A STUDY OF THE RELATIONSHIP BETWEEN PERSONALITY FACTORS AND ATTITUDES TOWARDS PERCEIVED PROBLEM ANIMALS IN WHITE SMALL-STOCK FARMERS OF THE EASTERN CAPE

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ABSTRACT

This study explores a possible relationship between personality factors and attitudes towards perceived problem animals in a sample of 17 white, male, full-time small-stock farmers in the Eastern Cape district of Cradock. Personality factors were analysed by means of Cattell's 16 Personality Factor Questionnaire, standardised for South Africa. Attitudes were determined by qualitative analysis of data from semi-structured interviews. Specific personality factors associated with positive and negative attitudes towards 'problem animals', including Lynx *Felis caracal*, eagles and vultures, were identified. Demographic and situational influences and certain world views associated with environmental attitudes are also discussed. Re-orientation of perspectives are recommended for farmers, conservationists and environmental educators.

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PREFACE

This study was co-supervised by Prof. P.R. Irwin and Mr. G.J. Euvrard, both of the Department of Education, Rhodes University. Mr. Euvrard is a registered psychologist who supervised the application and interpretation of the 16 Personality Factor Questionnaire. The researcher deeply appreciates the generous and non-prescriptive way in which supervision was conducted.

Acknowledgement is due to Dr. A.F. Boshoff, Director of the Eastern Cape Research Unit of the Chief Directorate: Cape Department of Nature and Environmental Conservation, with whom the research idea originated.

The researcher is furthermore indebted to the Endangered Wildlife Trust who funded the study.

As far as the researcher knows this study is the only one of its kind in southern Africa and no other was thus available to draw on for guidance.

CHAPTER 1
INTRODUCTION

I live in a brittle environment ...
Cradock farmer on his main farming problem

During the past three decades there has been an increasing awareness of both the fine balance of the earth's life support systems and the extent to which the quality of human life depends upon this balance. Concern has mounted for the environmental problems of our planet and people's vulnerability to these problems. At the same time there has been a growing awareness of the human role in the origins of environmental issues.

Several factors have led people to be destructive towards the natural environment. These include increasing population pressure, advanced technology and an historical attitude which prevailed in Western industrialised societies, of man dominating over nature (Ittelson *et al.* 1974). In this value orientation the natural environment is regarded as something to be subjugated and controlled, solely for human ends. Caldwell (1970) suggested that

> the environmental crisis is an outward manifestation of a crisis of mind and spirit. There could be no greater misconception of its meaning than to believe it to be concerned only with endangered wildlife ... the crisis is concerned with the kind of creatures we are and what we must become in order to survive.

A widely held view is that, to ensure human survival and improve the quality of life, a re-orientation is needed - away from people **over** nature, towards people **with** nature. "A new ecological ethic is called for ... which recognizes man as an integral part of nature, living in harmony with his environment" (Irwin 1989: 3). In the opinion of Huckle (1983: 99) ecology has become "part of distinctive environmental philosophies which claimed to describe the

transformations in human ethics and society which were necessary to ensure our continued evolution with nature". Irwin (1989: 3) describes this view as "the very essence of Environmental Education".

Environmental Education is regarded internationally as "a major means, if not the most important potential means, of achieving responsible attitudes and effective behaviour towards the management of our total environment" (Irwin 1988: 7). At the world's first Intergovernmental Conference on Environmental Education in Tbilisi in 1977, the fundamental aims of Environmental Education were identified. These included helping individuals and communities to understand the complex nature of their environments, as well as to acquire the knowledge, values, attitudes and practical skills which would enable them to participate responsibly and effectively in anticipating and solving environmental problems, and managing the quality of the environment (Connect 1978). To achieve these aims, it was suggested that Environmental Education should bring about a closer link between educational processes and real life, "building its activities around the environmental problems that are faced by particular communities" (*Connect* 1978: 2). Studies exploring such problems in communities, thus have an important role in the educational process. The Tbilisi Conference's recommendations include the conduct of

> research concerning ... the knowledge and attitudes of individuals, in order to identify more precisely the most effective educational conditions ... as well as obstacles to the modification of concepts, values and attitudes held by individuals, and the use of these concepts, values and attitudes in relation to environmental behaviour
>
> (*Connect* 1978: 6).

The aim of this research is to explore the possibility of a link between personality and environmental attitudes in a community of white farmers, an aim which is in accordance with the above recommendation.

White farmers are an important audience for Environmental Education, for two reasons. Firstly, approximately 75% of the total South African land surface is currently owned and managed by this group (Benson 1988). Secondly, there is reason for grave concern about the way in which farmers in general have managed these vast areas (MacDonald 1989). The semi-arid regions used for extensive agriculture, such as small-stock farming in the Karoo, are today regarded as "the most threatened life-support systems in South Africa" (*African Wildlife* 1981). Long-standing, widespread and insidious agricultural malpractices have led to degradation of the land, as described by Acocks (1975) and Boshoff (1980), and in MacDonald (1989). A number of scientists believe that vast retrogressive, ever more radical changes in

the vegetation of the Eastern Cape and other parts of the Karoo are caused mainly by overgrazing and mismanagement (Roux and Van der Vyver 1988). Such changes lower the land's carrying capacity and lead to massive top-soil loss. In the view of Roux (1986: 287) "economic circumstances proved an incentive to overgraze the Karoo, and it is estimated that the carrying capacity of the region is currently exceeded by 40% - which represents three million too many small stock".

Another agricultural malpractice is the use of toxic substances in a variety of applications (Steyn 1989). This has widespread and long-lasting detrimental effects on the environment, including the pollution of the food chain and the destruction of wildlife, many of which are useful to the farmer. MacDonald (1989) warns that improved land-use practice is crucial if essential ecological processes, and hence long-term human health and well-being, are to be maintained.

The aspect of land-use practice that is addressed in this study is the management of wild avian and mammalian predators and scavengers that share the land with domestic stock. Many farmers connect wildlife with stock losses and often persecute what they perceive to be problem animals. Indiscriminate persecution may disturb predator-prey relationships. It has been hypothesised for example that such disturbances have caused an increase in the number of Caracal *Felis caracal* (Pringle and Pringle 1979), and the expansion of the range of the Rock Hyrax *Procavia capensis* in the Karoo (MacDonald 1989). Furthermore, persecution of perceived problem animals has been linked to the decreasing numbers and ranges of 'non-target' species such as eagles and vultures (Allen 1989, CDNEC undated, Lloyd and Millar 1983, Stuart 1981).

Boshoff (1980), the Director of the Eastern Cape Research Unit of the Chief Directorate: Cape Department of Nature and Environmental Conservation (CDNEC), reported on a survey of raptors in the Cape Province. As a result of visits to white small-stock farmers he developed the hypothesis that there may be a link between a farmer's personality and his readiness to regard predation by wildlife as a problem (Boshoff, Pers. comm. 1989). Jointly with Boshoff, the writer felt that an investigation of a possible relationship between personality and attitudes towards perceived problem animals would be of value, for the following reasons:

* It could provide knowledge in the field of personality and environmental attitudes in general - an area in which little is known, especially in the southern African context.

* It could contribute to insights needed to develop an appropriate educational approach aimed at the sustainable utilisation of the valuable natural resources under the control of white small-stock farmers.

On the basis of Boshoff's hypothesis the writer decided to conduct a small research project in a population of white, male, full-time small-stock farmers in the district of Cradock in the Eastern Cape. The aim of the research was to explore these farmers' attitudes towards wildlife which they may perceive as problem animals, as well as their personalities, in order to investigate a possible relationship between personality factors and these attitudes.

Mammals which may be perceived as problem animals and which occur in the Cradock district include the Black-backed Jackal *Canis mesomelas*, the Cape Fox *Vulpes chama*, the Bat-eared Fox *Otocyon megalotis*, the Aardwolf *Proteles cristatus*, the African Wild Cat *Felis lybica* and the Caracal *Felis caracal* or, as it is known among English-speakers in the study population, the Lynx (Skead 1987). (For the sake of consistency the term Lynx will also be used throughout this thesis.) Large raptors occurring in the study area are the Black Eagle *Aquila verreauxii*, the Tawny Eagle *Aquila rapax*, the Martial Eagle *Polemaetus bellicosus* and the Cape Vulture *Gyps coprotheres* (Roberts 1986, Steyn 1982).

The **perspective** of this study is that of Psychology in Environmental Education. The **design** is a small-scale survey in a single community, and the **methods** used are observation, the research interview and a standardised personality assessment questionnaire. Due to the limited scope of the half-thesis, not all data obtained from the research can be presented here, but will be published in separate papers. This text mainly concerns itself with the nature of a possible relationship between farmers' personalities and their attitudes towards perceived problem animals in their environment. It attempts to do this within a holistic perspective of the 'problem animal' issue.

The research is based on the principles and assumptions of the post-positivist or 'new' paradigm (Reason and Rowan 1981), although elements from the orthodox scientific approach are retained where most appropriate. The view of Husen (1988: 19), who notes the need for a "pluralism of approaches" and the complementary nature of the positivist and new paradigms, is followed. While the study was approached as a rigorous and systematic search for empirical data and insights, the researcher is at the same time aware that conclusions drawn from research in the human sciences are often indeterminate and tentative.

In new paradigm research, there is generally considered to be value in researchers giving some personal background to elucidate their approach to a specific project. In this case, the researcher is an Afrikaans woman who grew up in the Cradock district, although not in a farming family. She has a background in medical science and Psychology and was studying Environmental Education at the time of the research. While she believes strongly that humankind needs to live more responsibly and respectfully with nature, she is also concerned about people's psychological well-being; firstly, for the sake of people themselves and secondly, because of human-environmental interaction. This study of possible psychological reasons for people's environmental attitudes and behaviour, has its roots in both these areas.

Appendix 1 contains two illustrations of the typical terrain of the Cradock district, as well as a map of the Eastern Cape which indicates places referred to in the text. These include the two nature conservation areas situated in the study area, the Mountain Zebra National Park and the Kommandodrift Nature Reserve, which are managed by the National Parks Board and the CDNEC respectively.

CHAPTER TWO
LITERATURE REVIEW

God will not seek thy race, nor will he ask thee thy birth; alone he will demand of thee - "What hast thou done with the land I gave thee?"

Ancient Persian proverb

Two main areas are addressed in the review of literature relevant to this study. They are:

2.1 The 'problem animal' situation in the Cape Province, and

2.2 The relationship between personality, attitudes and actions

2.1 THE 'PROBLEM ANIMAL' SITUATION IN THE CAPE PROVINCE

The World Conservation Strategy of 1980 identifies three main objectives for living resource conservation which must be achieved as a matter of urgency:

* to maintain essential ecological processes and life-support systems
* to preserve genetic diversity
* to ensure the sustainable utilisation of species and ecosystems

(WCS 1980).

If the situation of perceived problem animals in the Cape Province is examined in the light of the above objectives, it appears that important ecological changes have already taken place. Firstly, there has been a reduction in avian predators (such as Black Eagles and Martial Eagles), which is thought to have enabled the Rock Hyrax to extend its overall range within the Karoo (MacDonald 1989). This is to the detriment of agriculture as the Hyrax is domestic

stock's most important competitor for grazing. Secondly, Pringle and Pringle (1979) hypothesise that the elimination of the Black-backed Jackal may have led to an increase in the Lynx population. In the Bedford district for example, where Lynx are reported to have been historically rare, they have now become "'problem animals' allegedly killing large numbers of domestic livestock" (MacDonald 1989: 71). This is so much so, that in 1981 Lynx was considered the most important problem animal in 82% of the Divisional Council areas in the Cape Province (Stuart 1981). Thirdly, there has been a drastic decrease in the range and numbers of several avian scavengers that once occurred in the Cape province, specifically the Cape Vulture, the Black (Lappetfaced) Vulture *Torgos tracheliotus* and the Tawny Eagle (Allen 1989). Lastly, mammalian species beneficial to farmers too may have been affected by control actions against Lynx and Black-backed Jackal, the Aardwolf being a particular case in point (Lloyd and Millar 1983). As in other countries such as the USA and Australia, predation on domestic stock has been an emotional subject in South Africa, characterised by conflicting viewpoints. Relevant information on vultures, eagles and declared problem animals is given below.

2.1.1 Cape Vultures

The Cape Vulture is endemic to southern Africa and is one of the most endangered vulture species in the world. Some 150-200 years ago it was the most common vulture in South Africa. Since then its numbers and range have declined drastically and nowhere has this been more noticeable than in the Cape Province (CDNEC undated). This decrease has been ascribed to several factors, including deliberate poisoning and shooting, which were common at the turn of the century when many small-stock farmers believed that vultures killed livestock. It is known that some Eastern Cape farmers still hold this belief: Boshoff (1989) describes five reports by farmers of vultures allegedly killing or attempting to kill livestock during 1988. The greatest danger to Cape Vultures now however, is indirect persecution by farmers who put out poisoned carcasses for Lynx and Black-backed Jackals. The CDNEC (undated) refers to reports of up to 40 vultures drowning in reservoirs in the Eastern Cape and ascribes this to the birds having eaten poisoned carrion. It is also known that vultures may die as a result of general "irregular and injudicial" use of highly toxic compounds by farmers and their labourers, as described by Vernon (1987: 17). Vultures are scavengers whose role in the ecology is to clear up carrion. Their fate depends to a large extent on farmer's attitudes and actions towards them.

2.1.2 Eagles

The survival of eagles is also very much in the hands of landowners. These birds need large territories and their ranges inevitably overlap with small-stock farms. In the Karoo the Black Eagles and Martial Eagles are the only true raptor species, according to Davies (1988). Their ecological roles include preying on Rock Hyrax, in the case of the Black Eagle (90% of the bird's diet - Davies 1988)), and the young of *inter alia* Lynx, Black-backed Jackals, Cape Foxes and Bat-eared Foxes in the case of Martial Eagles (Boshoff and Palmer 1990). Historically, eagles were regarded as vermin in South Africa and were intensely persecuted. For instance, in 1962 farmers destroyed 130 Black Eagles and 25 Martial Eagles in the Laingsburg district (Siegfried 1963). Boshoff's (1980) survey showed that in the 1970's only 3% of Cape Province farmers were prepared to conserve eagles. Davies (1988: 65) feels however that there has recently been a growing awareness of the value of eagles on the farm and that persecution is now more localised. He is optimistic about solving the farmer-eagles issue, believing that "eagles are compatible with small-stock farming". Echoing Murphy (1976), Davies (1988: 65) however sounds a warning: " ... an effective understanding of this complex problem cannot be achieved in an atmosphere of bitterness and acrimony, and it is therefore essential that accurate information from research studies by disinterested parties be acquired wherever possible".

It is the view of the writer that this statement also applies to the issue of mammals that are perceived or declared as 'problem animals'.

2.1.3 'Declared Problem Animals'

The terms used historically for wildlife taking stock reflect changes in management policies of conservation agencies. Lynx and Black-backed Jackals were initially termed 'vermin', then 'problem animals', and recently the emphasis has shifted towards 'damage control' (Van Rensburg and De Wet 1988). Historically, 'vermin' were not regarded as part of (beneficial) nature, they were 'non-animals' (Afrikaans: 'on-gedierte'). As conservationists extended the idea that these animals were a necessary part of nature, and that only some individual members of a species turned into 'problem animals' which needed to be eradicated, they could be seen, like droughts, as agricultural risks. Currently, the common view is that these opportunistic species "cannot be exterminated" (Fourie Pers. comm. 1990; SAWMA 1990) and that, since the problem is the damage that individual animals cause, it is the damage and

not the species that needs to be controlled (Van Rensburg and De Wet 1988). According to these authors, a species is declared a problem animal by the Provincial Administration when it causes widespread damage and, on account of its habits, requires organised efforts to control its numbers and distribution.

2.1.4 A new approach to conservation research

The question arises as to how the 'problem animal' issue should be approached in order to ensure biotic diversity, healthy predator-prey relationships and the management of farmland on the basis of sustainable utilisation. Not everyone is as optimistic as Davies (1988) about solving the issue. Boshoff (1980: 80), after examining the problem eagle situation here and abroad, states:

> No solution to the eagles and stock problem has been found elsewhere in the world, despite intensive studies ... The persecution will continue while economic links exist between the farmers and the eagles. The most that can be hoped for is an improvement of the situation through oral education.

Education of all human parties involved in the 'problem animal' situation would certainly seem a major part of managing it. Education should be based on an understanding of the situation and the factors which give rise to it. Lawson (1989: 9), commenting on his study of the 'problem animal' situation in Natal, writes:

> Problems with predators have led to some antipathy between farmers and the Natal Parks Board in the past and this survey represents the first attempt to view the problem from the stockowner's perspective. Only by appreciating this perspective can adequate conservation strategies be planned for the future.

This leads to the central hypothesis of the research. Farmers' perspectives and their behaviour towards 'problem animals' may be influenced by their perceptions and attitudes, and these in turn may be influenced by personality.

There are increasing calls for a new approach to conservation research which takes into account the social and psychological dimensions of conservation problems. For instance, Kellert (1986: 51) states that

> to the extent that attitudinal, social, and economic forces characteristic of contemporary life endanger species, an understanding of these forces is a necessary prerequisite to proposing strategies for mitigating their impact ... A consideration of social and perceptual factors is essential to an understanding of the problem.

Referring to the important role of sociopolitical and economic forces in creating "the contextual basis" for the demise of Hawaii's endemic birdlife, a situation analogous to the position of scavenging birds in southern Africa, Kellert (1986: 51) writes:

> Although this assertion may seem obvious, most endangered species preservation efforts pay scant attention to human social factors and perceptions. The typical endangered species program tends to be preoccupied with biological assessments and biological solutions. Perhaps this bias reflects the training of most wildlife professionals in the ecological rather than social sciences and the hope for a technological 'quick-fix' solution to the problem. It may also reflect the enormous complexity of the issue when viewed socioeconomically ...

2.2 THE RELATIONSHIP BETWEEN PERSONALITY, ATTITUDES AND ACTIONS

Theories that relate personality, attitudes and actions (or behaviour) are well described (Triandis 1971, Hjelle and Ziegler 1976). Allport (1961: 174) defined personality as "the dynamic organization within the individual of those psychophysical systems that **determine his characteristic behaviour and thought**" (emphasis added).

Oskamp (1977) refers to several classic studies that have linked attitudes and personality. One of the best-known is 'The Authoritarian Personality' (Adorno *et al.* 1950), which showed a relationship between ethnic prejudice and authoritarian personality tendencies. Using methods such as personality assessment, attitude scales and in-depth interviews, it was shown that highly ethnocentric individuals tended to have rigid personality characteristics and highly conventional values and standards, generally rejected any negative implication about self and parents, and projected socially unacceptable impulses or characteristics onto others. In a similar study, Martin and Westie (1959) found that highly prejudiced people were inclined to be intolerant of ambiguity, superstitious, concerned about threat and competition and fundamentalist in religious views, and to stress obedience and severe discipline. McClosky (1958) too, showed strong relations between attitudes and personality traits: extreme (political) conservatives scored high on measures of hostility, paranoid tendencies, rigidity, intolerance, and contempt for weakness. They were usually defensive of their own imperfections. A detailed case study by Smith, Brunen and White (1958) showed how ten men's varying attitudes towards Russia often reflected and paralleled their personality conflicts, defense mechanisms and ways of relating to others. An example of a theoretical relationship between personality and behaviour

is that between the so-called 'dogmatic personality' and poor problem-solving (Triandis 1971).

2.2.1 Personality and environmental attitudes and actions

Environmental attitudes form an intrinsic part of some definitions of personality. Craik and McKechnie (1977: 160) state that

> the notion of personal disposition [personality] refers to a tendency to act in certain ways, e.g., to be self-accepting regarding oneself, submissive in relation to others, or manipulative and controlling in one's orientation toward the everyday physical environment.

From this, Pettus and Giles (1987: 28) deduce that "an individual's personal disposition may be viewed as having an environmental attitude component affecting his/her decisions and behaviours that impact on the environment". These authors also argue that the nature of the environmental attitude component should depend in turn on other characteristics of the personal disposition.

So far, little substantial research has been done on the relationship between personality and environmental attitudes and actions (Ittleson *et al.* 1974, Pettus and Giles 1987). The clearest conclusion to be drawn at this stage is that the relationships between environmental knowledge, attitudes and actions are unclear (Pettus and Giles 1987), as is the role of personality factors.

Most research in the field has been done on the influence of demographic factors on environmental attitudes. For example, American studies quoted by Pettus and Giles (1987) have indicated that younger, well-educated and politically liberal persons tended to be more concerned about environmental quality than their older, less educated and politically conservative counterparts. In South Africa, Lambrechts (1976) has correlated game farmers' attitudes towards aspects of nature conservation with age, educational levels and language orientation (Afrikaans- or English-speaking). Research on social determinants of attitudes towards conservation in the Renosterveld (McDowell 1986) indicated that attitudes (but not actions) were influenced by experience of nature (in childhood for example) and by the family history, age and language orientation of landowners. Davies' (1988: 64) study led him to believe that persecution of Black Eagles is influenced by, *inter alia*, the "wealth of the farmers concerned". An investigation of social determinants of environmental concern has prompted Samdahl and Robertson (1989: 57) to recommend however, that "research might benefit most by exploring underlying belief structures rather than demographic characteristics of the population". Some results of work on personality and environmental attitudes and actions are

noted by Pettus and Giles (1987), who report that people who are more aware of the consequences of their actions, and more willing to accept responsibility for those actions as they relate to environmental quality, act more favourably towards maintaining environmental quality.

The need to study the relationships between personality factors, attitudes and actions also manifests itself in the field of agricultural extension. Duvel (1987: 1) bases a South African model for agricultural extension on "situation determination", the objectives of which include providing "a base for purposeful scientific behavioural change". This model underscores the importance of viewing a problem in its overall context. Duvel considers that of the many theories and models explaining behaviour change, the 'field theory' of Lewin (1951) provides the best possibilities. This theory emphasises that "human behaviour cannot be understood in terms of a single course, but is the result of an interaction of different situational factors consisting of the person being in dialogue with his perceived environment" (Duvel 1987: 2).

Lewin formulated a broad methodological strategy for the expression and analysis of problems about human behaviour and experience (Ittelson *et al.* 1974). His field theory was an attempt to provide a set of analytical tools that would take in all possible factors that determine behaviour. In essence he theorised that behaviour results from the continuing interaction of factors within the person (such as needs, values, feelings, dispositions) with other, external factors as they are perceived in a given behavioural setting. Thus the pattern of inner and outer influences that one experiences, determines one's behaviour. Lewin developed the concept of the 'life space' or 'psychological field', expressed as

$$B = f\ (P, E)$$

where behaviour (B) is a function of the interaction between personality and other individual factors (P), and the perceived environment (E) of the individual (Ittelson *et al.* 1974). In addition, he identified "the foreign hull of the life space ... facts not subject to psychological laws but which influence the state of the life space" (Lewin 1936: 206). Economic or legal factors are examples of these.

Duvel's behaviour change model, based on field theory, implies that situation determinations be aimed "at an identification and analysis of the factors or forces present in the psychological field" (Duvel 1987: 3). Without that, "goal-oriented, systematic and scientifically sound extension or persuasion is impossible". This concept may have relevance for Environmental Education.

Duvel groups the 'personality' (P) variables into perceptions, knowledge and needs. The latter refers to psychological needs and are often measured in personality assessment tests, such as the questionnaire used in this study. He points out that obtaining information on these variables in the psychological field is a complex exercise, as is the implementation of such information. "Change, after all", he explains, "revolves around the human being who, by nature, is extremely complex" (Duvel 1987: 9).

Like researchers in the field of environmental attitudes referred to above, Duvel (1987: 6) also emphasises the need to examine factors other than biographical information. He writes that " initial pre - occupation of extension research with the causal relationship between independent variables [age, farm size, educational level] is now outmoded in view of the findings on the situation specificity of behaviour ". Variables in this category, he argues, only have an **indirect** influence on decision making and behaviour. However, knowledge of these variables provides greater insight into farmers' actions and reactions, because causal relationships will be better observed and understood, and it will be easier to predict behaviour.

2.2.2 The concept 'attitude' and the role of actions

Literature attempting to define attitudes is variable and sometimes contradictory. From a useful overview of the concept by Fishbein and Azjen (1975) it seems that the most consistently mentioned characteristic of 'attitude' is its affective dimension, which includes feelings and evaluations - the 'I like/dislike X' and 'X is good/bad' components. Affect, defined as "a feeling associated with an idea or set of ideas" (Collins English Dictionary 1986), does not however, fully capture the complexity that has come to be associated with the concept of attitude. Attitudes are often multi-dimensional and also have facets such as beliefs, as well as different manifestations such as reported feelings and actions (Henerson, Morris and Fitz-Gibbons 1978). Fishbein and Azjen (1975) assign four dimensions to the concept of attitude: affect (feelings, evaluations - sometimes this component singly is called the attitude); cognition (knowledge, opinions, thoughts about the object, beliefs and belief strength); conation (behavioural intentions); and observed behaviour itself. In this study the term **attitude** is used to describe all the objectives set out to be investigated that have to do with affect (feelings and evaluations), beliefs (including opinions and knowledge) and actual and intended actions (Fishbein and Azjen 1975, Henerson, Morris and Fitz-Gibbons 1978).

2.2.3 Measuring attitudes

It is difficult to measure attitudes. For instance, they may be 'blurred' by factors such as lack of self-awareness, ambivalence, inconsistency, the desire to please and the wish to give a socially acceptable picture of oneself, or on the other hand, carelessness and lack of motivation to respond sincerely. Secondly, the researcher must rely on inference, for it is impossible to measure attitudes directly.

