

**CRIME IN THE RURAL DISTRICT OF STELLENBOSCH:
A CASE STUDY**

ARLENE JOY DAVIDS

Thesis presented in partial fulfilment of the requirements for the degree of Master of Arts at
the University of Stellenbosch.



SUPERVISOR: PROF. HL ZIETSMAN

DECEMBER 2004

SUMMARY

One of the most distressing criminal activities has been the attacks on farmers since 1994 and for many years now our farming community has been plagued by these senseless acts of brutality. Since the early nineties there has been a steady increase in the occurrence of farm attacks in our country and the rising incidence of violent crimes on farms and smallholdings in South Africa has become a cause for great concern. The farming community in South Africa has a very significant function in the economy of the country as producers of food and providers of jobs and other commodities required by various other industries, such as the mining industry. They render an indispensable service to our country and therefore we have to ensure that this community receives the necessary safeguarding that is so desperately needed at this time.

Farm attacks are occurring at alarming rates in South Africa, the Western Cape, and recently also in the Stellenbosch district. The phenomenon of farm attacks needs to be analysed in the context of the crime situation in general. The underlying reasons for crime are diverse and many, and need to be taken into account when interpreting the causes of crime in South Africa. To ensure that this research endeavour has practical value for the various parties involved in protecting rural communities, crime hotspots and circumstances in which crime occur were identified and used as a tool to provide the necessary protection and mobilisation of forces for these areas.

The study focused on different theories in explaining the crime phenomenon. Information from the Stellenbosch SAPS was used to analyse the study area and to identify areas that can be classified as possible hotspots in the study area. Demographic and socio-economic determinants shed light upon the social structure in the study area and various environmental determinants were also used to generate a broader understanding to the social pandemic.

OPSOMMING

Sedert 1994 is plaasaanvalle een van die mees ontstellende kriminele aktiwiteite van ons era. Die landbougemeenskap word al jare lank geteister deur hierdie sinnelose aktiwiteite. Sedert die vroeë negentigerjare is daar 'n stewige toename in die voorkoms van plaasaanvalle asook toenemende insidente van geweldsmisdade, wat tot groot kommer lei. Die landbougemeenskap in Suid-Afrika het 'n baie belangrike funksie in die ekonomie, aangesien hulle voedselvervaardigers is, werksgeleenthede skep en industrieë van sekere kommoditeite voorsien. Hulle lewer 'n onmiskenbare diens aan die land en daarom verdien hierdie gemeenskap die nodige beveiliging.

Die aantal plaasaanvalle in Suid-Afrika, die Wes-Kaap en onlangs ook die Stellenbosch-omgewing, is skokkend. Hierdie fenomeen moet binne die konteks van algemene misdaad geanaliseer word. Die onderliggende redes wat aanleiding gee tot plaasaanvalle is divers, maar moet almal in gedagte gehou word wanneer die oorsake vir misdaad ondersoek word. Om te verseker dat hierdie navorsingspoging praktiese waarde toon vir diegene betrokke, behoort gebiede waar misdaad seëvier geïdentifiseer te word en dan gebruik te word om die nodige beskerming aan en mobilisering van polisiemagte binne hierdie gebiede te bied.

Die studie fokus op verskillende teorieë wat gebruik kan word om die voorkoms van misdaad te verklaar. Inligting is van die Stellenbosch-polisiediens verkry om die voorkoms van misdaad in die studiegebied te verklaar en om probleemgebiede te identifiseer. Demografiese en sosio-ekonomiese veranderlikes kan lig werp op die sosiale struktuur van die studiegebied en kennis van omgewingsveranderlikes dra ook by tot 'n beter begrip van hierdie sosiale pandemie.

ACKNOWLEDGEMENTS

- Prof HL Zietsman for his advice, guidance and support.
- The financial assistance of the National Research Foundation (NRF, South Africa) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation.
- Sebastian for his love, patience and support
- My parents and sister for their unlimited love, support and encouragement throughout my studies.



CONTENTS

Summary	i
Opsomming	ii
Acknowledgments	iii
List of tables	vi
List of figures	vii

CHAPTER 1: ATTACKS ON FARMS AND SMALLHOLDINGS **1**

1 INTRODUCTION **9**

1.1 LITERATURE REVIEW	11
1.2 THE GEOGRAPHY OF CRIME	12
1.3 STUDIES IN THE GEOGRAPHY OF CRIME	14
1.3.1 THEORIES USED IN CRIME ANALYSIS	14
1.3.2 AN EXPLANATION FOR FARM ATTACKS IN SOUTH AFRICA	17
1.3.3 CRIME PREVENTION STUDIES	20
1.3.4 THE PROTECTION OF FARMS AND SMALLHOLDINGS	21
1.3.5 THE USE OF GIS IN CRIME ANALYSIS	23

CHAPTER 2: FIGHTING CRIME IN RURAL AREAS **25**

2 PROBLEM FORMULATION **25**

2.1 PROBLEM STATEMENT	25
2.2 RESEARCH OBJECTIVES	26
2.3 THE STUDY AREA	27
2.4 DATA	29
2.4.1 DATA SETS USED	29
2.5 SHORTCOMINGS IN THE DATA SETS USED IN THE STUDY	29
2.6 RESEARCH METHODOLOGY	30
2.7 METHODS OF ANALYSIS	32
2.7.1 THE POSITIVISTIC PARADIGM	32
2.7.2 QUANTITATIVE CRIMINOLOGY	33

CHAPTER 3: CRIME PATTERNS IN RURAL STELLENBOSCH **35**

3 DISCUSSION OF SPECIFIC CRIME CATEGORIES **35**

3.1 SOCIOLOGICAL AND RELATED ISSUES ASSOCIATED WITH SPECIFIC CRIMES	35
3.2 THEFT OF PROPERTY	39
3.3 SOCIAL FABRIC CRIMES	43
3.4 VIOLENT CRIMES	45
3.5 VIOLENCE AIMED AT PROPERTY	46

3.6	DEMOGRAPHIC AND SOCIO-ECONOMIC DETERMINANTS OF CRIME	48
3.6.1	RACE AND SEX	48
3.6.2	AGE STRUCTURE	49
3.6.3	INCOME, UNEMPLOYMENT AND POVERTY	51
3.7	TIME AND CRIME	53
3.8	WEATHER CONDITIONS	56
3.9	CRIME AND INFORMAL SETTLEMENTS	58
3.10	ACCESSIBILITY TO CENTRES OF CRIME	61

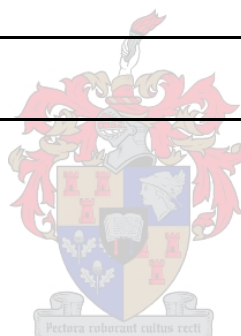
CHAPTER 4: CONCLUSION **63**

4 INTRODUCTION **63**

4.1	EVALUATION OF RESEARCH RESULTS	63
4.1.1	DEFINING FARM ATTACKS	64
4.1.2	THEORIES EXPLAINING CRIME IN RURAL FARMING AREAS	64
4.1.3	EVALUATION OF CRIME SUB-GROUPS	65
4.1.4	DEMOGRAPHIC AND SOCIO-ECONOMIC DETERMINANTS	66
4.1.5	EVALUATION OF EXTERNAL DETERMINANTS	68
4.2	RECOMMENDATIONS FOR THE FUTURE	70

REFERENCES **72**

APPENDICES **78**



TABLES

Table 3.1: SAPS crime code list	28
Table 3.2: Theft of property (1995-2001)	32
Table 3.3: Social fabric crimes (1995-2001)	36
Table 3.4: Violent crimes (1995-2001)	37
Table 3.5: Violence aimed at property (1995-2001)	39



FIGURES

Figure 1.1: Number of attacks on farms and smallholdings in SA, and the number of murders committed during these attacks, 1997-1999	2
Figure 1.2: Lifestyle-routine activity approach	8
Figure 2.1: Total reported crimes in rural areas in Stellenbosch (1995-2001)	17
Figure 2.2: Study area – Stellenbosch rural district	20
Figure 2.3: Research design	23
Figure 3.1: Crime groupings in study area (1995-2001)	29
Figure 3.2: Number of reported theft of property (1995-2001)	32
Figure 3.3: Crime sub-categories (1995-2001)	34
Figure 3.4: Number of reported social fabric crimes (1995-2001)	36
Figure 3.5: Number of reported violent crimes (1995-2001)	38
Figure 3.6: Number of reported violence aimed at property crimes (1995-2001)	39
Figure 3.7: Dominant population group per CAS block	40
Figure 3.8: Age structure of study area by CAS block	43
Figure 3.9: Employment status of population in study area	44
Figure 3.10: Time of day and week when crime is committed (1995-2001)	47
Figure 3.11: Scatter plot: Social fabric crime vs. rainfall	49
Figure 3.12: Scatter plot: Theft of property vs. rainfall	50
Figure 3.13: Average income and the location of informal settlements	52
Figure 3.14: Accessibility to study area	54

CHAPTER 1: ATTACKS ON FARMS AND SMALLHOLDINGS

1 INTRODUCTION

Crime is described by Cloete, Prinsloo & Coetzee (1993) as an unlawful act or omission, which is at variance with either a prohibition or injunction and which is punishable by the state. South Africa's transition to democracy has been characterised by a sharp increase in crime. This increase in crime is consistent with Plato's observation that states that democracy is a stage in which liberty is likely to grow at the expense of order, as people tend to do what they like without regarding themselves morally or socially bound to any set of rules (Nomoyi, 2000).

The Institute for Security Studies (ISS) reports that Interpol statistics suggest that South Africa's rate of murders per 100 000 persons is amongst the highest in the world (Nomoyi, 2000). One of the most distressing criminal activities has been the attacks on farmers since 1994 (Haeefe, 1998). For many years now our farming community has been plagued by what is commonly known as farm attacks. Prior to the last decade of the twentieth century, farm attacks were a relatively unknown phenomenon in South Africa. Since the early nineties, there has been a steady increase in the occurrence of crime in rural farm areas. The prevalence of violent crime on farms and smallholdings in South Africa is a cause for great concern to both the farming community and South Africans in general. As a result, on request from the president and the Minister for Safety and Security, the National Operational Coordinating Committee (NOCOC) in 1997 instructed the National Intelligence Coordinating Committee (NICOC) to compile a report on the incidence of attacks on the farming community. This resulted in the formation of the Farm Attacks Working Group established as part of the NOCOC system.

In spite of the implementation of the Rural Protection Plan on 1 December 1997, the number of recorded incidents of attacks on farms and smallholdings increased substantially between 1997 and 1998 (from 433 to 767 attacks, respectively), and levelled off during 1999 (830 attacks) (Schonteich, 2000). The rising occurrence of violent crimes on farms and smallholdings in South Africa has become a cause for great concern. Figure 1.1 illustrates that between January 1997 and December 1999, some 361 people were murdered in 2030 separate attacks on farms and smallholdings in South Africa.

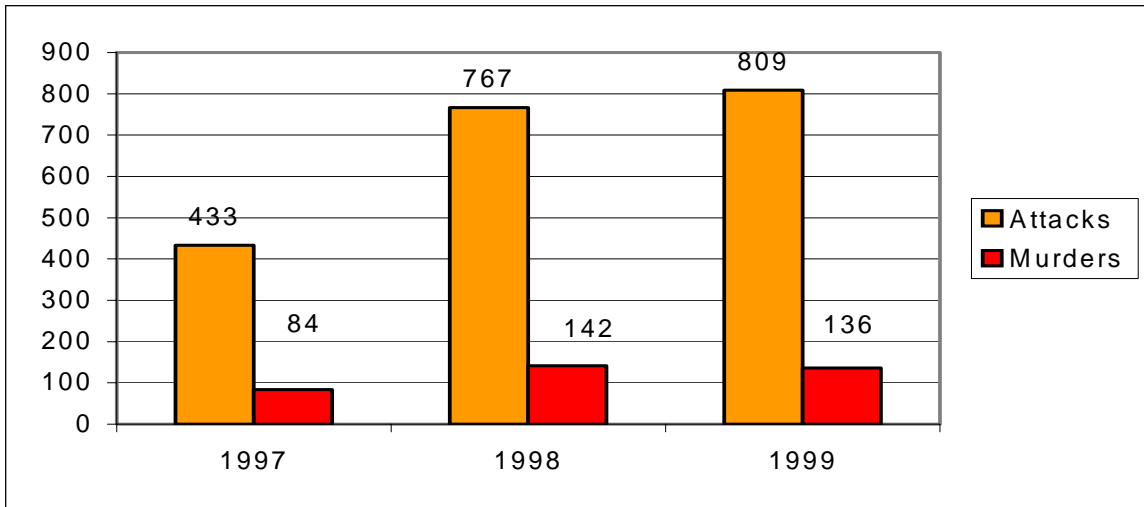


Figure 1.1: Number of attacks on farms and smallholdings in SA, and the number of murders committed during these attacks, 1997-1999

Source: Schonteich, 2000:14.

The urgency of confronting the issue, led former president Nelson Mandela to convene a Rural Safety Summit on 10 October 1998 in order to formulate a comprehensive strategy to deal with the problem. He stated that the primary objective in this approach is to address the social environment in our countryside. Crime will not be prevented or stopped by fortifying our neighbourhood. In fact, it is not desirable that our farms be turned into garrisons. Farms are meant to produce food for the livelihood of the nation and they must be able to do so in a condition that guarantees safety and security (Mandela, 1998). In spite of these steps the occurrence of farm attacks did not decline. At present, the level of farm attacks and murders are reaching crisis proportions. According to Van Wyk (2001) there have been nearly 5000 farm attacks since 1991 in which more than 900 farmers have been killed; between 1997 and 2000, farm attacks in Gauteng increased by nearly 600 percent and in 2001 there have been 100 fatalities in 800 attacks. The latest figures pertaining to reported attacks confirm the trend observed in previous reports issued by the Crime Information Management Centre (CIAC) of the South African Police Service (SAPS). Against this backdrop, the fact that attacks on the inhabitants of farms and smallholdings are escalating at a rate that is out of proportion to the general increase in crime figures observed in South Africa is indeed cause for serious concern (Crime Information Analysis Centre, 1999).

In a large number of the reported incidents, nothing was stolen or robbed. In most cases, this happened because the victims resisted or were surprised. A small number of cases involved non-property crimes, such as rape, and no other reason could be found as to why nothing had been stolen. Other reports confirm that the primary motive for the large majority of farm attacks was crime, with robbery being the primary incentive. Most reports agree that a very small minority were undertaken for personal reasons: where racial tensions on the farms, dismissal or conflict between employer and employee play a contributing role.

In South Africa's economy the farming community plays a very significant role as producers of food, providers of jobs and other commodities required by various other industries such as the mining industry. These farmers have a democratic right to proceed with the indispensable service they render without the fear of victimisation (Moolman, 1999a). For that reason it is of cardinal importance that a long-standing solution has to be found in order to ensure that this community receive the necessary safeguarding that is so desperately needed at this time.

1.1 Literature review

The literature selected for the study of crime came from a diverse range of disciplines. These include: civic design (Bowers & Hirschfield, 1999), criminology (Cloete et al., 1993; DeKlerck & Depuyt, 2000; Moolman, 1999a; Naude 2000; Nomoyi, 2000; Van Zyl Smit, 1999; Welsh & Farrington, 1999), geography (Craglia, Haining & Wiles, 2000; Evans & Herbert, 1989; Harries, 1974; Pyle, Hanten, Williams, Pearson, Doyle & Kwofie, 1974), history (King, 1999) and military studies (Haefele, 1998). Even though most of the literature reviewed deals with the South African situation, writers from various other countries are included, e.g. Belgium, the UK and the USA. An assortment of literature sources stemmed from government publications and institutions. A reason for the latter is the fact that attacks on farms and smallholdings are currently a problem that has to be addressed by these institutions.

Although this review focuses on attacks on farms and smallholdings in South Africa, the literature consulted also covers other aspects such as theories explaining criminal activities (Cloete et al., 1993; Cohen & Felson, 1979; Georges-Abeyie & Harries, 1980; Moolman, 1999b; Muncie, McLaughlin & Langan, 1996; Nomoyi, 2000; Van Zyl Smit, 1999; Walkate, 1998), crime prevention (DeKlerck & Dupuydt, 2000; Ekblom & Tilley, 2000; Naude, 2000;

Welsh & Farrington, 1999), the history or background to the reason for crimes being committed (Haefele, 1998; King, 1999; Moolman, 2000b), protection from crime (Du Preez, 1980; Schonteich, 2000), and the use of geographical information systems (GIS) in crime analysis (Bowers & Hirschfield, 1999; Crime Information Analysis Centre, 1999; Clegg & Robson, 1995; Craglia et al., 2000; Hirschfield, Brown and Todd, 1995; Ireland, 1998; Lochner, 1995). The above-mentioned sources, all deal with the prevention of crime on farms and smallholdings, as well as the protection of these areas and the various methods to ensure the best possible results for a safe and prosperous rural community in one way or another.

1.2 The geography of crime

The geography of crime is a sub-discipline, which elucidates the relevance of space to the study of criminal offenders, the incidence of crime and the characteristics of victims. Although an explicit geography of crime was discussed in earlier years, its modern practitioners did not publish widely until the early 1970s. The spatial tradition was established in the nineteenth century by Europe's 'cartographic criminologists', and Chicago's ecologists documented a close relationship between urban structure and the distribution of crime and criminals in the early 1920s.

The geography of crime has fully come of age in the 1980s and both the quickening of pace in terms of research and the willingness to move into new kinds of topical areas reflect this. It focuses on what lawyer/criminologist Richard Block calls the environmental factor in the criminal event and its outcome. This involves community ecology and structure – the time and day of the week in which the 'criminal event' occurred, the location of the crime, the type of victim and neighbourhood disorganisation, the residence of the perpetrator, as well as other socio-economic and political factors that may be studied from a spatial perspective (Georges-Abeyie & Harries, 1980:2).

Evans and Herbert say that 'geography' of crime will always carry its particular hallmarks of an interest of spatial structures, environmental associations, and the special qualities of place (1989). "Geographers studying crime have always recognized some early roots in the kinds of cartographic criminology which appeared during the nineteenth century as magistrates, government statisticians, and others demonstrated the fact that patterns of crime were unevenly spread across cities and regions" (Evans & Herbert, 1989:1).

“The mapping and recording of crime is of continuing value to geographers; as the basic tools and methods of cartographic representation improve so will geographers of crime be better placed to use these in their own research” (Evans & Herbert, 1989:2). Pyle et al. (1974) proposed a way of forming data recording systems for crime so that they would allow rapid and easy representations in spatial form. The technology and the awareness clearly exist; all that is needed is the implementation. In the computerisation of police records, it is imperative that it tackles the issue of spatial coding and of proper maintenance of data to allow pattern analysis over time and space. The concept of space has a special meaning in geography, as it is seen as fusions of human and natural orders and is significant centres of our immediate experience of the world (Evans & Herbert, 1989).

