection, crime scene (poaching) investigation, and counter-poaching operations.

Purposive sampling was used in this research, which required the use of individual judgment, knowledge, and needs to identify those individuals for inclusion into the sample. While this strategy is a non-probability method, it has been used successfully with a very small margin of error in, amongst others, predicting elections and for marketing studies. Though this method cannot guarantee a perfectly representative sample, the use of in-depth semi-structured interviews and observations, combined with secondary data analysis and triangulation nevertheless culminated in a detailed analysis of the poaching phenomenon via the Routine Activities Theory. Interview questions were formulated based on the premises of the Routine Activities Theory. A review of the available literature on poaching, the researchers’ past experience scrutinising wildlife crime, and consultation with known experts regarding the nature and extent of the poaching at the various sites were incorporated.

Professor Greg Warchol’s (Northern Michigan University) invaluable contribution in this regard is graciously acknowledged and appreciated. Interviews were conducted on-site. Each interview was in-depth and focused on the following:

- the wildlife targeted by poachers;
- the level of poaching at the particular site;
- the causes of poaching and motivation of offenders at the site;
- the nature, organisation and tactics of the poachers at the site;
- the size and structure of investigative, ranger and APU units and physical security in the conservation area; and
- the capacity of the rangers and APU units to detect, apprehend and deter poachers.

To protect the identities of the subjects, field notes were constructed without reference to names, and as previously stated, the names of the private concerns omitted on request. A system of numeric codes was employed to identify the subjects and their responses. In addition to the field interviews, on-site observational and secondary data were also collected to verify the interview data as far as possible. Observation was used to record data about the physical features of the conservation areas. Besides the time spent at the actual research sites, information was also sourced autonomously from the surrounding areas near each site, including from the small communities and towns.

This data was recorded using photographs and field notes describing the features of interest. Secondary data on poaching, including statistical summaries, law enforcement intelligence reports, and policy manual excerpts were also collected. The data analysis phase involved a physical and relatively protracted content analysis of the interview responses, field notes,
photographs and secondary data. This involved first identifying then classifying the patterns in the data. Another necessary requirement was to verify the reliability of the data via triangulation. For example, the interview responses of subjects were verified by using secondary data and by personal observations. Field observations recorded by photographs helped verify and add information to the original data collected during the interviews. This was followed by a determination of the significance of the findings, then their subsequent interpretation in the context of the Routine Activities Theory.

FINDINGS

Motivated offenders

The concept of motivated offenders was operationalised as the poacher, which included both employees who pilfer from the reserves and interlopers who illegally enter a reserve to hunt. According to Cohen and Felson (1979), motivated offenders, which they are not particularly concerned with (Williams & McShane, 2010) were a product of socially disorganised areas. Although they are assumed present by Cohen and Felson, the Routine Activities Theory does not focus on the offender per se. It was therefore deemed prudent to provide a description of them in this treatise as this research is, as far as could be ascertained, the first to assess the potential of the theory to explain illegal hunting on protected areas in South Africa. Some descriptive information on the nature and motivations of these offenders might thus be beneficial for this and future studies of poaching.

The interviews and secondary data revealed that motivated offenders were present at or near all of the research sites. This was partly due to large human populations living in close proximity to the conservation areas with desirable wildlife, very high unemployment rates (Statistics South Africa, 2007), views that wildlife is a resource to be used rather than protected (Warchol, et al, 2003), and the existence of formal claims against some parks contending that it was once tribal land (Herrington 2008). KNP, for example, has approximately four million people living in villages and towns in close proximity to the park on all four sides, providing an ample amount of motivated offenders and a ready market for illegally hunted bushmeat. KNP’s own literature acknowledges the presence of a significant bushmeat-poaching problem (South African National Parks, 2008b). Schneider (2003: 588) states that ‘[t]heft of more exotic property, such as endangered plants, animals, and their parts, occurs as a result of these same dynamics. Thieves, poachers, and handlers trade these items because somewhere there is a handler who has people ready and willing to purchase the ill-gotten goods’.