The question arises which facets and manifestations should be measured to deduce the attitude. Fishbein and Azjen (1975) developed formulae which indicate how attitudes towards a specific object are related to beliefs about and intentions towards this object. Firstly, an attitude towards an object is related to the belief that the object possesses certain attributes, as well as to the evaluations of those attributes. This they express as:

$$A = \text{The sum of } [b.e.]$$

i.e. the attitude is the sum of the interactions between beliefs and evaluations. People may have the same beliefs about an object but different attitudes, because they value the attributes they believe the object possesses, differently. For example, two farmers may believe that eagles kill lambs, but because Farmer A feels lamb predation is very bad, and Farmer B feels the attribute is not so bad, they will have different attitudes towards the eagle. Similarly, if two farmers value eagle predation on Hyrax as an equally favourable attribute, but Farmer C believes that Martial Eagles do take Hyrax, and D believes they do not, they will have different attitudes towards the Martial Eagle. Several beliefs may be held towards an object, but the attitude is determined by a limited number of salient beliefs that are arranged hierarchically in terms of their probabilities. When Fishbein and Azjen use the term belief in this context, they refer to all aspects of cognition (knowledge, opinions, thoughts about the object, beliefs and belief strength). Similarly, they also link attitudes to the set of a person's behavioural intentions with respect to an object, each intention being weighted by its evaluation implications, so that

$$A = \text{The sum of } [I.e].$$

Based on these relationships, Fishbein and Azjen propose that in order to assess attitudes towards an object one can 'measure' the strength of beliefs about the objects' attributes, and the evaluations of each attribute, as well as behavioural intentions and their evaluative component. They feel that it is only necessary to distinguish between attitudes and beliefs if it can be shown that for instance, different factors determine the two concepts, or that a

change in belief leads to different consequences than a change in attitude does. The same argument applies to behavioural intentions.

The question of whether there is a consistency between attitude and behaviour has been debated since the early days of social psychology (Oskamp 1977). Fishbein and Azjen (1975: 340) note that "despite repeated failures to demonstrate a strong relation between attitude and behaviour, the basic assumption that human behaviour is determined by attitudes continued to persist". In the present study both attitudes and actions will be investigated, with **actions regarded as a dimension of attitudes.** The term 'actions' will be used instead of behaviour, because it is felt that the latter is too comprehensive a concept, referring to actions in general. Behaviour is described by Hirsch and Erlenmeyer-Kimling (1967) as a continuous stream of activity, and in the Collins Cobuild Dictionary (1987) as "the way [people] act in general". Since in this study specific actions towards 'problem animals' are investigated, it was felt that the term 'actions' is more appropriate. An action is defined as a specific kind of behaviour: "behaviour which is voluntary and explicable in terms of the agents' reasons, as contrasted to that which is coerced or determined causally" (Collins English Dictionary 1986).

It is important to note that the different facets and manifestations of attitudes do not always correspond with each other, even when one correctly assumes that they reflect a single attitude. The reason according to Lazarsfeld (1959), is that there is a probability relationship between an indicator or manifestation (such as a reported feeling) and the underlying attitude of which it is taken as an indicator. Therefore some inconsistencies will always be found between different manifestations of a hypothesised attitude. Focusing on only one manifestation may thus result in distortion. The task of the researcher is to combine different indicators into an 'index' which represents the best inference that can be made.

CHAPTER THREE
METHODOLOGY AND RESEARCH CONTEXT

Die oë is 'n splinterruit
dus moet jy leer om skerp te kyk

Koos du Plessis, folk singer

The first part of this chapter explains the choice of the methodological paradigm as well as the research plan and the specific methods and analyses used. The second part contains an evaluation of the research methods, a description of the sample and some general research findings. It is termed the research context because it was considered to provide a useful background to specific results in subsequent chapters.

3.1 METHODOLOGY

3.1.1 The methodological approach

The nature of Environmental Education is to emphasise wholeness and integration. The context of and relationships between things are of the utmost importance, as underscored by the 'Tbilisi Principles' and the majority of writers in the field. The social and psychological dimensions of Environmental Education research are complex and have features that are indeterminate; very often Environmental Education is concerned with phenomena that are not available to direct experience or investigation.

The nature of the positivist or logical-empiricist research paradigm is towards reductionism and

compartmentalisation. If people are studied, they tend to be isolated from their social context and treated as units to be moved into research designs, manipulated as variables and moved out again (Reason and Rowan 1981). This often results in knowledge out of context. An underlying assumption of the positivist approach is that researchers should distance themselves from both the subject matter and from their own relativistic, situational knowledge, in order to obtain what is viewed as absolute 'provable' and 'objective' knowledge and absolute predictability.

It would seem from the researcher's study of the field that many questions in Environmental Education cannot, and should not, be addressed by means of the positivist approach to research.

In the so-called 'new' or 'post-positivist' paradigm the emphasis is on the importance of 'whole-problem' approach and the development of meaning within a specific context. Underlying assumptions include the belief that there may be real indeterminateness in the world, and that it is important to study and describe aspects of the world that may not be available to direct experience, but **generative of it.** It is further believed that scientific objectivity is in many respects a myth; it is realised that the criteria for empirical objectivity and the methods for its verification are products of the human mind (and not absolute givens), so that "the term inter-subjectivity is much more appropriate than objectivity" (Nachmias and Nachmias 1981: 16). To be inter-subjective, knowledge must be transmissible - one scientist must be able to understand and evaluate another's methods and perform similar observations so as to verify empirical findings.

In the new paradigm, justified belief is still sought. As Weimer (1979: 41) observes: "Knowledge claims must be defended, to be sure; however the defense of such a claim is not an attempt to prove it, but rather the marshalling of 'good reasons' on its behalf ...". Researchers defend knowledge claims by making the best case possible; "marshalling good arguments, relevant observations, solid experimental results" (Phillips 1987: 18).

Although this study is based on the principles of the post-positivist paradigm, methods from positivist research (such as statistical analysis to examine simple relations) are also utilised, but in a non-positivist context. In this regard it should be noted that the two paradigms are not mutually exclusive; as pointed out in Chapter 1, Husen (1988) describes them as complementary. In the new paradigm valuable elements of "naive inquiry" - being involved, committed, relevant,

intuitive and "alive" - (Reason and Rowan 1981: xiii) can be combined with elements that have come to be associated with the positivist approach - being directed, rigorous and systematic.

3.1.2 The research aim and goals

As outlined in Chapter 1 the broad aim of this research was to explore a possible link between personality and environmental attitudes. Within that framework, the goals were to (1) **draw personality profiles** of a small sample of white, male, full-time small-stock farmers of the Eastern Cape and (2) **explore and describe** these farmers' **attitudes** towards perceived problem animals, in order to (3) **investigate the relationship between personality and attitudes towards perceived problem animals** in this population group.

3.1.3 The research sample

The research sample was drawn from the population of about 350 white small-stock farmers in the Cradock agricultural extension district, as listed with the Department of Agriculture. The Department provided an address list dating from March 1987 which, although neither accurate nor complete, was judged by the Cradock Extension Officer to be adequately representative of the district's farmers.

After removing female farmers from the address list, a stratified sample (Nachmias and Nachmias 1987) of 8 English- and 9 Afrikaans-speaking full-time farmers was drawn, using a table of random numbers. This was an approximately 5% sample. Although the variables 'type of grazing' - intensive ('irrigation') vs. extensive ('veld') farming - and 'type of farming' - goats vs. sheep - had originally been considered as control variables, it became apparent during the pilot study that most farmers combined these practices and that such distinctions were impractical in a limited project such as the present research. The variable 'type of grazing' is however discussed in sections 3.2.2.3 and 7.2.3. As all subjects approached agreed to take part in the study, non-response bias did not have to be considered.

3.1.4 Methods of data collection

The following methods were used to gather information:

(1) A **semi-structured research interview**
   * to explore farmers' attitudes and actions towards perceived problem animals, and
   * to obtain information on biographical factors which might have been relevant to the interpretation of results.

(2) **Cattell's 16 Personality Factor Questionnaire (16PF)**
   * to provide quantitative data on personality factors.

(3) **Observational notes** on farms and farmers
   * to provide supplementary qualitative data.

3.1.4.1 The research interview

Burroughs (1975: 104) provides useful definitions of the three basic interview types. He defines the semi-structured interview as one in which

> the interviewer has the schedule before him for completion during or immediately after the interview. It [the schedule] represents a guide as to all the information he must have secured by the time the interview is finished, but it leaves him free to decide how best to secure this information.

In the structured interview, on the other hand, "... the precise questions are shown in the form of the wording which is to be adopted. The interviewer ... is in fact, a reader of a questionnaire". In a third type, the unstructured interview, "... the interviewer is non-directive. He is prepared largely to let the interview take the course which the interviewee dictates with but a touch of orientation here and there from the interviewer". In the view of the researcher an unstructured interview would have been inappropriate in a study of this kind, as it was considered unlikely to lead to the kind of information sought.

The advantages of a semi-structured interview, compared to a structured interview or questionnaire (Cohen and Manion 1989, Nachmias and Nachmias 1987, Sanders and Pinhey 1983) were important to this study. Firstly, in-depth knowledge of and insights into attitudes were

needed and an informal interview based on rapport and trust lends itself more readily to such data (Massarik 1981). Rapport and trust is easier to build in a semi-structured interview than in a structured one or a questionnaire, where there is a greater distance between the roles of the interviewer and interviewee. Secondly, a semi-structured interview would depend to a lesser degree on pre-conceived ideas of what farmers were doing and feeling about 'problem animals', than a questionnaire or structured interview would. Thus it suited the exploratory nature of the study. Thirdly, it was thought that farmers would prefer talking to writing and lastly, it was of concern that the rate of return of mailed questionnaires is often relatively low in this population group (Boshoff 1980).

It is recognised that the research interview as a methodological tool is vulnerable to questions of both validity and reliability (Sanders and Pinhey 1983, Burroughs 1975). Endeavors were made to improve validity by paying attention to biases created by:

* interviewer characteristics,
* interviewee characteristics and
* the content of questions (Zeisel 1984).

These factors are elaborated on in section 3.2.1.1.

The interview questions and their order were designed and re-designed after a study of the literature on surveys and interviewing (Adams and Schwaneveldt 1985; Cohen and Manion 1989; Henerson *et al.* 1978; Massarik 1981; Nachmias and Nachmias 1987; Powney and Watts 1987; Taylor and Bogdan 1984 and Zeisel 1984), a pre-interview analysis of the situation, based on discussions with supervisors and a conservationist with experience of the 'problem animal' situation (Boshoff, Pers. comm. 1990), and pre-testing in a simulated interview situation. The procedure in drawing up the questions was to put the **general research aim** (exploring and describing farmers' attitudes towards perceived problem animals) into **detailed objectives** (to explore and describe farmers' attitudes, beliefs and actions towards four groups of 'problem animals'), and then **specific objectives** (to explore farmers' attitudes towards the need to protect eagles occurring in the district, for example). These latter objectives were then translated into **specific questions**. The researcher used a less detailed interview schedule or guide (Zeisel 1984) during the interview to remind herself of set questions and to ensure consistency of range and order of topics covered (Appendix 2).

The interview guide was supplemented with two sets of illustrations of possible 'problem animals' (Appendix 3), which served as a stimulus for discussion, to judge farmers' ability to identify animals and to clarify the use of different everyday names. Interview questions were mostly open-ended, but two structured scale items were included (see Appendix 2, items D.3 and E.4).

The interview was conducted in an informal, friendly style. Questions were asked in a manner adapted to each interviewee and situation, but for the sake of both reliability and validity, questions and tone were kept both neutral and not leading.

3.1.4.2 16 Personality Factor Questionnaire (**16PF**)

The **16PF** is a standardised personality assessment questionnaire which has been revised and expanded several times since Cattell first published it in 1949 (Prinsloo 1989). The 16 primary personality factors or source-traits (Cattell *et al.* 1970) were arrived at by multi-factorial analysis of some 18 000 personality descriptions, leading to the identification of 16 primary or first-order descriptions or 'factors' (see Table 3.1). Administration of the **16PF** leads to the individual being assigned a factor or source-trait score (in standard scores or 'stens', ranging from one to 10) on each of the 16 personality factors. The resulting profile of source-trait scores (see example in Appendix 5) "is potentially usable in an almost infinite number of specific behaviour predictions" (Cattell *et al.* 1970: 18). The **16PF** has a built-in motivational distortion scale to indicate when subjects' answers to the questionnaire should not be regarded as honest, because they were probably trying to present themselves as more "socially desirable" than they perceive themselves to be (Cattell *et al.* 1970: 55).

Cattell *et al.* (1970: 8) state that the **16PF** probably constitutes the "quickest way of measuring primary personality factors yet worked out", has "demonstrated comprehensiveness and good predictive capacity in relation to everyday life criteria in applied psychology" and that extensive research has been done both on and by means of the questionnaire. A further consideration in the choice of the **16PF** as the method for personality assessment in this study, was the fact that the HSRC has adapted it to local conditions; standardised Afrikaans and English versions of the South African 'Form A' (HSRC 1966) were used in this study. A norms table for the general white male South African population (Prinsloo 1989: 14) was available for the conversion of raw scores to stens.

TABLE 3.1: THE 16 PERSONALITY FACTORS MEASURED BY CATTELL'S 16PF

FACTOR	LOW SCORE DESCRIPTION	HIGH SCORE DESCRIPTION
A	SIZIA **Reserved**, detached, critical, aloof	AFFECTIA **Outgoing**, warmhearted, easy-going participating
B	CONCRETE THINKING Lower sholastic ability	ABSTRACT THINKING Higher scholastic ability
C	LOWER EGO STRENGTH **Affected by feelings**, emotionally less stable, easily upset	HIGHER EGO STRENGTH **Emotionally stable**, calm, faces reality
E	SUBMISSIVENESS **Humble**, mild, obedient, conforming	DOMINANCE **Assertive**, independent, aggressive, stubborn
F	DESURGENCY **Sober**, prudent, serious, taciturn	SURGENCY **Happy-go-lucky**, heedless, gay, enthusiastic
G	WEAKER SUPEREGO STRENGTH **Expedient**, a law to himself, by-passes obligations	HIGHER SUPEREGO STRENGTH **Conscientious**, rule-bound, persevering, staid
H	THRECTIA **Shy**, restrained, timid, diffident	PARMIA **Venturesome**, socially bold, uninhibited, spontaneous
I	HARRIA **Tough-minded**, self-reliant, realistic, no-nonsense	PREMSIA **Tender-minded**, dependent, over-protected, sensitive
L	ALAXIA **Trusting**, adaptable, free of jealousy, easy to get on with	PROTENSION **Suspicious**, self-opiniated, hard to fool
M	PRAXERNIA **Practical**, careful, conventional, regulated by external realities, proper	AUTIA **Imaginative**, wrapped up in inner urgencies, careless of practical matters, bohemian
N	ARTLESSNESS **Forthright**, natural, artless, sentimental	SHREWDNESS **Calculating**, worldly, penetrating, astute
O	UNTROUBLED ADEQUACY **Placid**, self-assured, confident, serene	GUILT-PRONENESS **Apprehensive**, worrying, depressive, troubled
Q1	CONSERVATISM (of temperament) Respecting established ideas, tolerant of traditional difficulties	RADICALISM **Experimenting**, critical, analytical, free-thinking
Q2	GROUP ADHERENCE a 'joiner' and sound follower	SELF-SUFFICIENCY prefers own decisions, resourceful
Q3	LOW SELF-SENTIMENT INTEGRATION **Casual**, careless of protocol, untidy follows own urges	HIGH STRENGTH OF SELF-SENTIMENT **Controlled**, socially-precise, self-disciplined, compulsive
Q4	LOW ERGIC TENSION **Relaxed**, tranquil, torpid, unfrustrated	HIGH ERGIC TENSION **Tense**, driven, freiful, frustrated

Notes to Table 3.1

Based on Cattell *et al.* (1970) and Cattell and Kline (1977), who describe each factor on the basis of empirical research evidence.

3.1.4.3 Observational notes

According to Cattell *et al.* (1970: 57) the best estimate of any personality factor "is obtained by a thorough averaging of results from rating ... [based on observation)] ... self-evaluation ... and objective test media". In this study the objective questionnaire data were complemented by observational notes on farmers and the general appearance of their farms, to supplement data on the person and the kind of farmer he is.

These notes were made within a few hours after the visit to each farm and before data analysis commenced. Appendix 4 gives the checklists used and an example of observational notes on one farmer. The specific example was chosen to illustrate the way in which the researcher documented both impressions and acknowledgements of the way in which her reactions to participants may have influenced those impressions. The latter practice was in the interest of validity.

3.1.5 The fieldwork programme

3.1.5.1 The pilot study

Data collection started during 26 - 28 February 1990, when a pilot study was undertaken to try out the methods and identify methodological or logistic problems. Four farmers were seen.

The pilot study clarified the researcher's uncertainty about certain methodological details, including the degree of structure the research interview should have, the order in which questions should be asked, and the most appropriate wording for the set response items. The researcher was alerted by the pilot interviews to the importance of: taking sufficient time to build a relationship with the interviewee; staying critically aware during the interview - with the concomitant balance between building rapport and retaining a critical mind; and entering into the interviewee's perspective, while staying alert to his configurations and to emerging thematic data.

Since the insights from the pilot study did not change the methodological approach or procedures intrinsically, it was decided to make use of the valuable results gained from the first four

participants (A1, A2, A3 and E1) and include them into the final sample of 17 farmers. The original intention was to involve 30 farmers in the study. This figure was reduced to 17 after the pilot study; at the same time it was decided to include in the interview more probes for depth (Zeisel 1984), such as "**Why** do you feel that?" and "**Why** did you do that?" The intention with both these decisions was to obtain more 'intensive' data from a smaller number of participants, rather than 'superficial' data from a larger number of participants.

3.1.5.2 The main study

The main study was conducted during 4 - 11 April 1990.

The approach to each farmer was similar: After his name was drawn from the list, he was contacted telephonically and asked if he would be willing to devote about 1 1/2 hours of his time to participate in a research project. The following information was given: the researcher's name, the fact that she was a researcher from Rhodes University and represented no other organisation and, if the farmer wanted to know more about her, that she grew up in Cradock. The aim of the study was stated as 'an investigation into the problems experienced in small-stock farming'. It was explained that this statement was purposefully vague and that more details would be given during the interview. The researcher furthermore explained how subjects were chosen, that their participation would not hold repercussions for them, and that all information given would be treated as confidential. An appointment was then made. No farmer declined to participate.

Farmers were seen individually on their farms. The researcher introduced herself and the study again, both verbally and by means of a formal letter of introduction from the Head of the Education Department at Rhodes University. Farmers were again assured of the confidential and non-threatening nature of the study, and permission was asked to tape-record the interview. Fifteen of the 17 participants agreed. Notes were taken for the other two.

The interviews lasted from 30 to 45 minutes and were followed by the administration of the **16PF** questionnaire. In the introduction to the **16PF** the outline in the HSRC's (1966) questionnaire booklet was followed to explain to farmers how to fill in the answer sheet; that the questions were to see what general attitudes one holds in life; that responses were confidential; and that there was no need to respond with 'the right thing to say' merely to

impress the researcher. On completion of the questionnaire participants were given an opportunity to express how they felt about the interview and questionnaire, and sometimes interview questions were followed up, or general conversation commenced (neither was tape-recorded).

On completion of the data collection phase a letter of appreciation was sent to each participant, promising that research results would be made available to him at a later date. In addition to the 17 farmers who were visited, the Chief Warden of the Mountain Zebra National Park (MZNP) was interviewed as well, since the researcher felt it necessary to gain his perspective on the situation. The researcher also attended a Mini Symposium and Workshop on Problem Animal Management (SAWMA 1990) and spoke informally with several scientists and practising nature conservationists on the topic.

3.1.6 Data analysis

On completion of data collection respondents were coded for anonymity (with E's and A's indicating English- and Afrikaans-speakers respectively and a number signifying the order in which they were interviewed), and data analysis commenced. Transcripts and notes were investigated by means of content analysis based on methodological insights gained mainly from Powney and Watts (1987), but also from Miles and Huberman (1984), Sanders and Pinhey (1984) and Cohen and Manion (1989). The procedure was as follows:

1. Interview results were read through two or three times to get a 'feel for the data' and a sense of the whole.

2. A further reading followed, aimed at identifying the various themes that arose from the data and listing them.

3. From this comprehensive list, those themes that were relevant to the present study were selected. The four most pertinent themes were farmers' attitudes towards four groups of perceived problem animals: (1) Declared Problem Animals (DPA), (2) a group termed 'Non-Declared Perceived Problem Mammals' (NDPPM), (3) eagles and (4) vultures. A further theme was the extent of the 'problem

animal' issue, as perceived by the farmers. Note that the emergence of these themes specifically was to some extent in accordance with the researcher's pre-determined classification of possible perceived problem animals into these groups, based on a study of the literature and discussions with Boshoff (Pers. comm. 1990). The themes did not emerge completely spontaneously, as would have been the case in an unstructured interview.

4. Each transcript was then re-examined for these (and other) selected themes. Individual farmers' responses on the extent of the 'problem animal' issue were tabulated (covered in Chapter 7). Individual farmer's attitudes to the four groups of animals were summarised. These summaries are not reported in the half-thesis, but formed the basis for the next step in the analysis.

5. Four descriptive summaries of the attitudes of the full group of farmers towards the four classes of 'problem animals' were compiled. (See Chapter 5.)

6. The summaries of attitudes towards perceived problem animals were interpreted and categories of attitudes were constructed in accordance with the description of the process of analysis as "interpretive construction" (Powney and Watts 1987: 159). A set of categories was constructed for attitudes towards each of the four different groups of 'problem animals'. The categories were based on factors illustrating attitudes, such as **affect** (reported feelings about and evaluations of 'problem animals'), **actions** towards them, **knowledge** and **beliefs** about their value, as discussed in Chapter 2 (section 2.2.2) and Chapter 5 (section 5.1).

Uniformity was sought for the number of categories and the criteria on which they were constructed, in each of the four sets of attitudes towards the four groups of animals. The implications of this decision are discussed in Chapter 8 (section 8.1.2). Finally, after utilising the research supervisors as 'sounding boards', five categories were chosen for each of the four sets of attitudes towards the four groups of animals. The categories are 'Strongly positive', 'Positive', 'Neutral or ambiguous', 'Negative' and 'Strongly negative', towards DPA, NDPPM, eagles and vultures respectively. The term 'positive' refers to a positive attitude towards the

animals, their value and conservation, and likewise for 'neutral' and 'negative'. Each category was given a score indicating strength of positive or negative attitudes: +2, +1, 0, -1 and -2 respectively. Jahoda and Warren (1966) provide a theoretical basis for this method of scoring.

7. Farmers were then sorted into categories, for each of the four sets of attitudes. Thus a farmer would be categorised as 'Strongly positive', 'Positive', 'Neutral or ambiguous', 'Negative' or 'Strongly negative' four times - for each of his sets of attitudes towards each of the four groups of animals. He then had four different scores, one score each for DPA, NDPPM, eagles and vultures. These scores were added to give each farmer a single 'attitude score' (see Table 5.7).

8. The 17 participants were ranked on the basis of these final single attitude scores, and thus according to their attitudes towards 'problem animals', their value and their conservation. Farmers whose scores were equal, received equal ranking (Table 5.7).

9. The **16PF** answer sheets were processed according to the standardised procedure (HSRC 1966) and individual personality profiles were drawn up. (Appendix 5 gives an example.)

10. The **16PF** results were examined for significant variance from average (Table 4.1), and were compared to farmers' attitude ranking (Chapter 6). The attitude ranking was also compared statistically to other variables: farmers' language orientation and type of grazing, as described in Chapter 7, as well as performance on the motivational distortion scale (Chapter 6).

3.2 RESEARCH CONTEXT

3.2.1 Evaluation of research methods

3.2.1.1 The research interview

The choice of an interview rather than a questionnaire proved to be a very good one. The interview facilitated interaction between the researcher and the participants and was in this sense a satisfying experience. It also made observation possible which provided valuable information that would have been lost, had a questionnaire been used. Furthermore, several farmers' reluctance to complete the **16PF** in writing and statements that they often ignore mailed questionnaires, support the researcher's recommendation that the research interview is a valuable method for data collection from this population group.

Despite care taken to ensure as high a degree of reliable and valid data as possible, several factors may have influenced both aims. The first factor which the researcher had to keep in mind was her own attitude towards the 'problem animal' issue, namely a conservation-conscious stance. A conscious effort was made to prevent this from interfering with data collection.

The second factor was that, despite the researcher going into the interview with as open an attitude as possible, participants, on hearing the direction of the inquiry, almost inevitably made their own deductions about her viewpoint. This seemed to occur in at least some cases when the interviewee was presented with the set of identification pictures. What happened was that at the start of the interviews the farmers were still unsure about the direction the inquiry would take; the first questions of the interview had been placed there partly because they were thought to be the least sensitive ones. When a farmer was then presented with a set of pictures of 'problem animals' he would, if he was sensitive about the issue, become wary of the motives of the researcher. This factor probably only distorted responses in those farmers with the more negative attitudes towards conservation, and it may have influenced them to present themselves as more positively inclined towards 'problem animals' than they really were. An example was farmer A7 who, while still being questioned about Black-backed Jackals and Lynx, and not knowing that the topic of eagles would later be raised, mentioned quite vehemently that eagles cause trouble and have to be shot. After the set of eagle identification pictures was shown to

him, and he was questioned directly about his attitude to these birds, he described it as 'soft-hearted'.