The emphasis in the geography of crime lies on the partialness of a spatial approach, as no geographical study can explain why crime occurs or exactly how to control it. However, an understanding of spatial interrelationships may assist in both endeavours. Harries (1974) divides geographic approaches into three parts namely, description, analysis and prediction. The basic descriptive tool of the geographer is the map and it may be used to represent a variety of criminal, judicial and other related phenomena and processes. The distinction between description and analysis is that the former is essentially a process of ordering facts, making the chaos of reality comprehensible to some extent, while analysis involves the testing of hypotheses and the development of bases for prediction. Prediction on the other hand, depending on the level of its reliability, is possibly the most valuable product of any social science investigation. Even some success in prediction is often worthwhile, since it creates an awareness of tendencies within a system, without necessarily specifying the parameters of those tendencies or underlying causes.

Recent large-scale (urban and regional) studies in the geography of crime focussed on the mapping and distribution of crime patterns and comparisons of the distributions of crime and offender rates with spatial variations amongst socio-economic or environmental indicators. At a more detailed level, four facets of offender behaviour have received attention:

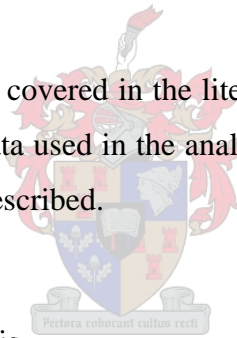
- Offenders’ ‘journeys-to-crime’, which vary according to offenders’ socio-economic and demographic characteristics, the type of crime committed and the size of pay-off expected in different target areas.

- Criminals' image of the city, which indicate what crime targets fall within the action space and activity space of offenders from different environments.
- Economic analysis of criminal behaviour, which conceptualise property crimes as the outcome of rational decision-making processes, enabling analysts to predict the distribution of some offences.
- Sub-cultural delinquency, which has been analysed as a manifestation of relationships between residential proximity, joint offending, shared delinquent values and attachment to place.

The merging of geographical concepts, knowledge, processes and tools with the phenomena of crime provides us with a means to understand and eventually prevent the occurrence of this harmful activity.

1.3 Studies in the geography of crime

In this section the research problems covered in the literature are reviewed, the theories used in crime studies are classified, the data used in the analysis identified and the procedures and techniques used in the research are described.



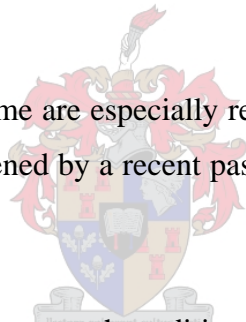
1.3.1 Theories used in crime analysis

Nomoyi (2000) concludes that it would be dangerous to approach a phenomenon as complex as crime by applying only one theoretical perspective. It is for this reason that a multi-dimensional approach is always recommended. He identified twelve approaches that should be kept in mind when analysing the occurrence of crime in rural areas. In this case, rural can be described as areas that are dominated (either currently or recently) by spatially extensive land uses such as agriculture or forestry, or by large open spaces of undeveloped land that contain small, low-order settlements. These demonstrate a strong relationship between buildings and surrounding extensive landscape, which are perceived as rural by most residents and which are thought to engender a way of life characterised by a cohesive identity based on respect for the environment, and behavioural qualities of living as part of an extensive landscape.

Nomoyi (2000) concludes that rural crime analysis should be approached by utilising the following causing factors:

- the negotiated peaceful transition and destruction of social control;
- the political culture of violence and crime;
- economic strain and deprivation;
- low education levels;
- high rates of urbanisation;
- the free availability of guns;
- population structure;
- countries in socio-economic and political transition;
- the weakness of the criminal justice system;
- escaping justice in South Africa;
- South African indigenous law; and
- the role of traditional leaders.

These approaches to the study of crime are especially relevant to the South African situation, as most other countries are not burdened by a recent past which gave rise to as many socially unjust practises.



Cloete et al. (1993) identified other research traditions used in South African criminology such as the positivistic paradigm, which also gave rise to the biological, psychological and social milieu theories, the interactionist paradigm, and the critical paradigm. Again it can be said that they contain different approaches, but it does not imply that these approaches should oppose one another; they must rather be seen and be used as complementary to one another.

Walkate (1998) goes a step further and classifies criminological theory into three categories. The first category is the behaviour of criminals and these approaches include classical criminology and positivist criminology, where the criminal is the subject of analysis and how his/her actions are influenced by forces of socialization and environmental determinants. The second category is the criminality of behaviour and it includes the theories of social disorganisation, the strain theory and the labelling theory. This category does not focus on the criminal self, but on the perception of the criminality of his/her behaviour. The last category,

which is the criminality of the state, includes Marxist criminology, radical criminology and critical criminology.

Three more recent social science constructs of crime are that of relative deprivation, social disorganisation and income inequality. These three approaches hold great promise for the understanding of crime and victim phenomena, but they also provide important tools for forecasting crime. Beginning with the work of Merton (1968), the sociological theory of relative deprivation has attributed high crime rates to the sense of anomie engendered by the high value placed on competitive achievement in some cultures, while at the same time encompassing wide disparities in the actual standard of living within the population. From this theory, one can assume that there would be higher crime rates in societies exhibiting greater degrees of inequality. Income inequality is another social science construct related to crime. One reason why greater income equality is related to lower crime rates seems to be that it tends to reduce social divisions, thereby improving social cohesion (Wilkinson, 1997). In other words, the notion has existed for some time that visibly high inequalities in material assets tend to produce resentment that, in turn, disrupts the social fabric of a society.

This argument is also supported by the lifestyle-routine activity approach illustrated in Figure 1.2. According to the theory, an increase in any of the three elements, with relative deprivation as the stressor between suitable targets and motivated offenders, results in an increase in crime rates.

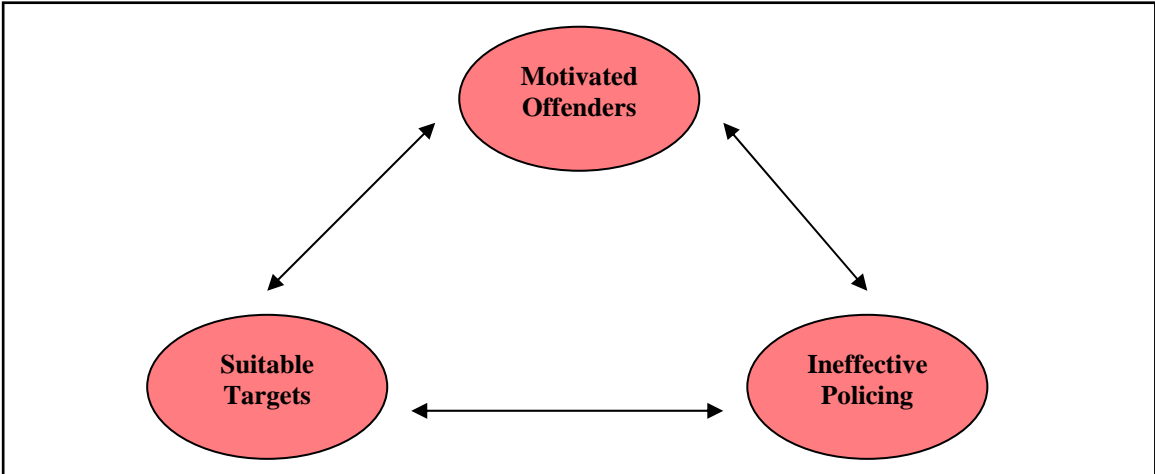


Figure 1.2: Lifestyle-routine activity approach

Source: Schwabe, 2002.

Social disorganisation has been defined as the inability of a community structure to realise the common values of its residents and maintain effective social controls (Sampson & Groves, 1989). This theory has also been linked to the emerging concept of social capital (Sampson, 1995). In other words, if a society have common goals concerning their community they would work together to ensure safety and security for their community.

The plethora of theoretic perspectives mentioned previously shows that the reasoning behind crime can be explained by a variety of approaches, used individually or in conjunction with each other.

1.3.2 An explanation for farm attacks in South Africa

To explain farm attacks, it is essential to firstly clarify the definition. According to previous research done, there is no specific crime such as a farm attack. It is rather the manifestation of crimes such as robbery (usually with aggravating circumstances), housebreaking with the intent to rob and murder, rape and assault with the intent to inflict grievous bodily harm, malicious damage to property, arson, etc. The term 'farm attack' is not defined in the terms of reference of the National Operational Coordinating Committee (NOCOC), nor is it to be found in a dictionary. NOCOC defines it as "acts aimed at the person of residents, workers and visitors to farms and smallholdings, whether with the intent to murder, rob, rape or inflict bodily harm" (Report of the committee of inquiry into farm attacks, 2003). In addition, all actions aimed at disrupting farming activities as a commercial concern, whether for motives related to ideology, labour disputes, land issues, revenge, grievances, racist concerns or intimidation should be included in the definition.

Haefele (1998) addresses a few potential causes that may have given rise to attacks on farmers. These are culture of violence, poverty and unemployment, revenge and hate, illegal immigrants, easy availability of weapons, inflammatory statements and the land issue. He also identifies the various types of attacks on farmers, the characteristics of farm attacks and the modus operandi followed by attackers. The two articles by Moolman (2000a & 2000b) address the motives for farm attacks in terms of South Africa's history according to the country's socio-political background and the post-apartheid environment.

To explain farm attacks is no easy task, owing to the complexity of the matter. One must first identify the causes of farm attacks before attempting to offer any explanation. There is a variety of different opinions regarding the causes of farm attacks. Researchers such as Moolman place the emphasis on the socio-political background of South Africa's history (2000a). The Transvaal Agricultural Union (TAU) believes that farm attacks are politically motivated to drive farmers from their land. However, the South African Police Service (SAPS) believes that farm attacks are only ordinary crimes without any external political motivation. It would however be naïve to try to explain the attacks on farms and smallholdings by using only one particular theory. The South African situation can be explained by using the perspectives of both the conflict theory and the anomie theory.

Contradictory to most other studies, the Institute of Security Studies (ISS) state that farm attacks can firstly be motivated by the transformation of the rural economy, in the sense that the relationship between farmers and farm labourers has become increasingly hostile and distrustful and sometimes even violent. Secondly, land evictions and growing rural poverty have resulted in the creation of informal settlements around rural towns that lack resources and employment opportunities. At least in certain areas, this has resulted in the emergence of incipient gangs and even syndicates. Finally, the growth of urban-based crime has led to the creation of gangs and crime syndicates. It has also created a market and channels for disposing of stolen firearms, vehicles and goods through rural avenues.

Theories pertaining to the power struggle between individuals or groups fall within the general category of the conflict theory. Some conflict theorists try to determine the origins of such conflict while others attempt to develop a theoretical basis on which they try to explain the occurrence of conflict. In South Africa the most radical and critical theorists enjoy the largest support because their work seem to be most relevant. Schmallegger (1996:312) identifies various key elements of the conflict perspective. In the South African context, the following four elements are concentrated upon:

- The diversity of our society should be taken into account. South Africa is a rainbow nation with great racial, gender and social differences.
- Conflict between groups is inevitable and is based on socially meaningful differences (such as ethnicity, gender and social class).
- The exercise of political power is important and serves as the key to the acquisition of wealth.

- The law is the tool of those in power and advances their interests.

When explaining farm attacks from the conflict perspective, it is important that the focus should be on the diversity of the society and variables such as gender and social class. The socio-political nature of the country's past should also be taken into account. For a long time South Africa has been ruled by a white minority that denied all other groups equal rights. Whites were seen as the oppressors who had to be defeated at all cost if non-whites were ever to have any political power and authority. With the first democratic elections, the ANC, PAC and SACP alliance stirred up anti-white hate speech against the oppressors for own political gain. This could be a possible explanation why farmers are still attacked and murdered today. The second point on which the conflict theorists focus is class differences. Although we are living in a democratic South Africa, there are still extreme class differences in our society. Most of the land is still in the hands of white owners who are generally prosperous and on the other hand, there are still masses of poor and unemployed black people. These situations can act as a stimulus for feelings of hate and anger and could lead to farm attacks. A third important element of the conflict perspective is the view that the law is a tool of power, which can be used to advance the interests of those in authority. The ANC, PAC, SACP alliance holds the view that the whites enriched themselves in the past and acquired property unlawfully. The expropriation and redistribution of land are typical contemporary examples of actions that create conflict and which may give rise to farm attacks.

The anomie perspective offers another possible explanation for farm attacks. Community structures and impediments are the key to this theory. The theory, developed by Durkheim and refined by Merton and Agnew, is of exceptional value in explaining crime within the South African context. Merton's (1968) viewpoint that crime is a lower-class phenomenon is particularly valuable to us if we relate it to the so-called previously disadvantaged in our country. The theory's general point of departure on the high incidence of crime among the underprivileged is that:

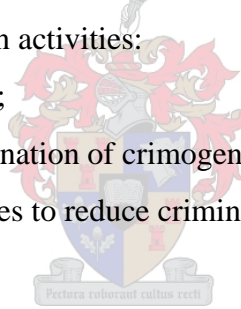
- these people strive for wealth and material success just as people in the middle and upper classes do;
- they do not have access to lawful institutional means of achieving material success; and
- the anomic situation impedes people from reaching their goals and puts pressure on them to use any means to achieve these goals.

1.3.3 Crime prevention studies

Crime prevention includes the use of physical security techniques or apparatuses, which could refer to the latest technological wizardry, as well as any interventions that have a beneficial impact on the physical or social world. In short, crime prevention is activity that results in inactivity, described as a “non-crime”. The literature focusing on crime prevention emphasises that crime prevention measures do not lie in the hands of a single organisation. DeKlerck and Dupuydt (2000) says that it is not only the concern of administrative authorities or police departments, but also architects, teachers, private surveillance and security services, youth workers, welfare workers and also scholars involved in the practical research involving crime prevention.

Lejins (1967) developed a threefold typology, differentiating between the techniques employed in various crime prevention activities:

- punitive prevention or deterrence;
- corrective prevention or the elimination of criminogenic social conditions; and
- mechanical prevention or measures to reduce criminal opportunities.



In the article by Naude (2000), she identifies the various factors contributing to the occurrence of crime in South Africa and then discusses the Four Pillar Approach to Crime Prevention.

The four pillars are:

- the criminal justice process;
- reducing crime through environmental design;
- public values and education; and
- the prevention of transitional crime.

These pillars are to be used in order to aid in the prevention of crime in South Africa. Implementing crime prevention strategies using environmental design in South Africa cannot ignore the past planning practices, which resulted in separate development that aimed to divide the population and control the movements and lifestyles of most South Africans. These policies achieved disproportionate levels of safety in some areas while fostering insecurity in others. They also left distinctive substantially different living environments for each race

group. The structure that emerged during the years of apartheid were designed to protect the primary beneficiaries of the system.

The prevention of farm attacks mostly lies in the hands of the farm owner who has to take responsibility for their own safety and security. Officers investigating farm attacks made the following suggestions (Report of the committee of inquiry into farm attacks, 2003):

- Farmers should get full particulars of their workers, carry out background checks on their staff, and take fingerprints and photographs.
- If the farm is sold and the workers remain on the farm, the new owner should be given the aforementioned information.
- Workers, and especially foreign workers, without documentation should not be employed.
- Communication between farmers and their workers should be improved and farmers should strive for better relations.
- Workers should be regarded as informers and be made part of the security system on the farms.
- Security needs to be improved on farms. No security system is infallible, but it should be implemented as far as possible.
- Farmers need to be more vigilant and vary their daily routine.
- Sector policing needs to be introduced in the rural areas.
- Community Police Forums should be established in the rural areas.

Thus, various measures can be followed to provide improved safety on farms and smallholdings.

1.3.4 The protection of farms and smallholdings

The protection of farms and smallholdings focuses on the study and prevention of crime in the economic society and the control and evaluation of facts to identify preventative measures to protect the lives, property and interests of the economic society. Schonteich (2000) did an evaluation of the rural protection plan implemented by the South African government in order to curb the incidence of violent crimes on farms and smallholdings. The document addresses all the stakeholders involved in this plan and also evaluates the findings and trends that have been identified up till now.

The protection of farms and smallholdings are also in the hands of the farmers themselves. Although there is no comprehensive statistics, it would seem that farmers have been able to repel attacks on their farms or smallholdings in only a minority of the cases. This is because almost all farm attacks involve three assailants or more. Attacks are usually well-planned and based on detailed reconnaissance and information. The attacks also have an element of surprise and therefore allowing farmers to have unlimited firearms at their disposal will not necessarily enhance their ability to protect themselves from a criminal attack. The firearms are often stolen from the farmers and thus create an even more dangerous situation. In a very early stage of its enquiry it became very clear to the committee investigating the attacks on farms and smallholdings that security measures on many farms and smallholdings were inadequate or even totally absent. The case studies that the committee undertook showed that a large proportion of the properties that have been attacked had no security measures at all, while others only had rudimentary security systems in place. Even on those farms where there were security systems, they were often out of order or not being utilised by the farmer.

The following safety measures for safeguarding property were suggested:

- fences and signs warning against trespassing on the farm;
- safeguarding farm roads and gates;
- security fence around homestead;
- watchdogs;
- security lights;
- burglar proofing;
- security gates at the door; and
- alarm systems.

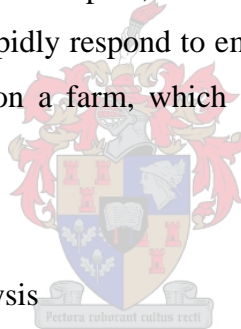
Personal protection could be achieved by undertaking the following measures:

- self-defence;
- firearms;
- mental preparedness;
- alertness;
- arriving at and leaving the farm at irregular times; and
- safety habits.

Where the following factors are present, the risk of farm attacks increases dramatically:

- elderly people;
- solitary residents;
- farm stalls and shops;
- money and other valuables;
- repeat victimisation;
- proximity to major roads, railway lines and criminal areas;
- lack of communication;
- lack of battle indicators; and
- farm workers and other employees.

According to studies done by the ISS, successful resistance to farm attacks does not only depend on an individual farmer, or even on the local police, but it depends on developing and implementing an effective rural protection plan, where neighbours participate in a system of 'security cells' that allow them to rapidly respond to emergencies. Statistically speaking, it is this, rather than amassed firearms on a farm, which ensures the safety of the farmer, his family and his workers.



1.3.5 The use of GIS in crime analysis

Most of the literature reviewed on the use of GIS in crime analysis did not focus on the South African situation, but a few sources from the UK did address the use of GIS with crime pattern analysis. Ireland (1998) addresses the various GIS packages that can be used in crime pattern analysis and also how it can be implemented in a police database. Craglia et al. (2000) identify two methods of cluster analysis for the detection of crime patterns. The first method namely, STAC is useful in identifying clusters of high crime. STAC is only useful for operational policing – that is, to respond to crime wherever it occurs. Because it ignores the underlying geography, STAC cannot be used in identifying areas that are particularly interesting from a strategic perspective because they have much higher or lower crime rates than would be expected. The second methodology, based on the GETIS-Ord statistics and implemented using SAGE, overcomes the limitations of STAC and goes much further in highlighting areas of interest for further investigation (Craglia et al., 2000).

