

***AN INVESTIGATION OF ENVIRONMENTAL KNOWLEDGE
AMONG TWO RURAL BLACK COMMUNITIES IN NATAL***

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CYNTHIA SIBONGISENI MTSHALI

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ABSTRACT

This study elicits and documents knowledge of the natural environment amongst two rural Black communities in Natal namely, the districts of Maphumulo and Ingwavuma. Twenty members of these communities who are older than 60 years of age were interviewed, as older people are considered by the researcher to be important repositories of environmental knowledge.

This study records a variety of animals hunted in these communities and discusses various activities associated with this activity. It examines the gathering and the use of wild edible plants like fruits and spinach, and of wild plants alleged to have medicinal value. It reviews indigenous knowledge related to custom beliefs and prohibitions as well as traditional laws associated with animals and trees. It also considers how this knowledge can contribute towards the development of Environmental Education in South Africa. The data was deduced from the responses elicited from semi-structured interviews. The data was analyzed qualitatively.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This study is about environmental knowledge amongst the older members of two black rural communities. The two rural communities are located in Ingwavuma and Maphumulo districts (See Figure 1.1). Older members of these communities were chosen because, in my experience as a social worker and education officer in the past 25 years, they are the main repositories of what is broadly termed indigenous knowledge (see section 1.4). The two communities were selected because they were relatively stable at the time of the study, when compared with other communities which were experiencing political unrest and general faction fighting.

1.2 THE PURPOSE OF AND BACKGROUND TO THE STUDY

The main purpose of this study was to investigate the extent of environmental knowledge among the older members of these two communities. This knowledge and the wisdom which accompanies it is kept in the minds of people, and is passed from generation to generation orally. The information needs to be retrieved, documented and disseminated before it disappears so that it can be included alongside the more usual 'scientific knowledge' in all types of education, namely, formal, non-formal and informal. It is hoped that educators will consider giving indigenous knowledge of the environment its rightful place in the curriculum and so help pupils incorporate environmental knowledge into the different strata of their lives. It is also hoped that adults who will have access to this study, will be inspired to mount further investigation into the environmental areas of the life of rural people so that their wisdom and insights might be more easily shared.

I became interested in environmental education after I came into contact with families during my career as a social worker. I worked at hospitals and with communities in rural areas where I also helped families build schools, improve their water supplies, and utilise their natural environments on a sustainable basis. I discovered that rural communities generally work together in harmony and conserve what is in the community. The reason they can do this is because they have what I want to describe as functional environmental education. People in rural communities use the environment as a source of educational experiences, such as developing their own agricultural methods like