A similar situation was found near Ndumo and Tembe where large human populations were also present, though not to the same extent as KNP. An open-air bushmeat market was discovered and visited in the Mbangweni Corridor, which separates the two parks terminating at the Mozambique border. Bushmeat was also observed at the open-air stalls in the neighboring town of Jozini. Interviews at the conservation sites revealed that some of the game meat sold at these markets came from the nearby reserves.

While the existence of offenders was a constant, considerable variation was found regarding their motivations, methods and types of wildlife being poached. Offenders included subsistence and commercial bushmeat poachers; ivory or rhinoceros poachers supplying buyers (middlemen) with tusks or horns for eventual resale to foreign syndicates; abalone poachers in the Western Cape; and private collectors poaching rare plants, insects and reptiles.
The data from the interviews, supported by reports such as Pillinger (2003) and SANParks (2008b) revealed that subsistence bushmeat hunters were the most common type of poacher at all the sites with the exception of Jonkershoek Nature Reserve and Table Mountain National Park. Jonkershoek was targeted by plant and reptile poachers who were mainly professional collectors from Europe and Asia while abalone poaching was the main threat to Table Mountain National Park with its contiguous coastline and ideal abalone habitat. Subsistence bushmeat poachers were typically lower income or unemployed indigenous South Africans or Mozambicans possessing good hunting skills illegally entering the parks and killing game to feed themselves and their family. Most of these poachers were local residents who poached in close proximity to the sites often walking to the conservation area. They hunted mainly by setting small numbers of snares and occasionally utilising small caliber firearms or bow and arrow. Also present were commercial bushmeat poachers who supplied the local market with wild game meat – an item in great demand (TRAFFIC, 2002). Demographically similar to subsistence poachers, they operated alone or in small groups employing larger numbers of snares or firearms (for larger game such as hippos) sometimes combined with dogs to drive game into a killing zone.

Ivory and rhino hunters were sometimes individual offenders, but more typically groups of poachers using larger caliber military weapons (SANParks, 2008b). These poachers were found mainly in Kruger, Ndumo and Tembe due to the availability of elephant and rhino and the large size of these parks. Abalone poachers, present only at Table Mountain National Park because of its coastal abalone colonies, comprised a range of offenders. Abalone is in very high demand for both the South African market and for shipment to Asia. A section ranger at Table Mountain National Park described these poachers as a mix of opportunistic local fishermen, white South African certified divers, and more commonly, gangs of untrained divers desperate for income recruited from the large and impoverished informal settlements in and around Cape Town. The purchase of and thriving trade in abalone is mainly the domain of several Chinese Triads operating in the area, informally known as the abalone coast (Redpath, 2001; Warchol, et al, 2003).

Private collectors were individuals motivated by the desire to increase their own collections of rare species – mainly plants, insects and small reptiles. They were primarily individuals from Eastern Europe and Asia. This was the most common type of poacher at Jonkershoek Nature Reserve, but also present to a lesser extent at Table Mountain National Park. These individuals were described as educated foreigners working in small groups of two or three. Recent arrests of plant poachers at Jonkershoek revealed that several were well-known biologists and academics.

Motivated offenders also included park employees poaching for bushmeat, ivory and rhino horn. These individuals were motivated by the opportunity to earn money from selling game meat to local villagers or ivory or horn to traffickers. In KNP, instances of park staff members illegally hunting have been recorded. In the more serious cases described by several interviewees, one Kruger Park ranger was arrested for shooting twenty white rhinos and another admitted to killing nearly four dozen over a twelve-year period to pay gambling debts. In another instance at KNP, two interpretive guides on a “day walk” with a group of tourists spotted a white rhino on their tour. They later returned after dropping off their guests and shot the animal for its horn. Evidence of complicity between rangers and poachers in the parks was also reported. A KNP interviewee described the following strategy:
The ranger calls his family and tells them where his unit will deploy for the patrol. They [his family] tell the poachers who target other areas. Others use their mobile to tell them where the animals are. The ranger gets a share of the meat or the profits. Simple.