Bowers and Hirschfield (1999) did a study on the link between crime and disadvantage. The data that was used in this study include administrative boundaries, geo-demographic discriminators, census variables and other data sets as well as data on calls to the police and recorded crime. GIS was applied by means of mapping/visualisation, data overlay/superimposition, data manipulation/linkage and coverage creation/intersection. These applications were used to profile demographic and social conditions, the mapping of crime incidents and the demand for police services, mapping relations between victim and offence locations and placing crime data into a land-use context.

The article by Hirschfield et al. (1995) identifies the development of a GIS-based crime analysis and mapping system to be used in the analysis of crime incident data recorded by the police force. The article introduces a PC ArcView-based crime analysis package and explains how it can be used for the purpose of crime analysis. Clegg and Robson (1995) identified the advantages of GIS and crime analysis. GIS creates the ability to enhance mapping operations, quicker response times, the identification of crime patterns and thus having the graphical advantage.

This chapter gave a general overview of the problems associated with crime studies and the following chapter will focus on the research methods associated with crime prevention in rural areas and the tools to deal with these problems will be discussed.



CHAPTER 2: FIGHTING CRIME IN RURAL AREAS

2 PROBLEM FORMULATION

The following sections will focus on why it is so important to provide the best possible protection for our citizens living in rural areas in the country. The data used will be identified and the methods and tools used in this research endeavour will be explained.

2.1 Problem statement

Measures have recently been implemented to prevent crime in the Stellenbosch urban built-up area. These include the establishment of the Stellenbosch (business) protection group, as well as a number of neighbourhood watch organisations in the various residential areas. These steps for crime prevention may have the effect of displacing criminal activities to the rural district (farms) around the town of Stellenbosch. According to the crime statistics shown in Figure 2.1 the occurrence of crime between 1995 and 2001 has increased by 30% in the Stellenbosch rural district. The reason for this could possibly be ascribed to the fact that intensive policing cannot be achieved as easily in the rural district as in the urban area of Stellenbosch. Police response times are much slower in rural areas because police stations are located in the town of Stellenbosch and there is also a lack of police patrols in the rural areas.

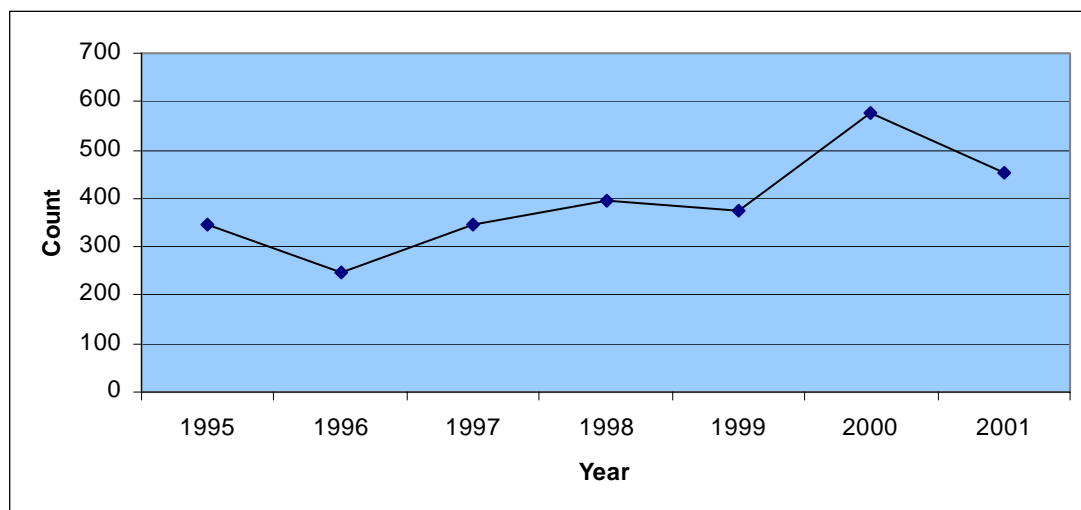


Figure 2.1: Total reported crimes in rural areas in Stellenbosch (1995-2001)

Source: South African Police Service, 2002.

Crime in rural farming areas are occurring at alarming rates in South Africa, the Western Cape, and recently in the Stellenbosch district. The phenomenon of farm attacks needs to be analysed in the context of the crime situation in general. The underlying reasons for crime are diverse and many as explained in the previous chapter and need to be taken into account when interpreting the causes of crime in South Africa. It is believed that in most cases, farm attacks are well planned and that the attackers are generally well informed about the target. It is however possible that general crime can also be the antecedent to farm attacks/murders. Criminals are caught in the act and then murder in order to protect their identity, as in many cases it is farm workers who are involved in the attacks. It is also believed that the violence against farmers is more brutal because perpetrators have more time to assault and torture their victims. Some victims also fight back and this may lead to violence being used against them. It is thus possible that if general crime were to be prevented, the occurrence of farm attacks/murders would also be lessened dramatically.

The Rural Protection Plan is a system initiated at the national level to focus on pro-active and reactive methods in the prevention of crime and the mobilisation of forces in time of crises. The commandos, in conjunction with the SAPS and the South African National Defence Force (SANDF) have been tasked with implementation of the Rural Safety Plan. The SAPS have recently initiated a system of Sector Policing where certain identified sectors are being patrolled by members of the SAPS as the commando system is being phased out.

It is therefore important that those who are tasked with the protection of rural areas have the knowledge as to where and the type of problems that exist within the specific area.

2.2 Research objectives

To ensure that this research has practical value for the various parties involved in protecting rural communities, crime hotspots and circumstances in which crime occur will be identified and this will be used to target the necessary protection and mobilisation of forces in these areas. The purpose of this study is thus to use information from the Stellenbosch SAPS to analyse a part of the Stellenbosch rural area and to identify areas that can be classified as possible hotspots. To achieve this, the first objective of this research is to analyse statistics associated with crime in the Stellenbosch rural district and to use this information to identify trends and crime prevention strategies that can effectively be applied to lessen the occurrence

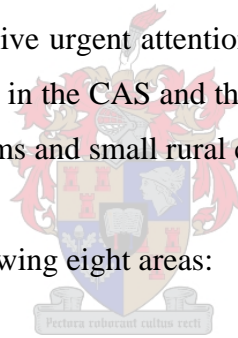
of general crime. The second objective is to analyse the various factors that can have an influence on the occurrence of crime in the study area.

These factors include:

- time of day;
- day of the week;
- weather conditions;
- location of informal settlements; and
- roads and railways close to the study area.

2.3 The study area

The spatial focus of this application will be the Stellenbosch rural farm areas included in the Stellenbosch Police Department Service area consisting of the Crime Allocation System (CAS) blocks shown in Figure 2.2. This area was identified by the Stellenbosch Commando as a problem area which should receive urgent attention in terms of crime prevention. Crime is recorded according to these blocks in the CAS and the crime data used will be grouped into these blocks. The area comprises farms and small rural communities.



The CAS is subdivided into the following eight areas:

- 4511 - Koelenhof/Elsenburg
- 4514 - Koelenhof/Devon Valley
- 4516 - Devon Valley
- 4517 - Vlottenburg
- 4518 - Kuilsrivier road
- 4519 - Kuilsrivier
- 4521 - Faure/Lynedoch
- 4525 - Around Faure

The data used will be discussed in the next section.

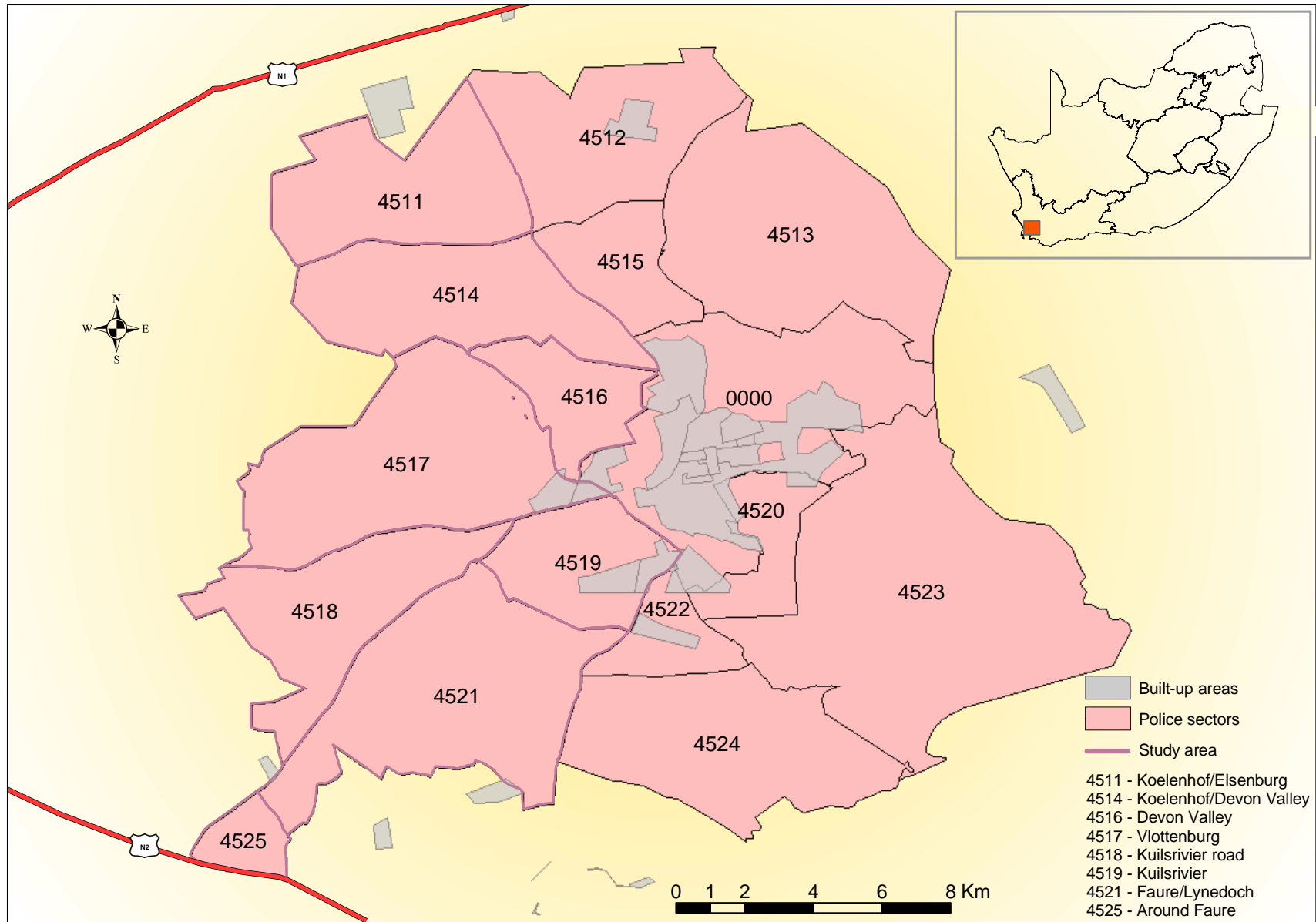


Figure 2.2: Study area – Stellenbosch rural district

2.4 Data

2.4.1 Data sets used

The following datasets were acquired for the purpose of the research:

(i) The Stellenbosch Police Department supplied the crime statistics from the CAS. The data included:

- Type of crime;
- the CAS block in which the crime occurred;
- the day on which the crime occurred; and
- the time at which the crime occurred.

(ii) The Stellenbosch Commando supplied the following data:

- roads in and around Stellenbosch (1:25 000);
- rivers in and around Stellenbosch (1:25 000);
- railways in and around Stellenbosch (1:25 000); and
- built-up areas in and around Stellenbosch (1:25 000).

(iii) The 1996 Census survey was used to obtain data on the:

- population count by enumeration area;
- annual personal income; and
- age structure.

(iv) Elsenburg Agricultural farm supplied the weather statistics.

- rainfall per month for the year 2001

2.5 Shortcomings in the data sets used in the study

There are a variety of reasons why researchers need data on crime and other related variables. The analysis of data is important for policy-making decisions and data is also used to aid in the daily operations and future requirements of justice agencies. With the analysis of data, our scientific knowledge of crime is greatly enhanced. Given the importance of data, it is imperative that the quality of the data is good enough to ensure that the trends identified from

the analysis of this data is accurate and can be used in various decision-making processes. However, it is true that data-collection methods and tools up until now are far from perfect. It is the responsibility of the researcher to provide information about any shortcomings in the datasets to be used.

Official crime statistics are of great importance to the study of criminology. The following problems have however been identified:

- Crime reflected by official crime statistics represent only the crimes reported to the SAPS and do not reflect the number of crimes that have actually been committed.
- Definitions of crime categories did not remain consistent.
- Data is captured inaccurately due to poorly trained personnel.
- Relevant information is omitted.
- Less serious crimes are often not included because in the case of multiple crimes only the more serious offence is recorded.

The weather statistics relating to the study area consists of a single average of the rainfall for the entire study area. It should therefore be kept in mind that possible variations could exist between the different CAS blocks.

The data on population numbers, annual income and the age structure of the inhabitants of the study area were extracted from the 1996 Census survey. Unfortunately the boundaries of the CAS blocks and the wards from which the data were extracted do not correspond. The data were proportionately allocated to the CAS blocks based on the area of overlap between the two sets of spatial units. This assumes that the population is uniformly distributed within the enumerator areas.

2.6 Research methodology

The methodology used in this research endeavour follows the route as illustrated in Figure 2.3 below. The study starts by discussing the possible theories and paradigms used to explain the occurrence of crime within rural areas and especially focussing on attacks and murders committed during farm attacks. The next step presents the various ways in which the results can be displayed and interpreted and in this study crime numbers, percentages and crime rates are used. The following step is to use the statistical data, which consists of crime statistics,

and census data and the external determinants to give possible explanations to identified crime patterns and trends. These results can then be used to give possible insight into certain crime phenomena.

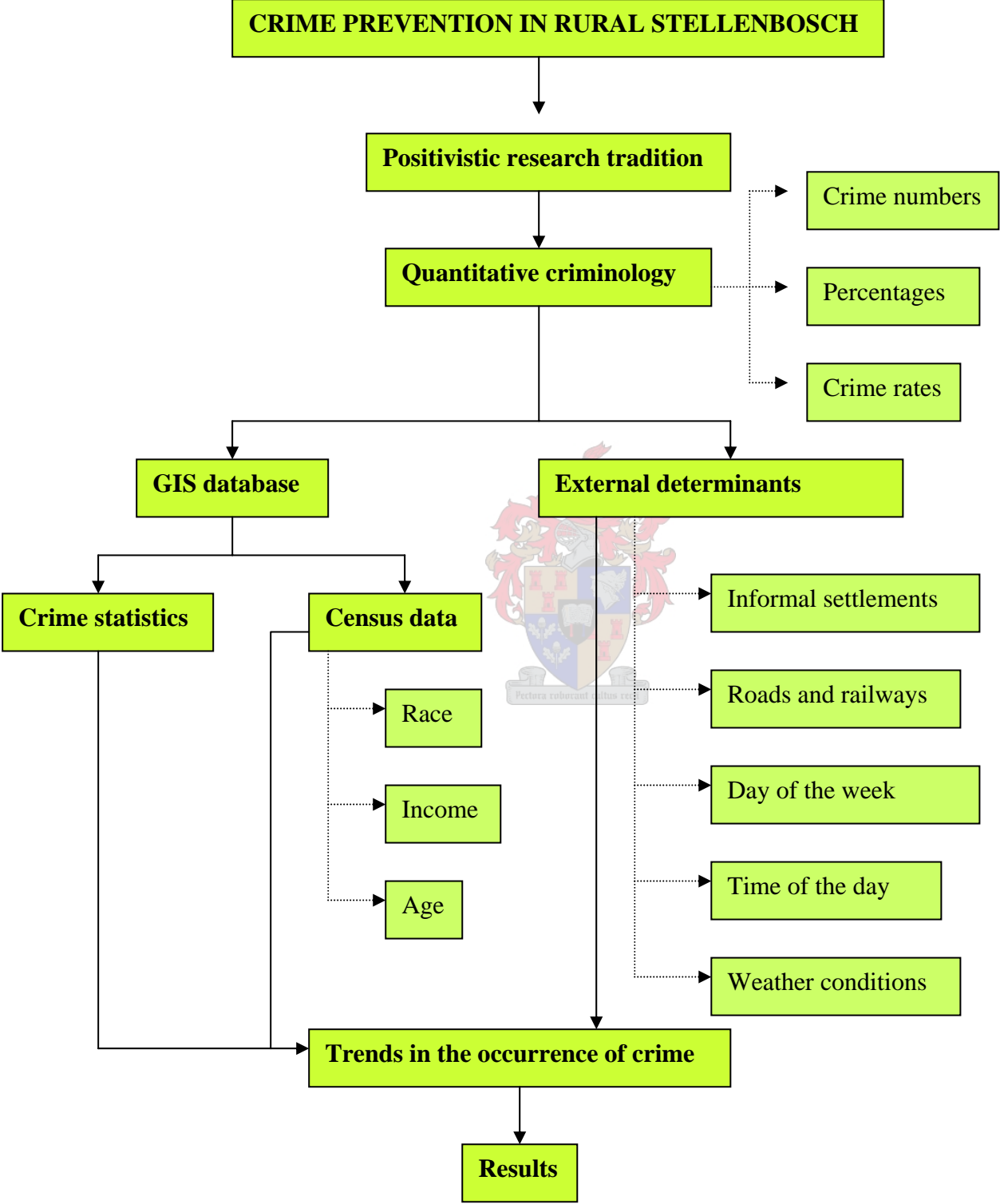


Figure 2.3: Research design

2.7 Methods of analysis

As mentioned earlier, there are various theories and paradigms that can be used in the analysis of crime. It is however important to look at the context of the particular study and to choose an applicable paradigm or paradigms which suits the context and field of the study.

2.7.1 The positivistic paradigm

In this section the general model of intellectual thought in quantitative research will be explained. Criminology had its roots in the positivistic paradigm in the previous century. Gottfredson and Hirschi (1987) state that this paradigm favours a deterministic approach in that human behaviour, and consequently crime, is seen as the result of prior causes. The positivistic paradigm is relevant to a quantitative analysis of crime in order to give an explanation as to how different variables have an influence on its occurrence.

Gottfredson and Hirschi (1987) identified the following basic tenants of the positivistic paradigm:

- Criminal behaviour is the central object of enquiry and it is orientated towards causal factors.
- Human behaviour is a product of cause and effect and is therefore relatively predictable.
- If the real causes of crime can be determined, it would be possible to control criminal behaviour effectively.
- These views concerning crime are supported by particular institutional traditions. The judiciary has to interpret and apply the law objectively and without questioning its validity. A scientific and objective basis for the explanation of crime is thus especially acceptable.
- The law represents a collective image of what society regards as wrong and/or acceptable. This being the case, criminologists working within this paradigm normally accept the legal definition as their point of departure in the study of the crime problem.