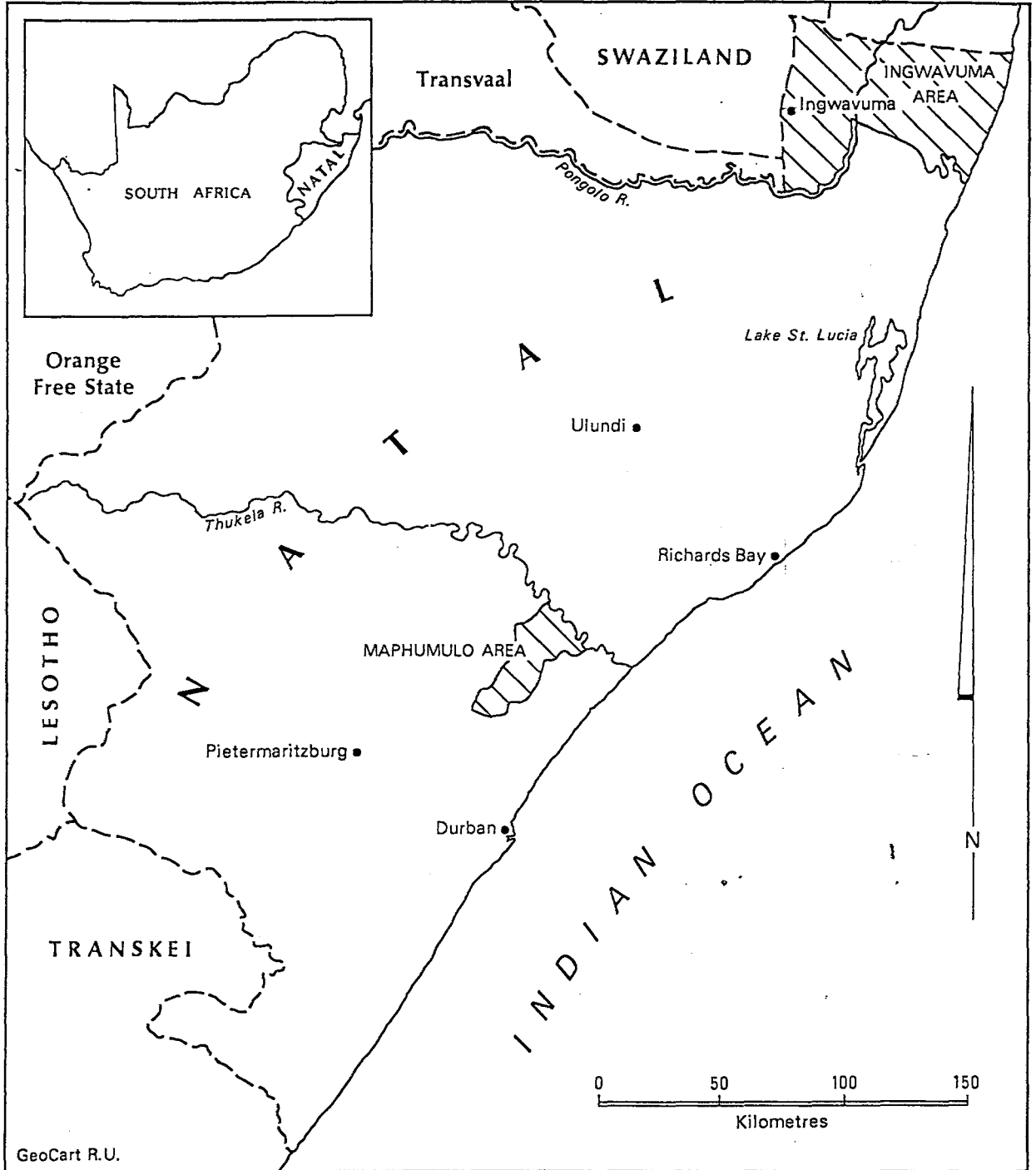


Figure 1.1 Map of Natal showing two areas of study.

intercropping, water purification methods and developing their own rules which govern the hunting of wild animals and the gathering of wild plants. They use the immediate environment as a learning resource.

In the course of time, as I worked in urban areas, I realised that children from urban areas lacked such encounters with nature. In my view, this lack of experience with nature was likely to exacerbate indifference to the value of looking after property and maintaining good human relations. Later as an education officer in the Natal Museum, I initiated programmes aimed at helping children to understand and to love nature. Children from different schools, together with their teachers, were invited to the museum where different themes about the conservation of nature were discussed. Whenever possible, these visits were linked to visits to nature areas such as the Drakensberg, the Umngeni Valley Nature Reserve and Treasure Beach Nature Reserve. The aim was to develop in children and teachers, an attitude of care and concern for the environment.

After developing environmental awareness and cultivating interest in the dynamics of environmental knowledge and education as described above, I decided to conduct some research in this field in order to test some of the hypotheses which I had developed, viz. that older members in rural communities have valuable knowledge about the environment which needs to be retrieved and documented. I accordingly identified two black rural communities, which from my experience and observation, I believed had a significant number of adults who have adequate environmental knowledge.

1.3 STATEMENT OF THE PROBLEM

In South Africa, as in many other countries, there is a growing interest in the study of indigenous knowledge, the most popular areas relating to, agriculture, botany, food preparation, education, health care, environmental conservation as well as a host of other activities. Since indigenous knowledge is most often stored in the minds of people, it is often unknown to development professionals. There is an increasing realisation (Gorman 1992) that this knowledge should also be gathered, documented and disseminated in the same way as is done with the knowledge produced by research institutes and universities. If this is not done, there is a danger that this information will be lost for ever as, for a wide range of reasons, some of which are raised in this thesis, it is seldom passed on to the younger generation.