The third factor was related to the fact that in an interview where one is trying to establish rapport, there is a natural inclination to adapt one's approach to the perceived viewpoint of the interviewee. This meant in practice that questions and probes were presented to different interviewees in subtly different ways. This did not however, in the researcher's view, threaten the reliability of responses, for in trying to meet the interviewee on a level which is natural for and adapted to him, one probably gets more valid data than if one had to present to 17 different individuals, each with his own personality, exactly the same 'mechanic' stimuli or responses (Cohen and Manion 1989).

The researcher felt that despite the general sensitivity of the topic, she was perceived by most participants to be non-threatening and sincere enough for them to be fairly honest about their attitudes and actions towards 'problem animals'. Several farmers admitted to the shooting of eagles, which they knew to be illegal. The researcher also believes that in cases where interviewees did distort their attitudes, she was able to discern it, and to take that into account during data analysis.

3.2.1.2 The **16PF** Questionnaire

It took farmers about an hour to complete the **16PF**. Although the majority (n = 8) completed the questionnaire by themselves, a few requested that the researcher either read out the questions to them and filled in their responses ('a', 'b' or 'c') as they called them out (n = 4), or that she filled in their responses while they read the questions for themselves (n = 5).

Several farmers reacted negatively to the **16PF**, the completion of which they found very tedious. The researcher had to constantly coax these participants to complete the questionnaire. Some of them rather irately stated that they failed to see the relevance of the questions to research on farming. Other participants found the reasoning behind its application meaningful, and a minority actually enjoyed parts of the questionnaire. Participants were given different degrees of depth of explanation regarding the use of the **16PF**. Depending on the researcher's judgement of the level of explanation the participant would be reasonably comfortable with, explanations

varied from 'The questionnaire is to see if one's views of life in general are related to how one feels about problems experienced with small-stock farming' to 'Its aim is to get an idea of some of a person's personality characteristics, to see if they are related in some way to his attitudes towards the so-called problem animals'. There is no reason to believe that these varied explanations affected the results.

Farmers' reactions to the length of the questionnaire and to some specific items have highlighted problems with the use of the **16PF** in research. There are in the view of the researcher several items that need revision, as they either seem inappropriate to current circumstances or are too simplistic or ambiguous. An example is the item

> I would like to see a move toward: (a) eating more vegetable foods, to avoid killing so many animals, (b) uncertain, (c) getting better poisons to kill the animals which ruin farmers' crops (such as squirrels, rabbits, and some kinds of birds) (HSRC 1966).

Even very conservation-conscious people may find this choice hard to make. Problems experienced by the researcher will be taken up with the HSRC in an attempt to improve the value of this tool in personality assessment and research.

3.2.1.3 Observational notes

It was found that notes on **the farm** only provided definite information on the kind of farmer a participant is, when he was obviously very successful, well-off or hard-working. Most farms were difficult to assess by observation only. On driving through an area one cannot always be sure to which farmer the fences, gates or grazing belongs. Furthermore, the researcher did not have the necessary knowledge to judge the condition of grazing and the Cradock extension officer declined to provide information on the matter.

On the other hand, observational notes on **the farmer** himself were very valuable. In many cases impressions of the farmer's personality supported the **16PF** results, and in cases where data had to be discarded because of the respondent's motivational distortion (refer to section 4.1.1.), observational data often shed light on this phenomenon.

3.2.2 Sample description

Demographic data was collected at the start of the interview, the motivation being to facilitate

the interpretation of other results - in Lewin's field theory terms, to understand the 'psychological field' of each individual farmer better (refer to section 2.2.1.). To allow the reader to share in this process each farmer's data should ideally have been reported here. However, for the sake of confidentiality the 17 participants can generally only be described as a group.

3.2.2.1 Age, historical information and education

The **ages** of the participants ranged from 27 to 71 years old, with a median age of 50 years. The mean **number of years of active farming** was 22,4, ranging from five to 53 years. Most farmers were farming on the same property as their fathers did, or at least in the same area, as indicated in Table 3.2.

TABLE 3.2: Generation of participating farmers farming in the area

Generation farming in the area	Number of of farmers
First generation	2
Second	4
Third	4
Fourth	2
Fifth	2
	N = 14*

* The question was unintentionally omitted in the case of three participants.

In general the participants had a relatively high **level of education**, shown in Table 3.3, which tends to confirm claims that farmers in this district are generally well educated (Department of Agriculture 1986). This may correlate with a relatively positive or progressive attitude towards agricultural innovations (Department of Agriculture 1986), nature conservation (Lambrechts 1976) and research (Boshoff, Pers. comm. 1990).

TABLE 3.3 Educational levels of participating farmers

Highest educational level reached	Number of farmers
Standard 8	1
Standard 10	6
Agricultural college	6
University	2
	N = 15*

* The question was unintentionally omitted in the case of two participants.

3.2.2.2 Farm size and type of stock

The mean **farm size** (including hired land) was 3 523 hectares, ranging from 1 700 to 12 000 ha. Regarding the **type of small-stock**, farmers invariably combined Merino sheep and Angora goats in varying proportions as their main farming activity. Secondary stock farming included cattle (n = 4), game (n = 2), Romanoff sheep (n = 1) and Boer goats and Dorper sheep (at least two farmers).

3.2.2.3 Type of grazing

The original intention was to control for this variable in order to keep the sample as uniform as possible in terms of possible experience with 'problem animals', by sampling only 'Veld farmers'. During the main study it became clear however, that several farmers whom the Department of Agriculture's Extension Office had classified as 'Veld farmers', in fact made use to a varying extent of irrigated lands. In other cases farmers would own one 'veld' and one 'irrigation' farm. As it thus became very difficult to sample 'pure' veld farmers, it was decided to include all these farmers in the sample, but to clarify the role of the type of grazing in attitudes towards 'problem animals' by means of analysis.

Three types of grazing patterns were discerned: Five farmers used only extensive ('veld') grazing; the majority (n = 9) supplemented extensive grazing with limited intensive (irrigated) grazing; while three farmers utilised intensive grazing to a greater extent than extensive grazing.

3.2.3 General findings as background to specific results

Although farmers were generally quite willing to see the researcher, several farmers were noticeably uncomfortable about being 'the subject of research', or possibly of hidden motives on the researcher's side. In this aspect the sensitive nature of the topic has to be kept in mind - some farmers admitted that they were shooting eagles illegally; others perhaps felt that they were being 'accused' of not being good conservationists. Some discomfort on the part of farmers may also have stemmed from a perceived 'inferiority' in comparison to the researcher - they did not have an academic background, and the label 'researcher' generally places a distance between the 'subject' and the one who asks the questions (Cohen and Manion 1989).

A number of farmers probably did not see the relevance of the project although none stated that outright. Some farmers expressed the view that it was a good idea to try and link personality to attitudes. Others agreed that research was needed but they suggested one should look for more 'objective' data (for example from community leaders who would not, it was offered, distort the truth as much as other, 'guilty' farmers), or that research was needed in different research areas.

CHAPTER FOUR
PERSONALITY FACTORS: RESULTS OF THE 16PF QUESTIONNAIRE

You know there are all sorts of people, the world's made up out of all sorts of people, you get people that even shoot storks because they tramp their lucerne down, that sort of thing. You can't say it's a common practice, but ... same as you get a baddie among the animals, you might get a baddie among man too.

Cradock farmer

On the basis of observational and **16PF** questionnaire data personality descriptions of each individual farmer were drawn up. These are not included in the half-thesis, because they would jeopardise confidentiality. They were however, a valuable part of data analysis: constructing them involved getting a feeling for who the person is, his personal and family background, his farming style, what he thinks, feels and believes, how he views life and relates to others, and how these aspects may be related.

All 17 participants completed the **16PF**. Issues pertaining to the administration and analysis of and farmers' reaction to the **16PF** have been covered in Chapter 3. An example of the resulting personality profiles is presented in Appendix 5, and individual personality factor scores are reported in Table 6.1. In the following discussion of the **16PF** results two important general findings are dealt with first.

4.1 GENERAL 16PF RESULTS

4.1.1 Motivational distortion

Five of the 17 participants distorted their responses to the questionnaire, according to the built-in Motivational Distortion Scale (MDS) (Cattell *et al.* 1970). The MDS indicates when the results cannot be regarded as valid and should be discarded. The scores which could not be used for analysis are indicated in Tables 4.1 and 6.1 by placing them in brackets.

The occurrence of motivational distortion has the following implications: Firstly, because these five sets of results had to be discarded, personality factor scores could not be compared statistically to attitude scores as planned. Secondly, the need to present oneself as more 'socially desirable' than one perceives oneself to be, may be a clue to the personality of the individual, as indicated in section 4.2.

4.1.2 Diverse personalities

The second general result was that the farmers were not a uniform group of people; they were individuals who differed considerably on many personality aspects. Both the **16PF** personality profiles and constructed descriptions referred to above, highlighted the uniqueness of each participant. It is therefore not feasible to describe and discuss 'a typical Cradock farmer' on the basis of this survey. Some specific personality factors that have been indicated by a number of non-average scores (Table 4.1) are however highlighted below. Specific factors are also expanded on in the discussion of their relationship to attitudes towards 'problem animals' in Chapter 6.

4.2 SPECIFIC 16PF RESULTS

Table 4.1 indicates which personality factor scores differed significantly from the 'average' norms population of adult white male South Africans. The range of what are essentially 'average' or 'normal' scores, includes scores of four through to seven: **only when scores fall below four or above seven should one begin to think of a person as distinctly "departing from the average"** on that factor (Cattell *et al.* 1970: 63).

Table 4.1 Farmers' personality factor scores

Farmer code:	A1	A2	A3	A4	A5	A6	A7	A8	A9	E1	E2	E3	E4	E5	E6	E7	E8
Factor A: Reserved vs. Outgoing	lo	(av)	av	av	av	hi	(hi)	av	(av)	av	hi	hi	(av)	av	av	lo	(hi)
Factor B: Concrete vs. Abstract thinking	lo	(av)	av	av	lo	lo	(lo)	av	(lo)	lo	av	av	(hi)	lo	av	av	(hi)
Factor C: Lower vs. Higher ego-strength	hi	av	lo	av	lo	av	(hi)	lo	(av)	av	lo	av	(hi)	av	lo	av	(av)
Factor E: Submissive vs. Dominant	av	(av)	av	lo	av	av	(av)	av	(hi)	av	av	av	(av)	lo	lo	av	(av)
Factor F: Sober vs. Happy-go-lucky	lo	(hi)	av	lo	av	av	(lo)	av	(hi)	lo	av	av	(av)	av	lo	av	(hi)
Factor G: Weaker vs. Higher superego strength	av	(av)	av	av	av	av	(av)	lo	(hi)	av	av	av	(av)	av	av	av	(av)
Factor H: Shy vs. Venturesome	hi	(av)	av	av	av	hi	(av)	av	(hi)	lo	hi	hi	(lo)	av	av	lo	(hi)
Factor I: Tough- vs. Tenderminded	av	(av)	hi	av	av	av	(av)	av	(av)	lo	hi	av	(lo)	av	av	hi	(hi)
Facor L: Trusting vs. Suspicious	av	(hi)	av	lo	av	hi	(av)	lo	(lo)	av	av	av	(av)	av	av	lo	(lo)
Factor M: Practical vs. Imaginative	hi	(av)	av	av	av	hi	(av)	av	(av)	av	lo	lo	(av)	av	av	av	(av)
Factor N: Forthright vs. Calculating	av	(hi)	hi	av	lo	av	(av)	av	(av)	hi	av	av	(av)	av	av	av	(av)
Factor O: Placid vs. Apprehensive	av	(av)	av	av	av	av	(av)	hi	(av)	lo	hi	av	(lo)	lo	hi	hi	(av)
Factor Q1: Conservative vs. Radical	av	(hi)	av	av	lo	lo	(av)	av	(av)	av	lo	av	(av)	av	av	hi	(hi)
Factor Q2: Group-adherence vs. Self-sufficiency	av	(av)	av	av	av	av	(av)	hi	(lo)	av	av	av	(av)	av	av	hi	(lo)
Factor Q3: Low vs. High strength of self-sentiment	lo	(hi)	av	hi	lo	av	(av)	hi	(av)	av	lo	av	(av)	av	av	lo	(av)
Factor Q4: Relaxed vs. Tense	av	(av)	av	av	hi	av	(av)	hi	(lo)	av	hi	av	(lo)	av	av	av	(av)

Notes to Table 4.1

The table shows **average** ('av') scores, i.e. scores of four to seven; **low** scores ('lo' = 3, 2 or 1) and **high** scores ('hi' = 8, 9 or 10). Brackets indicate motivational distortion and thus data which should be disregarded.

In 'X vs. Y', for every personality factor, X refers to a low score and Y to a high score.

Factors H, M, N, Q2 and Q3 will not be discussed, for no specific patterns meaningful to the current context emerged from these scores. **Factor A** (Reserved vs. Outgoing) too, is an example of a factor on which scores ranged from below to above average, implying that as a group these farmers vary from being **Reserved (detached, critical** and **aloof)** to **Outgoing (warmhearted, easy-going** and **participating).**

The following descriptions of factors which did tend to reveal meaningful patterns are based on empirical research evidence regarding the nature of the personality traits they signify (Cattell *et al.* 1970).

Factor B (Concrete thinking vs. Abstract thinking) is a power measure (i.e. a speed factor is not involved in its measurement) for sholastic mental capacity that is crystallized (i.e. does not change throughout much of the life span). A low score indicates that a person is **more concrete-thinking**, while a high scorer is a more abstract-thinking person. On the whole the sample did not score high. In this regard two factors are worth noting. The first is that some farmers indicated that they were simply not prepared to put much effort into these 'intelligence' questions. This reluctance, whatever its cause, may have distorted the scores for Factor B. Secondly, the kind of 'intelligence' measured by this factor is described as scholastic ability and abstract thinking. These skills may be of less importance to farmers in their everyday lives than more 'practical' aspects of intelligence, and therefore not regularly practised.

Results for **Factor Q1** (Conservatism vs. Radicalism) indicated that if participants are not average on this factor, they tend to be rather **conservative in temperament** than radical. This means that they are inclined to respect established ideas and tolerate traditional difficulties. There was however one exception (E7) whose score indicated his being experimenting, critical, free-thinking and analytical.

Seven factors on which the group tended to lean in a particular direction (indicated in bold print), are discussed next. These are grouped together because they seem to present an image of farmers that differ from many stereotypical opinions, and which may be important in understanding their attitudes. These are:

Factor C (**Lower** vs. Higher ego strength)
Factor E (**Submissive** vs. Dominant)
Factor F (**Sober** vs. Happy-go-lucky / **Desurgent** vs. Surgent)
Factor I (Tough- vs. **Tender-minded** / Harria vs. **Premsia**)
Factor O (Untroubled adequacy vs. **Guilt-proneness**)
Factor Q4 (Relaxed vs. **Tense** / Low vs. **High ergic tension**)
Factor L (Trusting vs. **Suspicious** / Alaxia vs. **Protension**).

On **Factor C**, five of the 12 'non-distorting' participants scored below average, indicating that they are **affected by feelings, emotionally less stable and easily upset** (having a **Lower ego-strength**), as opposed to being emotionally stable, calm and facing reality (having a High ego-strength). Emotional instability is associated with getting emotional when frustrated, being easily perturbed, evasive of responsibilities, tending to give up, worrying, and getting into fights and problem situations.

On **Factor E**, the three farmers who varied from average tended to be **obedient, mild, easily led, docile** and **conforming (Submissive)**, rather than assertive, independent, aggressive and stubborn (Dominant). Submissive individuals tend to be humble, conventional and conforming, and easily upset by authority.

On **Factor F**, four participants varied from average. They were inclined to be **sober, prudent, serious** and **taciturn** (Desurgent), as opposed to happy-go-lucky, heedless and enthusiastic (Surgent). This implies that they tend to be more silent and introspective, full of cares, concerned and reflective, incommunicative, sticking to inner values, slow and cautious. Cattell (1973) has argued that actual experience is a central environmental factor involved in desurgency.

Although one farmer scored low on **Factor I**, indicating tough-mindedness, self-reliance, realism and a 'no-nonsense' trait, three others scored high, indicating that they are **tender-minded, dependent, over-protected** and **sensitive**, a characteristic described as Premsia. Premsic individuals may be insecure, seeking help and sympathy, anxious about self, kindly and gentle.

Factor O scores indicated that the minority of non-average farmers (n = 2) are placid, self-assured, serene and confident (Untroubled adequacy), while four others lean towards being 'Guilt-

prone': **apprehensive, self-reproaching, insecure, worrying** and **troubled.** Such individuals tend to be anxious, depressed, easily overcome by moods, hypochondriacal and inadequate, lonely and brooding.

The three farmers who differed from average on **Factor Q4** were **tense, frustrated, driven, overwrought** and **fretful** (indicating **High ergic tension**) rather than relaxed, tranquil, torpid and unfrustrated (Low ergic tension). Ergic tension manifests itself in the individual being irrationally worried, irritable, anxious and in turmoil. It is best interpreted as an 'id' (general ergic need) energy excited in excess of the ego strength capacity to discharge it, and which is therefore misdirected and converted into anxiety; it is generally disruptive of steady application and emotional balance. Cattell *et al.* (1970) note that the undischarged drive can be a function of either the level of situational, environmental frustration and difficulty, or some temperamental incapacity of the ego to handle discharge well, even in an environment of ordinary difficulty.

Although only single high score on **Factor L** indicated an individual who tends to be Protensive, i.e. **suspecting, jealous, dogmatic, suspicious of interference, irritable** and **dwelling on frustrations**, observational data indicated that two other farmers display this trait as well. The term 'Protension' is derived from 'projection' and 'tension'. It indicates the tendency to deal with sub-conscious thoughts, feelings and tensions which the individual is unable to accept, by means of the defense mechanism projection, i.e. attributing them to others. Projection is considered to be an immature and maladaptive mechanism for dealing with perceived internal or external psychic threats (see Cattell and Kline, 1977).

An image thus emerges of a group of people who (barring individual exceptions) tend to be affected by feelings, humble, sober, tender-minded, rather apprehensive and tense. Three participants made significant use of projection to defend against inner tensions. If one adds to this the indication that five farmers experienced the need to present themselves as more socially acceptable than they perceived themselves to be (as deduced from their motivational distortion scores), it would seem that several farmers in this study suffered from psychological tension, discomfort or maladjustment. In fact, although no one farmer could be classified as neurotic, when all the non-average scores of the group are taken into account, a decidedly neurotic profile, as defined by Cattell and Kline (1973), emerges.

The above findings are supported by a study on 84 American farmers, in which a very similar average 16PF profile emerged. Cattell and his co-workers (1970: 201) described this profile as "surprising", "being very different from the stereotype of the robust and earthy individual far from the city's worries". The American farmer was shown to be an introverted and quite anxious person. He was also desurgent, low on dominance, premsic and protensive. Cattell *et al.* (1970: 201) calls it "one of the most neurotic of occupational profiles". Referring to their observation that the profile shows some resemblance to vocational rehabilitation clients in a rural area, they speculate that it may represent self-selection for avoidance of the stresses of city life. This researcher supports another possibility they note, namely that the relatively isolated life in the farming environment plays a role in the development of the above personality factors. The implications of the finding that several farmers in this study seem to experience high levels of psychologic tension, which they are not well-adjusted to, are discussed in Chapter 6 in relation to their attitudes towards perceived problem animals.

CHAPTER FIVE
ATTITUDES TOWARDS PERCEIVED PROBLEM ANIMALS

Nee, kyk die rooikat en ek is nou nie vrinde nie! ... Gaan kyk net, kom op 'n plek waar daar 'n rooikat was, dan lyk dit of 'n bom ontplof het. Groot-uier diere, lammers sonder ma's, verminkte diere wat daar rondlê ... Jy word half dik ok vir die ding.

Cradock farmer on Lynx

Then you reckon 'Keep 'em in a zoo'.

Cradock farmer on Martial Eagles

5.1 INTRODUCTION

This chapter **summarises** the study group's attitudes towards perceived problem animals and shows how these summaries have been used to construct four sets of five **categories** of attitudes each, according to which each farmer had been classified and assigned **attitude scores** and a **rank order**. Two aspects concerning the descriptions of attitudes require some explanation beforehand.

5.1.1 Animal categories

The first aspect concerns the four groups into which the species themselves were grouped. The specific animals of which pictures (see Appendix 3) were presented, and about which questions (Appendix 2) were asked, were chosen and grouped on the basis of a literature review of the

South African 'problem animal' situation and discussions with a conservationist (Boshoff, Pers. comm. 1990). In the case of the group termed, for convenience sake, the 'non-declared perceived problem mammals', the fact that farmers displayed very diverse attitudes and actions towards them, made the construction of a single attitude category very difficult. (See section 8.1.2.)

The four categories are:

(1) **Declared problem animals** (DPA)

Lynx
Black-backed Jackal

(2) **Non-declared perceived problem mammals** (NDPPM)

Aardwolf
Cape Fox
Bat-eared Fox
African Wild Cat

(3) **Eagles**

Black Eagle
Martial Eagle
Tawny Eagle

(4) **Vultures**

Cape Vulture

It should be noted that in this study the term Declared Problem Animals refers only to Lynx and Black-backed Jackals and not any other declared problem species. The second category are referred to as **mammals**, to distinguish them from categories 3 and 4, which also incorporate 'non-declared', perceived problem animals. In retrospect, a category for **crows** might also have been included. During the interviews farmers commented spontaneously on crows. The researcher now sees that, in this district at least, attitudes towards crows is an important dimension of attitudes towards perceived problem animals on the whole.

5.1.2 Construction of attitudes

As motivated in Chapter 2 (sections 2.2.2 and 3) the 'index' for infering attitudes consists of three different components. The **affective** dimension of attitudes was taken to encompass feelings and

evaluations, and were elicited mainly by three groups of interview questions viz:

* attitudes towards animals that may cause stock losses (Appendix 2, items D2, E2 and E3),
* attitudes towards conservation of vultures and eagles (Items D1 and E1),
* whether these animals are of any value on the farm.

(When farmers wanted clarification as to what 'attitude' meant, questions were rephrased as "What do you think and feel about ... ? ".) In keeping with the literature the terms 'affect' and 'attitude' are sometimes used interchangeably in this chapter. The other two dimensions are **actions**, including intended actions, such as persecution or protection of eagles, and **cognition** (beliefs, opinions and knowledge). It is often difficult to separate beliefs from feelings and therefore the latter component will be seen to overlap with the affective dimension in the subsequent descriptions.

5.2 ATTITUDES TOWARDS DECLARED PROBLEM ANIMALS

5.2.1 Introduction

The Lynx *Felis caracal* is generally regarded as the most common declared problem animal occurring in the Cradock district. Most farmers report that the Black-backed Jackal *Canis mesomelas* has been eliminated from the area by previous generations' 'vermin' control actions, but also that they have heard rumours that these animals are once again appearing in the district. In this study it was only the participant farming in the vicinity of the Mountain Zebra National Park (MZNP) who felt that he had enough experience of Black-backed Jackals to talk at length about them. Attitudes elicited on Black-backed Jackals thus depended, bar this one exception, on hearsay, and it was therefore decided not to construct categories for attitudes towards Lynx and Black-backed Jackals separately. Two participants reported that baboons *Papio ursinus* (not in pictures presented) can cause stock losses during periods of drought, and another farmer had had experience of a single leopard *Panthera pardus* moving through his farm and killing stock. Thus with one exception, farmers' attitudes towards DPA were dominated by their thinking on Lynx.

5.2.2 Knowledge, beliefs and opinions

On being presented with the pictures of possible predators (Appendix 3), all farmers identified the Lynx and Black-backed Jackal without hesitation. They often had anecdotes to tell, especially about Lynx. The researcher found it difficult to decide which of the views on the behaviour of perceived problem animals represented factual knowledge based on experience or scientific information, and which represented personal opinions or beliefs passed on from peers, parents or elsewhere. This problem is perhaps due, at least in part, to the reason volunteered by one farmer:

> The whole ecological balance has been disturbed, so what animals do for food, is anybody's guess now. ... The wild animals would not have a set pattern of behaviour in an area like this. Because the whole ecology, the whole natural scheme and balance and interrelationship between animals ... has been so disturbed ... that they simply go for the food that they can get hold of ...
>
> (E2)

In the following analyses 'knowledge' thus simply refers to farmers' ability to identify specific animals from the pictures presented to them. 'Knowledge' is however not taken into account in the case of DPA, because all farmers could identify Lynx and Black-backed Jackals.

The general view was that these animals would never be completely eradicated - the Black-backed Jackal is too cunning and the Lynx a prolific breeder with a "strong survival instinct" (A8). This view is supported by the warden of the MZNP (Fourie, Pers. comm. 1990). Farmers who claimed to have had considerable experience of stock losses have specific beliefs about the way in which these animals kill, their food and habitat preferences, the times at which most stock losses occur, and so forth. They tended to confirm each others' beliefs, while in contrast those who defined predation as a problem, but were not clear at all on the extent of their losses, sometimes contradicted each others' views (eg. on prey preferences). This created in the researcher the impression that the latter farmers' beliefs did not really stem from personal experience of the animals, but from hearsay.