Cloete et al. (1993:44) summarised the following aspects as being of importance to the positivistic paradigm:

- Analysis of man and society, hence the crime phenomenon, has to be carried out by applying research principles of the natural sciences. Research must be accordingly based on what can be empirically observed, systematised and verified in order to predict and control the crime phenomenon.
- Objectivity is regarded as all-important. Subjectivity, such as subjective impressions and moral judgements, is therefore not permissible.

It is however dangerous to assume that the reasoning behind crime is as black and white as mentioned above. Human behaviour is unique and therefore we cannot assume that a solution is readily at hand if certain guidelines are to be followed. The positivistic paradigm accepts that the explanation of crime cannot sufficiently be approached by any single theory. Crime phenomenon should be analysed from as many perspectives as possible in order to understand human criminal behaviour.

2.7.2 Quantitative criminology

Quantitative criminology is founded on the assumption that crime and related social realities can be defined and delineated unambiguously. In the past it was believed that the quantitative approach is a punch card, non-humanistic methodology that is insensitive to the individual (Fox, 1981). This is however not true. The aggregation of data is primarily concerned with classifications and the identification of patterns of behaviour. The following methods of analysis will be used in this research application.

2.7.2.1 Computing: crime numbers, percentages and rates

Crime numbers are difficult to use in criminology as it only provides a raw number. It has the ability to show the researcher the exact number of crimes committed but these raw numbers cannot be used in comparative studies. Crime frequencies can be calculated, but when it comes to comparison of these numbers, it proves to be difficult because the data relates to different geographical areas and time periods. *Percentages* express proportions and thus make comparison with other proportions possible. *Rates* are equally widely used as measures in social science research. In crime research, a rate is expressed in terms of some unit of the

population. According to Livingstone (1996) the most common denominator to calculate crime rates for the total population in a particular geographical area is 100 000. The formula is as follows:

$$\text{Crime rate} = \frac{\text{reported crimes}}{\text{total population}} \times 100\,000$$

Crime rates for this research application will however be expressed per 1000 people of the population. The reason for using a smaller denominator is because the population within the study area is very small and using the smaller denominator would avoid small fractional values.

2.7.2.2 Correlation

Correlation is a statistical measure of association that gives the researcher an indication of the extent to which two or more variables co-vary. The measure of the degree of strength of the relationship is represented by the correlation coefficient. The Pearson product moment correlation coefficient is based on a statistic called the covariance. The covariance is a number that reflects the degree to which two variables vary together. To define the covariance mathematically, the formula is as follows:

$$\text{cov}_{xy} = \frac{\sum (X - \bar{X})(Y - \bar{Y})}{N - 1}$$

Correlation coefficient values range from a value of zero (0), which indicates that two variables do not co-vary, to a value of one (1), which indicates that two variables co-vary perfectly and that these variables can be used in the prediction of certain events. Values closer to one (1) indicate that the relationship is strong, while values closer to zero (0) indicate that the relationship is very weak. When the variation lies between 0 and +1 and between 0 and – 1, such values are respectively labelled as positive and negative correlation.

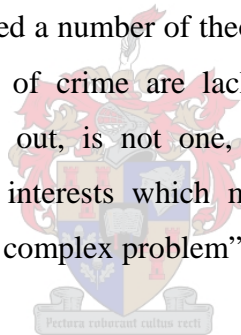
CHAPTER 3: CRIME PATTERNS IN RURAL STELLENBOSCH

3 DISCUSSION OF SPECIFIC CRIME CATEGORIES

It is important to distinguish between the characteristics of different crime categories and to come to the realization that varying factors contribute to these vastly different crime types. In this section the sociological and external determinants of differing crime types will be evaluated and possible trends identified.

3.1 Sociological and related issues associated with specific crimes

Crime is a complex and multi-faceted phenomenon. It is a challenge to explain the many sides of the various activities that are being labelled as crime. One attempt to deal with this multi-facetedness is to develop possible explanations for the particular crimes. While scholars abroad have over the years constructed a number of theoretical concepts, local theoretical and empirical works on specific forms of crime are lacking. Crime, as the National Crime Prevention Strategy (NCPS) points out, is not one, but many things. “There are many different kinds of crime, different interests which motivates criminals and hence many different causes and solutions to this complex problem” (National Crime Prevention Strategy, 1996:9).



The study of human perceptions in criminological and criminal justice research is also necessary to understand the seriousness of the various crime categories. Sellin and Wolfgang (1964) introduced the study of perceptions of crime seriousness. They argued that, in order to access the seriousness of crime as a social problem, one should look at the prevalence of criminal behaviour, but one should also consider the nature of the criminal acts. They presented a typology to capture the seriousness of different offences. They began with a classification of all offences into two classes. Class I included offences that caused bodily harm and/or property loss and/or property damage. All other offences belong to Class II. Class I has three categories and Class II has seven categories. The categories were labelled from A to J; categories A, B and C belong to Class I and the rest to Class II. The classification was based on the assumption that the defining characteristic of each category could be compared to those of the other categories and ranked in terms of their seriousness. The resulting categories are presented in Appendix 1. From the classification described by Sellin

and Wolfgang (1964), it is clear that the crime has to be divided into different categories of seriousness in order for us to understand their severity. It would therefore be wise to create categories for different crime types. Table 3.1 is the crime code list used by the SAPS. Each individual crime type was grouped into one of the four crime groupings, which will be analysed in this application.

Table 3.1: SAPS crime code list

CODE	DESCRIPTION	CRIME TYPE
Cr001	Abduction	Social fabric crime
Cr002	Arson	Violence aimed at property
Cr003	Assault with the purpose to inflict grievous bodily harm	Social fabric crime
Cr004	Burglary at residential premises (including attempts)	Theft-related property crime
Cr005	Burglary at business premises (including attempts)	Theft-related property crime
Cr006	Attempted common robbery	Theft-related property crime
Cr007	Theft of motor vehicle or motor cycle (including attempts)	Theft-related property crime
Cr008	Attempted murder	Violent crime
Cr009	Attempted rape	Social fabric crime
Cr010	Robbery with firearm (including attempts)	Violent crime
Cr011	Attempted theft	Theft-related property crime
Cr012	Theft from a motor vehicle (including attempts)	Theft-related property crime
Cr013	Theft out of a motor vehicle (including attempts)	Theft-related property crime
Cr014	Common assault	Social fabric crime
Cr015	<i>Crimen Injuria</i>	Social fabric crime
Cr016	Culpable homicide	Violent crime
Cr017	Driving offences in terms of the National Road Traffic Act	Other crimes
Cr018	Fraud	Other crimes
Cr019	Indecent assault	Social fabric crime
Cr020	Malicious damage to property	Violence aimed at property
Cr021	Man-stealing	Social fabric crime
Cr022	Murder	Violent crime
Cr023	Rape	Social fabric crime
Cr024	Robbery with a fire-arm (motor vehicle)	Violent crime
Cr025	Shoplifting	Theft-related property crime
Cr026	The Act regulating arms and ammunition	Other crimes
Cr027	Theft general	Theft-related property crime
Cr028	Theft of live stock, poultry and birds	Theft-related property crime
Cr029	Offence under the drugs and drug trafficking act	Other crimes

For the purpose of this study, only a selection of crimes relevant to the study of attacks on farms and smallholdings will be included in the analysis. They are theft of property, social fabric crimes, violent crimes and violence aimed at property. Figure 3.1 gives an indication of the severity of each crime group within the study area for the years 1995 to 2001.

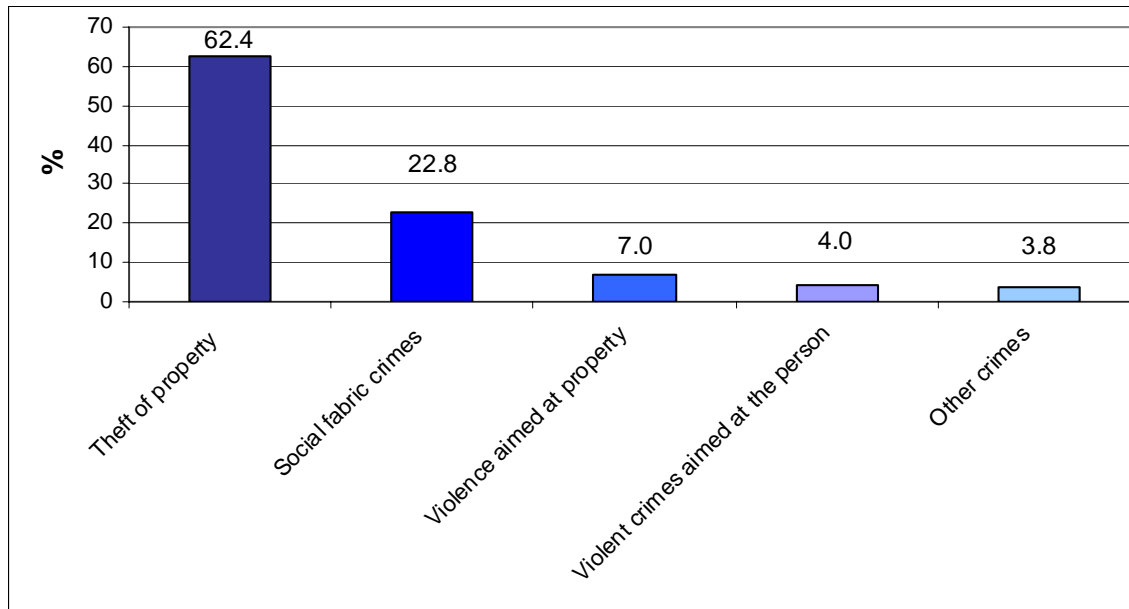


Figure 3.1: Crime groupings in study area (1995-2001)

Source: SAPS, 2002

The illustration above shows that property related crimes (62%) are most prevalent within the study area. This could possibly be ascribed to the fact that properties are situated farther from each other in rural areas than in urban areas. This provides offenders with a better chance to commit crimes undetected. Police stations are also situated far from these areas and police response takes much longer. The second most prevalent are social fabric crimes (23%). Occurrences of these crimes are also high and could possibly be ascribed to the rural nature of the area. Natural veld and shrubbery for example provide offenders with an environment in which they can commit these types of crimes. Alcoholism can be linked as it acts as a definite stressor to these actions. The occurrence of this crime sub-group can also be ascribed to the fact that the mothers of children have to leave their homes in order to work or do certain chores and children are often left in the care of untrustworthy individuals. These women however do not always have a choice with whom they leave their children, as they are the primary caregivers in the house and need to work. The following two crime groupings, namely violence aimed at property (7%) and violent crimes (4%), occur less frequently.

Violent crime is however, a very serious crime type, as it usually results in loss of life or a very serious injury. Compared to the loss of property, this is the biggest price to pay and serious consideration has to be given to the eradication of this vicious and unnecessary waste of human life.

As prevention is an integral component in the fight against crime, it is important to create awareness about the dangers that are present. Only with the cooperation of the inhabitants, will the police force be able to effectively provide optimal protection and have the ability to initiate long-term solutions. Figure 3.1 gives a good illustration of the two most prevalent crime sub-groups within the study area and this should make officials as well as inhabitants of this area aware that preventative measures have to be taken, especially for the protection of properties such as houses, businesses and vehicles. Inhabitants of the area should also be made aware of the occurrence of social fabric crimes and the associated environmental factors that contribute to the occurrence of these crimes. Prevention is cardinal because of the extent to which this crime type affects the women and children of society. In the following section the four crime sub-groups will be analysed.

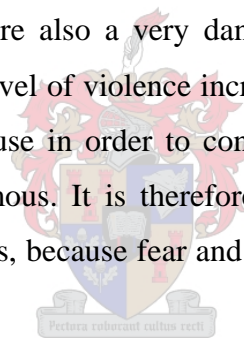
In crime research it is also important for the researcher to know the demographic characteristics and status of the particular area that is being studied. The structure of the population, as well as the population density are especially important when it comes to studying crime rates, because it is expressed in terms of a denominator. It is therefore important to keep in mind that even though an area may have a higher crime rate than the area next to it, it does not mean that there are necessarily more incidents of crime. The effect of population density has to be kept in mind and realised when drawing a conclusion from the statistics.

In this research application two density parameters were used. Firstly, population density was used when calculating the crime rate for the crime sub-groups *social fabric crimes* and *violent crimes*; and secondly, household density was used to calculate the crime rates per household for the crime sub-groups *theft-related property crime* and *violence aimed at property*.

3.2 Theft of property

Theft of property are crimes that entail the stealing of another person's property. Property includes property from residences, business, vehicles, livestock and from the person self. The types of crimes that constitute as property crimes are listed in Table 3.2. It is evident that burglary at residential premises, which is the unlawful entry, forcible entry, or attempted forcible entry of dwellings or other buildings and structures with the intent to commit a felony or theft as well as general theft, are the most severe within this area, both having a percentage of 34.0. Burglary at residential premises in the study area is extremely high because of the location of the premises. The rural nature of the area provides burglars with the assurance that being detected is more difficult because properties are situated farther from each other. In certain cases, burglars also have the advantage of knowing the area and movements of the homeowners very well, because in many cases the perpetrators are workers on the farms.

Burglaries at residential premises are also a very dangerous crime type that can result in violent crime within minutes. The level of violence increases when burglars are caught in the act of committing a burglary, because in order to conceal their identities, the burglars use alternative methods to stay anonymous. It is therefore very important for farm owners to know how to react in these situations, because fear and anger have the ability to develop into explosive situations.



Ranking third and fourth are burglaries at business premises and theft out of a motor vehicle respectively with 15% and 9% occurrences. In this study area, burglaries at business premises are usually committed on farms where there is commercial activity such as dairies, craft shops, farm stalls and small grocery stores. These businesses are attractive to criminals because they are usually easier to access and are less protected in these areas. Theft out of motor vehicles is a crime type that is especially troublesome in the Stellenbosch area, as it is usually an easy target for criminals. The remaining categories, which mostly includes various types of attempted car theft and theft of livestock accounts for 8% of the total crimes relating to property theft.

Table 3.2: Theft of property (1995-2001)

Theft of property	1995-2001
Attempted burglary at residential premises	23 (1.8%)
Burglary at residential premises	579 (33.8%)
Attempted burglary at business premises	6 (0.4%)
Burglary at business premises	264 (15.4%)
Attempted theft	5 (0.3%)
Theft general	579 (33.8%)
Attempted theft out of a motor vehicle	4 (0.2%)
Theft out of a motor vehicle	149 (8.7%)
Attempted motor vehicle theft	2 (0.1%)
Theft of motor vehicle or motor cycle	31 (1.8%)
Attempted theft from a motor vehicle	3 (0.2%)
Theft from a motor vehicle	8 (0.5%)
Attempted common robbery	1 (0.06%)
Shoplifting	1 (0.06%)
Theft of live stock, poultry and birds	56 (3.3%)
Total	1711

Source: SAPS, 2002.

Figure 3.2 shows that from 1995 to 2001 there have been an increase of 15% in theft of property.

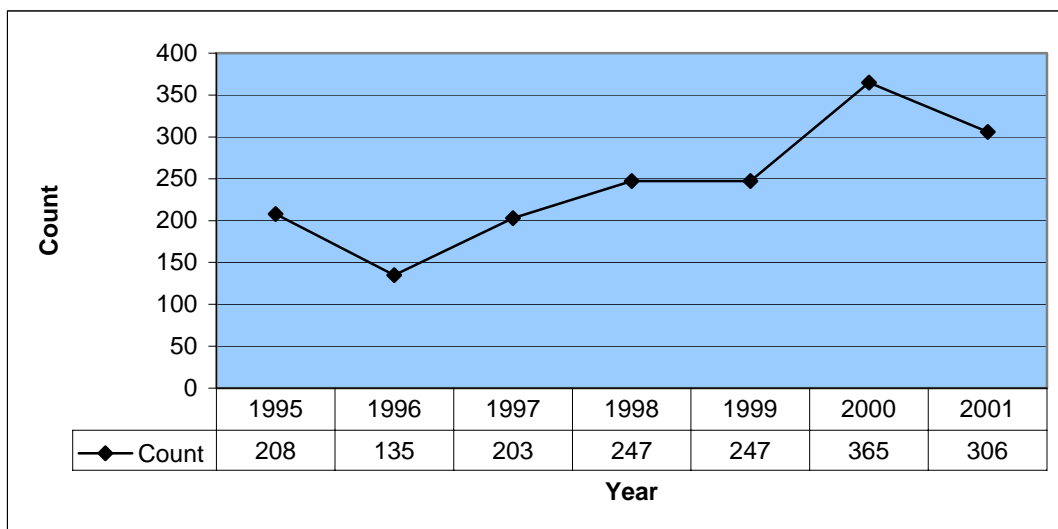


Figure 3.2: Number of reported theft of property (1995-2001)

Source: SAPS, 2002.

Figure 3.3(a) gives an illustration of theft-related property crime rates in the study area. It shows that the areas of Vlottenburg (CAS 4517) and Faure/Lynedoch (CAS 4521) have the highest rates of theft of property. The two areas described are especially rural in nature and various commercial farming activities are situated within this area. Even if the crime rate is not as high as in the rest of South Africa, it does not mean that crime is less of a problem, because one has to look at the place, context and situation in which these crimes are committed. The actual number of theft of property is shown on the map and this gives a better indication of the crime situation in the study area. The symbols used to illustrate the number of crimes are the largest within the named areas, ranging between 266 and 399 reported property-related crime incidents from January 1995 to September 2001.