1.4 CLARIFICATION OF CONCEPTS

1.4.1 Indigenous knowledge

The environmental knowledge to be investigated in this research is that which origin is African but which may or may not have responded to external stimuli for their improvement (Matowanyika 1991). This indigenous knowledge is most often local knowledge which is unique to the communities who hold it (Warren 1991). My study is primarily interested in such knowledge acquired through life experiences and passed down from generation to generation by word of mouth. Ulluwishewa (1993) is of the view that indigenous knowledge is a people-derived science, and it represents people's creativity, innovations and skills.

1.4.2 Sustainable living

It is generally accepted that local people have a wide knowledge of the ecosystem they live in and have a considerable potential for the sustainable use of natural resources (Ulluwishewa 1993)

In theory 'sustainable development' means that kind of development which meets the needs of the present without compromising the ability of future generations to meet their own (WCED 1987). The 1991 'world conservation strategy' (IUCN\UNEP\WWF 1991) defines sustainable development as,

"improving the quality of human life while living within the carrying capacity of supporting systems" (IUCN\UNEP\WWF 1991:10).

This report defines nine principles to guide the way toward sustainable societies. These principles are:

"respect and care for the community of life, improve the quality of human life, conserve the Earth's vitality and diversity, minimise the depletion of non-renewable resources, keep within the Earth's carrying capacity, change personal attitudes and practices, enable communities to care for their own environments, provide a national framework for integrating development and conservation, and forge a global alliance" (IUCN\UNEP\WWF 1991:3).

Yeld (1993) has noted that although South Africa is universally acknowledged and admired for the sound protection of many of its natural and wilderness areas, such protection has sometimes been practised in an autocratic manner that ignored the interests of local communities. In this thesis, lack of consultation by the nature reserve officials with the local people is reported in Chapter 4 and is reiterated by the AFRA (1990) report. Lack of consultation with the local people results in feelings of discontent which is harmful to the success of conservation in the community concerned.

1.5 SIGNIFICANCE OF THE STUDY

The significance of this study will be the documentation of environmental information which will be accessible to members of the public, educational institutions, local governments, non-governmental and community-based organisations as a small part of the vast body of existing knowledge.

This thesis will demonstrate in a small way the wealth of knowledge that older members of the community have, regarding the environment in which they live. My desire is that the information gathered be made available to adult education material developers, children story writers and people involved in community theatre, so that they can use it develop their programmes.

I am not aware of any similar study that has been empirically conducted by a female Zulu speaking person in the area of environmental education. The study will therefore also encourage black female academics to do research in rural areas where women form a significant proportion of potential respondents.

1.6 STRUCTURE OF THE THESIS

Chapter Two discusses the research approaches used, i.e. Qualitative data collection and interview methods were applied. A survey of existing literature is recorded in Chapter Three. Chapter Four discusses hunting activities, the variety of wild animals hunted and the attitudes of informants towards the creation of nature reserves. It further examines the socio-cultural implications of hunting.

Chapter Five addresses the topic of the gathering of wild edible plants, records the variety of wild edible fruits and wild edible spinach gathered and notes wild plants which informants allege to have medicinal properties in these communities. It also examines the socio-cultural values of gathering. Indigenous knowledge related to custom beliefs and prohibitions as well as traditional laws associated with animals and trees are examined in Chapter Six

Chapter Seven considers the possibilities of how the environmental knowledge collected in this study could contribute to environmental education. It reviews the present education system and the present status of environmental education within the context of indigenous knowledge. This chapter also records the suggestions of the research subjects with regard to the revival of their customs. Two of these

customs, those relating to puberty and rain-making are discussed in more detail. Chapter Eight, apart from concluding statements, contains recommendations and a critical evaluation of the research findings.

CHAPTER 2

RESEARCH METHODOLOGY

2.1 THE RESEARCH PARADIGM

Following Cohen and Manion (1979) there are two views of social reality, viz. positivistic and non-positivistic. My approach to research fell broadly within the non-positivistic approach, although I do not entirely reject the positivistic paradigm of research. The nature of information sought in this research, however, namely, personal knowledge about the environment, presupposes expression of feelings and experiences and some personal observation on the part of the researcher, which does not fit comfortably with the positivistic paradigm. This type of information necessitates a qualitative approach to the collection, analysis and presentation of data (Patton 1990)

2.2 METHODS USED

The methods used are: (1) in-depth, semi-structured interviews (Walker 1985); (2) direct observation and recourse to existing literature. Interviews enable informants to express their feelings, opinions, experiences and knowledge.