As mentioned earlier, the participants generally had less experience of Black-backed Jackals than of Lynx. Nevertheless, based on fathers' or peers' attitudes, or in two cases on actual experience, many farmers believed that the animal was "an even greater pest" (E1) than Lynx. The Black-backed Jackal was thought to catch fewer sheep at a time than the Lynx (usually two - "een om

te eet en een sommer vir die lekkerte" (A5)), but its cunning made it much more difficult to control.

Three farmers indicated awareness of Moolman's (1986) research on Lynx in the MZNP and some of the findings. Six farmers surmised that it is only individual animals that start taking stock for some reason or other:

> I feel that the rooikat that are [*sic*] attacking my sheep has to be an aged cat, [that is less] agile [and have lost] the ability to catch [natural prey], and then he turns to the alternative, so if you call him a 'rogue rooikat'.
>
> (E7)

> They [farmers] see them [so-called predators] as goodies ... some of which are baddies.
>
> (E2)

Two farmers held the opinion that "all things have their value" but that they had "no evidence" (A1, A2) of the value of Lynx or Black-backed Jackals - they expressed a lack of knowledge. Several farmers referred to a hypothesis that Lynx and Black-backed Jackal are involved in controlling each others' numbers. None could explain the origin of the idea although one thought he had heard it on the radio. The work of Pringle and Pringle (1979) may be a source but the researcher has no evidence for this. There were also different interpretations of the hypothesis. Those farmers who have Lynx and no Black-backed Jackal problems, theorised that Lynx have increased in the area because Black-backed Jackals have been eliminated and thus no longer prey on young Lynx. Others surmised that the reason that Black-backed Jackals are once again turning up in the area may be due to a decrease in Lynx numbers and thus a removal of Lynx control on the young of Black-backed Jackals. Fourie (Pers. comm. 1990) rejected these hypotheses in favour of a view that ecological vacuums are created for predators when other predator species are systematically decreased by control measures. Four farmers expressed the belief that the National Parks Board, under whose control the MZNP falls, is at least partly responsible for an increase in the numbers of Lynx and Black-backed Jackals in the district.

Farmers generally believed that Lynx are 'dumber' than Black-backed Jackals and thus easier to catch. One farmer however, was of the opinion that, through control actions which eliminate the less cunning members of the species, a 'super rooikat' has been bred, which will not be easily eradicated. Discussions with conservationists at the Southern African Wildlife Management Association's Problem Animal Symposium elicited similar opinions about the Black-backed Jackal in the northern Transvaal.

5.2.3 Affect: feelings and evaluations

Five farmers expressed strongly negative feelings towards Lynx, viewing it as a wasteful, wanton and maiming killer. The following interview excerpt examplifies their feelings:

> Jy weet om die rooikat te bewaar of te reken dit is nou so 'n wonderlike dier, maar ek meen aan die ander kant, gaan kyk net, kom op 'n plek waar daar 'n rooikat was, dan lyk dit of 'n bom ontplof het. Groot-uier diere, lammers sonder ma's, verminkte diere wat daar rondlê ... dan word jou ... [lights a cigarette] ... Jy weet, jy word half dik ok vir die ding.
>
> ... klein lammertjies ... dit is natuurlik hulle teiken, hulle sal verkieslik jou klein bokkie ... - boerbok seker nog meer omdat hy so lekker skree ...
>
> (A9)

The latter quote, in which the farmer states that Lynx might prefer Boer goat kids because they react more noisily to being caught, possibly indicates an irrationality which may stem from strong emotions as a result of experiences he claimed he had. A more neutral attitude was held by a farmer with no experience of Lynx predation, who felt it was the nature of cats to "kill for the fun [of it]" (E2).

The most negative attitude to emerge was that Lynx and Black-backed Jackals are one's enemies, that need to die ('vrek') and be killed on sight, even if they have not caught any stock. Five farmers expressed this attitude. Three farmers held the most positive attitude, namely that Lynx and Black-backed Jackals are not natural livestock predators and cause stock losses only because of special circumstances. The middle group of attitudes ranged from views that, 'if it catches sheep it should die', through a feeling of dislike of the predators because of the serious losses they incurred, and the attitude of not being at war with the predators but still feeling a need to control them, to neutral attitudes of not bothering about them until they started bothering one.

As regards the **value** of Lynx and Black-backed Jackals, roughly three groups of evaluations could be discerned: The first (held by three farmers) is that predators have a very valuable role to play in the ecology on farmlands and should therefore be tolerated, except in extreme cases of substantial economic loss. In the view of these participants such losses occur far less often than most farmers think, for Lynx and Black-backed Jackals are not 'natural' stock takers.

A second group (n = 4) also held the attitude that Lynx and Black-backed Jackals are of value, or at least that "everything has its role to play" (A1), but they were less positive towards these

predators, due to some reservations. They either felt that some individual animals "forget their role" (A1) and become stock thieves, or that the value of Hyrax control is overshadowed by the stock losses Lynx cause, and that although one may be a "conservationist at heart" one also "needs to make a living" (E1), in which these animals unfortunately interfere and thus become problems.

The third and most negative group of attitudes on the value of DPA are that they are of no value at all and only do damage (n = 4). The other six farmers' evaluations were combinations of these three broad attitudes.

It was interesting that several farmers referred to animals in anthropomorphic terms. The animals were "goodies" and "baddies" (E2, E6), "dumb" or "clever" (A3, A5) and even compared to "problem people", as in the introductory quote to Chapter 6. These habits may indicate a degree of intimacy arising from the long-standing relationship between farmers and perceived problem animals.

5.2.4 Actions

Of the 17 participants in the study, only four have never taken action against DPA. Three of these farmed mainly on irrigated lands and gave this as the reason for not experiencing predation. Two of them said they would reluctantly take action if losses occurred which were financially crippling; the other allowed the hunting club pack on one of his farms where Lynx occurred - for his neighbours' sake - but does not personally believe in controlling predators. The fourth was a 'veld farmer' (utilising only extensive or 'veld' grazing) who had, to the best of his knowledge, never had any losses due to Lynx, but would take control measures if they caused him substantial financial losses. All four participants stressed that control actions may be necessary for other farmers who did experience damages and did not have the infrastructure of safe irrigation lands. Table 5.1 indicates the control methods which were used (often in combination) by the other 13 farmers.

All farmers denied using poisoned bait to kill predators. Six farmers, including the three who rated the issue as a major farming problem (see section 7.2.3.2), involve their labourers in constant 'problem animal' control measures as part of the daily farming routine. They also co-operate closely with their neighbours in 'problem animal' control operations. The other seven who

take action against Lynx and Black-backed Jackal do so only after specific incidents of stock loss.

Table 5.1: Control methods used against DPA

Method mentioned	Number of occasions
Traps set by staff, sometimes inspected by farmer	7
Cages for Lynx	5
Own hunting dogs with staff hunters	5
The district's 'jackal hunting club'	5
'Coyote getters'	1
Spring guns set on fences for jackal	1

5.2.5 Classifying farmers according to attitudes towards DPA

To classify farmers according to their attitudes towards DPA, the following indicators had been taken into account: The respondent's **evaluation** of the animals, his **belief** about their tendency to take livestock, and his **actions** towards them, or his declared intended actions in case predation occurs.

The researcher proposes that 'problem animal' control actions depend to a greater or lesser degree on the extent of predation the farmer actually experiences. Actual predation may in turn be influenced by factors such as the locality of the farm or the type of grazing, as discussed in section 7.2.3. Reference is made here to this fact in order to emphasize that situational factors can influence both actions towards 'problem animals' and beliefs about their tendency to take stock, and that such factors thus influence the construction of attitude categories in this study (refer also to sections 2.2.2 and 3 and 5.1.2).

Strongly Positive group (score of +2): These farmers' attitude about the **value** of DPA was that, as predators, they are indispensable. Their belief was that they **take stock** only rarely. Farmers did not or will not take any personal **control actions.**

Positive (+1): The attitude here was that DPA as predators have a very **valuable** role and should be tolerated as far as possible. They **take stock** only infrequently. In contrast to the first

category, these farmers *will* take **control actions** in extreme cases of substantial economic stock losses.

Neutral or Ambiguous (0): These farmers had a 'neutral' attitude: they were unsure of or ambiguous about DPA's **value** and tendency to **take stock**, and of what **actions** they will take in case predation occurs.

Negative (-1): DPA may have **value** but individual animals lose it when they start **taking stock**, which is inevitable, or else their value is overruled by the damages they cause. Farmers felt that in order to make a living **control actions** have to be taken when stock losses occur.

Strongly negative (-2): DPA have **no value** at all: they only and inevitably cause **stock losses**; **action** should be taken against them on sight, even if losses had not occurred.

Based on the above criteria farmers were assigned to categories and allocated a score for their attitude towards DPA, as follows:

Table 5.2: Attitude scores for Declared Problem Animals

Strongly positive (+2)	Positive (+1)	Neutral (0)	Negative (-1)	Strongly negative (-2)
E7	E2	E3	E6	E4
	E8	E5	A4	A9
		E1	A5	
		A1	A8	
		A2	A6	
		A3	A7	

Table 5.2 indicates that the minority of farmers (n = 3) had positive and the majority (n = 8) negative attitudes towards DPA.

5.3 ATTITUDES TOWARDS NON-DECLARED PERCEIVED PROBLEM MAMMALS

5.3.1 Introduction

Referring to the pictures of possible mammalian predators, farmers mentioned that, besides the DPA Lynx and Black-backed Jackal, the African Wild Cat *Felis lybica* (which they referred to *inter alia* as the 'wild cat', 'wilde kat', 'groukat' or 'vaalboskat'), the Cape Fox *Vulpes chama* ('silver fox', 'silwerjakkals' or 'draaijakkals'), the Bat-eared Fox *Otocyon megalotis* and the Aardwolf *Proteles cristatus* occurred on their farms. Farmers report on distribution trends that while the Aardwolf seems to be becoming scarcer, Bat-eared Foxes are on the increase.

These animals are termed for convenience sake 'Non-declared, Perceived Problem Mammals' (NDPPM), although not all farmers perceive of some or all of them as 'problem' animals, as indicated below. A diversity of beliefs, attitudes and actions regarding these animals were revealed, which made classification difficult and somewhat crude, but it was not feasible to construct categories for each of the NDPPM separately, since not all 17 participants commented on all the different species (see Table 5.3). Data in some categories would have had to be based on a few responses only, were separate categories constructed.

Animals that were not represented on the set of pictures, but were noted by E2 to occasionally kill newly born lambs on irrigated farmlands are the otter (probably the Cape Clawless Otter *Aonyx capensis*) and the Genet *Genetta spp.*.

5.3.2 Knowledge, beliefs and opinions

Generally farmers did not know this group of animals as well as the Lynx, but the majority could identify most species with a little difficulty. Several farmers expressed a conscious lack of knowledge about them. While many held the view that all animals have a role to play in nature, they were unsure of what these species' roles and thus their value to the farmer were. Farmers' beliefs and opinions on NDPPM are summarised in Table 5.3.

Table 5.3: Beliefs and opinions on NDPPM

No.	African Wild Cat	No. of farmers	Cape Fox	No. of farmers
	kills newborn lambs	4	kills lambs and/or Springbok kids	5
	very seldom kills lambs but can do so	3	the odd 'rogue' individual kills lambs very occasionally	4
	unsure	0	unsure	1
	never kills lambs	0	never kills lambs	0
	Bat-eared Fox		**Aardwolf**	
	insect eater; does not kill lambs	4	termite eater; harmless	7
	aware of contrary views, but have personally experienced that it does kill lambs	3	harmless	4
	mainly insect eater; kills lambs under extreme conditions	2	may kill lambs	1
	unsure	1	unsure	1

Table 5.3 lists farmer responses in order of frequency, and indicates that the majority of participants thought that the African Wild Cat and Cape Fox can cause stock losses, while the majority view regarding the Aardwolf was that it did not kill livestock. Farmers' opinions on whether the Bat-eared Fox takes stock were basically equally divided. Some of the farmers who thought animals take stock occasionally, stated that they do so only or mostly in times of drought.

5.3.3 Affect: feelings and evaluations

The largest group of farmers (n = 7) evaluated the NDPPM group as beneficial to the farmer. Three farmers felt that they possibly are of value, while only one stated that they had no value at all.

Eleven of the 13 farmers who expressed a view on the Aardwolf had a positive attitude towards it, and some of them expressed concern about the fact that it is becoming scarcer and often the first species to get caught in traps or cages set for 'problem animals'.

Bat-eared Foxes were often described as dumb, slow, half-tame and inquisitive animals that are easily killed - sometimes inadvertently. Some farmers mentioned it in almost endearing terms. It's value as a consumer of termites and insects were mentioned by seven farmers when probed (two who did not discuss these animals specifically - E2 and E7 - may have felt the same). Three interviewees felt neutral to negative to the Bat-eared Fox: A5 for example did not see any value in it and believed that they may be carriers of parasites, referring to Verster at Onderstepoort (see Verster 1990). Three others felt that its value (if it had any) was overshadowed by the stock losses it caused when it occurred in too large numbers.

The three farmers who were unsure of the NDPPM's value seemed to want to give the animals the benefit of the doubt because they had never seen them taking stock and had a positive attitude towards them; peer group pressure in the case of at least one farmer seemed however, to make him reluctant to do so.

An attitude expressed by four farmers is that "A few is good" (because these animals are of value) "but too many is bad" (E1), and that the animals should be controlled so that their numbers do not get out of hand. Another stated that "as long as they don't worry me, I'm not gonna worry them" (E5). The stage at which animals start to 'worry' farmers though, is difficult to pinpoint - it seems to depend upon a general feeling that the numbers of Bat-eared Foxes or Cape Foxes have increased too much, or that game on the farm is not doing well.

5.3.4 Actions

The actions taken by the participants towards NDPPM are as follows. One group (n = 3) actively hunt either Bat-eared or Cape Foxes when they judge that these animals have become too abundant on the farm. The largest group of farmers (n = 7) do not actively hunt or protect NDPPM, but mention, without noteworthy concern, that they often get killed as non-target species during control measures against DPA. A third group (n = 5) either claimed that they try to protect non-target animals from getting killed in control operations by for instance not setting traps, or expressed concern about inadvertent killings. These farmers were however, prepared to take control measures against NDPPM when specific incidents occurred, such as infrequent losses caused by African Wild Cats. Some farmers fall into the first category as far as Bat-eared and Cape foxes are concerned, but have a concerned attitude towards the Aardwolf. No farmers reported that they actively hunt the Aardwolf.

5.3.5 Classifying farmers according to attitudes towards NDPPM

Farmers were sorted into attitude categories according to the following criteria: **evaluation** of the **value** of the NDPPM and **concern** about non-target animals in DPA control operations, **beliefs** regarding their tendency to **take stock**, **control actions** taken against them, and lastly a judgement of the farmer's **knowledge** on these animals, based mainly on the ability to identify them.

Strongly positive (+2): This group of farmers seemed to have a good **knowledge** of these animals, felt strongly that they are of **value**, expressed **concern** about non-target species and took action to protect them. They believed that some individuals may **take stock** on occasion, in which case specific **action** may then be taken against such individuals.

Positive (+1): These farmers seemed to have somewhat less **knowledge**, appreciation of the **value** of and **concern** about the inadvertent killing of these animals than the above group, although those factors were apparent in their responses. Although they were unsure of some or all of these animals' tendency to **take stock**, they preferred to give them the benefit of the doubt or said that losses are minimal. They intended to take occasional action against those individuals that do cause stock losses.

Neutral/ambiguous (0): This group expressed a lack of **knowledge** and was unaware of or ambiguous about the **value** of NDPPM. They expressed some but even less **concern** than the above group about inadvertent killings of non-target animals. They were unsure of which species may cause **stock losses**. They did not take any **control actions** and were unsure if they would, should the need arise.

Negative (-1): These farmers seemed to have some or little **knowledge**, were unaware of the animals' **value** or felt that a possible benefit was overruled by **stock losses** occurring when their numbers increase too much. They believed that most will take stock and need to be controlled. They take **action** as deemed necessary, and were not **concerned** about possible inadvertent killings.

Very negative (-2): This group felt that the NDPPM have **no value**, that they **all take stock**, and that they therefore need to be **controlled** rather often. There was **no concern** for the possible demise of species. Their **knowledge** of the animals was relatively poor.

Table 5.4 Attitude scores for NDPPM

Strongly positive (+2)	Positive (+1)	Neutral (0)	Negative (-1)	Strongly negative (-2)
E7	A3	E5	A2	A6
E1	E3	A5	A4	
E2		A9		
E8		E4		
A8		E6		
		A1		
		A7		

Table 5.4 shows that the majority of participants in this study expressed neutral or positive attitudes towards the NDPPM, with very few negative attitudes in evidence.

5.4 ATTITUDES TOWARDS EAGLES

Farmers' attitudes towards eagles pertain specifically to the Black Eagle *Aquila verreauxii*, the Martial Eagle *Polimaetus bellicosus* and, in one farmer's case, the Tawny Eagle *Aquila rapax*.

5.4.1 Knowledge, beliefs and opinions

The farmers participating in this study commonly had very little knowledge about eagles on their farms and in general. Some responded to the questions about eagles that they were "not bird watchers" (A1, A2, E3) and that their knowledge was scant. Six interviewees could not identify any of the eagles on the pictures. Three could name the Black and Martial Eagles and said they occurred in the area; one who knew that a pair of Tawny Eagles bred on his farm, could not identify the bird on the pictures. Two other farmers seemed to have a fair knowledge of the birds, while three were keen bird watchers and had a good knowledge of birds of prey.

All participants believed that Black Eagles and Martial Eagles were able to kill lambs and kids and would on occasion do so. Interviewees with a positive attitude towards eagle conservation stressed that it would be counterproductive for conservation educators to disregard or deny stock predation. E2 expressed it thus: " The greatest enemy of the so-called problem animal is the researcher claiming that all nature and all animals are benign, and doesn't want to believe that some turn harmful. ... With farmers you cannot be a purist. You have to be a realist."

Conservation-conscious farmers advised that one needed to convince landowners that it was financially more beneficial to conserve eagles, than to kill them. At the same time, they conceded, an individual pair of eagles may cause a farmer substantial financial losses on rare occasions, in which case it may be warranted to get rid of them.

Two farmers expressed the view that Black Eagles would not become extinct despite control measures - they were of the opinion that they are still plentiful in the mountains, prolific breeders and that if one of a pair gets killed, the other quickly finds another mate. Three farmers believed that only some individual eagles will take stock and become problem eagles.

5.4.2 Affects: feelings and evaluations

The most positive attitudes towards eagles revealed in this study entail the view that the **value** of eagles in controlling the Hyrax population is of such financial benefit that it far exceeds the (often minimal) stock losses which they may cause, accompanied by a concern that these birds are getting scarcer and need to be protected. Six farmers had this attitude. The second set of attitudes, held by five farmers, was based on a less strongly positive view regarding the value of and need to protect eagles. These farmers were still positive towards eagles but less sure of or less outspoken on their value and the need to protect them. Two farmers held a fairly neutral attitude and were unaware of any possible value; three others felt that (some individual) eagles sometimes cause losses, in which case they may be hunted, but that discretion should be used. They were not concerned about the protection of eagles and placed more emphasis on the economic damage caused by eagles than any farmer in the second category. The following dialogue, elicited from a farmer stating that he has had to shoot Martial Eagles on occasion, illustrates aspects of this attitude:

Researcher:	And do you feel that they are in any danger to become extinct? If -
Farmer [laughs]:	Well you know, when you're looking after your own needs you're not really worrying about extinct. ... You've got one and it's worrying you and you shoot it so ... But overall, you sort of - you sort of imagine that there are - there are lots still.
Researcher:	Ja. What would you feel, if - if something like that became extinct?
Farmer [coughs]:	No, well then it's bad, I mm - ... then it's bad.
Researcher:	Ja. But at the moment it's ... at that moment when you are actually losing ... money you don't see it as important.
Farmer:	Yes. Yes. Then it's more important. Then you reckon 'Keep them in a zoo'. [Laughs] Yes.

Lastly, the most negative attitude towards eagles, held by two farmers, was that the (possible) value of the birds is exceeded by the financially significant stock losses they inevitably cause, that one needs to control eagle numbers and that there is no need to protect them. In summary,

while most farmers thought that eagles were of value to the farmer, attitudes were divided on whether stock losses due to eagles should be tolerated or not.

One participant ascribed his reluctance to shoot Black Eagles that he saw preying on his goat kids to his feeling that they were "magnificent birds" (E5).

Only four attitudes were expressed about Martial Eagles specifically; farmers had less experience and knowledge of them than of Black Eagles, which are relatively more common in the district. The attitudes towards Martial Eagles reflected the range of attitudes held towards eagles in general, varying from negative to positive. One farmer claims to have seen them taking lambs, upon which he killed them. Another farmer has heard of "research done in the Zebra Park" that has shown that the Martial Eagle "has very little to its credit" (E6). (The source of his information could not be established.) A third farmer was suspicious of a pair of Martial Eagles breeding close to his lambing flocks, but "gained respect" for them when he noticed that they did not prey on his lambs, but rather on mongeese *Suricata* spp. and Vervet Monkeys *Cercopithecus aetiops*, which impressed him very much. E8, aware of the value of eagles, was concerned about an apparent decrease in Martial Eagles shown up by a survey which he is conducting in the area. The one farmer who had experience of Tawny Eagles had a positive attitude towards their value and protection.

5.4.3 Actions

From this study three sets of actions towards eagles can be distinguished. Seven farmers said that they protected eagles on their farms because they were positive about their conservation (or would have done so had eagles occurred there) by not disturbing them and telling their children not to disturb them either. At least one of these interviewees had hunted Black Eagles in his youth, but did not do so any more. He ascribed this to a new awareness of their valuable role in Hyrax control and the fact that they are becoming scarce.

Five farmers did not do anything about eagles, either because they did no damage or because they did not occur on their farms, or due to admiration of the birds. They would however, persecute eagles if economically serious losses started to occur.

Three farmers admitted that they killed eagles. Several other farmers told of specific farmers they know who trap, poison or shoot eagles.

5.4.4 Classifying farmers according to attitudes towards eagles

Farmers were sorted into five categories of attitudes towards eagles on the basis of the following criteria: **affect**, i.e. **evaluation** of the **value** of eagles and **feeling concern** about their **protection**, **belief** about their tendency to **take livestock**, **actions** taken against the birds (or actions the farmer indicates he will/will not take if eagles occurred on his farm), and **knowledge** about eagles.

Strongly positive (+2): These farmers believed that eagles are of indispensable **value** and rarely **take stock**; they do not **persecute** eagles and will not do so in future, they were strongly aware of a need to **protect** eagles and will do so if they occur on their farms. They had a good **knowledge** of eagles.

Positive (+1): These farmers felt that eagles are **valuable**, but are not sure of their tendency to **take livestock**. They had not **persecuted** eagles because they had experienced either no or no substantial losses to date, but they were unsure whether they would do so if such losses did occur. They were aware of a need for **protection** but felt somewhat less strongly about it than the first category. They also had less **knowledge** about eagles than farmers in the category above.

Neutral or ambiguous (0): To these farmers the **value** of eagles, compared to the stock losses they cause, basically carried equal weight. They were unsure of the frequency with which eagles **take stock**. They had never **persecuted** eagles and were unsure of what they would do if they experienced substantial financial losses. They would not 'actively' **protect** eagles if they occurred on their farms, but would leave them be: they would be non-interfering but also non-concerned. They had little **knowledge** of eagles.

Negative (-1): Farmers in this group felt that eagles have **value**, but that the losses they cause when they **take stock**, which they (sometimes) do, exceed their value. They had **persecuted** eagles on occasion, when the birds seemed to be taking stock, and they were not concerned about

their **protection**. Their **knowledge** was poor.

Strongly Negative (-2): These farmers felt that eagles have **no value**, that they inevitably **take livestock**, and they therefore **persecuted** them on what seems to be a fairly regular basis. They felt there is a need to control eagles, not to **protect** them. Their **knowledge** was poor.

Table 5.5 Attitude scores for eagles

Strongly positive (+2)	Positive (+1)	Neutral (0)	Negative (-1)	Strongly negative (-2)
A3	A5	A1	A9	A6
A8	E1	A2	E4	A7
E2	E5	A4	E6	
E7		E3		
E8				

Table 5.5 shows that while the majority of participants had positive attitudes towards eagles, a number of negative attitudes also existed.

5.5 ATTITUDES TOWARDS CAPE VULTURES

The Cape Vulture *Gyps coprotheres* is the only vulture currently known to occur in the Cradock district, so that this section relates to this species only. According to farmers its numbers have dwindled in recent years.

5.5.1 Knowledge, beliefs and opinions

All farmers were able to identify Cape Vultures on the set of pictures if only as 'vultures' or 'aasvoels'; a few knew the English name Cape Vulture. Nine farmers were aware of the serious decrease in the vulture population. Five mentioned possible reasons for this decrease as being farmers' deliberate and inadvertent poisoning as well as shooting of vultures, due to misconceptions and lack of knowledge of the value and harmlessness of the birds. Another farmer said vultures were decreasing due to improvements in farming techniques; three denied

that farmers poisoned vultures because there is no reason to do so. They were aware of legislation against this practice.

5.5.2 Affect: feelings and evaluations

The majority of farmers judged that vultures are of value on a farm, since they "cleaned up" (A5) the veld and controlled diseases. Only one farmer (E3) was not sure whether they had any value, and one other (A6) believed that vultures can cause stock losses. The rest believed that they are scavengers that would only take sick or dead animals.

5.5.3 Actions

Farmers denied taking actions against vultures. One farmer who believed they may cause stock losses, did not experience such losses himself and therefore took no action. Farmers felt they were wrongly accused of still putting out poisoned carcasses for predatory mammals and thus inadvertently killing vultures.