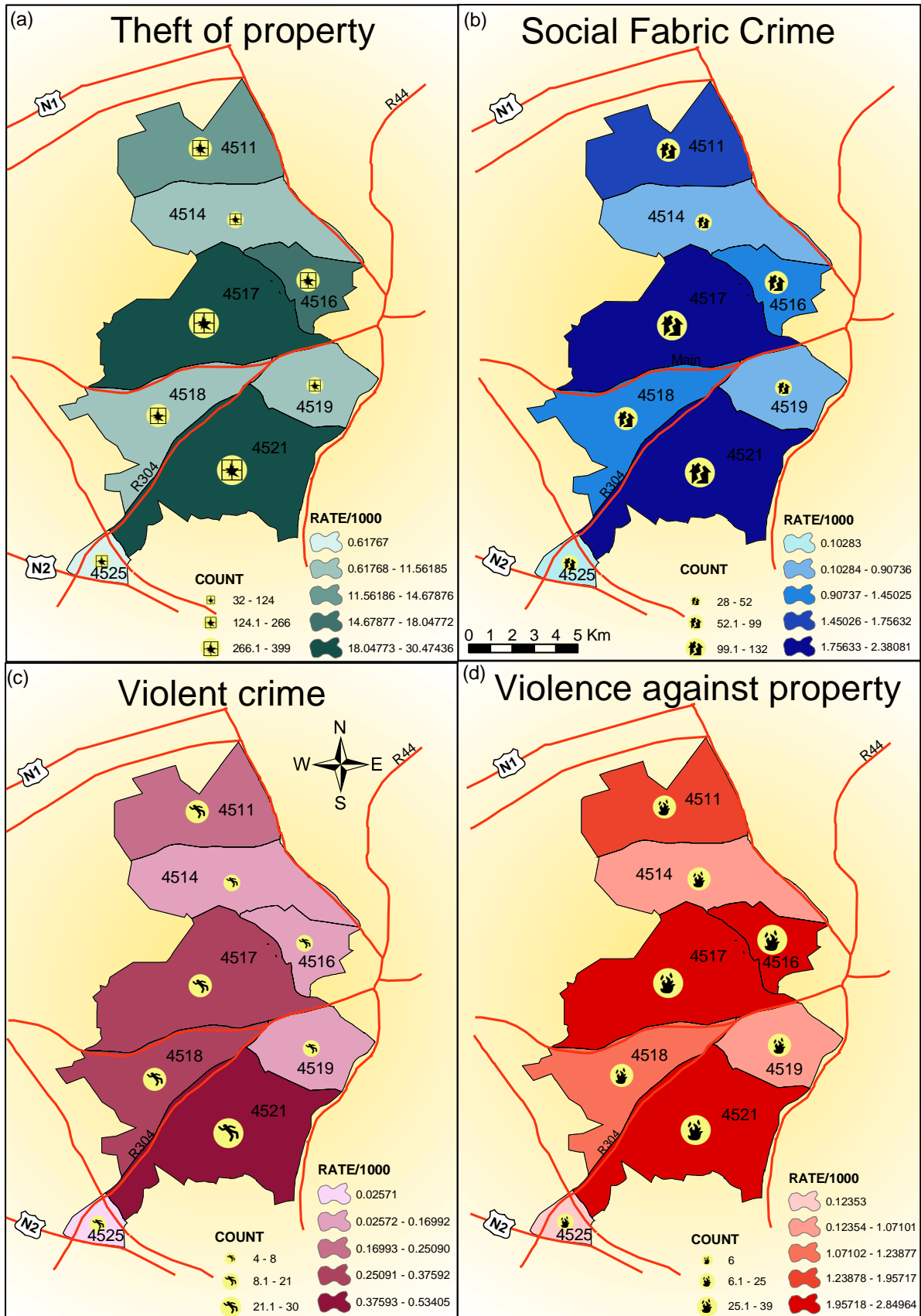


Figure 3.3: Crime sub-categories (1995-2001)

3.3 Social fabric crimes

Social fabric crimes are crimes against a person's right to protect his or her own body. Social fabric crimes do not only include crimes associated with sexual misconduct, but also crimes that go against a person's right to physical and emotional protection. Table 3.3 shows the types of crimes classified as social fabric crimes. The table shows that assault with the purpose to inflict grievous bodily harm (GBH) constitutes 42% of the total social fabric crimes, where assault consists of unlawfully and intentionally applying force, directly or indirectly, to the person of another, or threatening another with immediate personal violence in circumstances which lead the threatened person to believe that the other intends and has the power to carry out the threat (Graf, 1999). Common assault usually does not involve the use of a firearm, a knife or any other dangerous weapons and victims are usually not seriously injured. This crime takes up 35% of social fabric crimes. In many cases these two crime types are associated with alcohol and drug misuse and usually occur between people who are known to each other.

Rape is regarded as a sexual crime, when a male has unlawful and intentional intercourse with a female without her consent. Rape can occur within marriage or in relationships and the rape of children has become an enormous problem that has to be stamped out before it destroys the lives of the young generation. It is also seen as an act of violence, power, and domination. It is the third most serious social fabric crime within the study area comprising 11% of the total, with *Crimen Injuria* fourth on the scale of occurrence, making up 8% of the total. Collectively, attempted rape, indecent assault, abduction and man-stealing make up 5% of all social fabric crimes.

Table 3.3: Social fabric crimes (1995-2001)

Social fabric crimes	1995-2001
Attempted rape	11 (1.8%)
Rape	66 (10.6%)
Assault with the purpose to inflict GBH	260 (41.6%)
Common assault	221 (35.4%)
<i>Crimen Injuria</i>	47 (7.5%)
Indecent assault	16 (2.6%)
Abduction	2 (0.3%)
Man-stealing	1 (0.2%)
Total	624

Source: SAPS, 2002.

Figure 3.4 shows that from 1995 to 2001 there has been a small increase of only 11%. The year 2000 recorded an exceptionally large increase in social fabric crimes, as can be seen on the graph.

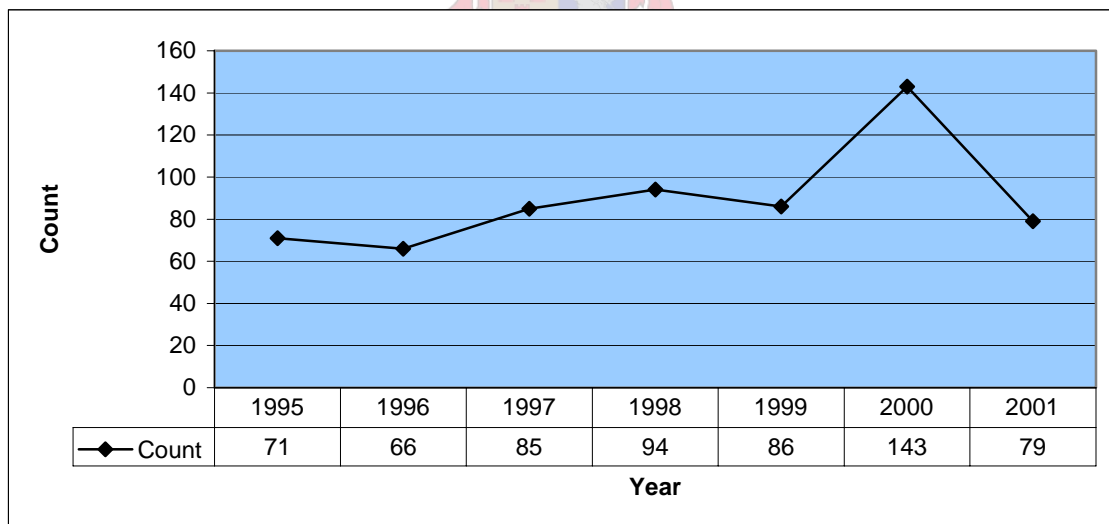


Figure 3.4: Number of reported social fabric crimes (1995-2001)

Source: SAPS, 2002.

Figure 3.3(b) displays the prevalence of social fabric crime rates in the study area. It shows that the Faure/Lynedoch (CAS 4521) area has the highest rates of social fabric crimes. The two areas with slightly lower levels of social fabric crimes are Vlottenburg (CAS 4517) and

Kuilsriver road (CAS 4518). Faure/Lynedoch and Vlottenburg had between 99 and 132 reported social fabric crime incidents from January 1995 to September 2001.

3.4 Violent crimes

Violent crimes are crimes committed against the person of another human being. These types of crimes usually end in death or serious injury. Table 3.4 shows the individual crimes that collectively make up violent crimes. The table shows that murder, which is the unlawful and intentional causing of the death of another human being and culpable homicide, which is the unintentional or accidental killing of an individual (Graf, 1999), make up 45% and 25% of these types respectively. In robbery with a firearm, the assailant takes or attempts to take money or personal items from an individual with the use/threat of a firearm. This crime constitutes 14% of the total of violent crimes. The last violent crime, which is robbery of a motor vehicle with a firearm, is a recent type of crime that has emerged. Violence is used to force drivers to give up their cars and in certain cases this can end in serious injury, abduction, rape and even death. For the study area however, this type of crime only makes up 2% of the total which means that this dangerous crime type is still under control within the study area.

Table 3.4: Violent crimes (1995-2001)

Violent crimes	1995-2001
Attempted murder	14 (12.6%)
Murder	50 (54.1%)
Attempted robbery with a firearm	1 (0.9%)
Robbery with a firearm	16 (14.4%)
Robbery with a firearm – motor vehicle	2 (1.8%)
Culpable homicide	28 (25.2%)
Total	111

Source: SAPS, 2002.

From Figure 3.5 it can be deduced that there is a definite decrease in the occurrence of violent crimes within the study area. From the beginning of 1995 to the end of 2001, there has been a 50% decrease in violent crimes within the study area. This trend can be ascribed to the

heightened awareness of inhabitants about the possible dangers that can be committed within these areas.

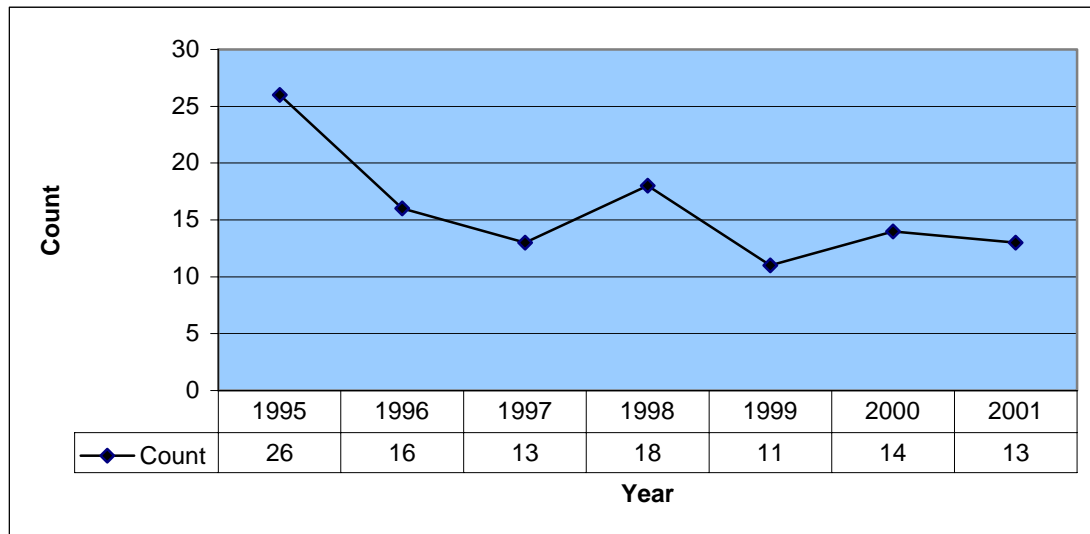


Figure 3.5: Number of reported violent crimes (1995-2001)

Source: SAPS, 2002.

Figure 3.3(c) illustrates the occurrence of violent crime rates within the study area. It shows that the Faure/Lynedoch (CAS 4521) area also has the highest rate for violent crimes. The two areas with the second and third highest levels are Vlottenburg (CAS 4517) and Kuilsriver road (CAS 4518). Within this study area the crime rates per 1000 people as well as the actual number of violent crimes are low, but it has to be remembered that this is a very serious crime type. For Faure/Lynedoch the actual number of reported violent crimes is between 21 and 30 incidents and for Vlottenburg and Kuilsrivier road the actual number from January 1995 to September 2001 is between 8 and 21.

3.5 Violence aimed at property

Violence aimed at property are crimes that cause damage or destruction to property. These malicious acts usually include arson and other types of destructive behaviour towards physical property such as breaking windows of buildings, as well as the breaking of windows, mascots of cars, graffiti on walls, etc. Table 3.5 shows that malicious damage to property makes up 97% and arson only 3% of the occurrences.

Table 3.5: Violence aimed at property (1995-2001)

Violence aimed at property	1995-2001
Arson	6 (3.1%)
Malicious damage to property	186 (96.9%)
Total	192

Source: SAPS, 2002.

From Figure 3.6 it can be concluded that the occurrence of violence against property fluctuates over time in the study area. From the beginning of 1995 to the end of 2001, there has been no drastic change in the occurrence of violence aimed at property in the study area.

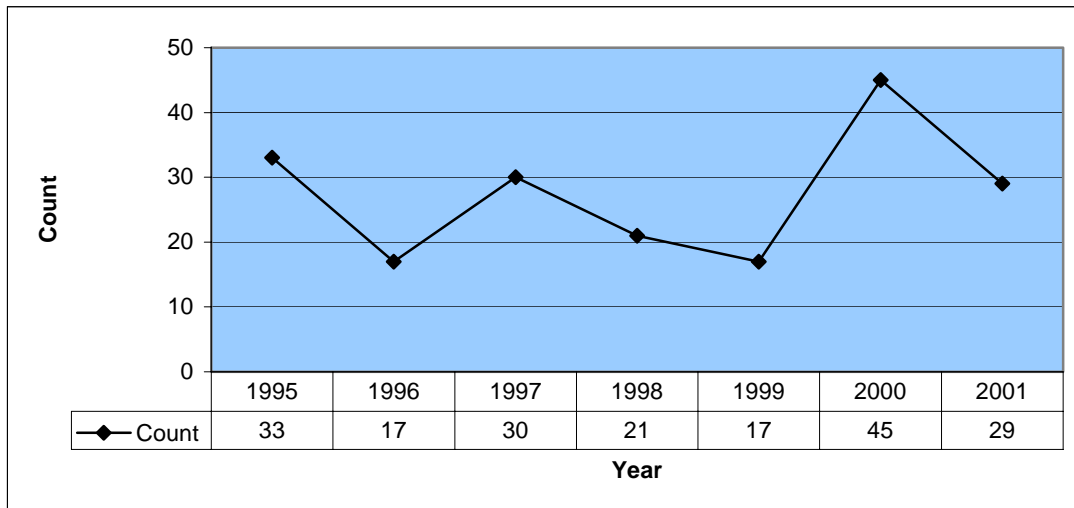


Figure 3.6 Number of reported violence aimed at property crimes (1995-2001)

Source: SAPS, 2002.

Figure 3.3(d) shows the distribution of violence aimed at property within the study area. It shows that there are three areas, namely Devon Valley (CAS 4516), Vlottenburg (CAS 4517) and Faure/Lynedoch (CAS 4521) that have the highest crime rates in the area. The crime rates per 1000 people, as well as the actual number of violence aimed at property crimes are not that high in the study area. The actual number of incidents for the above mentioned areas between January 1995 and September 2001 is between 25 and 39 incidents.

3.6 Demographic and socio-economic determinants of crime

3.6.1 Race and sex

South Africa’s racial history is a topic of much discussion within various study fields. Racial segregation is a social injustice that influenced the occurrence of other social injustice practices. Minority groups held power for the largest part of this country’s history. This influenced the actions of the majority groups who were deprived of their social rights. The social injustices created by the apartheid regime served as a catalyst for feelings of hate between the different racial groups in South Africa. It is therefore important to analyse the racial structure of the population within the study area in order to find possible explanations for the acts of crime.

Figure 3.7 shows that the Coloured population group is in the majority in all CAS blocks except blocks 4516 and 4519 where the White population make up more than 60% of the population structure. The Black/African population group comprises less than 10% in the study area. The Indian/Asian group is less than all the other racial groups and make up about 5 percent of the population in the study area.

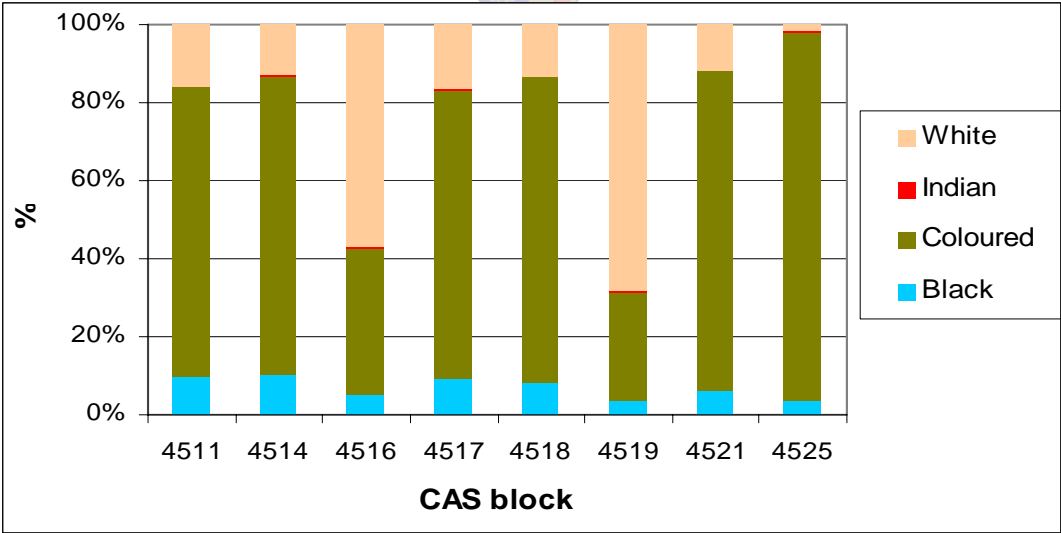


Figure 3.7 Dominant population group per CAS block

Source: National Census, 1996.

Although race cannot be used as a determinant for criminal activity, it can however lead to an understanding of certain identified trends within certain areas. As illustrated, the Coloured

population makes up the biggest part of the population within the study area. This however, does not indicate that this population group are responsible for crime within the study area, but it can shed some light on the phenomena. In the areas where violent crime and social fabric crimes are most prevalent (CAS 4517, 4518 and 4521) the coloured population group is high in number. There can however be noticed that in areas where property related crime and violence against property are committed the areas 4517, 4518, 4519 are still present but with the addition of CAS 4516, where the white population group is higher in number. This trend usually may relate to the struggle between those who have and those who do not. It has to be kept in mind that race cannot be used as a determinant for the amount of crime committed or not, as many other concomitant factors also come in to play.

The offenders' genders can also play a role in explaining crime. It is believed that males are more likely to commit an offence than females. This variable could possibly be used as an indicator for the prevalence of certain offences such as violent crime and social fabric crime. As the ratio between males and females in the study area is 50:50 on average, the assumption that crime is more often committed by the male population cannot be substantiated.

3.6.2 Age structure



Criminologists, sociologists and other social science researchers have documented the relationship between age and crime over the last century. Steffensmeier and Allan (1995:97) wrote:

“Of all the factors associated with crime, the impact of age on criminal involvement is one of the strongest. The view that involvement in crime diminishes with age is one of the oldest and most widely accepted in criminology. For most forms of crime, but especially for what in most societies are designated ‘serious crimes’ (murder, rape, assault, robbery), the proportion of the population involved in crime tends to peak in adolescence or early adulthood and then decline with age. This pattern is common to most age-crime distributions across historical periods, geographic locations and crime types.”

In recent years the strength and universality of the correlation between age and crime have been questioned (Gottfredson & Hirschi, 1987; Hirschi & Gottfredson, 1983; Shavit & Rattner, 1988), but experts agree that the relationship between age and crime is common. The age-crime relationship can be influenced by another important variable of crime, namely poverty. In South Africa where poverty is a major problem, people from all age groups are increasingly turning to crime. Research has also shown that age cohorts with large populations (where the majority of the population falls into a certain age group) are more likely to commit crime. The reasoning behind this can be ascribed to increased competition among individuals within these age cohorts, for access to services, employment, a stronger perception of their own deprivation and a lack of social skills (Keplinger & Weis, 1985).