2.2.1 A qualitative method

Qualitative, (Patton 1990) and interpretive, (Lewin 1990) methods of data collection were used since the study sought to understand the perceptions, feelings and knowledge of people through in-depth intensive interviewing, and because the subject matter of this study consists to a great extent of verbal and other symbolic material emanating from a culture's past.

Furthermore, qualitative research was chosen because it is concerned with life experience as it is felt and lived. This method requires that researchers work in natural settings, using a flexible approach to interviewing (Cohen and Manion 1989; Patton 1990; Lewin 1990 and Kincheloe 1991). It was clear from the start that the knowledge sought in this study could not be described through the exclusive use of numbers (Kincheloe 1991). It is for these reasons that the qualitative approach was used since it enabled me to direct attention to the meanings given to events by informants.

While quantitative research is succinct, parsimonious, and easily aggregated for analysis, I also chose qualitative research because it enables the researcher to record the points of view of the informants without predetermining those points of view through prior selection of questionnaire categories. However, it should be noted that the information generated by the qualitative research has enabled some quantifiable results to be obtained. This will be evident in Chapters 4, 5, and 6.

2.2.2 The sample

My choice of the specific communities to be studied was determined by the political situation in the country at the time of the study. The rural communities around Pietermaritzburg, which would have been my first choice, were, for political reasons at the time of the study, no-go areas for people coming from my community. The second choice would have been a southern and a northern Natal communities, such as the Ingwavuma and Port Shepstone districts. This choice would have potentially yielded interesting results since there could have been possibilities of comparing and contrasting vegetation, as was the case in Dunn and Agoms' (1992) tree study in two Nigerian villages.

Following Kidder and Judd (1986), Cohen and Manion (1989) and Dane (1990) purposive sampling was used to hand pick ten older members from each of the Ingwavuma and Maphumulo communities, respectively to constitute the sample. I was looking for men and women whose ages ranged between 65 years and 95 years, who had always been resident in the communities and were of sober habits. The sample was made up as follow: 60-65 years 3; 66-70 years 2; 70-75 years 7; 76-80 years 2 and 81 years and over 3. The women involved in the three focus group interviews were 60- 75₁ years old (see Section 2.4.2). The sample had only three informants with formal education; a teacher, an ex teacher and a lay preacher. Following Powney and Watts (1987) respondents will be referred to as informants, because they gave information in their language about their culture and their situation.

Since the communities in which research was to be conducted were not well known to me, assistance in selecting the respondents was sought from the magistrates in both communities, as well as the Community Development Officer (CDO) in Maphumulo. The involvement of these officials, who command authority and respect in these communities, had an additional value of enhancing my acceptability and facilitated the interviewing process.

The relatively small size of the sample allowed for in-depth information to be obtained. This was especially so because most of the informants were, what Patton (1990) would have described as

information-rich. He asserts that in purposive sampling the sample size is determined by informational consideration. Each interview took from one to three hours to conduct, depending on the eloquence of the informants. A larger sample of informants apart from being beyond the limitations of this thesis, might have also led to redundancy (Lincoln and Guba 1985) because informants would, in the context of a small scale study, tended to repeat the same information. It is worth noting that this is a small scale piece of research, which involved only few individuals in the many wards of the districts studied. In Maphumulo for instance, where there are 28 wards spread over a huge geographical area, informants came from only two wards. The logistics of covering the entire area were beyond the resources of the research.

The two communities have few older members who could be considered for inclusion in the sample. Some of the older members were either too old or frail or forgetful and or not of sober habits. The decline in the number of older rural men can be attributed to the permanent migration of men to the cities, and to the mines (Dankelman and Davidson, 1988; Wilson and Ramphele, 1989). Because of these reasons, the magistrates and the CDO resorted to using snowballing methods (Cohen and Manion 1989), or chain sampling (Patton 1990) to meet the required number of informants.

Another advantage of using purposive sampling is that it makes it possible to control the gender distribution of the potential informants, and therefore to avoid gender bias in the sample (Gay 1981). The significance of Gay's (1981) insights in this area were evident in this research because the informants suggested by the magistrates were males only. This was because the magistrates interact more frequently with males through traditional structures, which in the communities researched are male dominated.