Corroborating the foregoing sentiments Naude (2002) reports that there have been occasions in Zululand where members of the Game Guard Force have been involved in illegal hunting and that game wardens in the Kruger National Park have been apprehended for slaughtering game and disposing thereof for personal gain.

Interviews at the private game farm revealed that management practices on some private commercial game farms, also contributed to the creation of motivated offenders. Private commercial game farms in South Africa are primarily white-owned operations. While the owner of this particular concern lived on the site and managed daily operations, owners of some neighboring private game farms in the area were absentee landlords. Some of these owned multiple properties and employed managers to run the daily operations of their farms. It was, however, reported that farms with absentee owners and/or inefficient or corrupt managers were far more likely to be targeted by poachers.

The data revealed that there have been cases in which game farm managers have actively participated in illegal hunting by working with a poaching gang for a share of the profits. The owner of the private game farm summed it up by stating:

Ninety-nine percent of game farm poaching is due to bad management. Too many farmers aren’t concerned about security. If the landlord is absentee, the farm manager can tell them anything.

The way that employees were compensated, was also identified as a motivating factor in employee-based poaching. The interview with the owner of the private game farm revealed that farm employees were often paid in both cash and groceries. However, he noted that few managers provided employees with quality game meat from common species even though it was highly desired. This finding relates to the earlier discussion in the literature about the privatisation of game and the passage of the earliest poaching laws. An interviewee at the private game farm also noted:

Blacks typically get very little from the game farms – low pay and the worst part of any animals, if they get any. If a white wants to kill a lion, he can afford to do so, legally. If a black wants to hunt warthog traditionally, common for them, he has to do it illegally.

As a result, employees of some private farms poached game from their owners – a form of employee pilferage. Simply by providing his workers with quality surplus game, the owner of the private game farm alleviated some of the employees’ poaching on his farm. The private game farm’s owner summed it up by stating: “They want protein, good meat. Slaughter a couple of Impala and give it to them every month and it keeps them from poaching two or three times as many.”

One Kruger Park administrator submitted that: “Where there is wildlife, there will be poaching.” Confirming the view of other interviewees, he argued that the combination of the high demand for protein, population increases; unemployment and severe poverty among
many rural black South Africans near the sites, were very significant motivating factors for poachers to hunt for bushmeat. This was also apparent with the abalone poachers in the Cape. Many of the desperate township residents, who lacked any training in diving, literally risked their lives in search of income. Furthermore, the lure of a potentially high payoff for a rhinoceros horn or elephant tusk, even among field rangers charged with protecting these species, was identified as another strong motivating factor to take the chance of killing either of these animals and trying to sell its parts. Employee poaching illustrates a unique occurrence, namely capable guardians of wildlife becoming the motivated offenders. Finally, the desire among foreign collectors, some of whom are professors and scientists, to possess those rare plant or insect species motivated them to steal.

**Suitable targets**

Cohen and Felson defined suitable targets as things that are, or at least appear, valuable and therefore worth stealing (Williams & McShane, 2010). Poaching was also reported to the researchers as a serious problem at Ndumo Game Reserve. The interviews and statistical data revealed that the park was under heavy pressure from organised gangs of poachers striking on a regular basis. The park’s wildlife population, which included hippo, were very attractive targets for bushmeat poachers, because of the large amount of meat they provide. Data from 2005 revealed that the hippo population had declined dramatically from an estimated 600 animals to an estimated 227 in just two years.

Poaching was also identified as an increasingly serious issue at Tembe Elephant Park. Tembe’s size at over 20,000 hectares, difficult sandy terrain, predators and potentially aggressive elephants further hinder the prospective poacher’s attempts to locate smaller mammals for game meat. The lower level of poaching at Tembe appeared to be due to the fact that it was simply easier to target nearby Ndumo where the probability of finding suitable prey with less risk was much higher. Furthermore, given that the elephant population at Tembe, represents KwaZulu-Natal’s only remaining population indigenous to the province (Tembe Elephant Park, 2004), significant protection was afforded to them by the field rangers.