It is also important to look at the effect of the political context in South Africa. South Africa's immediate past has been characterised by a violent struggle to end apartheid and institute democracy. The youth participated in great numbers in the political and military struggle. In some cases, this participation prevented them from proper socialisation and education. Their consequent lack of social and labour skills alienated them from the rest of the society. The National Crime Prevention Strategy (NCPS) (1996) document states that the youth constituency bore the brunt of social, economic, political and educational marginalisation to the point that this sub-group have experienced apartheid as a rejection by the dominant culture in the society. During the 1980s, the youths found an alternative identity for themselves and a new social role within the violent political organisations as part of their resistance to apartheid. As politics shifted from the streets to the negotiation table in the 1990's, the role of the youth at centre stage was undermined by the increasingly dominant role of an older generation of negotiators and technical experts. In the search for a place in society, it was criminal youth gangs that provided social cohesion and identity for members of this youth constituency. A further key ingredient within the youth sub-cultures, which contributes significantly to escalating crime, is the pervasive problem of drug and alcohol abuse. Collective substance abuse is often a key determinant in the establishment of social cohesion within gangs and is frequently part of the cement that assists in forging new identities for marginalised youths. Such substance abuse is a central cause of crime and is particularly linked to the perpetration of violent crimes.

Figure 3.8 illustrates that the population group between the ages of 5 and 19 years comprise of about 30% of the population in all the CAS block areas and the age cohort between 20 and

29 years makes up another 20% of the total population age for the study area. These two age cohorts are usually associated with the ages that offenders fall into. This means that the population usually associated with committing crime comprises about 50% of the population of the study area.

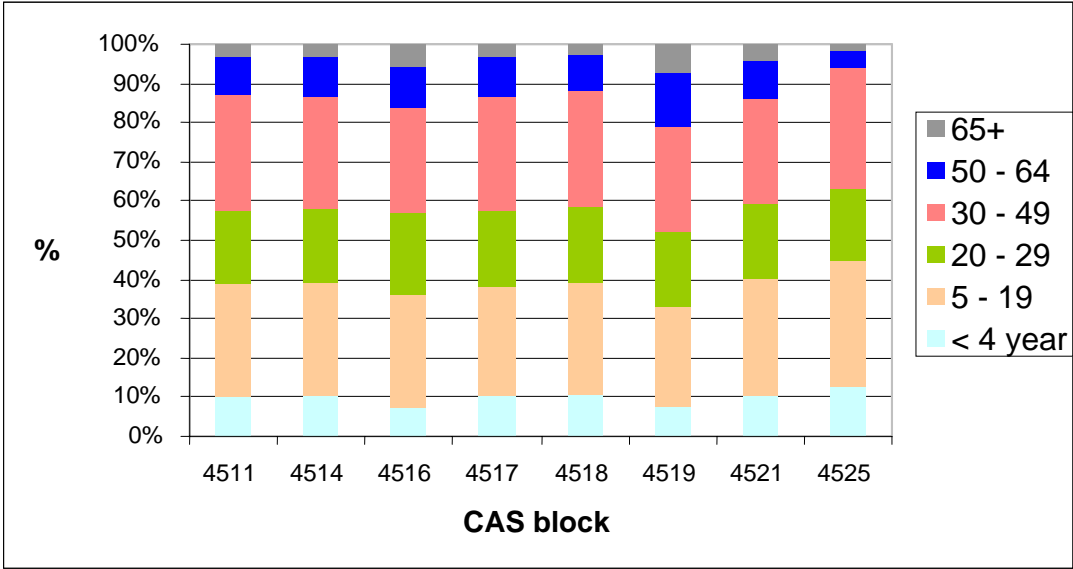


Figure 3.8: Age structure of study area by CAS block

Source: National Census, 1996.

In this particular study it would thus be incorrect to make the statement that the younger age cohort could be responsible for the crime that is taking place in the study area, as the numbers associated with the younger age cohort is not out of proportion to the rest of the age groups within the study area. A statement like this could also only be substantiated if information about the age of offenders were available.

3.6.3 Income, unemployment and poverty

Like the other explanatory variables for crime, economic variables such as unemployment and poverty have been used for a long time. When the relationship between economic variables and crime is researched, the hypothesis that unemployment and/or low-income individuals will manifest higher crime rates than employed and/or high-income individuals is usually upheld.

Land et al. (1995) point out that the relationship between unemployment and crime is complex and multifaceted. Moreover, because of its importance to scientific constructs and economic and social policy, these scholars regard the relationship between unemployment and crime as one of the big issues in the field of criminology. The discussion of the relationship between economic variables and crime cannot be complete without giving attention to the concept of relative deprivation. The NCPS (1996) has the following views on relative deprivation and crime in South Africa. Historically-shaped structural deprivation, unemployment and underdevelopment in the South African society provide the key context to the increasing levels of crime. Although poverty, hunger, unemployment, homelessness, etc. do not necessarily lead to increased levels of crime, when combined with a range of other socio-political and cultural factors, these factors provide a ready recruitment ground for criminal activity and contribute significantly to increased levels of crime.

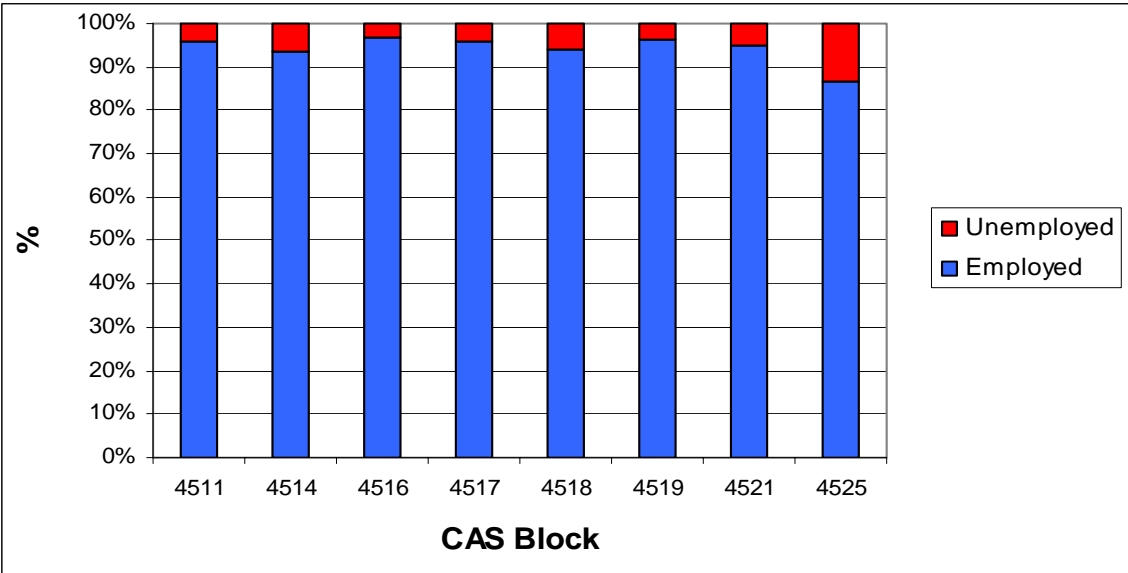


Figure 3.9 Employment status of population in study area.

Source: National Census, 1996.

Figure 3.9 illustrates that unemployment only comprises about 10 percent of the inhabitants in the study area. Where the rest of the CAS blocks only show that five percent of the inhabitants are unemployed, CAS block 4525 has more than 10 percent of its inhabitants unemployed. Unemployment contributes to many unwanted social phenomena, such as begging, vandalism, alcoholism, etc. Unemployment could possibly be an explanation for the increased incidence of crime in this specific area.

It is generally accepted that disparities in wealth, development and access to resources, as well as relative deprivation, do operate as an incentive for criminal activity and is a contributing factor to crime. These disparities rooted in the preceding era and largely coinciding with racial differences, are frequently invoked as a rationalisation for criminal activity. This is seen as one of the mechanisms by which crime is rationalised as ‘political’ in nature. However, this ought not to detract from the reality that experiences of relative deprivation may be important in shaping the selection of victims of criminal activity. Popularly framed, the notion is that while the majority cannot eat, the minority cannot sleep.

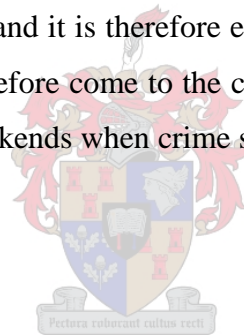
3.7 Time and crime

The use of GIS usually focuses on the spatial attributes of a specific research problem, but it has to be kept in mind that there is another component that is usually not included in most GIS analyses. This component is time, which can be very useful in crime research. According to Worboys (1994) and Pred (1977), time is an inherent characteristic of geographic information and the two are inseparable. Crime data can be analysed at different time scales. Glanz et al. (1992) performed crime analysis at thirty years, five years and one-year intervals. Anderson (1987) analysed the seasonal fluctuation of violent crime in the United States and Young (1991) did a seasonal and daily analysis on the occurrence of violent crime in the Cape Peninsula. The use of temporal data in crime analysis is necessary to show the effectiveness of GIS in the planning and implementation of crime prevention strategies.

The time of day at which crimes are committed is related to the incentive criminals have to execute an act of crime. This corresponds to the routine activity approach from Cohen and Felson (1979) which concentrates on the circumstances in which criminal acts are carried out. It can be seen from Figure 3.10(a) that the level of criminal activities committed during the day is larger than the number committed during the night. During the day, most residents leave their homes to go to work. Usually no one is home and this creates the opportunity for criminals to enter premises undetected. It is also clear from the statistics that there are more burglaries in the areas where there are proportionally more white people, because in most cases both men and women have full-time employment away from home. In rural areas, the chance of not being detected is usually much bigger than in urban areas, because police patrols are concentrated in the urban areas of Stellenbosch and the patrol frequency in the rural areas are lower. The approximate distance between the nearest police station and even

the distance between neighbours, is much larger than within the more urbanised areas within Stellenbosch.

The time of the week also has an influence on the types of crimes that are committed. In Figure 3.10(b) it can be seen that there is a larger frequency of criminal activity during weekends. The types of crimes most often committed during the week are crimes related to property loss and vandalism. Weekends are characterised by the categories of violent crimes and social fabric crimes. Alcohol and drug abuse create the incentive for more violent behaviour and this often leads to violent crimes, usually harming the body of others. Studies worldwide indicate that 50-70 percent of all offenders and victims of violent crimes were under the influence of alcohol at the time of the crime (Butchard, 1996). Another possible explanation for the higher incidence of crimes over weekends can also be ascribed to the fact that wages are usually paid on Fridays and prospective attackers believe that there are large amounts of money on the farms. Traditionally many farmers also go to town on Fridays to pick up their children or provisions and it is therefore easier for attackers to enter the farm or farmstead unobserved. One can therefore come to the conclusion that more police patrols are needed during daytime and over weekends when crime seems more likely to occur.



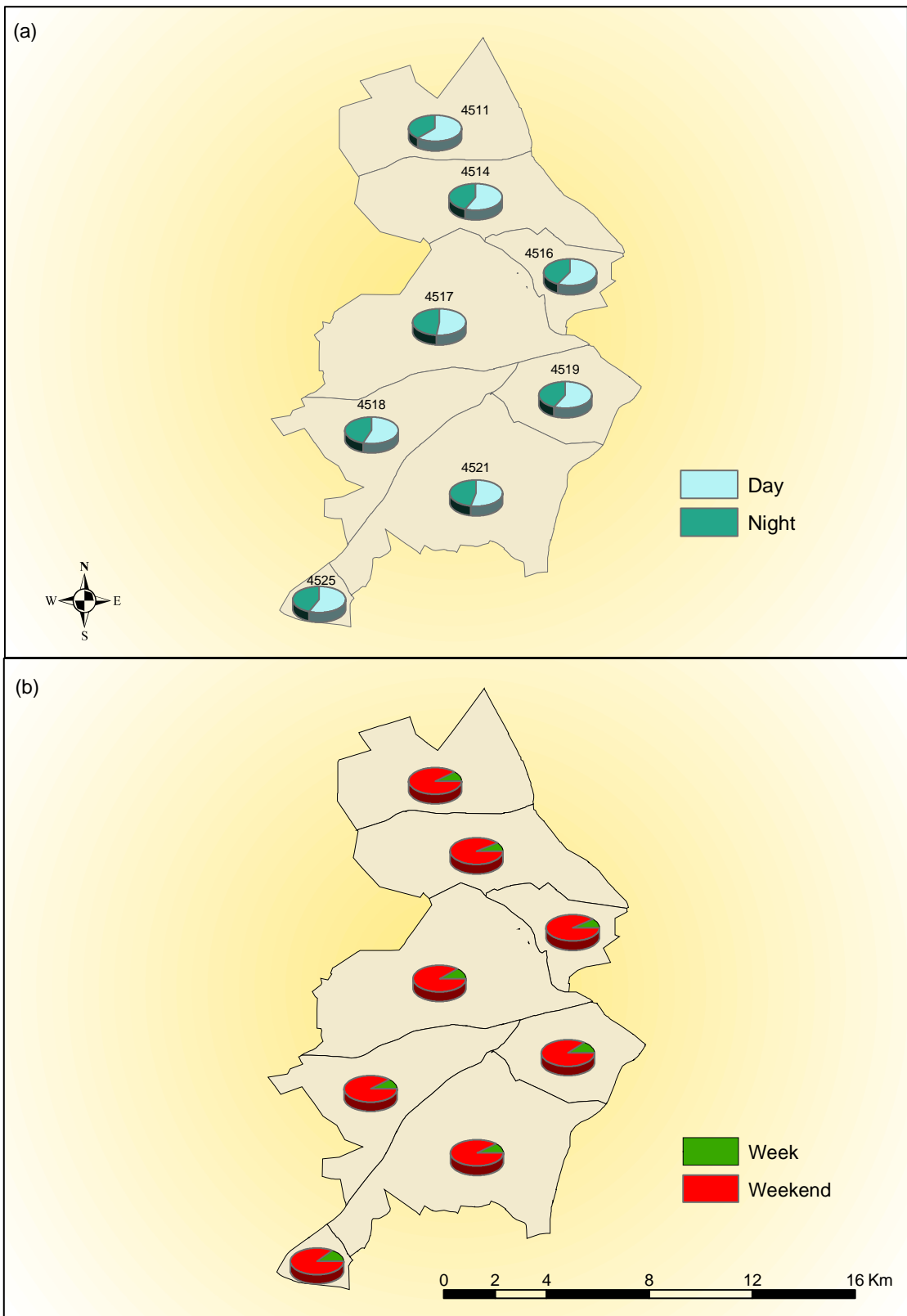


Figure 3.10: Time of day and week when crime is committed (1995-2001)

3.8 Weather conditions

According to previous research, the type of weather has a definite influence on the occurrence of particular types of crime. Both Anderson (1987) and Young (1991) found that violent crime occurs more often during warmer weather in the USA and the Cape Peninsula. Young (1991) ascribes this tendency to the longer daytime hours, more public holidays, more extra-mural activities, school holidays and unemployment of the youth during summer. The weather in Stellenbosch is characterised by sunny summers with minimal rain and rainy and wet winters. Rainfall data for the study area was gathered and used in order to determine whether these assumptions are relevant. According to this hypothesis, there should be a correlation between rainfall and the type of crime being committed. This correlation could either be positive or negative as explained previously. In this application the Pearson correlation will be used, which assumes that two variables are measured on at least interval scales.

The Pearson correlation between the number of violent crimes per month and average rainfall per month was $r = 0,01$ and this correlation was significant at $\alpha = 0,05$ [$r(12) = 0,01$, $\rho < 0,05$]. Although this represents a very low positive correlation between the occurrence of violent crime and the amount of rainfall per month, it is still statistically significant. This however does not provide sufficient evidence to corroborate previous research results that indicate people's moods tend to be worse in warmer weather.

The Pearson correlation between the number of social fabric crimes per month and average rainfall per month was $r = -0,41$, and this correlation was significant at $\alpha = 0,05$ [$r(12) = -0,41$, $\rho < 0,05$]. The regression line in Figure 3.11 shows that there is a strong negative correlation between social fabric crime and the amount of rainfall per month. This means that this crime does take place in warmer weather as hypothesised by Young (1991).

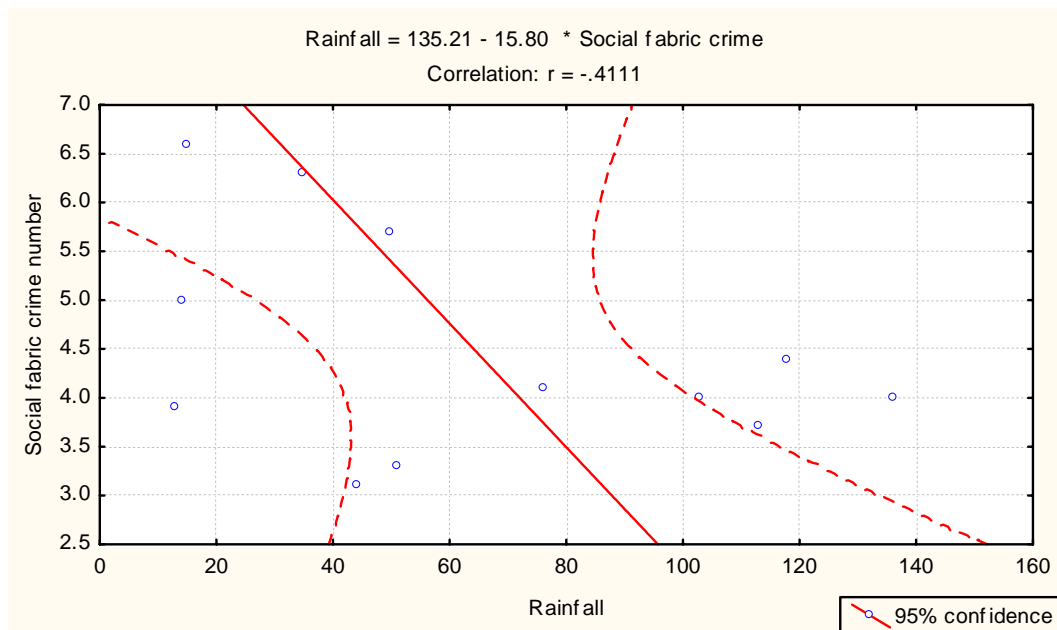


Figure 3.11: Scatter plot: Social fabric crime vs. rainfall

The Pearson correlation between theft of property and rainfall was $r = 0,50$, and this correlation was significant at $\alpha = 0,05$ [$r(12) = 0,50, \rho < 0,05$]. From Figure 3.12, one can see that there is a definite positive correlation between theft of property and the amount of rainfall for a specific month. This shows that the higher the amount of rainfall is, the higher the incidence of theft of property. As theft of property includes both robberies concerning buildings and robberies from vehicles, it can be argued that rainfall is conducive to both these crime categories as the chance of being detected is lessened by the fact that visibility is hampered by bad weather conditions.