Seven interviews involving women were subsequently included in the sample, only one from Ingwavuma and six from Maphumulo. Reference to interviews involving women is deliberate because three of the 20 interviews were group interviews with women. The involvement of women in the Maphumulo area was achieved by involving the CDO who runs a number of projects with women. She suggested the names of informants. In the Ingwavuma area the one woman was included by involving informants in snowballing. I was aware that the exclusion of women from this sample would have led to biased information. Dinkelman and Davidson (1988) argue that women play key roles as conservationists and as sustainers of the environment and they have always played a central role in informal education as custodians and transmitters of indigenous knowledge and culture.

2.2.3 The interview process

Since the study focused on knowledge covering a broad spectrum of the natural environment in order to obtain an holistic picture, (Wiersma 1986), semi-structured interviews were used (Walker 1985; Cohen and Manion 1989). An interview schedule with the exact wording and sequence of questions determined in advance, was used (McAshen 1963; Slavin 1984, Cohen and Manion 1989 and Patton 1990). Different themes were identified from experience and questions were determined around the themes.

The semi-structured format was preferred to other formats, such as the informal conversational interview because it facilitated data organisation and analysis and ensured that informants answer the same pattern of questions, in that way increasing the comparability of responses. Structured interview schedules would not have been flexible enough to capture the unexpected, and to allow opinions and perspectives to emerge freely. Thus, for example, when I asked about honey gathering, almost all the informants digressed into long explanations of the process of honey collecting, explaining in detail how the bees are located and the important role played by the honey-guide. The semi-structured interviews, therefore allowed me to take opportunities to exploit the flexibility of the format and allow issues outside the pre-planned agenda to be discussed (Levin 1990).

The interview style allowed for the dialogue situation which resulted in greater and more accurate detail being obtained. For example, questions pertaining to hunting yielded detailed information about rituals performed and songs sung during this event. The questions relating to plant gathering also evoked very enthusiastic responses from the informants. Some would immediately invite me to go out to collect a variety of wild spinach, *imifino*, and wild fruit. Those who practise traditional medicine were also keen to provide me with roots and leaves of plants which have medicinal value (see Figures 2.1 & 2.2). The wife of one informant even went to the extent of preparing marula wine to taste. One informant arranged a hair care demonstration to show me how a wild plant species, *Fida rhombifolia*, (see Figures 2.3, 2.4, & 2.5) is used to make hair look curly in a traditional way. The face-to-face situation enabled me to record non-verbal as well as verbal behaviour.



Figure 2.1



Figure 2.2

Figures 2.1 - 2.2 Informants showing researcher roots, leaves and bark with medicinal properties.



Figure 2.3



Figure 2.4



Figure 2.5

Figures 2.3 - 2.5 Use of the wild plant, *uvemvane* (*Fida rhambifolia*), for making hair look curly.

2.2.3.1 Focus group interview

The reasons for using this type of interview will be discussed below (see 2.2.3.3.). Cohen and Manion (1989) and Patton (1990) discuss the advantages of using this approach. They assert that focus group interview involves bringing together people of similar backgrounds and experiences to participate in a group situation about issues that affect them. They further claim that this type of interview gives rise synergistically to qualitative information, insights and solutions which could not come about in individual interviews. The effectiveness of this approach is commented upon in Section 2.4.1.4.

2.2.3.2 Interviews in Ingwavuma

Two visits took place in the Ingwavuma district to conduct the interviews. The involvement of the magistrate in the selection of informants had its advantages and disadvantages. Most of the people in the community view the magistrate with respect, and this ensured co-operation from people who may have behaved otherwise.

The disadvantages were that most informants were so enthusiastic about co-operating that they would not give me time to explain the purpose of the interview. They would make their own assumptions that I had been assigned by the magistrate to record the history of their community. Therefore, the initial interviewing process would be spent listening to spontaneous, lengthy accounts of the history of the community, an enriching experience in itself, and an issue which needs to be addressed (see Section 8.2).

2.2.3.3 Interviews in Maphumulo

Two visits to this district took place.

*** First visit**

In the initial visit mentioned earlier, I was assisted by the CDO in Maphumulo to find suitable informants. Of the ten interviews conducted in Maphumulo, six were with women in the Mabhobhane ward, three of which were focus group interviews. The focus group interviews were held with between six and eight women. These are discussed below.