5.5.4 Classifying farmers on their attitudes towards Cape Vultures

Farmers were sorted into the five categories of attitudes on the following basis: their **evaluations** of the value of vultures and the degree of **concern** they expressed about the decrease in the number of vultures, and their **belief** about whether vultures would take stock. Actions to either protect or control vultures could not be taken into account as no such actions were reported - in all probability at least partly because vultures now seldom occur in the district. Knowledge too, was not taken into account because all 17 farmers could identify the birds.

Strongly Positive (+2): These farmers expressed strong **concern** about the possible extinction of Cape Vultures; they accepted the role played by farmers in the decrease of vulture numbers and range. They felt strongly about the **value** of vultures and believed that the birds are scavengers who **do not take livestock** at all.

Positive (+1): These farmers expressed essentially the same feelings and beliefs as the first group, but their reported attitudes were less strong.

Neutral or ambiguous (0): This group was either unaware or unsure of the **value** of vultures, or made no comment about their value. They displayed little **knowledge** about vultures and expressed no concern about declining numbers: they either had mixed feelings about their **protection**, or made no comment. They also expressed no opinion on whether vultures **take livestock.**

Negative (-1): These farmers made no comment about the **value** of vultures, believe that vultures **may cause stock losses** and seemed either unconcerned, or possibly negative about their **protection.**

Strongly Negative (-2): This group felt that vultures are of **no value**, and that they need to be **controlled** and not **protected**, because they inevitably cause **stock losses.**

Table 5.6 shows the pattern of attitudes towards vultures. There were two main groups: farmers who felt strongly positive, and farmers who were neutral, perhaps due to their lack of experience of vultures. None of the participants expressed very negative attitudes, possibly for the same reason.

Table 5.6 Attitude scores for vultures

Strongly positive (+2)	Positive (+1)	Neutral (0)	Negative (-1)	Strongly negative (-2)
A5	A3	A1	A7	
A8	E4	A2	A6	
E1		A4		
E2		A9		
E5		E3		
E7		E6		
E8				

5.6 OVERALL RANKING ON THE BASIS OF ATTITUDES TOWARDS PERCEIVED PROBLEM ANIMALS

Based on Tables 5.2, 5.4, 5.5 and 5.6 each farmer was allocated a score for his attitudes towards each of the four groups of animals. The four scores were added to form a total attitude score, according to which they were then ranked (Table 5.7).

TABLE 5.7: Farmers' scores and ranking for attitudes towards perceived problem animals

Code	DPA	NDPPA	Eagles	Vul-tures	Total Score	Rank
E7	2	2	2	2	+8	1
E2	1	2	2	2	+7	2.5
E8	1	2	2	2	+7	2.5
A8	-2	2	2	2	+4	4.5
E1	-1	2	1	2	+4	4.5
E5	0	0	1	2	+3	6.5
A3	-1	1	2	1	+3	6.5
E3	0	1	0	0	+1	8.5
A5	-2	0	1	2	+1	8.5
A1	-1	0	0	0	-1	10
A4	-1	-1	0	0	-2	12.5
E6	-1	0	-1	0	-2	12.5
E4	-2	0	-1	1	-2	12.5
A2	-1	-1	0	0	-2	12.5
A9	-2	0	-1	0	-3	15
A7	-2	0	-2	-1	-5	16
A6	-2	-1	-2	-1	-6	17

Notes to Table 5.7

The attitude scores, derived at by content analysis of qualitative interview data, should not be seen as true calculated scores or interval measurements. One cannot regard farmer E7 with a score of +8 as 'twice' as favourably orientated towards 'problem animals' as A8 with a score of +4; similarly, a farmer with a final score of 0 cannot be seen as differing to the **same extent** from A8 as A8 does from E7. These scores are however, an **indication of rank**: A8 has a more positive overall attitude towards 'problem animals' than the farmer scoring 0, and a less positive one than E7.

Note that the higher the positive score or ranking ('1' taken as highest rank), the more positive the farmer's attitude towards perceived problem animals, their value and their conservation. Conversely, a low (negative) score corresponds to a ranking which indicates a negative 'environmental' attitude.

Table 5.7 indicates that E7, E2 and E8 are the three most 'conservation-conscious', 'positive-to-wildlife' farmers. They are followed by a group of four respondents who are positive in attitude, and then three farmers who are fairly neutral or ambiguous. Five farmers have essentially negative environmental attitudes, while two farmers (A7 and A6) form the group with the most negative, least 'conservation-conscious' attitudes towards perceived problem animals.

CHAPTER SIX

THE RELATIONSHIP BETWEEN PERSONALITY FACTORS AND ATTITUDES TOWARDS PERCEIVED PROBLEM ANIMALS

... En so is dit maar met enige dier ... die rooikat vang dasse, hy vang ... al hierdie klein ongediertetjies, en die dag as hy nou eers skaap gevang het, dan het hy sy doel verloor ... Net so by mense, die mens het ook tog sy doel in die lewe, maar as jy jou doel vergeet, dan is jy 'n probleemmens.

Cradock farmer

6.1 INTRODUCTION

The aim of this study was to determine the nature of a possible relationship between farmers' attitudes towards 'problem animals' and aspects of their personalities. Table 6.1 is a comparative combination of each individual farmer's attitude score (from Table 5.7) and his scores on the **16PF** questionnaire. (Refer to Table 3.1 for factor descriptions.)

The original intention was to address the aim of the research by means of a statistical analysis of the correlation between the variables 'attitude score' and 'personality factor score'. As discussed in Chapter 4 (section 4.1.1) however, the **16PF** personality factor scores presented a dilemma because five of the 17 participants (29%) presented distorted responses in terms of the Motivational Distortion Scale. These scores could thus not be regarded as valid. The loss of these results from the sample, and especially the fact that motivational distortion occurred mainly on a particular side of the range of attitudes, consequently made a statistical correlation between variables inappropriate and the original intention had to be abandoned. Instead, the variables indicated in Table 6.1 were compared qualitatively.

TABLE 6.1: A comparison of farmers' attitude and personality factor scores

Farmer code:	E7	E2	E8	A8	E1	E5	A3	A5	E3	A1	A4	E6	E4	A2	A9	A7	A6
Rank order	1	2.5	2.5	4.5	4.5	6.5	6.4	8.5	8.5	10	12.5	12.5	12.5	12.5	15	16	17
Attitude scores	8	7	7	4	4	3	3	1	1	-1	-2	-2	-2	-2	-3	-5	-6
16PF scores:																	
Factor A: Reserved vs. Outgoing	1	8	(10)	7	5	4	5	5	9	3	4	5	(6)	(4)	(7)	(8)	10
Factor B: Concrete vs. Abstract thinking	6	6	(3)	4	3	1	6	3	4	3	6	7	(8)	(7)	(2)	(1)	1
Factor C: Lower vs. Higher ego-strength	5	3	(7)	1	5	6	3	2	6	8	6	2	(8)	(7)	(5)	(8)	6
Factor E: Submissive vs. Dominant	4	6	(4)	4	4	2	6	4	6	6	1	2	(4)	(4)	(10)	(5)	6
Factor F: Sober vs. Happy-go-lucky	4	6	(9)	5	2	5	4	5	6	3	2	2	(5)	(8)	(8)	(2)	6
Factor G: Weaker vs. Higher superego strength	5	5	(6)	2	5	7	5	5	7	6	7	6	(6)	(6)	(8)	(7)	5
Factor H: Shy vs. Venturesome	3	9	(8)	6	2	6	6	6	8	9	5	5	(7)	(7)	(10)	(6)	9
Factor I: Tough- vs. Tenderminded	8	9	(9)	6	3	5	8	5	4	6	6	5	(3)	(4)	(6)	(6)	4
Facor L: Trusting vs. Suspicious	3	5	(1)	3	6	6	5	5	5	6	2	5	(4)	(8)	(1)	(4)	8
Factor M: Practical vs. Imaginative	6	3	(4)	7	5	6	6	6	3	8	4	5	(5)	(4)	(5)	(5)	8
Factor N: Forthright vs. Calculating	4	4	(6)	5	9	4	3	3	6	6	5	5	(6)	(3)	(6)	(4)	5
Factor O: Placid vs. Apprehensive	9	8	(5)	9	3	3	6	5	6	4	4	8	(2)	(4)	(4)	(5)	7
Factor Q1: Conservative vs. Radical	8	3	(8)	6	6	5	7	2	6	7	6	5	(6)	(8)	(5)	(5)	3
Factor Q2: Group-adherence vs. Self-sufficiency	9	6	(3)	3	7	5	4	5	5	7	6	6	(4)	(4)	(2)	(7)	6
Factor Q3: Low vs. High strength of self-sentiment	3	3	(7)	2	4	7	5	3	5	3	9	4	(5)	(9)	(5)	(5)	5
Factor Q4: Relaxed vs. Tense	6	8	(5)	9	7	5	6	9	4	7	4	5	(3)	(6)	(3)	(5)	5

Notes to Table 6.1

The attitude scores, derived from content analysis of qualitative interview data, should be seen as indications of a rank order rather than as absolute scores, as indicated in section 5.6).

The 16PF scores are not raw scores, but 'stens' based on the calculated raw score standard deviation. (See section 3.1.4.2.)

Brackets indicate motivational distortion (refer to section 4.1.1) and thus data which should be disregarded.

In 'X vs. Y', for any personality factor, X is associated with a low score and Y with a high score.

6.2 THE RELATIONSHIP BETWEEN ATTITUDE AND MOTIVATIONAL DISTORTION

A possible relationship between attitude ranking and whether or not there was motivational distortion on the **16PF** was investigated statistically. Table 6.2 indicates that four of the five 'distorting' farmers (80%) were distributed among the lowest five attitude scores, i.e. were those farmers who were ranked as having the five most **negative** attitudes towards perceived problem animals. Put differently, 80% of the five most negative farmers distorted their **16PF** responses. This seemingly strong association was countered by the occurrence of one other 'distorting' participant in the group of farmers with the three most **positive** sets of attitudes. This distribution meant that when a possible relationship between attitude rank and the variable 'motivational distortion/honesty' was determined by means of the Mann-Whitney U-test for non-parametric data (Blalock 1979), it was found to be **not statistically significant** ($p>0,05$). The results do however suggest that, given a larger sample, an interesting relationship between these variables might be identified.

TABLE 6.2: Attitude rank and motivational distortion

Farmer	RANK	Motivational Distortion
E7	1	Honest
E2	2.5	Honest
E8	2.5	Distorting
A8	4.5	Honest
E1	4.5	Honest
E5	6.5	Honest
A3	6.5	Honest
A5	8.5	Honest
E3	8.5	Honest
A1	10	Honest
A4	12.5	Honest
E6	12.5	Honest
E4	12.5	Distorting
A2	12.5	Distorting
A9	15	Distorting
A7	16	Distorting
A6	17	Honest

6.3 THE RELATIONSHIP BETWEEN ATTITUDES AND SPECIFIC PERSONALITY FACTORS

Careful inspection of Table 6.1 indicated that five personality factors may be related to attitudes towards 'problem animals' in this study.

6.3.1 Factor B: Intelligence in terms of concrete vs. abstract thinking

In section 4.2 it was pointed out that not all scores on Factor B could be regarded as equally reliable, because in the view of the researcher farmers did not always make an effort with the 'intelligence' questions. Bearing this in mind, it must be pointed out that the three farmers with the most negative attitudes towards 'problem animals' (A6, A7, A9) also had very low scores for the abstract thinking measure. Although A7 and A9 distorted their responses, the researcher feels that their Factor B scores need not be disregarded, since a person trying to present himself as more socially desirable would probably not try to appear to be less intelligent, especially in the presence of a post-graduate university student. Low scores also occurred elsewhere in the ranking, though. In the case of E8, who was very positive towards conservation (rank 3), the low Factor B score (3) was almost certainly due to lack of motivation. Due to unavoidable circumstances the participant completed the second half of his questionnaire in the absence of the researcher, and did noticeably worse on Factor B in the latter section.

6.3.2 Factor I: Tough - vs. Tender-mindedness (Harria vs. Premsia)

A low score on Factor I indicates that a person is tough-minded and rejects illusions, while someone with a high score would be premsic, i.e. tender-minded and sensitive (Cattell *et al.* 1970). The three farmers with the most positive attitudes (two if E8 is discarded because of motivational distortion) had higher than average scores on Factor I (Tables 4.1, 6.1). Some qualities associated with Premsia, which could have been of importance in the formation of these farmers' conservation-conscious attitudes include being kindly, gentle, and indulgent to self and others and **basing acts on sensitive intuition** (Cattell *et al.* 1970).

Observational notes support the findings that E2 (Factor I = 9; rank = 2) and especially E7 (Factor I = 8; rank = 1) display the above aspects of Premsia. Although details of observational

notes cannot be reported without breaching confidentiality, the following interview excerpt may be illustrative of a person basing actions towards birds of prey on his farm, at least to some extent, on his intuition:

> ... you gather up through the course of a lifetime - you gather up thoughts about things, and you begin to have a sort of ... instinctive sense about things that are happening and what's where and where they used to be, and all that sort of thing. And you have an idea about the balance of ... birds and animals and where they appear on the farm. Now, as far as the raptors are concerned, I would say without hesitation, that they have not caused us any ... loss that's even worth mentioning.

Those farmers in the negative-attitude range whose results did not have to be discarded (A6, score 4 and E6, score 5), scored fairly low on Factor I, indicating that relative to the positive-attitude group they have a more tough-minded personality, although no more so than the average person. 'Tough-mindedness' includes a tendency towards being unsentimental, self-reliant, hard (to the point of cynicism) and unaffected by 'fancies'; such a person **acts on practical, logical evidence**. Cattell *et al.* (1970: 93) explains that Factor I "represents some sort of tough, masculine, practical, mature, group-solidarity-generating and realistic (no-nonsense) temperamental dimension".

Although the evidence for a relationship between Tough-mindedness and a negative conservation attitude is not absolutely clear from Table 6.1 (the fifth most positive farmer in fact had the lowest score), the existence of a possible trend is supported by observational notes. This possible trend has **important implications for an educational approach**: Appeals to sentiment could well be ineffective with these farmers and the presentation of factual arguments would probably be more useful. Tough-mindedness has, according to Cattell *et al.* (1970), a role in generating group solidarity. If such farmers can be shown that the group to which they belong is moving towards conservation, they may be persuaded to change their attitudes and become part of the movement.

6.3.3 Factor L: **Trust vs. Suspicion** (Alaxia vs. Protension)

A low score on Factor L indicates a person who is trusting, accepting of prevailing conditions, pliant to changes, understanding and permissive, tolerant and conciliatory (Cattell *et al.* 1970). Three of the five farmers with the most positive attitudes had low scores (E7 = 3, E2 = 5 and A8 = 3, taking into account that E8's results had to be discarded). The farmer with the most negative

attitudes on the other hand scored eight - indicating that he tends to be suspecting and jealous, dogmatic, suspicious of interference, tyrannical and irritable and dwells upon frustrations. This suggestion is supported by observational data. Furthermore, although A7 and A9 had low scores for Factor L, these were almost certainly due to proven motivational distortion, especially in the case of A7 who gave the impression of being a very suspicious person. Throughout the visit to his farm he seemed distrustful of the researcher's motives. It is also enlightening that A6 and A7, with the two most negative sets of attitudes, were **the only** farmers who were not prepared to be tape-recorded during the interview - a probable indication of a suspicious nature.

Cattell *et al.* (1970: 96) uses the term 'protension' for a high score on Factor L, to describe a person who "shows a high inner tension ... which takes the form of a feeling of social insecurity, together with compensatory behaviour and projection". Projection is a psychological defense mechanism which generates suspicion of others and their motives (Cattell and Kline 1977). The individual deals with inner motives, emotions and traits which he finds unacceptable and threatening by projecting them onto outside elements such as strangers, the government or nature and wild animals. Primitive peoples made use of this psychological mechanism, for example, when they contrived their many animated gods in natural objects. It is also possible that the world view of having to conquer nature, rather than live in harmony with it, stems from the projection of inner fears onto nature. From a psychodynamic perspective the inclination of individual farmers to regard animals as menacing may thus be explained as a tendency to make use of projection to deal with psychological stresses.

The protensive individual, according to Cattell *et al.* (1970), lists a relatively high number of annoyances in objective tests. (This contention may be supported by E1's and A9's long lists of problems experienced in farming, as well as the negative-attitude farmers' tendency to regard predators as 'problem' animals.) He also declines to be generous in giving information to others in a test situation. Observational notes on A9, the third most negative farmer, document the researcher's perception that he was withholding or misrepresenting information during the interview; A7 did not seem to try hard to answer **16PF** questions truthfully, and A6 neglected to answer several questions during and after the interview. Important implications for Environmental Education arise from the fact that the suspicious personality is skeptical of alleged idealistic motives in others and **uninfluenced by the views of prominent people.**

6.3.4 Factor O: Untroubled adequacy vs. Guilt-proneness

In the case of Factor O only the personality type characterised by a high score will be discussed, as three of the five most positive farmers obtained high scores for Factor O (E7 = 9, E2 = 8, A8 = 9). This is not contrasted with low scores in the case of farmers with negative attitudes. The high scores of the three positive-attitude farmers pointed towards a tendency to 'Guilt-proneness': being apprehensive, self-reproaching, insecure, worrying and troubled. They tend to be easily touched and to have a strong sense of obligation; they are sensitive to peoples's approval and disapproval. In a time when humankind's responsibility to the environment is becoming a widespread social concern, tendencies such as a strong sense of obligation and a sensitivity to others' approval may conceivably play a role in determining these participants' concern for the plight of nature and positive attitudes towards conservation. In this regard a comment from Cattell *et al.* (1970: 103) is relevant:

> ... in a broader social-evolutionary perspective, one should be careful of making the value judgement that O+ is mere weakness or a 'psychological deficit'; for [these] 'oceanic' emotions described in William James' essay on religion may ... have important socio-moral functional value.

The social and moral function of this factor may be harnessed by environmental educators in their efforts to establish a new environmental ethic which would enable humankind to live in harmony with nature.

6.3.5 Factor Q1: Conservatism of temperament vs. Radicalism

Scores on Factor Q1 show a rather random pattern, and a comparison will only be made between the most positive and the most negative farmers. Both had extreme scores on opposite ends of the scale (E7 = 8, A6 = 3). The most negative farmer had a low score which corresponds to Conservatism of temperament, tendencies to respect established ideas and to tolerate traditional difficulties. A6 revealed such tendencies when he questioned the researcher about life at what he seemed to regard as a liberal or even radical university, and mentioned his 'right-wing' attitude towards his black labourers. Similar political attitudes were also expressed by A7, the second most negative farmer whose distorted **16PF** results could not be used to explore this trait. A conservative character as described here may play a role in the tendency of such farmers to rely on established negative environmental attitudes and management practices regarding the 'problem animal' situation. However, E2 (ranked second, score 3) also exhibited Conservatism and although

this could have been a function of the test questions combined with his age (74), it cannot be ruled out that conservatism of character does not preclude one from being conservation-conscious.

A high score, as obtained by the most positive farmer, indicates radicalism and an individual who is experimental, liberal, analytical, and free-thinking. There is evidence (Cattell *et al.* 1970) that Q1+ individuals are better informed, more inclined to experiment with potential solutions to problems, less inclined to moralise and less unquestioning about views generally. These characteristics are once again strongly supported by data from interview impressions and observational notes: E7 has initiated innovative developments on his farm, experimenting *inter alia* with grazing strategies. He was clearly liberal in outlook and an analytical thinker. Being more prepared to seek new solutions to problems and question traditional, established ideas, it is clear why a Q+ farmer would be open towards conservation.

6.4 SUMMARY

In summary, the sample of farmers in this study seem to be experiencing generally high inner tensions. This was mentioned in Chapter 4, and interestingly is supported by data on American farmers' personalities. Five participants may have dealt with possible inner tensions and concomitant feelings of social insecurity by distorting their answers to the personality questionnaire. Two other broad ways of dealing with inner tensions were identified in the study group. Three farmers, including two with motivational distortion, seem to be inclined to **project** inner threats onto others and possibly onto objects in their environments, thus making them suspicious (Protension). These people would be disposed to accept relatively little responsibility for their actions. Seven participants on the other hand gave one or more indications that they tend to experience maladjustment as **inner** conflict which causes them to be more 'guilt-prone', tender-minded, insecure and worried. These people would tend to accept, in comparison, too much responsibility. Four farmers did not show any of these signs of inner conflict. The general population too, can be arranged on a continuum which varies from generally accepting too little responsibility to generally accepting too much. These traits are emphasised because in this study they were identified as personality factors which influence the environmental attitudes explored. The protensive farmers had the most negative attitudes towards 'problem animals', their value and conservation. The farmers with the most positive attitudes fell without exception in the 'tender-minded' and 'guilt-prone' group. They also tended to be more trusting and pliant to changes, understanding and permissive, tolerant and conciliatory than the negative-attitude group.

CHAPTER SEVEN
TOWARDS A HOLISTIC PERSPECTIVE

The greatest enemy of the so-called problem animal is the researcher claiming that all nature and all animals are benign, and doesn't want to believe that some turn harmful. ... With farmers you cannot be a purist. You have to be a realist.

Cradock farmer

I would like to see the farmers think it through though.

Cradock farmer on control action

7.1 INTRODUCTION

Due perhaps to the semi-structured nature of the interview used in this study, data collection yielded a wealth of information which was not specified in the research design and which cannot be discussed within the limitation of a half-thesis. However, a number of results contributing to insights relating to the 'problem animal' situation should be discussed here.

It would seem that the situation needs to be viewed by all parties involved, including researchers, conservationists and farmers, in a broader perspective than is currently the case. It can be argued on the basis of information procured that no one factor solely determines an individual farmer's attitudes and actions towards 'problem animals', and that **the context** plays an important role, perhaps not fully recognised by the parties concerned. Interacting factors which have been identified in this study are:

- the demographic factor **language orientation**;
- the **situational factors** type of grazing on the farm and topography, both of which influence actual predation;
- inappropriate **value orientations** or world views, namely too narrow economic or conquering orientations;
- **attitudes** towards conservation areas and agencies;
- **peer group influence**; and
- **personality factors**, which may be involved *per se*, or in influencing the above.

7.2 FACTORS INFLUENCING ATTITUDES TOWARDS PERCEIVED PROBLEM ANIMALS

7.2.1 Demographic factors

In order to explore the relationship between attitudes and personality factors better, a number of demographic factors were investigated in relation to attitudes. When attitude ranking was compared with demographic variables by means of researcher observation, it was found that in this research sample a farmer's attitudes towards perceived problem animals were **not related** to:

his **age,**
the **number of years** he had been **farming,**
the **number of generations** that his family had been farming in the Cradock district, or
the **size of his farm(s).**

The data are for the sake of individual confidentiality not reported in the half-thesis.

These findings supported recommendations by Duvel (1987) and Pettus and Giles (1987) that the origins of environmental attitudes and behaviour should not be sought in demographic variables. Results did not however, correspond with Lambrecht's (1976) finding that more positive attitudes towards conservation in Eastern Transvaal game farmers were associated with a younger **age.** (Lambrechts suggested that this was due to higher education levels in younger landowners.) In fact, several participants in this study mentioned that their more positive attitudes towards nature conservation have only developed in their later years. The result that the property size did not

influence attitudes is not contrary to Boshoff's (1980) finding that farm size is related to attitudes towards 'problem animals', since all the farms in this study fell within one of his farm - size categories (1000 hectares and larger).

7.2.2 Language orientation

The only demographic factor investigated that was related to attitudes was language orientation (Afrikaans or English as mother tongue). Negative attitudes towards 'problem animals' and their conservation were more noticeable in the Afrikaans-speaking part of the Cradock farming community, than among English speakers.

Attitude - rank and language orientation, as shown in Table 7.1, were compared by means of the Mann - Whitney U - test for nonparametric data (Blalock 1979). The relationship between the variables was found to be **statistically significant** ($p < 0.05$).

TABLE 7.1: Attitude-rank and Language orientation

Attitude-rank	Language orientation
1	Eng
2.5	Eng
2.5	Eng
4.5	Afr
4.5	Eng
6.5	Eng
6.5	Afr
8.5	Afr
8.5	Eng
10	Afr
12.5	Afr
12.5	Eng
12.5	Eng
12.5	Afr
15	Afr
16	Afr
17	Afr

In this sample of farmers there was thus a tendency for the landowners with the more positive attitudes towards 'problem animals', their value and their conservation, to be English-speaking.

The more negative 'environmental' attitudes tended to be associated with Afrikaans-speaking farmers.

This phenomenon was accepted by at least one farmer (A8) in the present study, and on a broader level by conservationists. It is also supported by researchers such as McDowell (1986) and Lambrechts (1976), who ascribed his finding that Afrikaans-speaking land-owners' attitudes towards aspects of nature conservation were somewhat more negative than their English-speaking counterparts, to the influence of other (demographic) variables: Afrikaans participants in his study were older, had lower educational levels, had been farming on their properties for shorter times, and were more often full-time farmers, than their English-speaking counterparts. Lambrechts suggested that the difference would disappear with time.