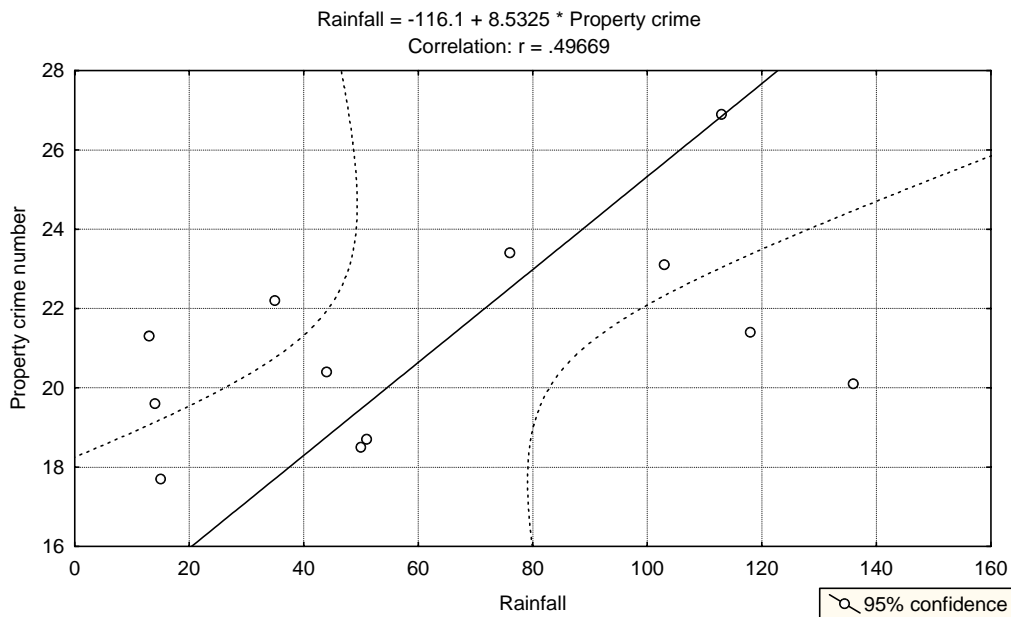


Figure 3.12: Scatter plot: Theft of property vs. rainfall

The Pearson correlation between violence at property crime and rainfall was $r = -0,11$, and this correlation was significant at $\alpha = 0,05$ [$r(12) = -0,11, \rho < 0,05$]. This value represents a low correlation between violence aimed at property and the amount of rainfall per month. The correlation is however negative and thus illustrates that less crime is committed in bad weather conditions. Not too much should be read into this trend because of the low correlation coefficient.

It can be concluded from the results that certain types of crimes are more likely to occur in warmer months and other types in colder months with more rain. Inhabitants should be aware of the possible dangers and employ the necessary precautions during these weather conditions.

3.9 Crime and informal settlements

Crime can be influenced by a variety of factors. One of these factors is the type of area. Proximity of informal settlements is thought to play a major role in explaining spatial crime patterns. Inhabitants of informal settlements and squatter camps are the sub-group in South Africa's population that are most in need of resources. These areas have the highest unemployment rates, highest poverty and thus experience the biggest feelings of material deprivation. The inhabitants of informal settlements have the highest needs and the relation

between need and crime can lead to higher levels of criminal behaviour. The theory of relative deprivation is based on the fact that there are great discrepancies between the part of the population that have and the part of the population that do not have. The need to possess becomes so big that any action will be taken to acquire material possessions.

Informal settlements can also be used as hideouts for criminal syndicates. Not only can criminals find safe havens within these areas where they can conceal their goods, as well as themselves, but it can also be used as centres for the distribution of stolen goods. The inhabitants of these areas usually do not see the need to report perpetrators to the police as stolen goods are sold to them at a fraction of the price and therefore everybody benefits from this arrangement. In many cases inhabitants of these areas also feel threatened by these criminals and do not dare to cause any trouble for fear of their lives. It is therefore difficult for officials of the law to get useful information that would lead to the arrest of perpetrators, as they are protected by the community. The only solution to this problem would be to have a long-term solution where the inhabitants of squatter areas are made aware of the dangers of concealing criminals and the negative impact that the protection of criminals has on their livelihood.

There are no informal squatter areas that fall within the study area, but there are various informal settlements and squatter areas that are situated very close to the study area and have the potential to increase levels of criminal activities adjacent to these areas. There are also many cases where informal settlements are close to wealthy neighbourhoods. From Figure 3.13 one can see from the distribution of crime patterns that property-related crimes are not only committed in more wealthy areas but also in less wealthy areas. Criminals therefore do not only concentrate their focus on the rich but to any situation which leads to a successful outcome. It is true that security is not so prominent in less wealthy areas and the chance for detection is therefore less.

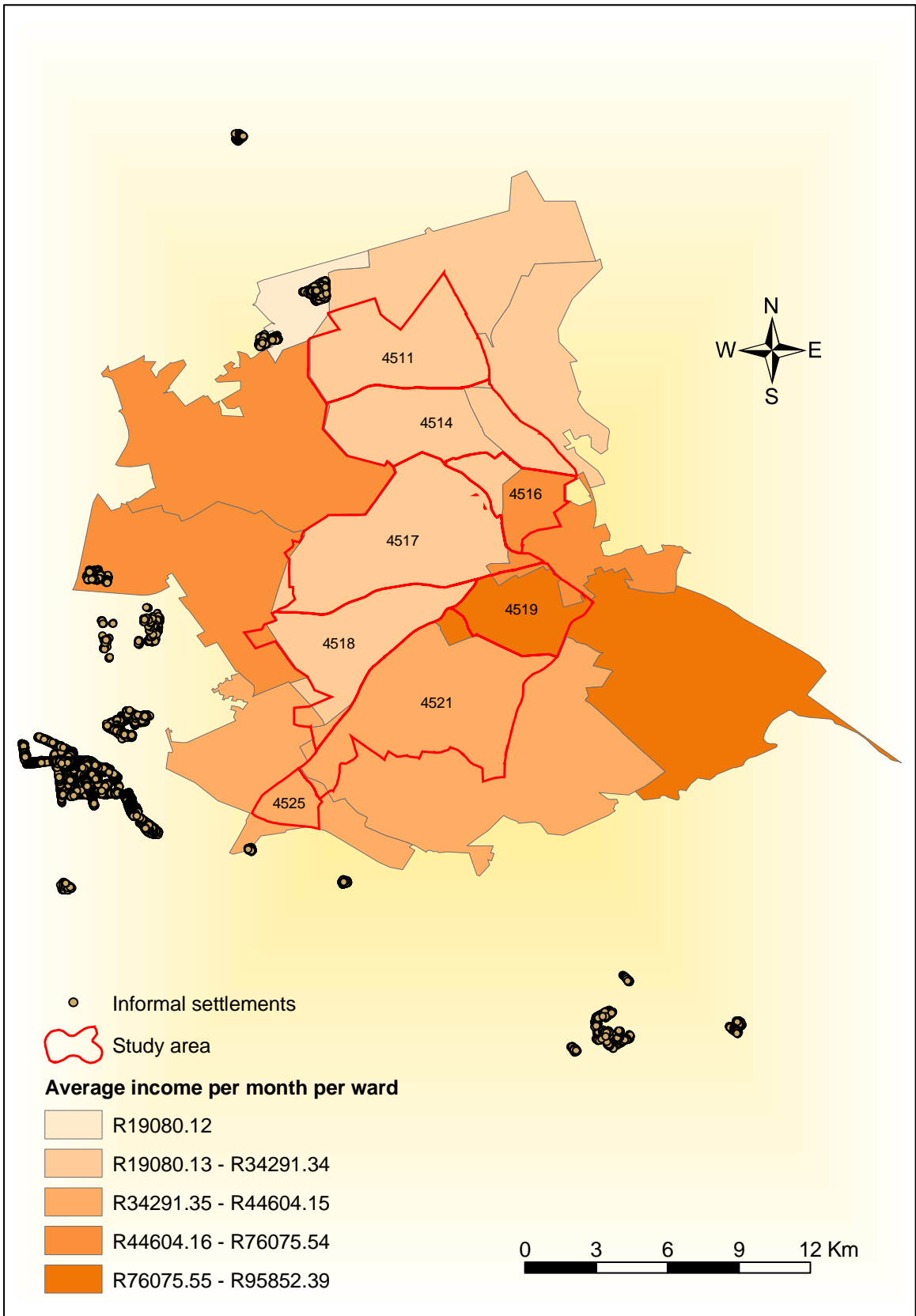


Figure 3.13: Average income and the location of informal settlements
 (Source: South African Census 2001)

3.10 Accessibility to centres of crime

The physical surroundings of a particular area have a significant influence on whether certain types of crime take place or not. Physical barriers to movement could play a significant role in this regard. Environmental information associated with the specific location of crimes is therefore very important for implementing crime prevention strategies. Information about the environment can be used to gain a better understanding of where crimes of a particular nature could possibly take place. The land use of a particular area is an important contributor to crime occurrences. For example many crimes are committed close to land used for transportation. A potential indicator of crime is therefore proximity to major transportation networks. A number of datasets can be used to examine the relationship between environmental data and crime patterns at a strategic level. Figure 3.14 illustrates the major transportation networks within the study area. The three areas that clearly stand out as centers of crime from the analysis are Vlottenburg (CAS 4517), Faure/Lynedoch (CAS 4521) and Kuilsrivier (CAS 4518), with Devon Valley (CAS 4516) following closely behind. The above mentioned areas are all surrounded by, or in very close proximity to the major transportation networks (R44 and R304) running through the study area.

The mentioned demographic and socio-economic indicators/determinants of crime all have a certain degree of influence on the occurrence and prediction of crime. These findings can be used by various parties involved, such as the SAPS, as well as private security companies and ordinary citizens themselves. If preventative measures are implemented, the probability of crime taking place will lessen dramatically.

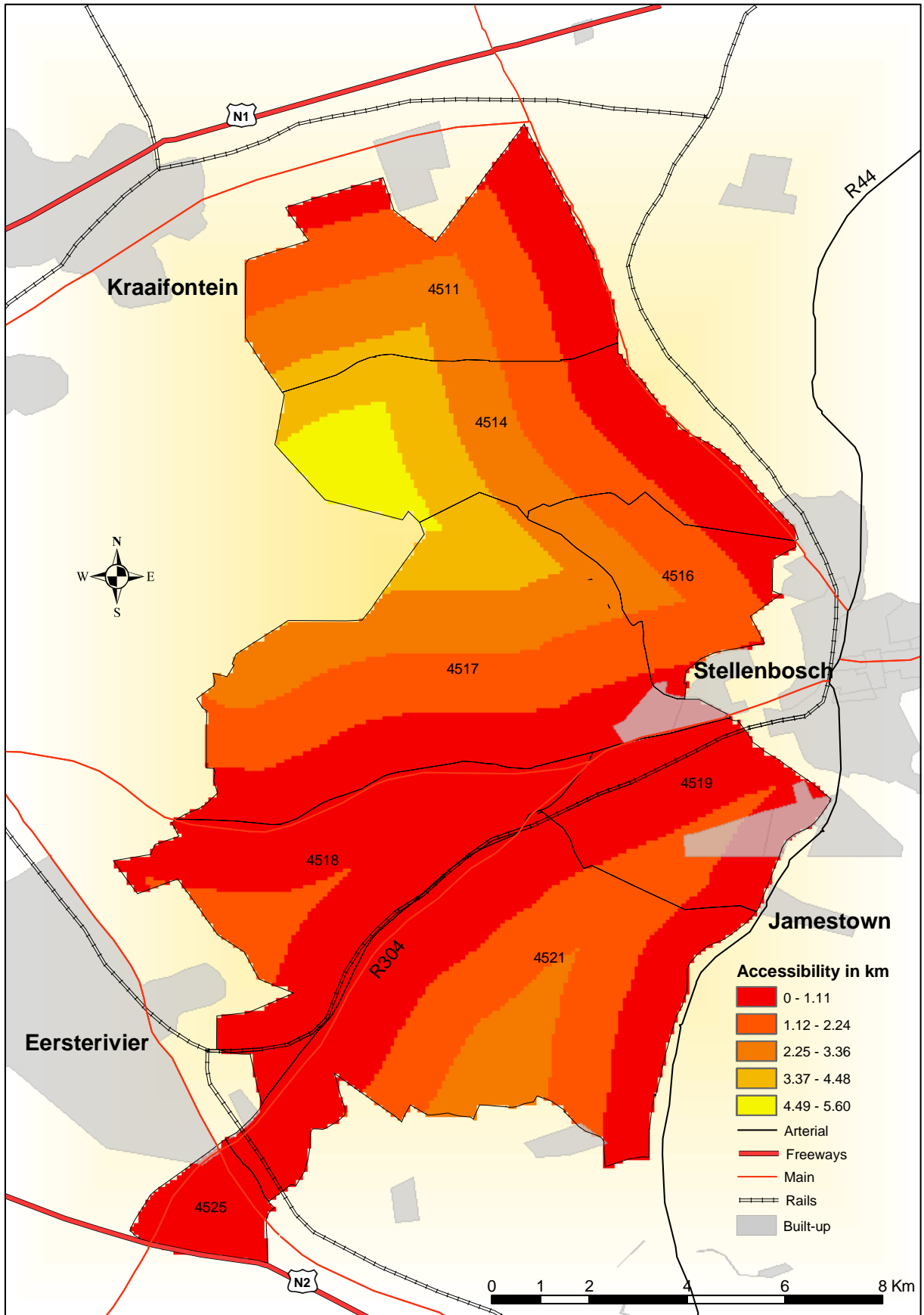


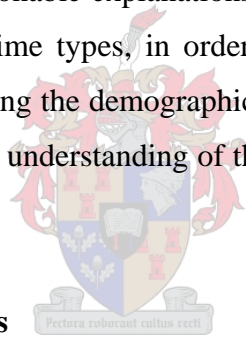
Figure 3.14: Accessibility to study area

CHAPTER 4: CONCLUSION

4 INTRODUCTION

Given the escalation of so-called 'farm attacks' this research endeavoured to shed some light on the rural crime phenomenon, in the Stellenbosch rural district in order to understand the circumstances surrounding crime on farms. This knowledge then leads to a better understanding of the context in which farm attacks occur and thus assists in the creation of better prevention strategies to stop this destructive and economy-crippling activity.

To come to grips with the phenomenon definitions of what a farm attack is and to what extent it is affecting the country's farming community was given. Various theoretical concepts used in criminology was used to explain crime and how these theories can be used in conjunction with each other in order to give reasonable explanations to the reasoning behind such acts. It attempted to analyse the various crime types, in order to describe the situation within the study area. This was done by analysing the demographic and environmental characteristics of the study area in order to get a better understanding of the reasons why certain areas are more affected by crime than others.



4.1 Evaluation of research results

There are two factors that have to be kept in mind when analysing criminal activities. Firstly the motive for the crimes and secondly the causes have to be analysed. Motives usually indicate those influences that drive human behaviour. Behaviour is explained by using various psychological theories. In the case of farm attacks the relationship between the farmer and different groups such as farm workers or other groups with racial issues are explained. Cause is also used to explain human behaviour, but the behaviour of individuals is understood from the context of their norms, values, beliefs and the position that they hold in society. The causes usually associated with crime and farm attacks are the uneven distribution of power and wealth within society.

4.1.1 Defining farm attacks

As mentioned within this research report, it is the manifestation of crimes such as robbery (usually with aggravating circumstances), housebreaking with intent to rob and robbery (usually also with aggravating circumstances), murder, rape, assault with intent to inflict grievous bodily harm, malicious damage to property, arson, etc directed at the farming community. These criminal activities then have the possibility to lead to more dangerous situations. The term ‘farm attack’ is not defined in a dictionary. NOCOC states that “attacks on farms and smallholdings refer to acts aimed at the person of residents, workers and visitors to farms and smallholdings, whether with the intent to murder, rob, rape or inflict bodily harm” (Report of the committee of inquiry into farm attacks, 2003). In addition, all actions aimed at disrupting farming activities as a commercial concern, whether for motives related to ideology, labour disputes, land issues, revenge, grievances, racist concerns or intimidation are included.

4.1.2 Theories explaining crime in rural farming areas

As previously stated, the reasoning behind crime in rural farming areas can be explained by a variety of possible factors. In the South African situation there are various motives behind crime in farming areas. Criminal intent, along with political motivation (land issues), labour disputes and grudges, racism, perceptions of farmers as outlaws and the failure of the criminal justice system to deal with crime in South Africa are commonly cited to explain the phenomenon.

As previously stated, the motivation behind crime in rural farming areas is numerous. Some ascribe it to pure criminal behaviour such as robbery and if the perpetrators are caught in the act, these actions quickly change into more severe situations such as murder or rape. It can also be explained in the context of the historic interaction between black and white communities in South Africa and in the post-1994 period there may be a desire for retaliation for past injustices. Farmers may also be attacked because of labour disputes because they may be perceived as exploiting labour by refusing to better conditions for their farm workers. One should however remember that even though these various theories all give valid explanations, it should always be kept in mind that every attack has its own individual motive and that all

the abovementioned theories are to a greater or lesser extent valid depending on the particular circumstance.

4.1.3 Evaluation of crime sub-groups

Each crime sub-type evaluated in this research has its own unique characteristics and, used in conjunction with each other, can shed light on this problematic situation.

Theft of property has previously been defined as the stealing of another person's property. In the study area theft of property is the most prevalent crime sub-type. It makes up 62% of the total number of crimes committed. As discussed it is also the crime type that in most cases is associated with farm attacks. The areas of Vlottenburg (CAS 4517) and Faure/Lynedoch (CAS 4521) have the highest rates of property-related crimes. These two areas are located close to the major transportation networks and perpetrators have a better chance to escape faster and undetected. The Vlottenburg and Faure/Lynedoch areas are also characterised as less wealthy areas and privately initiated security measures are not very prominent in such areas.

Social fabric crimes are crimes against a person's right to protect his or her own body. Social fabric crime is the second most prevalent crime sub-group in the study area, with 23% of the total. The Faure/Lynedoch (CAS 4521) and Vlottenburg (CAS 4517) have the highest rate of social fabric crimes. The third highest ranking goes to Koelenhof/Elsenburg (CAS 4511). These two areas are characterised as less wealthy areas and social fabric crimes usually go hand in hand with various social pandemics. Poverty does not only affect the monetary livelihood of the needy, but it also has a huge affect on the sense of social responsibility that the inhabitants of these areas have. Substance abuse is one of many problems that results directly from need and in many cases, social fabric crimes are committed by those abusers. It is also true that single mothers are caught up in the cycle of poverty and they do not always have the resources to provide sufficient care to their dependents. Many have to go to work and do not have a responsible person that could take care of their children. These children are then left alone at home or are left with someone who is not fit to look after them. In many cases the perpetrators are those who were left in charge of caretaking.

Violence aimed at property are crimes that cause damage or destruction to property. Three areas namely Devon Valley (CAS 4516), Vlottenburg (CAS 4517) and Faure/Lynedoch (CAS 4521) have the highest crime rate of this type in the area. Devon Valley is situated in the second highest income area within the study area. The area is rural in nature occupying varying farming activities which generate higher incomes. This directly corresponds to the fact that violent acts against property occurs mostly within this area. The notion holds ground to the theory of the struggle between those who have and those who do not have. It is a malicious act to compensate for feelings of inequality.