Interviews at the private game farm revealed that although it had been targeted by poachers over the past few years, the poachers had yet to be successful in killing any game. This was attributed to the effectiveness of the aggressive field ranger staff and proactive management practices emphasising security (minimising external threats) and deterring internal poaching by employees. However, staff and management reported that the neighboring commercial game farms were often targeted successfully by poachers. This was in a large part due to the perfunctory management practices discussed earlier.

Private game farms such as the one in question are commercial operations that breed rare and endangered wildlife, but also have very small populations of more common game such as impala commonly targeted by poachers. Though these populations may be small, the farms are also very small at just a few hundred hectares, which makes locating game quite easy when compared to an enterprise such as Tembe. At the private game farm, the respondents indicated that the primary concern was the poaching of rare animals. The protection of these valuable animals was considered paramount to protecting their common grazing species, which were nevertheless a target for poachers. Even so, due to the extensive amount of protection afforded to these high value species, the owner and rangers stated that poachers had not been able to kill any type of animal on their property. Finally, both Jonkershoek and Table Mountain National Park reported serious problems with poaching that they attributed to
their very small field ranger staff and subsequent inability to thoroughly patrol the parks. These two locations were targeted for their highly desirable species of plants, reptiles, and insects, and at Table Mountain National Park, also its marine organisms.

All seven research sites offered a diverse array of suitable targets that held significant monetary and/or personal value to the motivated offender. These included the smaller mammals for bushmeat consumption and sale; elephant and rhinoceros for the international trade in ivory and horn; abalone in demand in both South Africa and Asia; and the small reptiles, insects and plants sought after by collectors. Variation was found in the size of the suitable target populations by site and also by species. While all the sites had mammal populations, both private concerns lacked the plant, reptile and insect species favoured by collectors, and only Table Mountain National Park contained several abalone colonies.

The absence of capable guardians
The final component of the Routine Activities theory is capable guardianship, which essentially refers to the amount of protection afforded to the target by a person or physical barrier. The data on capable guardianship provides several interesting findings that point toward the promise of the Routine Activities Theory application to explain poaching. The quality of guardianship in a conservation area is influenced by the quality of the field rangers and their supervisors and to a lesser degree by the natural features of the site. The study revealed that when capable guardianship was either not present due to, for example, labour laws or present in insufficient numbers due to staffing and budgetary constraints such as at Kruger or Ndumo, motivated offenders are successful in victimising game populations. However, when capable guardians are present in satisfactory numbers the game victimisation risk is decreased exponentially.

CONCLUSION
While a reasonable amount of research has been done regarding the crime of poaching, comparatively little has focused on applied criminological theory. Significant opportunities still exist to examine this crime phenomenon via other theoretical approaches. The objective of this research study was to build upon the existing criminological literature by completing the first examination of poaching in South Africa from the theoretical perspective of Routine Activities. Specifically, this research focused on how the interaction of motivated offenders with sought-after wildlife and corresponding lack of capable guardianship results in poaching in South Africa’s protected conservation areas. The findings support the authors’ view that Routine Activities has significant potential as an appropriate theoretical construct to facilitate a better understanding of the nature of illegal hunting on conservation areas and to develop appropriate solutions to the quandary.

LIST OF REFERENCES


ENDNOTES

1 The interviews lasted between 45 and 90 minutes in duration. All subjects were informed of the purpose of the study, the voluntary nature of their participation, and the protection of their identities. None of the subjects declined participation in the study. Responses were handwritten and reviewed each evening.

2 Observation was done by examining the physical layout of the site including its size, type, condition of the game fences, and the type of terrain. The data was recorded in field notes and photographs. The researchers spent 1 day each at the private nature reserve, Table Mountain and Jonkershoek; 2 days at Tembe and Ndumo; 3 days at the private game farm; and 1 week at Kruger for data collection and observation purposes.

3 Photographs were used to improve the researchers’ recall of the physical features of the site observed and recorded in the field notes. No human subjects were included in any photographs.