Following on section 7.2.1, demographic variables did not seem to influence the relationship between mother tongue and environmental attitudes in this study, and the researcher proposes that personal characteristics of Afrikaans-speaking farmers are perhaps more important. Personality differences between Afrikaans and English-speaking farmers were not a study area of this project, but it can be mentioned that this view was shared by two interviewees who were questioned about it:

> Jong ek dink dis in ons aard. 'n Afrikaner se net eenvoudig 'Jy praat kak man!', en hy gaan voort. Die Engelse is anders. Hulle sal eerder praat, vra 'Now why do you say that?' en probeer luister en uitvind. Hy sal die feite probeer kry. Ons vloek voor ons vra. Afrikaners sal eerder voortvoeter en skiet sonder om te dink.
>
> (A8)

> En ek is jammer om te se, ek is self 'n Afrikaner, maar hier sal die Engelse eerder - hy het dieselfde rooikatprobleem - luister en probeer saamwerk en baie minder kla. Die Afrikaner donder net aan. ... Ek noem dit 'self-trots'. Hy sal eerder dat sy skape deur rooikat opgevreet word as om te erken dat hy verkeerd was voor ander mense. En hy's nou eenmaal bekend as iemand wat gekant is teen rooikatte of die Parkeraad en dit vat te veel aan sy trots om terug te staan en te erken dat hy verkeerd was.
>
> (Nature conservationist)

The researcher's contention is that Afrikaans-speaking farmers are more inclined to display protensive and tough-minded characteristics (Factors L and I), and English-speaking farmers more Guilt-proneness and Tender-mindedness (Factors Q1 and I); two sets of traits which tended to be associated with more negative and more positive attitudes towards 'problem animals'

respectively in this study. However, even statistically significant relations should not lead to simple generalisations. As E8 warns: "If one wants to be truthful, a person should not say that it is a language thing, because I know Afrikaans guys who are conservation-conscious and English ones who are not."

7.2.3 Situational factors

A farmer's specific circumstances, here termed situational factors, may also influence his attitudes and perhaps most particularly his actions. It will be recalled that Lewin (1951) postulated in his field theory that behaviour is a function of the interaction between personality factors and the perceived environment: B = f (P, E). The results of this study seem to indicate that attitudes, too, are a function of such an interaction between the person (P) and his perceived environment. 'E' is difficult to investigate because the environment **as perceived** may be just as much a function of the person, as of the 'real' external environment. Stern (1964: 163), in an attempt to solve this difficulty, states that

> the perceived environment is both personal and consensual. It includes a public world, largely shared by other ... selves viewing each other as external people confronting the same external circumstances. E then may be defined independently of P in terms of the percepts and sanctions shared consensually by interacting P's.

Possible situational factors in farmers' consensually shared environment, which may influence attitudes towards 'problem animals', are now addressed. It will be argued that the issue is not whether situational factors play a role in determining attitudes and actions, but to decide to what extent perceived environmental factors are factual, as opposed to subjectively distorted.

7.2.3.1 Grazing and topography

Regarding the objectively shared, factual circumstances: if one farmer's environment includes more Lynx and/or Black-backed Jackals than another farmer's, and if his infra-structure makes it more difficult for him to protect his flocks from them, he may experience more predation and thus be more inclined to perceive of them as problem animals, and to take action against them. Two such situational factors identified in this study were the type of grazing the farmer makes use of and the topography of his farm. Table 7.2 shows a comparison between the attitude-rank of a farmer and the type of grazing on his farm.

TABLE 7.2: Attitude-rank and type of grazing

Farmer	Attitude-rank	Type of grazing
E7	1	Irrigation + veld
E2	2.5	Irrigation + veld
E8	2.5	Irrigation + veld
A8	4.5	Veld + irrigation
E1	4.5	Veld + irrigation
E5	6.5	Veld + irrigation
A3	6.5	Veld + irrigation
E3	8.5	Veld + irrigation
A5	8.5	Veld + irrigation
A1	10	Veld
A4	12.5	Veld + irrigation
E6	12.5	Veld
E4	12.5	Veld + irrigation
A2	12.5	Veld
A9	15	Veld + irrigation
A7	16	Veld
A6	17	Veld

Notes to Table 7.2

The categories were based on farmers' own broad descriptions of the type of grazing they utilise. Specific questions, which would have enabled a more refined analysis of categories of type of grazing, were not included in the interview.

'Irrigation + veld': these three farmers made considerable use of the Greater Fish River irrigation scheme, and although they had areas of extensive 'veld' grazing, intensive farming on pasture was their major enterprise.

'Veld + irrigation': farmers in this group primarily utilised extensive 'veld' grazing, but also kept stock to some extent on irrigated lands.

'Veld': these farmers utilised extensive grazing almost exclusively.

Attitude-rank and type of grazing were compared by means of the Mann-Whitney U-test for nonparametric data (Blalock 1979), taking the variable 'type of grazing' as 'Mainly irrigation' vs. 'Mainly veld' (i.e. E7, E2 and E8 vs. the rest). The relationship between **attitude-rank and type of grazing** was **statistically significant** ($p < 0.01$). From this one may conclude that

farmers whose stock graze primarily on irrigated pastures had more positive attitudes towards 'problem animals' and their conservation than farmers who utilised predominantly extensive, 'veld' grazing. There are at least two possible reasons, perhaps acting in combination. Firstly, irrigation may be seen as an innovation that is utilised by a more progressive farmer; more progressive farmers more readily accept new ideas and have more positive attitudes towards conservation. One should note however, that if a farmer does not utilise irrigation to a notable extent, it could be due to situational constraints, and not necessarily to a conservative outlook. Secondly, stock that graze and lamb on irrigated pastures that are close to human settlement are not prone to Lynx and Black-backed Jackal predation. Irrigation farmers thus do not experience as much predation by mammals as farmers who have to let their stock graze and even lamb in open, isolated 'veld' areas that are more prone to predation.

This view was supported by farmers who had very positive attitudes towards conservation, and who ascribed their own lack of experience of stock losses to DPA to their opportunity to let their flocks lamb on irrigated pastures. They stated that 'veld' farmers certainly experience predation by DPA and that they were unsure of how they would manage the situation, were they in it.

> I'm not really bothered by the rooikat, because I'm on irrigation ... [But if another farmer] can only lamb or kid in the veld, and the Lynx then gets a taste for his goats and kids, or sheep or lambs, then he has a problem, because they will not stop - they are wanton killers, ... they'll take 40% of his kids. ... All my sympathy is with the farmer who is actually losing 50% of his goat kids, because he is kidding, you know, in an infested area. ... I wouldn't know what the answer to that is.
>
> (E7)

The topography of a farm also plays a role in actual predation. This variable was not investigated in the study, but several farmers ascribed the fact that they only experienced sporadic stock losses due to Lynx to their ability to keep ewes and lambs in "easy veld" (A2), i.e. on terrain which was not mountainous (see foreground of Figure 1, Appendix 1). Two participants who claimed serious losses, farmed in predominantly mountainous areas, an idea of which is given in Figure 2.

More evidence for the role of situational factors in determining attitudes towards 'problem animals' was provided by the results on farmers' different perceptions of the **extent** of the 'problem animal' dilemma.

7.2.3.2 The perceived extent of the 'problem animal' dilemma

In order to determine how seriously farmers rated stock predation by 'problem animals' on their farms, the following set questions (Appendix 2) were asked early in the interview:

> What are the main problems that you experience with small-stock farming? Just mention them briefly.

followed by

> Any other problems that are of lesser importance?

Factors that farmers mentioned as major and minor issues are tabulated in Table 7.3.

Table 7.3: Perceived problems in small-stock farming

Item mentioned	Number of occasions
scant and unpredictable rainfall	8
high input costs	7
stock losses due to 'vermin'	**6**
parasitic and other diseases	5
unpredictable product price	4
labour problems	4
cold weather spells	2
stock theft	2
management problems	2
cash flow	1
product marketing	1
debt	1

As indicated in Table 7.3, six farmers mentioned stock losses due to mammalian predators spontaneously as farming problem, three indicating that it was a major problem and three calling it a minor problem. Eleven did not mention it spontaneously at all. These 11 were then asked **whether they experienced any problems with wild animals causing stock losses.** Responses to this are tabulated under 'Probe A' in Table 7.4. Responses varied: to four farmers it was basically not a problem (three of them were irrigation farmers, the fourth ascribed it to 'luck'); others indicated that it was a sporadic problem. Farmers who reported stock losses to 'problem animals' were asked to quantify them, but, as in the case in Boshoff's (1980) survey, quantifications were generally so vague that they are not worth reporting. The reported losses due to Lynx did however seem to vary from farm to farm in association with the topography and the type of grazing on the farm, as discussed.

After farmers had discussed the issue of DPA on their farm(s), a further set question was posed:

> Would you say that it is a very big problem, a big problem, not such a big problem, or not a problem at all for you personally?

Responses to this are listed under 'Question B' in Table 7.4, which shows that at that stage of the interview, four farmers defined stock losses due to mammalian predators as a big or very big problem. One participant who stated his losses as 20% of his lambing flock, farmed on the **border of the MZNP**; two others farmed in predominantly **mountainous areas.** One of these latter two (E4) ascribed his inability to quantify damages caused by DPA to the "rugged" terrain. The other (A8) estimated that 70% of all his unaccounted lamb losses (i.e. those not due to disease or still births) were caused by Lynx. The fourth farmer (A1) described his stock losses to Lynx as "less than a percent" (of his total stock) and it was not clear whether his problem was as serious as the other three participants' seemed to be. His extensive property did include mountainous areas.

The reasons farmers offered for the above-mentioned habitats being more subject to stock predation by mammalian species include the facts that Lynx prefer mountainous habitats (Moolman 1986, Brandt 1990) and that the MZNP presents a large area in which no control actions are taken against Lynx or Black-backed Jackals. Although only one farmer in the research sample farmed on the borders of the Park, his situation was a special one which needs elaboration. He was a financially successful farmer, respected in the community. He owned properties in two parts of the district - in the one area he controlled sporadic Lynx predation easily, in the other, close to the MZNP, predation by Lynx and Black-backed Jackal was his main farming problem. This case highlighted the difficulty of objective assessment of the extent of the 'problem animal' situation.

At least four farmers who did not farm near the MZNP indicated that they regarded the area as a 'breeding ground' for 'problem animal' species, namely Lynx, Black-backed Jackal, Black Eagles and vultures. (This was not based on personal experience.) The participant who farmed near the MZNP had a slightly different claim, namely that when he tries to kill DPA that enter his property from the Park, the animals simply move back into the safety of the Park, from where they "stand laughing at you on the other side of the fence".

TABLE 7.4: Farmers' rating of the extent of the problem mammal dilemma

Code	Response to probe A/ spontaneous mention	Response to question B
E1	Not a problem for some years.	Not really a problem.
E2	Not a problem. Occasional losses.	Not really a problem.
E3	No problem at all.	Not a problem at all.
E4	Spontaneous mention as a major problem.	"Medium to large" problem.
E5	Very few losses.	(Not asked)
E6	Not a major problem.	Not a big problem.
E7	Don't worry about it too much. A problem for others.	Not a problem at all.
E8	Very occasional losses.	(Not asked)
A1	"redelike" verliese. "nie 'n groot faktor nie". "Rooikatte is groot probleme".	A big problem.
A2	Not such a problem in this area.	Not really a problem.
A3	Minimal losses. A big problem for others.	Not such a big problem.
A4	Always a few vermin losses, not very large. A big problem for others.	Not such a big problem.
A5	Spontaneous mention as a major problem.	A very big problem.
A6	Lose more to theft. A big problem for others.	Not such a big problem.
A7	Not really a problem.	A small problem.
A8	Spontaneous mention as ONLY problem.	A very big problem.
A9	Many losses occur in area. "'n Aansienlike probleem".	(Not asked).

Nature conservationists and scientists often state that farmers are not objective in their assessment of 'problem animal' damage, nor in their accusations against the MZNP. At a recent scientific symposium on problem animals the general opinion was that 'the problem is not as big as it is made out to be' by farmers, and that it is more a perception problem on the side of the farmer than a 'real' problem. An example of such a perception problem may be a tendency to blame eagles for the high lamb mortality rate in the Eastern Cape Karoo, which is actually due to malnutrition, disease and mismanagement (Dept. of Agriculture 1986, Roux and Van der Vyver 1988).

It is certainly difficult to decide how objective farmers' estimates of the seriousness of the 'problem animal' issue is, and to decide whether the claims about the role of the MZNP in increasing problems in that area are justified. According to Moolman (1986), who has addressed this issue in his study of the Lynx in the MZNP and on surrounding farmlands, farmers are mistaken. He has calculated the number of young Lynx that would leave the MZNP annually to be 12, which he describes as negligible compared to 185, the average number of Lynx that had been killed on surrounding farms areas annually, during 1975 - 1984. This deals with the argument that the Park 'breeds' Lynx to a greater extent than farming areas, but does not address the issue of the safe haven which the Park may present for individual 'problem animals' whose ranges fall partly in the MZNP and partly on farmlands, nor the fact that predation by Black-backed Jackals seems to be more pronounced in this area than elsewhere in the district. Working in two separate areas - Natal and the Willowmore district respectively - both Lawson (1989) and Bekker (1990) came to the same conclusion, namely that farmers exaggerated their stock losses to DPA.

The present study confirms that farmers are seldom able to quantify the extent of damages caused by DPA, a factor which may be involved in the exaggeration of the role of these animals in stock losses. The inability to quantify stock losses does not seem to be due only to bad management practices, or to farmers' ignorance of what goes on their farms. Bekker (1990), who is currently designing a programme based on the 'expert system' for identifying small-stock predators, concedes that it is not always easy to verify the causes of stock losses with accuracy and reliability.

The researcher believes that at least two of the four farmers who indicated that predation by DPA was a big problem for them, did suffer significant damages due to factors outside their control. They took precautions such as moving lambing ewes from dangerous areas, and observation

suggested that they are successful farmers. Both of them had very positive attitudes towards eagles and vultures and were relatively well-informed about wildlife conservation. The researcher would argue that in their cases situational factors played an important role in determining their negative attitudes towards DPA and thus their eventual, less-positive overall attitude score.

When asked the question about the main problems experienced in small-stock farming, no interviewee alluded spontaneously to stock losses due to birds of prey. Farmers were asked later in the interview **if they experienced any stock losses due to birds of prey** (Probe C). After identifying birds on pictures and discussing the issue, the following set question (D) was asked about stock predation by eagles:

> Would you say that it is a very big problem, a big problem, not such a big problem, or not a problem at all for you personally?

Table 7.5 indicates that 13 of the 14 farmers to whom this question was posed said that stock losses due to eagles are **not a problem at all** to them personally. Some of them experienced losses, but described them as minimal and not significant if the good that eagles do is taken into account. The one participant who described his losses to eagles as significant (E4), estimated that at one stage a pair of eagles had caught about "15, 20 lambs a week" on his farm - until he caught them. He still said however, that it was "not a big problem", perhaps meaning that in comparison with his losses to Lynx they were less drastic or more sporadic. Perhaps he was trying to present a more 'acceptable' response, since his **16PF** results indicated motivational distortion.

As with DPA, farmers' claims of losses to eagles varied: from two to three young Springbok *Antidorcas marsupialis* a year lost to Tawny Eagles and four to five goat kids a year lost to Black Eagles, to the 15-20 lambs a week to an unidentified pair of eagles (apparently not Black Eagles) mentioned by E4. It seems that eagles can cause stock losses that become unacceptable to the farmer, even if he takes steps to prevent this. The quotations following Table 7.5 are illustrative.

TABLE 7.5: **Farmers' rating of the extent of the eagle problem**

Code	Response to probe C	Response to set question D
E1	Not really a problem.	Not a problem at all.
E2	No significant losses.	Not a problem at all.
E3	No problem at all.	Not a problem at all.
E4	Significant losses.	Not such a big problem.
E5	Minimal losses.	Not a problem.
E6	Not a problem now (can be at times).	Not a problem at all.
E7	Not a problem - they may eliminate weak breeding strains.	Not a problem at all.
E8	Not a problem.	Not a problem at all.
A1	Probably minimal losses	Not a problem at all.
A2	No experience of losses.	Not a problem at all.
A3	Insignificant losses.	Not a problem at all.
A4	Few eagles, minimal losses.	Not a problem at all.
A5	No losses despite observation of resident eagles.	Not a problem at all.
A6	No losses - not a mountainous area, but a big problem elsewhere.	Not a problem at all.
A7	Needs to be shot - can cause big trouble	(Not asked)
A8	Insignificant losses.	Not a problem at all.
A9	A very big problem in some areas, not here.	Not a problem for him.

Note to Table 7.5

Set question D was not asked of A7 because it was felt that no honest answer would be forthcoming, as discussed in section 3.2.1.

> Now X here at Y is very keen on his birds, and he's a great conservationist, and he had a pair of Black Eagles that were so .. um drastic on his lambing ewes that he shot them. You know, with great sadness, but he simply didn't know what to do. ... In my opinion there wasn't really a good reason ... that the human mind would be able to work out, why those Black Eagles should have wanted to take Angora goat kids.
>
> (E2)

> I'm absolutely all for ... conserving them. Except when it really gets to a stage that you've got a bird ... - but then you must be able to identify it as such - that you know is taking your stock, and a lot of them, ... one or two a day ... and its actually causing an individual farmer serious financial losses. And then ... they've got a scheme [Cape Department of Nature and Environmental Conservation] where ... they come and remove a problem bird. But ... I don't know how successful they are ...
>
> (E8)

> What you first try and do is to frighten them away ... shoot shots ... And then ... they'll probably go away, and then they come again, and next time you frighten them away they go away for half an hour instead of for half a day, you know? ... They get so used to it eventually. And then um ... well it's one of the easiest things to catch actually ...
>
> I'm not keen on hunting at all. ... I don't mind if they stay on my farm the whole year, if they - just October, November ... If they weren't around my lambing stock then ...
>
> And er I believe a dassie does quite a lot of damage to your veld as well, so if you're gonna kill a bird, you're gonna ... start losing veld ... They [eagles] balance out an ecosystem. But if I could just ... control them.
>
> I know they're protected and all the rest but ...
>
> I don't know if you ever considered, a farmer's income ... your expenses are covered by your wool, and your profit lies in your stock production, your lambing crops and that type of thing. And um ... when you're talking about 15, 20 lambs a week, then you're talking about erosion of your profit.
>
> (E4, whose Angora goats lamb close to human settlement)

In contrast to farmers, who may perceive of each dead lamb as a profit loss, scientists tend to report their estimates of the extent of the problem in terms of the percentage of an eagle's diet comprised by small-stock - 3% in the case of the Black Eagle (Davies 1988) and 5% in the case of the Martial Eagle (Boshoff and Palmer 1990). Two factors clouding the issue further are that (1) it is not known what portion of the stock taken by eagles is actually in the form of carrion,

and (2) while the reported percentages of diets refer to nesting eagles, figures are not available for juveniles, which are more often implicated in stock-taking (Davies 1988).

The second most conservation-conscious farmer in the sample, E2, warned:

> The greatest enemy of the so-called problem animal is the researcher claiming that all nature and all animals are benign, and doesn't want to believe that some turn harmful. ... With farmers you cannot be a purist. You have to be a realist.

Conservationists and other scientists should keep in mind that individual farmer's actions are influenced by real differences in the extent of predation which they may incur, despite sound management practices and relatively conservation-conscious attitudes.

7.2.4 Inappropriate value orientations

7.2.4.1 Economic orientation

Having made the preceding comment, it needs to be stated that the economic orientations of several farmers in this study were overly narrow, as exemplified in the preceding quotes from E4 and E8, and others below. Farmers are not wrong in wanting to farm profitably, but this orientation seems to be combined with ignorance of the ecological and, by extension, the economic value of predators and scavengers on farmland, as well as with possible misconceptions about the extent of stock predation.

A conservationist blames economic 'pressure' for farmers' lack of knowledge and negative attitudes towards conservation:

> Aan druk. Ekonomiese en finansiele druk. Jou boer wat marginaal produseer is so besig om te dink of hy 200 skaap in Bloemfontein moet gaan verkoop of 20 nader, dat hy nie tyd het om te lees, of te gaan kyk wat sy skaap vreet nie.

In a survey of farmers' views of conservation of the Renosterveld, McDowell (1986) found that factors influencing behaviour were attitude-related as far as acceptance of conservation principles and values are concerned, and finance-related as far as the practical application of these principles and values are concerned. In concordance with this, farmers in this study explained that even

though they may care about nature and its conservation, economic factors sometimes force them to take action against 'problem animals':

> I'm a conservationist at heart but I mean I can't - I've got to make a living. And if these ... two animals [DPA] start causing problems, yes, then I'm going to get rid of them.
>
> (E1)

> Alle boere gee om vir die natuur, is in der waarheid natuur-'bewaarders'. Maar daar is aan enige ding perke.
>
> (A4)

> Well you know, when you are looking after you own needs you're not really worrying about extinct ... You've got one [eagle] and it's worrying you and you shoot it so ...
>
> (E6)

These limited economic perspectives do not take adequate cognisance of the longer-term economic repercussions of ecological disturbances due to predator-prey imbalances. Some farmers themselves feel that the economic perspective is taken too far:

> It's born - it's born of - of greed. ... It is. It's a greediness ...
>
> (E2)

> We as humans hate the idea of living with something that is taking our capital.
>
> (E7)

What makes the short-term economic orientation particularly inappropriate from an ecological viewpoint, is that it often seems to be coupled with **ignorance and misconceptions**: in this study several farmers were not aware of the value of eagles or mammalian predators on their land, as exemplified by A2:

> Nie wat ek kan sien nie. Hulle sê so, maar ek het nog nie die waarde van 'n rooikat gesien nie. ... Hy het seker waarde; elke ding het seker sy plek. Hy vang seker meerkatte, rotte en so aan, maar ek weet nie ...
>
> (A2)

E2 summarises:

> **My condensed opinion is this: there are still too many people with too little knowledge.**
>
> (E2)

This opinion was supported from several directions:

> Ek gaan nou 'n ding sê waaroor baie mense gevoelig is, maar hulle weet nie wat op hulle plase aangaan nie, hulle kom te min in die veld, en hulle weet nie wat in die natuur aangaan nie. Mens wil nie veralgemeen nie, want daar is uitsonderings, maar ek sal se 10% van boere ken hulle veld en natuur.
>
> (Nature conservationist)

> [The reason some farmers kill birds of prey] is a stigma that's attached to these eagles ...
>
> (A8's wife)

> It's a question of ignorance and ... misinformation.
>
> (E8)

Several farmers seem to base their views on 'problem animals', as well as their management of damages, on apparently traditional beliefs and practices and hearsay, in preference to 'new' scientific facts and ecologically-orientated management. For instance, one farmer's wife related that she had heard 'on the radio' that Bat-eared Foxes do not kill lambs, and how, when she told her husband, he **and his father** opposed this view. Her husband had no personal experience of stock predation by these animals.

The Executive Summary of the World Conservation Strategy (WCS 1980: 2) states that major obstacles to the aims of conservation include "undue emphasis on narrow short term interests rather than broader longer term ones", the lack of a "capacity to conserve", which is partly due to "a lack of basic information", as well as

> the lack of support for conservation, due to a lack of awareness (other than at the most superficial level) of the benefits of conservation and of the responsibility to conserve among those who use or have an impact on living resources.

This research suggests that these internationally recognized factors are also hampering conservation and sustainable utilisation in at least one South African farming community.

7.2.4.2 A 'conquering' world view

Some farmers in this study did not seem concerned enough about the effects of their actions on the land, and exhibited the mentality of **conquerors rather than custodians.** A participant in the study associates fellow-farmers' anti-conservation behaviour with this lack of an ethic of custodianship:

> It's like I say ... an attitude problem. We have not got the RIGHT to kill indiscriminately. We have been placed here to take care of things. Some people do not see their place in nature's plan, where they fit in. When we do not manage things as we should, when we kill indiscriminately, we are not only against nature's laws, we are against the laws of Creation, if you really want to become philosophical about it.
>
> (E8)

Such an 'attitude problem' is expressed by a farmer who is exasperated at the cunning and tenacity of what he perceives as problem animals:

> Mens sal die goed [DPA] nooit uitgeroei kry nie, hulle is te skelm. ...
>
> Mens sal hulle [Black Eagles] ook nie uitwis nie, want hy teel aan. Nee, as die een geskiet word loop kry hy vir hom 'n maat, God weet ek weet nie waar nie, maar hulle teel aan ... Nee, jy sal hom nie sommer uitroei nie. Jy moet net onthou dis 'n ding wat nie op die vlaktes voorkom nie, hy bly hier in die berge. Hier kom hy volop voor.
>
> (A7)

A7 still seems to see himself as a conqueror who needs to eradicate ("uitroei", "uitwis") what he perceives as pests and vermin. The 'conqueror' orientation may also form part of what was described by two participants (A1 and E4), who distanced themselves from other farmers in whom they saw an uncurbed and indiscriminate urge to shoot wild animals - a "skietlus" or "opgeskeeptheid met hulle gewere": "As hy 'n dingetjie sien wat hol dan moet hy skiet" (A2).

Leopold (1949) related a 'conquering' world view to the absence of a 'land ethic'. He and other writers concerned about the future of the planet call for a new environmental ethic which requires an orientation of working **with** nature and seeing oneself as a custodian of the land one farms on.

7.2.5 The role of personality factors in the above

The above are orientations which the researcher and several participants in this study have come to associate with negative attitudes and behaviour towards elements of nature and conservation. In this study the role of personality factors, described in Chapters 4 and 6, runs like a thread through all the other influences on attitudes described above. In fact, Oskamp (1977) sees a person's value orientation as a personality trait *per se*. Lewin's concept of the 'psychological field' or 'life space' (Duvel 1987) comes to mind: behaviour (and, it would seem from this study, attitudes) are a function of the continuous interaction of factors within the individual, such as his personality and his values, and his perceived environment. This interaction takes place within, and is thus constrained by, "the foreign hull of the life space" (Lewin 1936: 206) - those factors (such as the topography of a farm and the consequent extent of stock predation one experiences) which are not subject to psychological laws, but which influence the state of the 'life space'.