Violent crimes are crimes committed against the person of another human being, usually ending in death or serious injury. It shows that the Faure/Lynedoch (CAS 4521) area also has the highest rates for violent crimes. The two runner-up areas are Vlottenburg (CAS 4517) and Kuilsriver road (CAS 4518). Income can again be used as a determinant that leads to this specific crime type. Various types of substance abuse occur in areas with monetary need which in turn leads to situations leading to the unnecessary loss of life.

The mapping of the statistics obtained from the SAPS shows that the Faure/Lynedoch (CAS 4521) and Vlottenburg (CAS 4517) areas definitely have the highest crime rate when compared to the other areas. Other areas that also have higher crime rates are Devon Valley (CAS 4516) and Kuilsriver road (CAS 4518). These areas are in need of more frequent patrolling and a higher level of protection.

4.1.4 Demographic and socio-economic determinants

The racial history of South Africa is a topic that can be extensively discussed because of the many social injustices it supported. In most cases it was the catalyst for feelings of hate between the different racial groups in South Africa. It is therefore important that the racial structure within the study area is understood in order to give possible explanations for the occurrence of certain acts of crime. The analysis shows that the Coloured population group is in the majority in all CAS blocks except blocks 4516 and 4519 where the White population make up more than 60% of the population structure. The Black/African population group comprises less than 10% in the study area. The Indian/Asian group is even less than all the other racial groups and make up about 5 percent of the population in the study area. The sex

of offenders can also play an indicative role in crime research. The ratio between males and females is equal. This means that the assumption that crime is committed more by the male population or that females are more likely to be victims of crimes cannot be upheld. These observations do not imply that certain racial or gender groups are responsible for crime and violence in certain areas. The knowledge obtained should be used in conjunction with each other to provide reasonable and well-founded explanations.

Experts agree that there is a definite relationship between age and crime. The age-crime relationship is especially influenced by another important variable of crime, namely poverty. In South Africa as a result of discrimination and the deliberate underemployment of the black population during the apartheid era, resulted in the white population being economically advanced (Naude, 2000). Poverty is a major problem and people from all age groups are increasingly turning to crime. Previous studies have also shown that people in age cohorts with a large population are more likely to commit crime, ascribed to increased competition among these individuals.

South Africa's political context may also be at the root of the problem as its immediate past has been characterised by the struggle to end apartheid and institute democracy. During this political unrest, the youth played a very active role in opposing the apartheid system. Alienated from society, youth gangs provided social cohesion and identity for many of its members who were searching for a place in society. In some youth sub-cultures, drug and alcohol abuse have contributed to escalating crime. The population group between the ages of 5 and 19 years comprise about 30% and the age cohort between 20 and 29 years makes up another 20% of the total population in the study area. Most criminal offenders fall into these two age cohorts. This means that the population usually associated with committing crime comprise about 50% of the total population of the study area. It would be incorrect to state that the younger age cohort is responsible for offences, as the numbers associated with the younger age cohort in the areas with the highest crime rates is not out of proportion with the rest of the study area.

Like other causal variables for crime, economic variables such as unemployment and poverty have been used as explanatory variables for a long time. In explaining the relationship between economic variables and crime, the hypothesis that unemployment and/or low-income individuals will manifest higher crime rates than employed and/or high-income individuals is

usually upheld. A discussion of the relationship between economic variables and crime cannot be complete without giving attention to the concept of relative deprivation. Historically shaped structural deprivation, unemployment and under development in the South African society provide the key to an understanding of the increasing levels of crime. Unemployment in the study area only comprises of about 10 percent of the inhabitants. Where all the CAS blocks only show five percent of the inhabitants as unemployed, CAS block 4525 has more than 10 percent of its inhabitants unemployed. This is however not reflected in the crime statistics as CAS 4525 does not yield the highest crime rates.

Demographic and socio-economic differences act as incentives for criminal activity. Disparities in wealth, social development, access to resources and relative deprivation are underpinning criminal activity and could pose as an explanation for criminal activity. A large number of these disparities have their roots in the preceding era and are largely coinciding with racial differences. In combination these factors can be used as a rationale for explaining criminal activity.

4.1.5 Evaluation of external determinants

The phenomenon of crime in rural farming areas needs to be analysed in the context of the crime situation in general. The underlying reasons for crime are diverse and need to be taken into account when interpreting the causes of crime in South Africa. Environmental characteristics also have to be taken into account when searching for explanations.

The use of GIS often leads to an undue emphasis on the spatial attributes of a specific research problem, to the neglect of another component, namely time. The analysis showed that criminal activities are mostly committed during the day. Most residents leave their homes during the day to go to work and usually no one is at home, which creates the opportunity for criminals to enter premises undetected. The analysis also showed that there are more burglaries in the areas where the White population group is disproportionately located. The frequency of patrol cars in the rural areas is also much lower because the distance to the nearest police station is much larger than within the more urbanised areas within Stellenbosch.

The time of the week also has an influence on the types of crimes that are being committed. Weekends are characterised by higher levels of criminal activity. The types of crimes most often committed during the week are crimes relating to property loss and vandalism. Weekends show higher levels of crime in the violent crime and social fabric categories. As alcohol and drug abuse are fairly common during weekends, the chance that tempers flare are more likely and this can lead to violent behaviour usually harming the bodies of others. Another explanation for the increase in crime over weekends is that wages are usually paid on Fridays. This means that more money is available for purchasing liquor. Traditionally farmers also go to town on Fridays to pick up their children or provisions and it is therefore easier for attackers to enter a farm or farmstead unobserved. It is therefore realistic to expect that more patrols are needed during daytime and especially over weekends when crime seems more likely to occur.

Another element that could play a role in the occurrence of certain crime types are weather conditions. Previous research studies have shown that crime is more likely to increase in warmer weather conditions with longer daytime hours, more public holidays, more extra-mural activities and school holidays during summer. The weather in Stellenbosch is characterised by sunny summers with minimal rain and rainy and wet winters. The correlation between violent crime and rainfall was positive and although the correlation was not very strong it does not provide sufficient evidence to support the notion that people tend to be more violent in warmer weather conditions. There was a strong negative correlation between social fabric crime and the amount of rainfall per month, which means that the less it rains the more this crime takes place. This notion makes sense because it is less likely for people to wander around in deserted places during bad weather conditions. In more rural areas, crimes such as rape are more likely to occur in good weather conditions when inhabitants are more likely to wander around. A definite positive correlation was established between property-related crimes and the amount of rainfall for a specific month. This shows that the higher the amount of rainfall is, the higher the incidence of property-related crimes is. As property-related crimes include both robberies concerning buildings and robberies from vehicles, it can be argued that rainfall is conducive to both these crime categories as the chance of being detected is lessened by the fact that visibility is hampered by bad weather conditions. The correlation between violence aimed at property crimes and rainfall was slightly negative and illustrates that less crime is committed when weather conditions are good. This result cannot be taken

too seriously because of the low correlation coefficient. It indicates that weather conditions have an influence on certain crime types being committed; therefore inhabitants should employ the necessary measurements for protecting themselves and their property.

Another factor that should be considered in relation to crime is the proximity of informal settlements. The inhabitants of informal settlements and squatter areas are most in need of resources, as these areas are characterised by the highest unemployment and poverty rates. The theory of relative deprivation once again may be relevant to this situation because of the great discrepancies between the different social classes. Informal settlements are also used as hideouts for criminal syndicates as criminals find safe havens to conceal their goods, as well as themselves. These areas are also used as centres for the distribution of stolen goods, because inhabitants of these areas are only too happy to receive these goods and do not see the need to report perpetrators to the police. Although there are no informal settlements or squatter areas in the study area, there are a number close by and all these squatter areas are connected to the study area by means of the major transportation networks in the area.

The surroundings of a particular area have significant influence on whether certain types of crime take place or not. Environmental information associated with the specific location of crimes is very important for the implementation of crime prevention strategies. Information regarding the position of the study area in relation to features such as land use, transportation networks, etc. can be used to gain a better understanding of where crime of a particular nature takes place. The scale of the study and the aggregated nature of the data did not allow a full analysis of these relationships.

4.2 Recommendations for the future

Crime in rural areas (including farm attacks) is a major problem not only because it disrupts the economy, but also negatively affects the daily lives of every farmer and farm worker in the country. Farmers are the producers of food, givers of job opportunities and generators of income from abroad. They should thus receive the necessary protection from the security forces. An immediate change in protection for the farmers and rural community of our country is therefore necessary. Being far away from police stations and emergency services, this community is in a very vulnerable position in terms of their physical well-being and in

accordance to the Bill of Rights it is every South African's democratic right to receive the protection that is rightly deserved (Constitution of the Republic of South Africa, 1996).

This thesis endeavoured to shed light on the crime situation in the rural community around Stellenbosch. Different types of crime were analysed to point out various danger situations and provide a benchmark against which they can evaluate their current situation. Necessary precautions to implement preventative measures to make their living environment safe and secure can then be implemented. The analysis also aimed at providing information on the current situation in the study area in order to create awareness of the incidence of the types of crimes taking place.

The major drawback of this study was the coarseness of the spatial data. Future studies should attempt to use police statistics in point location format for identifying exact hotspots that would assist in creating better prevention strategies. Currently the SAPS does not provide this data type, but some local police stations do record crime in this format. Various other indicators, such as the profiles of offenders, can shed light upon the motivation of offenders to determine why they commit crime and what influences their decisions and if there is political motivation behind the attacks on farms and smallholdings. Combining offender information with data containing details about the layout of farm buildings, access to farms and information about workers on the farm will also provide insight behind the motivation for these crimes. Further studies can also include the creation of a real-time database that can be used to provide immediate information on certain areas for use by the SAPS and safety forces that are responsible for the protection of rural areas.

REFERENCES

- Anderson CA 1987. Temperature and aggression: Effects on quarterly, yearly and city rates of violent and non-violent crime. *Journal of Personality and Social Psychology*, 56:1161-1173.
- Bowers K & Hirschfield A 1999. Exploring links between crime and disadvantage in northwest England: An analysis using geographical information systems. *International Journal of Geographical Information Science*, 13(2):159-184.
- Butchard A 1996. Violence prevention in Gauteng: The public health approach. *Acta Criminologica*, 9(2): 5-15.
- Clegg M & Robson M 1995. May the force be with you ... as quickly as possible using GIS. *Mapping Awareness*. 9(5):30-33.
- Cloete MGT, Prinsloo JH & Coetzee MR 1993. Paradigms within South African criminology. *Acta Criminologica*, 6(3):42-48.
- Cohen L & Felson M 1979. Social Change and crime rates. *American Sociological Review*, 44: 588-608.
- Craglia M, Haining R & Wiles P 2000. A comparative evaluation of approaches to urban crime pattern analysis. *Urban Studies*, 37(4):711-729.
- Crime Information Analysis Centre 1999. *Attacks on farms and smallholdings*, 1(99).
Pretoria: Crime Information Analysis Centre.
- DeKlerck J & Depuydt A 2000. A conceptual exploration of fundamental crime prevention. *Acta Criminologica*, 13(2):57-63.
- Du Preez J 1980. *Handboek oor beveiliging in Suid-Afrika*. Johannesburg: Perskor.
- Ekblom P & Tilley N 2000. Going equipped: Criminology, situational crime prevention and

- the resourceful offender. *The British Journal of Criminology*, 40:376-398.
- Evans DJ & Herbert DT 1989. *The geography of crime*. London: Routledge.
- Fox JA (ed.). 1981. *Models in quantitative criminology*. New York: Academic Press.
- Georges-Abeyie DE & Harries KD (eds.). 1980. *Crime: A spatial perspective*. New York: Columbia University Press.
- Georges-Abeyie DE 1978. *The geography of crime and violence: A spatial and ecological perspective*. Washington, DC: Association of American Geographers.
- Glanz L, Mostert WP & Hofmeyer BE 1992. *An analysis of South African crime statistics: Convictions for the period 1956 to 1988*. Pretoria: RGN.
- Gottfredson MR & Hirschi T (eds.). 1987. *Positive criminology*. Beverly Hills: Sage.
- Graf K 1999. *The dynamics of serious crime*. CIAC: Pretoria.
- Haefele B 1998. Violent attacks on farmers in South Africa: Is there a hidden agenda? *Acta Criminologica*, 11(2):9-18.
- Harries KD 1974. *The geography of crime and justice*. New York: McGraw-Hill.
- Hirschfield A, Brown P & Todd P 1995. GIS and the analysis of spatially referenced crime data: Experiences in Merseyside, U.K. *International Journal of Geographical Information Systems*, 9(2):191-210.
- Hirschi T & Gottfredson MR 1983. Age and explanation of crime. *American Journal of Sociology*, 89: 552-584.
- Ireland P 1998. Helping police with their enquiries. *Mapping Awareness*, 12(3):20-24.
- Keplinger DH & Weis JG 1985. Projecting crime rates: and age, period and cohort model

- using AIMA techniques. *Journal of Quantitative Criminology*, 1(4): 387-416.
- King P 1999. Locating histories of crime: A bibliographical study. *The British Journal of Criminology*, 39(1):161-169.
- Land KC, Cantor D & Russel ST 1995. Unemployment and crime rate fluctuations in the Post-World War II United States. Statistical time-series properties and alternative models. In: Hagan J & Peterson RD (eds.) *Crime and inequality*. Stanford, CA: Stanford University Press: 55-79.
- Lejins PP 1967. 'The field of prevention', in Amos, W.E. & Wellford, C.E. (eds.) *Delinquency prevention: Theory and Practice*. Englewood Cliffs: Prentice Hall.
- Livingston J 1996. *Crime and Criminology*. Second edition. New Jersey: Prentice Hall.
- Lochner FC 1995. Die samestelling en benutting van 'n geografiese inligtingstelsel vir polisiëring in die Paarl. MA-tesis. Stellenbosch: Universiteit van Stellenbosch (Departement Geografie en Omgewingstudie).
- Mandela N 1998. Address by President Nelson Mandela to the summit on rural safety and security. [Online] 10 October. Available: <http://www.anc.org.za/ancdocs/history/Mandela/1998/nm1010.html> [15.08.2001].
- Merton RK 1968. *Social theory and social structure*. Free Press: New York.
- Moolman N 1999a. Research findings on farm attacks in South Africa. *Acta Criminologica*, 12(1): 27-34.
- Moolman N 1999b. Explaining farm attacks in South Africa. *Acta Criminologica*, 12(2):48-55.
- Moolman N 2000a. The socio-political background of farm attacks in South Africa. *Acta Criminologica*, 13(1):49-56.

Moolman N 2000b. Farm attacks: Are there any ulterior motives? *Acta Criminologica*, 13(2):64-74.

Muncie J, McLaughlin E & Langan M (eds.). 1996. *Criminological Perspective: A Reader*. London: Sage.

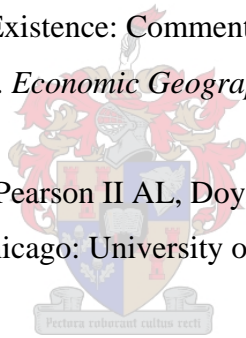
National Crime Prevention Strategy (NCPS). 1996. Pretoria: State Press.

Naude B 2000. The South African National Crime Prevention Strategy: A critique. *Acta Criminologica*, 13(2):1-11.

Nomoyi C 2000. The incidence of violent crime in the rural areas of South Africa: A challenge to indigenous institutions? *Acta Criminologica*, 13(1):66-71.

Pred A 1977. The Choreography of Existence: Comments on Hagerstrand's Time-Geography and its usefulness. *Economic Geography*, 53:207-220.

Pyle GF, Hanten EW, Williams PG, Pearson II AL, Doyle JG & Kwofie K 1974. *The spatial dynamics of crime*. Chicago: University of Chicago.



Report of the committee of inquiry into farm attacks. [Online] 31 July. Available: <http://www.saps.gov.za/farmat/index.htm> [13.10.2003]

Sampson RJ & Groves WB 1989. Community structure and crime testing social-disorganisation theory. *American Journal of Sociology*, 94:774-802.

Sampson RJ 1995. The community. In Wilson, J.Q. & Petersilia, J. (eds.). *Crime*. San Francisco: Institute for Contemporary Studies. 193-216.

Schmallegger F 1996. *Criminology Today*. New Jersey: Prentice Hall.

Schonteich M 2000. *Attacks on farms and smallholdings: An evaluation of the rural protection plan*. Pretoria: Institute for Security Studies.

Sellin T & Wolfgang M 1964. *The measurement of delinquency*. Montclair: Patterson Smith.

Shavit Y & Ratner A 1988. Age crime and the early life course. *American Journal of Sociology*, 93(6): 1457-1470.

Steffensmeier DJ & Allan EA 1995. Age-Inequality and Property Crime: The Effects of Age-linked Stratification and Status-Attainment Processes on Patterns of Criminality Across the Life Course. In: Hagan J & Peterson RD (eds.) *Crime and inequality*. Stanford, CA: 95-115.

Van Wyk A 2001. Oorlog teen boere: Plaasmoorde kan land verwoes. *Beeld*, 12 March:12.

Van Zyl Smit D 1999. Criminological ideas and the South African transition. *The British Journal of Criminology*, 39(2):198-215.

Walkate S 1998. *Understanding criminology: Current theoretical debates*. Buckingham: Open University Press.

Welsh BC & Farrington DP 1999. Value for money?: A review of the costs and benefits of situational crime prevention. *The British Journal of Criminology*, 39(3):345-367.

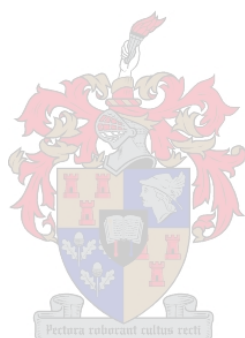
Wilkinson WJ 1997. Health inequalities: relative or absolute material standards? *British Medical Journal*, 31:591-595.

Worboys MF 1994. Object-oriented approach to geo-referenced information. *International Journal of Geographical Information Systems*, 8(4):385-399.

Young CA 1991. Violent crime in the Cape Peninsula: Some Geographical and Meteorological Aspects. Honours Report, University of Stellenbosch, Stellenbosch.

PERSONAL COMMUNICATIONS

Schwabe, C.A. 2002. Head of the Geographic Information Centre, Human Sciences Research Council of South Africa. Pretoria. Interview on 25 September 2002 regarding the use of theories in criminology.



APPENDICES

Appendix A: Sellin and Wolfgang typology (1964)

Class	Category	Defining characteristics
I	A	Bodily injury
I	B	Property theft
I	C	Property damage
II	D	Intimidation (to hurt person)
II	E	Intimidation with property loss threats
II	F	Primary victimisation only (involving a 'personalised victim')
II	G	Secondary victimisation only: "secondary victimisation generally refers to commercial establishments, such as department stores, railroads, theatres, chain stores and churches. The victim is impersonalised but not diffusive as to include the community at large".
II	H	Tertiary victimisation only: "a very diffusive victimisation that extends to the community at large and includes offences against the public order, social harmony or the administration of government".
II	I	Mutual victimisation only: "the participants engage in mutually consensual acts that are violations of the law, for example, fornication, adultery, or statutory rape".
II	J	No victimisation only: "'juvenile status' offences".