People with a protensive personality structure may conceivably perceive that 'everything is against them' - a view suggested by the number of factors some individuals named as important farming problems, and particularly (in the view of the researcher) the way in which they did so. Outside elements onto which unacceptable personal emotions, motives or traits may be projected may include the 'system', the government ("ou Barend Note" - A7), the public ("almal dink nou noodwendig die boere is sus of so ..." - A9), people of different races (refer A6 and A7), conservation agencies and agents (see below), the weather (E4 particularly), and finally 'vermin' or 'problem animals'. Other farmers, who do not make use of projection as a psychological defense mechanism, may experience inner conflict in a different way, as described in Chapter 4. Five of the 12 participants who did not distort their personality profiles showed markedly weak ego-strengths (Factor C), which is associated with getting emotional when frustrated, being easily perturbed, evasive of responsibilities, tending to give up and getting into problem situations - in short, poor mechanisms to cope with life (Cattell *et al.* 1970) and with farming. These farmers' personal characteristics may influence them to experience the process of making a living from farming as very taxing. This in turn may relate to ineffective farming, mismanagement of the land and their attitude that they cannot 'afford' conservation. In WCS (1980: 2) terms, they may not have "**the capacity for conservation**".

Farmers are not the only people who present economic reasons for not acting responsibly towards the environment; it seems to be a widespread phenomenon. Oskamp (1977: 373) describes how economic privation "quickly erodes concern", and that increased efforts and economic losses cause a reluctance to act in favour of the environment. The contention here is that, in this study at least, personality factors perhaps have an important role to play in this orientation. In linking these influences to personality factors, it will be argued here that the reason for an excessively narrow economic orientation does not lie in the circumstances under which farmers try to make a living, but rather in the internal, psychological tensions they experience. Perhaps farmers are prevented from paying attention to conservation, not by financial pressures, but because of psychological ones. If farmers were more free of inner conflicts and projective defenses, they would have been more willing and **able** to, as E7 stated, "think things through more". Psychological factors such as a weak ego-strength and protension seem to hinder the necessary process of re-orientation towards a custodian ethic, and to farming effectively and responsibly.

7.3 SIGNS THAT FARMERS' ATTITUDES ARE CHANGING

Despite the rather gloomy picture painted above, it would seem that, in general, farmers' attitudes towards wildlife and its conservation are slowly changing. This study has suggested that attitudes towards vultures have changed in the last few years. In the view of participants in the study, Cradock farmers who had in the past shot and poisoned vultures, were not doing so any more. This is perhaps more than just a manifestation of the fact that vultures are now seldom sighted in the district. Many farmers have seen the decrease of vultures during their lifetime, are aware of farmers' role in their demise, of their value to the farmer, and the existence of legislation to protect them. All these factors have probably played a role in establishing the generally positive attitudes towards vultures among this sample.

Davies' (1988) view that attitudes towards eagle conservation have improved in recent years is supported by this study. Several farmers have noted how they have in the past shot Black Eagles and anything else "that we felt like shooting" (E2), but that they are now far more conscious of the conservation of these birds. One farmer (A9) has attributed this to his older age ('having now had the experience'), but others feel it is a general trend among farmers:

> I seriously do believe that the ... direction of farmers has changed. ... I don't want to defend the farmers, I'm simply stating what I think to be a fact ... that the young farmers of today are far more conscious of the ... birds, they're far more conscious of the value of the ... animals, the

> other so-called predators upon the farm animal ... They don't see them only as baddies; they see them as goodies ... some of which are baddies.
>
> (E2)

Several farmers in the study realised for instance that misconceptions about the role of eagles in stock losses can result when a farmer sees them around lambing flocks where they may actually be scavenging, rather than hunting. Eleven farmers have stated that they are happy to let eagles have a few lambs or kids, in exchange for their valuable role in curbing Hyrax.

7.3.1 Sources of information

It is important to know the sources of farmers' information which may have facilitated these attitudinal changes, as environmental educators could profitably utilise such channels. When farmers who felt positive towards 'problem animals' were questioned about the sources of their attitudes, they mentioned parents, peers, radio, books and magazines. For example:

> Dis seker maar hoe jy grootgemaak is ... dit speel 'n groot rol, 'n mens se opvoeding. As jou pa jou nie geleer het om veld op te pas nie, om ... 'n mooi ding te waardeer nie, ek meen 'n blommetjie of 'n mooi stuk veld ...
>
> (A1)

> No. Not my father. My father actually killed them [Bat-eared Foxes] ... It's from talking to other people.
>
> (E3)

Two farmers mentioned having heard information on DPA on the radio, one of whom was quite skeptical. Publications mentioned by participants with an interest in wildlife were *Custos* and *Landbouweekblad*. All of the farmers questioned about the value of pamphlets said that farmers seldom read them.

In the light of the improved attitudes towards vultures and eagles it would be interesting to assess the role of publicity campaigns launched by for example the Vulture Study Group, in these changes. Specific information on this aspect was not sought in this study.

7.4 ATTITUDINAL CONSTRAINTS TO MANAGING THE SITUATION

Finally, interviews and informal communications with farmers and conservationists have led the researcher to identify three sets of inappropriate attitudes that may hamper the cause of

conservation farming in the Karoo. They are

* the attitudes of 'negative' farmers' towards others who do not seem to share their viewpoints, i.e. negative peer group pressure,
* farmers' attitudes towards official conservation, and
* the attitudes of official conservationists towards farmers.

7.4.1 Negative peer group pressure: Attitudes towards other farmers

Some farmers felt strongly about others who did not join them in their 'vermin' control operations. Examples are the altercations between neighbours who are for and against the MZNP, as mentioned by a National Parks Board official, and A1's view of neighbours who did not control Lynx on their farms:

> ... hulle besef nie dat hulle die probleem het nie, want ... hulle kom nie in hulle veld om die probleem te sien nie. Hulle tel hulle skaap en hulle sien daar kort 'n skaap, maar hulle weet nie waar hy is nie. [Laughs]. As jy weet wat ek bedoel? Nee ek het 'n hele paar bure ... ek weet van een, wel hy doen doeltreffende ongediertebeheer. Die anders doen, ek wil amper se GEEN ongediertebeheer nie. ... Dis tot nadeel van my. ... As ek jag dan gaan hulle uit uit my veld uit, as ek ophou jag dan kom hulle weer terug. Met ander woorde hulle teel op ander plekke en hulle kom vreet op my [plaas] op.

This kind of attitude may have influenced E7, the farmer with the most positive attitudes towards conservation, to allow the 'jackal pack' on his 'veld' farm on request of his neighbours, although he personally believes that the Lynx should not be persecuted. Farmers also feel negative peer pressure when forming opinions about birds of prey. For example, A5 felt uncomfortable about expressing his recent realisation, based on observation, that the Martial Eagles and Black Eagles on his farm seem to be doing more good than harm:

> Natuurlik as ek nou sê hulle [Martial Eagles] vang nie, dan sal al hierdie boere, dan sal hulle vir my baie doodmaak ... Wel die jakkalsvoël, jou witkruisvoël ... Hulle't onse dassiebevolking natuurlik heeltemal afgebring ... Nee ek dink net hulle kan goed doen. Ek weet nie - as die boere my dit moet hoor sê jong!
>
> (A5)

The role of peer group pressure has also been pointed out by McDowell (1986), who identified 'community tradition' as a factor involved in determining farmers' attitudes towards conservation.

7.4.2 Farmers' attitudes towards conservation agencies

Although several farmers expressed negative attitudes towards official nature conservation, only two participants in the study farmed in the immediate vicinity of the conservation areas in the district, the MZNP and the Kommandodrift Reserve. Both these farmers had very negative attitudes towards the conservation areas and their management, as expressed by the following quotation:

> Ons lê hier byvoorbeeld aan 'n ... nasionale park. En dié sorg vir die rooikatte and die jakkalse en dié goete ... Hulle wil dit nie weet nie, maar ek dink dit is tog maar so. Want ons maak hulle dood en hulle maak hulle nie dood nie ...
>
> Rooijakkalse ... daai goed het die Park ingebring ... hier in onse area.
>
> Ek wil nie die Park afskiet nie, want ons kan tog nie ... probeer ... gewigstoot of wat nie, maar ... dit is ongelukkig so: hier is 8 000 hektaar in die middel van nerens ...
>
> Kyk al die boere maak hier rondom die Park dood, vreeslik dood en gaan te kere en probeer die goete tot op 'n perk hou en so aan. Maar ek is bevrees ons ... verloor. Ja.

The two farmers who farmed near conservation areas expressed the view that farmers are in an unfair and inferior position to conservation agencies - perhaps another manifestation of an attitude that outside elements are 'against' farmers. They certainly saw themselves in conflict with such bodies and their aims. The conflict situation seems to them 'unbalanced', with the government supported organisations just so much 'stronger'. To them the conservation areas in the district are unproductive land which safeguards, in the one case, animals that cause them considerable damage, and is stocked in the other case with 'not even enough game to fill up a large truck' (to paraphrase A9). Their attitudes ranged from bitterness, anger, impatience and derogation to resignation.

Fourie (Pers. comm. 1990) told of 'extremely negative' attitudes towards the MZNP amongst some farmers farming in the vicinity of the Park, leading to designs to take the National Parks Board to court. He thought that a number of farmers in the wider district too, were very negative towards nature conservation officials, possibly as a remnant of the days when law enforcement was

their primary function. He expressed exasperation about the fact that some farmers simply do not believe 'the facts' as stated by conservationists.

7.4.3 Conservationists' attitudes towards farmers

At a 'problem animal' management symposium attended by the researcher conservationists stated that they should build up good relationships with farmers. In the light of the above this is a very relevant decision. In the researcher's opinion however, and if farmers in the study are representative, much more effort may be needed, since most of the participants were not yet aware of this new attitude. In view of the descriptions here and in Chapter 5 it is possible to understand that conservationists may feel negative towards farmers. To aid conservationists with the management of the 'problem animal' situation however, the following may be noted.

Firstly, conservationists need to understand the roots of farmers' attitudes and try to work with them. For instance, one of the personality factors identified in the study (Guilt-proneness, Factor Q1) is said to have important socio-moral functional value (Cattell and Kline 1977) and could thus be relevant in the establishment of a new land ethic. The results on personality factors have also indicated that several farmers experience the need for outside support. This is problematic in the light of what at least some conservationists interpret as part of the unofficial policies of the CDNEC - to 'help farmers help themselves' - and the National Parks Board - not to 'interfere' outside their parks' boundaries. The amount of farmer-support provided by the Department of Agriculture's extension services would also be perceived as inadequate by such farmers. These organisations should perhaps reassess their 'working' policies towards farmers in a spirit of co-operation and support which can only further the cause of sustainable utilisation of natural resources. A further finding from the section of personality factors is that there are many individual differences and that approaching farmers as if they are all 'typical' is inappropriate.

An understanding of the role of personality factors in farmers' attitudes may also help conservationists to examine the way in which their own personal attitudes towards farmers may interfere with the establishment of sincere working relationships. The researcher contends that the conflict situation between farmers and conservationists is one of the most important facets of the 'problem animal' issue.

The sections on the role of situational factors and a too limited economic orientation have indicated the difficulty of objective assessment of the extent of stock predation. Conservationists may find two points of value here. Firstly, it is important to acknowledge the fact that farmers do experience varying degrees of stock predation by wildlife. Secondly, the current strategy of putting the value of wildlife into economic terms is meaningful to farmers and useful in that respect. However, at some point individual predators do cause financial losses which seem to exceed their **economic** value and the argument then loses much of its value. Perhaps conservationists and other scientists and educationists need to re-think the importance of the economic value of wildlife in the light of Leopold's (1969: 211) plea for an ecological conscience in which land-use ethics are not governed wholly by economic self-interest. He stated:

> Time was when biologists somewhat overworked the evidence that these creatures [predatory mammals and raptorial birds] ... prey only on 'worthless' species. Here again, the evidence had to be economic in order to be valid. It is only in recent years that we hear the more honest argument that predators are members of the community, and that no special interest has the right to exterminate them for the sake of a benefit, real or fancied, to self.

CHAPTER EIGHT
CONCLUSIONS

... the dilemma of our emerging world ecological crisis ... is at least in part a matter of values and ideas. It does not divide men as much by their trades as by the complex of personality and experience shaping their feelings toward other people and the world at large.

Shephard 1969: 8

8.1 EVALUATION OF THE RESEARCH PROJECT

8.1.1 The research approach

The incorporation of methods associated with the positivist paradigm into the context of the post-positivist paradigm seems to have worked well in this study, and it is certainly recommended that this approach be explored in Environmental Education research. Combining the two paradigms is not without complications however, and it is the researcher's intention to discuss this research approach in a separate paper. One difficulty, for example, is to resolve the extent to which one can reasonably speculate in drawing conclusions. Much of the discussion in Chapter 7, and to a lesser extent that in Chapter 6, is based on **reflection** on observational and other data, rather than on clear-cut statistical relationships. The researcher was confronted with the question of how much subjectivity one can allow oneself in arriving at research conclusions. The answer to this may lie in the concept of 'inter-subjectivity' (Nachmias and Nachmias 1981) whereby other scientists share in the results, including observational data and the reasoning which leads to conclusions. Inter-subjectivity was unfortunately limited in this study by the need to refrain from

presenting data which would have jeopardised the privacy of farmers, all of whom were assured of confidentiality.

In retrospect, a more holistic research design may have been more appropriate. Although the unstructured interview and the freedom provided by the post-positivist approach allowed for research discoveries which revealed some of the complex interactions in the 'problem animal' situation, these could have been explored to a greater extent, had a more holistic approach been taken. An approach which would have involved all parties with an interest in the situation **from the start** in the study, would have allowed for a greater variety of perspectives. An example of a tool which can be incorporated in a more holistic study of the situation is a linguistic analysis of the names and terms farmers use for wild animals, which may shed light on historical attitudes in this population group.

If an action research approach (Cohen and Manion 1989) had been used, the study could have been designed **with** and not in isolation from farmers. This would not only have done away with the need to keep them somewhat in the dark about research aims at the beginning of visits, but it could ideally have led to the development of structures such as farmer or farmer-conservationist groups which could have applied research findings to the practical situation. Unfortunately in-depth personality analyses do not fit into an action research design, and the value of the findings on personality factors need to be weighed up against the value of a more practical and involved approach. Although the findings of this study are of a more theoretical nature than those that would have resulted from action research, they certainly underpin action, providing conservationists with a way of thinking about farmers, their personalities and situations, and the way in which these interact to form their attitudes. These insights should be taken into account when developing an education programme for farmers.

The possibility of using these research results in developing general Environmental Education approaches for farmers, raises the issue of generalisation from a small sample taken from a single district. New paradigm research however, is not evaluated on its predictive power alone, but on the plausibility of the image of the world it helps to create (Reason and Rowan 1981). One of the recommendations of the study is indeed that, despite the role of the individual's personality factors, the specific **context** within which behaviour takes place and in which extension work is conducted, is vitally important.

8.1.2 Research methods and analysis

The research methods have been evaluated as part of the research context in Chapter 3 (section 3.2). Some notes on aspects of the data analysis are presented here. The first aspect is the grouping of attitudes into four animal categories and assigning attitude scores. As described, an attempt was made to keep the scoring system uniform by using the same criteria (for example 'the action of persecuting a species') in all four categories. It was thought that this may go some way towards providing other researchers with a template for determining attitudes towards 'problem animals' in other areas. In practice this was however problematic. Not only were similar attitudes and actions to different animal groups not likely towards all animals (for example, Cape Vultures were far less common than Lynx in the area and persecution of the birds inevitably less), but the same action (killing Lynx and killing vultures, for example) will be judged by some parties as carrying different weights, being more 'justified' in the case of Lynx. The second problematic aspect of the data analysis was the grouping of diverse animals, towards which farmers expressed diverse attitudes, into one category, namely Non-declared Perceived Problem Mammals. Although necessitated by the research design (refer to section 5.3.1), this step meant that subtleties in the expressed attitudes towards these animals were sometimes disregarded.

8.2 CONCLUSIONS

8.2.1 Attitudes

Attitudes towards perceived problem animals varied from farmer to farmer and from species to species. The most negative attitudes were expressed towards Lynx, which were reported to prey in varying degrees on small-stock in the district (section 5.2). Attitudes towards the 'non-declared perceived problem mammals' (section 5.3) were mostly ambiguous or positive, depending on awareness of the value of each of these species and beliefs regarding their tendencies to take stock. Attitudes towards eagles (section 5.4) seemed to have improved in recent years, although some individuals still shoot eagles, or stated that they will do so if economically unacceptable stock losses are incurred. Although most farmers are positive about the conservation of eagles, they differed on the extent of damages they expect or are prepared to tolerate from eagle predation. Vultures are reported to have decreased drastically in the district; consequently

attitudes are either neutral, because of little experience of the birds, or positive with the several farmers who were aware of their value and of farmers' role in their demise (section 5.5). Here again, signs pointed to more concerned attitudes in recent years.

8.2.2 Personality

The study of farmers' personalities has shown that stereotypical views of farmers as robust, aggressive and domineering individuals are inaccurate. Although participants were individuals with different personalities, and a 'typical' farmer probably does not exist, there were personality characteristics which significantly varied from the average and which were to some extent common to the group.

Motivational Distortion

Five farmers distorted their personality profiles, which according to the test designers shows an attempt to present themselves as more 'socially acceptable' than they perceived themselves to be (refer to section 4.1.1). Such social insecurity could mean that these participants experience significant psychological discomfort and would overlap, at least to some extent, with one of the two groups below.

Ego-weakness and related factors

Five of the 12 farmers who did not fall into Group 1, were attributed with '**Ego weakness**', a trait associated with tendencies to be affected by feelings, emotionally less stable and easily perturbed, to get into problem situations and to give up easily (Cattell *et al.* 1970). Several individuals (refer to Table 4.1) also showed signs of one or more of the following traits:

Submissiveness (being mild and docile, dependent, conventional, conforming and humble): three out of the 12 participants who did not distort their responses;

Desurgency (being sober, taciturn, serious, introspective, full of cares, incommunicative, slow and cautious): n = 4;

Premsia (being tender-minded, sensitive, dependent, insecure, imaginative, expecting affection and attention, and seeking help and sympathy): n = 3;

Guilt-proneness (being apprehensive, self-reproaching, insecure, worrying, anxious, troubled, lonely and brooding, easily touched, sensitive to people's approval and disapproval, and having a strong sense of obligation and being sensitive): n = 4; and
High ergic tension (being tense, frustrated, driven, overwrought, fretful): n = 3.

Protension

The **16PF** identified only one farmer with a tendency to be protensive (Table 4.1), although two others from Group 1 were judged to belong to this category as well, based on observation of their personality traits and a description of this personality type in Cattell *et al.* (1970). A protensive person characteristically makes use of the psychological defense mechanism projection to deal with inner tensions.

In summary, several farmers in this study seem to be suffering from high inner tensions, which they tend to deal with in one of two broad ways: either by projecting psychological discomfort, or by experiencing it as inner conflict. Although it is difficult to generalise from a study of 17 farmers, the American study reported by Cattell *et al.* (1970, section 4.2), indicated that other farmers too displayed these personality traits. As discussed, the tendencies described above represent poor mechanisms for coping with reality. They may have developed in farmers in association with an isolated, rural existence, perhaps on a world-wide scale, and there may be an association between poor personal coping mechanisms, poor management of farmlands, and negative attitudes towards conservation. These too are evident on a wider scale than the South African context.

8.2.3 The relationship between attitudes and personality

Negative attitudes towards 'problem animals', their value and conservation seem to have been associated with a protensive personality type, which tends to be suspicious (refer to section 6.3.3). This may be due to a tendency to project unacceptable thoughts, traits or wishes onto external objects, including wild animals, thus attributing to them unacceptable characteristics. There is also a possible relationship between negative attitudes and Tough-mindedness (Factor I), a trait characterised by the tendency to reject illusions, be unsentimental, self-reliant, hard to the point of cynicism, to keep to the point and to act on practical, logical evidence (section 6.3.2).

Positive attitudes towards wildlife, its value and conservation, seemed to be associated with being (1) Guilt-prone, (2) Trusting and accepting conditions as opposed to being suspicious or protensive and (3) Tender-minded (sections 6.3.2, 3 and 4). These personality factors are respectively associated with (1) having a strong sense of obligation, being sensitive to people's approval and disapproval, easily touched, self-reproaching, worrying and anxious; (2) being pliant to changes, conciliatory, understanding and tolerant; and (3) being kindly, gentle and indulgent to self and others, as well as tending to act on sensitive intuition.

8.2.4 Towards a holistic perspective

8.2.4.1 Personality-within-Situation: multiple interactions

The results of this study supported the contention of Lewin's (1951) field theory, in terms of which conservation behaviour would be a function of the interaction between, on the one hand, personality and other individual factors (such as value orientations, which may in turn be influenced by personality factors) and on the other hand the perceived environment of the individual, within the context of situational factors. The same relations seem to apply to environmental attitudes. For instance, two farmers who had very positive attitudes towards the value of, and need to conserve, eagles and vultures, from which they did not experience predation, had some of the most negative attitudes towards Lynx and Black-backed Jackals, from which they did experience stock losses. Alternatively though, farmers who had never experienced predation from some species, such as eagles and vultures, did have negative attitudes towards them, highlighting the role of perceptual and other non-situational factors.

Factors identified during the study as possibly related to some farmers' reluctance to embrace ecological principles for the management of the land, are:

Situational factors.

This refers to the type of grazing on and topography of the farm, inasfar as they influence actual predation (section 7.2.3.1).

Afrikaans as language - orientation

This observation, now fairly generally accepted, was not explored, but needs research, for it may further highlight the role of psychological, socio-cultural and historical factors in determining attitudes (section 7.2.2).

Resentment between farmers and conservationists

Several participants, particularly those who farmed in the vicinity of conservation areas in the district, expressed very negative attitudes towards official conservation areas and their managers. On the other hand, negative attitudes towards farmers were perceived during talks with conservationists. Individual members of each group tended to conceive of the other group as working against their own objectives (sections 7.4.2 and 3).

Inappropriate value orientations

Participants either displayed, or told about other farmers who displayed, value orientations that are incompatible with sustainable utilisation of natural resources. The most important was a too limited economic orientation, sometimes coupled with a dire lack of knowledge about the ecological and thus economic importance of predators and scavengers on farmlands (section 7.2.4.1). It is a short-term perspective that disregards long-term consequences, and it is hypothesised here that it is not so much influenced by farmers' actual financial difficulties, as by psychological factors such as poor personal coping mechanisms, which lead farmers to either experience farming as an overly taxing enterprise, or to seek external factors to blame (section 7.2.5).

The second, less frequently encountered value orientation was a 'conquering', 'man-against-nature' world view, in lieu of a caring, responsible environmental ethic which would allow farmers to see themselves as custodians of the land. In this orientation too, personality factors may play a role: Protension may lead to the view that outside factors, such as nature and wildlife, are threatening and need to be subdued.

The researcher supports the view of Lewin (1936: 12), who recommended that

> scientific psychology must ... find methods of representing person and environment in common terms as part of one situation ... In other words our concepts have to represent the **interrelationships** of conditions (emphasis added).

The psychological dimension of environmental problems, and of the route to address them, cannot be overemphasised. Environmental educators should be involved essentially in the establishment of a new environmental ethic to underpin urgent and deeply rooted changes in whole societies' personal and occupational behaviour towards the environment. In the process of developing this new ethic earnest recognition should be given to "the kind of creatures we are and what we must become in order to survive" (Caldwell 1970). As expressed by Ittelson *et al.* (1974: 9): "Environmental man is not only in critical relation to the ecosystems, but to his own sense of self."

8.2.4.2 Recommendations

After taking a broader view of the 'problem- animal' situation in the Cradock district, the researcher proposes that all parties with an interest in the situation should adopt the attitude of **'working with'**: Firstly, **research** in Environmental Education should be done **with** those concerned, rather than 'on' them. Secondly, **farmers** need to orientate themselves to work **with** (as opposed to against) nature, as well as to work **with** and not in opposition to nature conservationists. **Conservationists** on the other hand, should aim at working **with** farmers: They may have been aware of the difficulties of doing so for a long time, but understanding individual farmers' inner psychological dynamics and the total situation in which their actions take place, may provide the perspective needed to overcome traditional animosities that do not further anyone's cause. Farmers need all possible support, and by understanding the psychological constraints under which farmers manage the land, environmental educators will probably best succeed at their task of changing ethics and behaviour, towards environmental concern and responsibility.

APPENDIX 1

ILLUSTRATIONS OF TOPOGRAPHY OF DISTRICT, AND MAP OF EASTERN CAPE

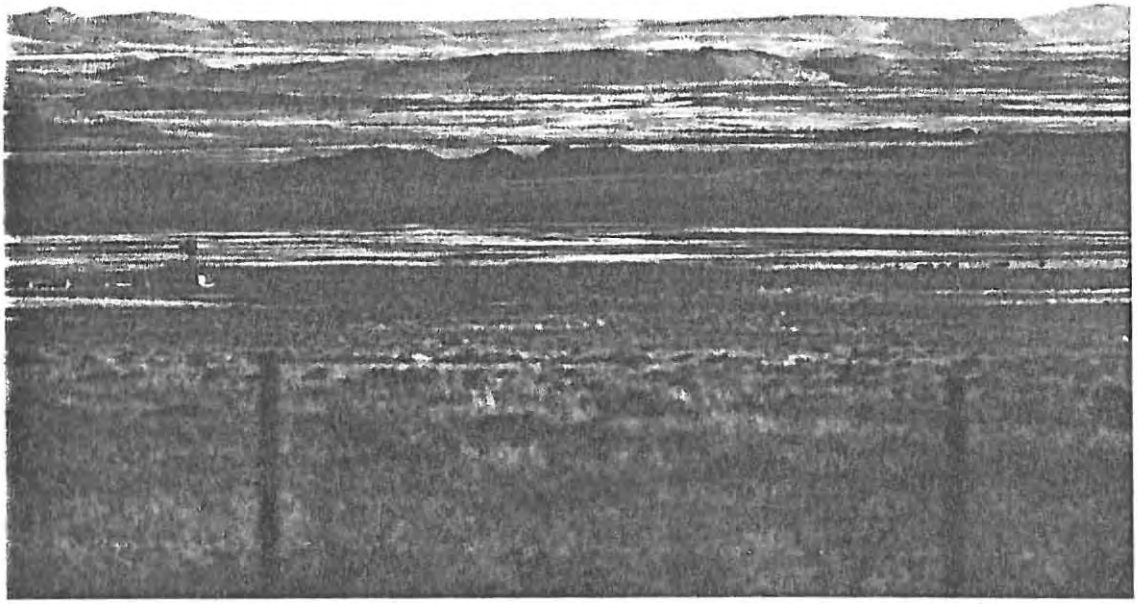


Figure 1

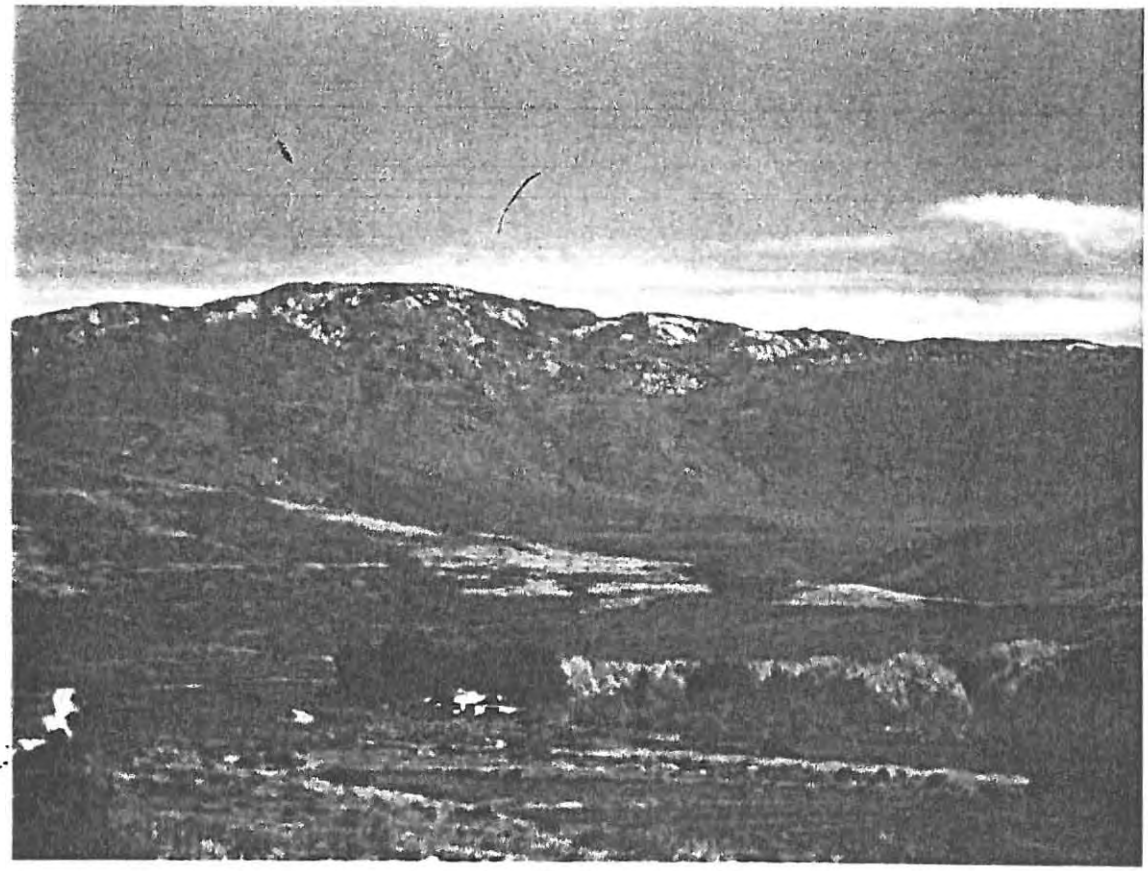


Figure 2

MAP OF THE EASTERN CAPE:
DISTRICTS AND CONSERVATION AREAS MENTIONED IN TEXT AND DISTRIBUTION OF FARMS SAMPLED

APPENDIX 2

INTERVIEW GUIDE

This guide served to remind the researcher of the order of questions (which had to be kept constant) and essential questions and topics to cover. A translation was used for interviews conducted in Afrikaans.

A. INTRODUCTION

1. **Introduce** - myself
   - representing Rhodes and no-one else
   - cover letter

2. **Aim** of study

3. Why I approached **him**

4. Each contribution **important** and **valuable**

5. His **opinions** and **views** important - not a test of knowledge

6. Feel free to be open - information is **Confidential**

7. May I **tape-record**?

B. BIOGRAPHICAL INFORMATION

1. His property(ies) on the map - size(s)
2. What does he farm with? Percentages
3. Age
4. Academic qualifications
5. How long has he been farming?
6. How long has his family been in the area?

C. PROBLEMS

1. What are the most important problems you experience with small-stock farming? (Just shortly, no need for details)

   Any other problems that are of lesser importance?

Stock losses (follow-up or introduce topic)
   Is it a problem?
   What causes? (Probe for stock theft, dogs)
   How many / annum?
   Sheep/goats, lambs/adults?

D. MAMMALS

1. **Stock losses due to wild animals** (follow-up or introduce)

   Which animals are involved?
   Identification from pictures
   Explore the situation
   Probe for animals not pointed out
   Actions
   Do they have any value?
   Other farmers' experiences/actions

2. **Remember:** "What is your attitude towards wild animals that may prey on your stock?"

3. **Lastly:** "Would you say the effects of wild animals on your stock is a very big / big / not such a big problem / or not a problem at all?"

E. EAGLES AND VULTURES

1. **Stock losses due to birds of prey** (follow-up or introduce)

   Which birds are involved?
   Identification from pictures
   Explore the situation
   Any value?
   Actions (including conservation)
   Other farmers' experiences/actions

2. **Remember:** "What is your attitude towards birds that may prey on your stock?"

3. "And towards vultures?"

4. "Would you say the effects of eagles on your stock is a very big / big / not such a big problem / or not a problem at all?"

5. "Some people feel that farmers should conserve vultures and eagles. How do you feel about that?"

APPENDIX 3

ILLUSTRATIONS USED FOR ANIMAL IDENTIFICATION

The choice of pictures to be presented to participants were made as follows: mammals declared by the CDNEC as 'problem animals' were included, as well as mammals thought to be perceived by farmers as possible live-stock predators, and which occur in the area (according to a survey by Stuart (1981)). Vultures and all large eagles likely to occurr in the area (Maclean 1984, Steyn 1982) were included. Furthermore, a few mammals and birds were included which do not occur in the area, to allow the farmer himself to focus on those perceived to be relevant, instead of being too narrowly focused by the researcher's selection.

First set: Black-and-white photocopies of photographs from *Maberley's Mammals of Southern Africa* (Goss 1986).

M1 Lynx *Felis caracal*

M2 Serval *Felis serval*

M3 Leopard *Panthera pardus*

M4 Two pictures of African Wild Cat *Felis lybica*

M5 Brown Hyena *Hyaena brunnea*

M6 Spotted Hyena *Crocuta crocuta*

M7 Black-backed Jackal *Canis mesomelas*

M8 Cape Fox *Vulpes chama*

M9 Bat-eared Fox *Otocyon megalotis*

M10 Aardwolf *Proteles cristatus*

Second set: Coloured photographs of eagles from *Eagles and Farmers* (Butchart 1987) and vultures from *Voels van Suider-Afrika* (Cubit and Bristow 1987), with small drawings of wing patterns during flight.

B1 Crowned Eagle *Stephanoaetus coronatus*

B2 Bateleur *Terathopius ecaudatus*

B3 Lammergeier *Gypautus barbatus*

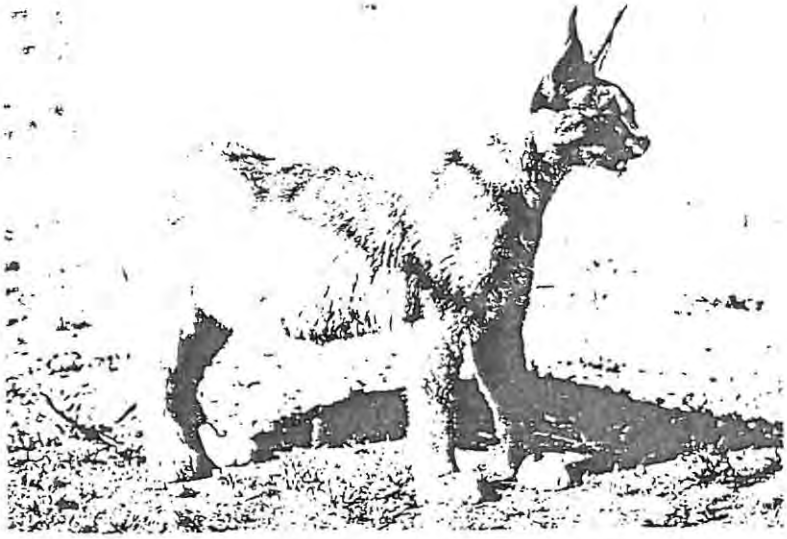
B4 Black Eagles *Aquila verreauxii*, including immature

B5 Tawny Eagle *Aquila rapax*

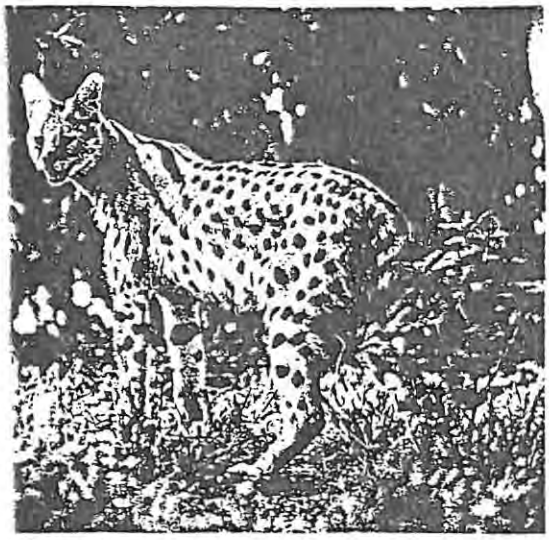
B6 Martial Eagles *Polemaetus bellicosus*, including immature

B7 Fish Eagle *Haliaeetus vocifer*

B8 Cape Vultures *Gyps coprotheres*



M1



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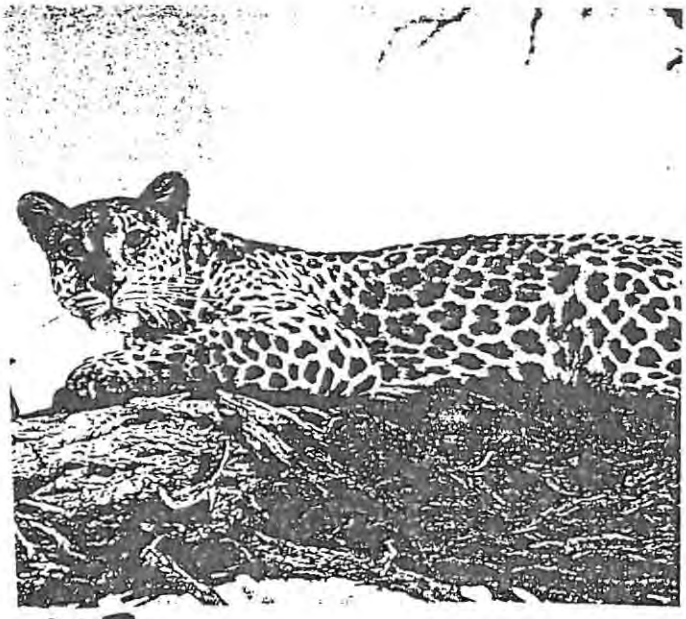

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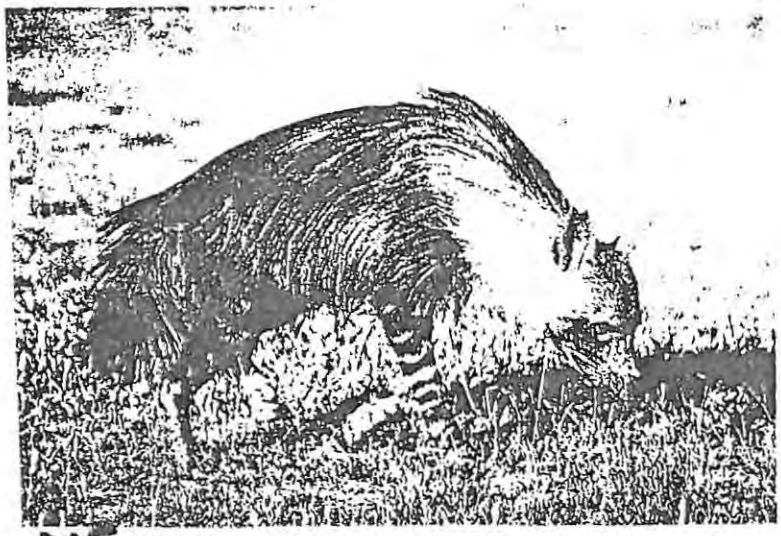
- M4 -



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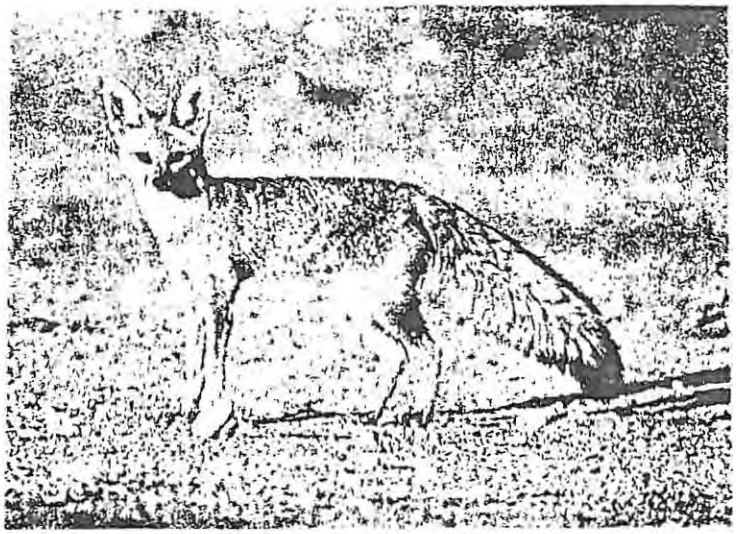
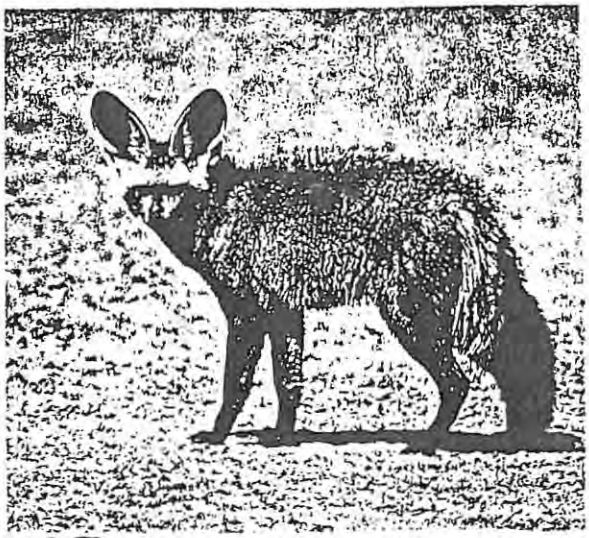
M6

M7



M8



M9

M10

B6

B5

B7

B8

B1

B2

B3

B4

APPENDIX 4

OBSERVATIONAL NOTES: CHECKLISTS AND AN EXAMPLE

The choice of the checklist items is based on the researcher's discussion with Boshoff (Pers. comm. 1990) and personal deliberation.

CHECKLIST: FARM

1. Gates and fences
2. Roads
3. Grazing
4. Wildlife on farm
5. House outside
6. Garden
7. Vehicles
8. What farmer was doing at the time
9. Hospitality offered
10. Other

CHECKLIST: FARMER

1. Telephone reaction on first approach
2. Greeting
3. Posture
4. Facial expression
5. Clothes
6. Movements
7. Speech
8. General appearance
9. Willingness to co-operate
10. Interaction with me
11. Interaction with others
12. Other notes on my impression of him as person

The researcher acknowledges that observations were influenced by her own responses towards participants, as is clearly indicated in the following example. The researcher is however convinced that the data is of sufficient integrity to contribute meaningfully to the quest to approximate the participant's personality as closely as possible. **Note** that the example presented here was chosen to illustrate the above points, and **not because the farmer was regarded as a 'typical' participant.**

EXAMPLE

FARM

1. No gates to be seen, fences seem OK
2. Very good to house
3. Unsure where his property starts. Area very mountainous. Mixed livestock around. Grazing good, according to him and his son.

4. None observed.
5. Needs care and attention. Mumble-jumble of things. Strange atmosphere - cats and pot-plants all over, an isolated-far-away-in-the-mountains feeling about the place.
6. A jungle.
7. New and dirty bakkie, wife to town in the other.
8. Waiting for me with his son. According to them they are "always in the veld". Son sent out to check that the staff are working.
8. Old, thick walls. Very old furniture and ornaments, some strange and possibly valuable but tastelessly arranged. A bare quality to the huge old house.
9. The usual - hospitable - 'have another biscuit', coffee things arranged beforehand by maids.
10. A toy-pom dog. I have my doubts whether he is a good farmer, but once again I have no way to judge this objectively. The general appearance of the farm is a mumble-jumble, 'deurmekaar'.

FARMER

1. He is hard of hearing. Not unfriendly on 'phone, but wary. After explanation (on meeting him, I found out he misunderstood the aim of the study - thought it was about "xxx", and this could have made him even more suspicious). He says he looks forward to seeing me and gives elaborate directions to the farm.

2. Quite wary, uncomfortable (although at this stage I may have been projecting my own discomfort in his presence, onto him). No smile. Introduces his son. Taken aback by the fact that I did not come to see him about xxx.

3. Upright.

4. Shrewd, calculating, wary, uncomfortable, sometimes puzzled.

5. Khaki I think. Non-descript.

6. Slowish.

7. Speaks Afrikaans to me and English with an Afrikaans accent to his family. He sometimes swears during the interview.

8. Face red and veiny. He wheezes, and tells me he suffers from high blood pressure. Starts to sweat during the 16PF.

9. Extremely unwilling. Seems to never really believe it is about 'problem animals'. He thinks the bird pictures are to see how "practical" or "stupid" "an old man" is, that the 16PF is the "main thing" I am after, to "see inside his memory", etc. I thought I would lose him on the 16PF - I had to read it out to him and he still skipped many questions. An extremely frustrating and unsatisfactory experience (for both of us probably). I found it difficult to win his trust, because he is so evasive, negative. I do not like him and find it hard to pretend.

10. Called me "my kind", "ou kind". He seemed to be puzzled about where he stood with me (what our respective social roles were), except at times when he thought I asked a question because I was ignorant about the matter, and he perhaps felt that with his answer he was teaching me something. When he possibly decided later that I was not really ignorant of the topics but had some other intention with my questioning, he seemed to close up more. I also feel that he then regarded me as 'learned' and even less to be trusted.

11. Asks his son's opinions in English, he probably uses him as support in this 'unnatural' situation, but I get the feeling the son (unmarried, in his twenties) is possibly afraid or at least careful of his father. He 'sweet-talks' to his wife - I thought quite inappropriately.

12. Politics seem high on his agenda - he is probably far to the right. When asked if he can keep his temper with people he says "Yes. It's only with blacks that I can't". Judging from his son's attitude towards him, I think he must have been, and probably still is, a very hard, difficult man to live with. He is very careful in his answers - the truth about their eagle shooting slipped out inadvertently - he possibly lied about some of the rest, trying to put a 'conservation foot' forward. I base this on the ambiguity of his responses. He was totally against being tape-recorded, although I asked several times (I felt I was missing a tremendous amount of what he really was like/really meant, by taking notes only). I have a feeling that he lied often on the 16PF and didn't even try to do the IQ questions. Results of this and perhaps the other factors should be checked for motivational distortion and will probably not be valid.

An overall impression is that he seems distrustful and dishonest.

APPENDIX 5

EXAMPLE OF 16 PERSONALITY FACTOR PROFILE

16 P.F. TEST PROFILE

1643

FACTOR	Raw Score Form A	Raw Score Form B	Raw Score Total	Standard Score	LOW SCORE DESCRIPTION	HIGH SCORE DESCRIPTION
A	13			8	RESERVED, DETACHED, CRITICAL, COOL (Sizothymia)	OUTGOING, WARMHEARTED, EASY-GOING, PARTICIPATING (Cyclothymia)
B	8			6	LESS INTELLIGENT, CONCRETE-THINKING (Lower scholastic mental capacity)	MORE INTELLIGENT, ABSTRACT-THINKING, BRIGHT (Higher scholastic mental capacity)
C	12			3	AFFECTED BY FEELINGS, EMOTIONALLY LESS STABLE, EASILY UPSET (Lower ego strength)	EMOTIONALLY STABLE, FACES REALITY, CALM (Higher ego strength)
E	15			6	HUMBLE, MILD, OBEDIENT, CONFORMING (Submissiveness)	ASSERTIVE, INDEPENDENT, AGGRESSIVE, STUBBORN (Dominance)
F	16			6	SOBER, PRUDENT, SERIOUS, TACITURN (Desurgency)	HAPPY-GO-LUCKY, HEEDLESS, GAY ENTHUSIASTIC (Surgency)
G	13			5	EXPEDIENT, A LAW TO HIMSELF, BY-PASSES OBLIGATIONS (Weaker superego strength)	CONSCIENTIOUS, PERSEVERING, STAID, RULE-BOUND (Stronger superego strength)
H	20			9	SHY, RESTRAINED, DIFFIDENT, TIMID (Threctia)	VENTURESOME, SOCIALLY BOLD, UNINHIBITED, SPONTANEOUS (Parmia)
I	13			9	TOUGH-MINDED, SELF-RELIANT, REALISTIC, NO-NONSENSE (Harria)	TENDER-MINDED, DEPENDENT, OVER-PROTECTED, SENSITIVE (Premsia)
L	10			5	TRUSTING, ADAPTABLE, FREE OF JEALOUSY, EASY TO GET ON WITH (Alaxia)	SUSPICIOUS, SELF-OPINIONATED, HARD TO FOOL (Protension)
M	6			3	PRACTICAL, CAREFUL, CONCENTIONAL REGULATED BY EXTERNAL REALISTIES, PROPER (Praxernia)	IMAGINATIVE, WRAPPED UP IN INNER URGENCIES, CARELESS OF PRACTICAL (Autia) MATTERS, BOHEMIAN
N	10			4	FORTHRIGHT, NATURAL, ARTLESS, SENTIMENTAL (Artlessness)	SHREWD, CALCULATING, WORLDLY, PENETRATING (Shrewdness)
O	15			8	PLACID, SELF-ASSURED, CONFIDENT, SERENE (Untroubled adequacy)	APPREHENSIVE, WORRYING, DEPRESSIVE, TROUBLED (Guilt proneness)
Q_1	6			3	CONSERVATIVE, RESPECTING ESTABLISHED IDEAS, TOLERANT OF TRADITIONAL DIFFICULTIES (Conservatism)	EXPERIMENTING, CRITICAL, LIBERAL, ANALYTICAL, FREE-THINKING (Radicalism)
Q_2	12			6	GROUP-DEPENDENT, A "JOINER" AND SOUND FOLLOWER (Group adherence)	SELF-SUFFICIENT, PREFERS OWN DECISIONS, RESOURCEFUL (Self-sufficiency)
Q_3	7			3	CASUAL, CARELESS OF PROTOCOL, UNTIDY FOLLOWS OWN URGES (Low integration)	CONTROLLED, SOCIALLY-PRECISE, SELF-DISCIPLINED, COMPULSIVE (Higher self-concept control)
Q_4	17			8	RELAXED, TRANQUIL, TORPID, UNFRUSTRATED (Low ergic tension)	TENSE, DRIVEN, OVERWROUGHT, FRETFUL (High ergic tension)

STANDARD TEN SCORE (STEN) — Average

A sten of	1	2	3	4	5	6	7	8	9	10	is obtained
by about	2.3%	4.4%	9.2%	15.0%	19.1%	19.1%	15.0%	9.2%	4.4%	2.3%	of adults

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