My observation was that Mabhobhane is a closely-knit community where every outsider is viewed with suspicion. Consequently I experienced communication problems with these women. I could not elicit any responses from the informants and attributed this reluctance to shyness of talking to strangers. Dankelman and Davidson (1988) put it aptly when they said that traditionally men talk and women work.

In one situation the woman informant was in the company of her husband. Though I had explained that the questions were directed at her, she would say, with her head bowed down, *baba phendula*, meaning "father, reply". There were other instances where women informants were alone, but did not respond to questions put to them. All they did was giggle and answer in very general terms, without giving any specific names for wild spinach and fruits. They would just say " oh, there are so many types of wild spinach, one cannot finish enumerating them". Further prodding would elicit only two or three names of either fruits or spinach.

In the first situation, where the woman was in the company of her husband, I had thought that the woman was trying to show respect for her husband and did not want to be seen keen to talk to strangers. I could, however, find no satisfactory explanation for the second situation where the women were alone. I thought that the women were uncooperative because they were suspicious of my motives for the visit, or because they are not used to visitors asking them questions which to them had very obvious responses.

It was because of this difficulty that I eventually resorted to organising focus group interviews (Cohen and Manion 1989, and Patton 1990). I had hoped that women would be more willing to talk in a group situation when they were in company of other women with whom they were better acquainted. Initially, focus group interviews were, however, not as successful as anticipated, because in groups of six to eight, only one or two would participate, and the rest would either giggle and act shyly covering their faces or simply keep quiet. It was for this reason that the interviews in this ward, Mabhobhane, were repeated after three months. These were not included among the 20 interviews upon which the findings are based.

*** Second visit**

During the second visit in Maphumulo, Mabhobhane, the response from the women informants, both those women who had been involved in the interviews during the first visit and the newcomers, was very positive.

This change of heart might be attributed to a number of factors: there was relative calm in the community as faction fighting had been suspended; I was coming to the area for the second time and was no longer a stranger to the women. Moreover, the women were convinced that my first visit had no hidden agendas since there were no official inquiries following my visit.

*** Focus group interviews**

The second visit in the Mabhobhane ward, in Maphumulo, coincided with the time when women in the community were meeting daily to start building their local school and there was a general feeling of excitement. The only place where I could find the informants was at the site of the new school. It was not possible to prevent other enthusiastic women from participating in the discussion. I was, however, aware that group interviews would yield potentially high-quality data (Cohen and Manion 1989; Patton 1990).

Three, three-hour sessions with groups of six to eight members were held. Notes had to be taken by hand because none of the shops around Maphumulo stocked tapes, and I had not taken a large enough supply of tapes with me. This was an advantage, because it would have been problematical to transcribe the recorded responses since the group was vibrant and the members tended to talk simultaneously. Though taking notes was time consuming, I found it effective since responses could be more easily controlled.

2.2.4 NON- PARTICIPANT OBSERVATION

Though non-participant observation (Gay 1981) was initially considered as one type of research to be used, this aspect of study could not be undertaken effectively because of the unstable political situation at the time of the study. Though rural communities are known for their hospitality, the present political climate which is characterised by mistrust and suspicion, made it difficult for the researcher as a stranger to make arrangements to stay with a family in the community. Such arrangements could have

been made had it been possible to visit both the Maphumulo and Ingwavuma districts before the research and to spend some time there. Because of the remoteness of the areas from my workplace, and the time limits of the research this was not possible.

The initial intention was to record and to study the day to day practices of informants. I had hoped to study the behaviour of informants through naturalistic observation, since insight gained would form a foundation for more information collection, for example observing the collection of *imifino*, bark and roots. I was, however, able to observe that water is used sparingly. For instance, water used for washing dishes for breakfast is reused for washing lunch and supper dishes. This economic use of water can be partly due to the fact that water is sometimes fetched far away from homesteads. I also observed that in Maphumulo women used 'alarm stone' or wood ash to clear muddy water fetched from the river. Other activities and behaviour which were observed are discussed in section 2.2.3 and illustrated in Figures 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 5.1, & 5.2.

2.2.5 THE PILOT STUDY

Before going out to the two communities to do the field study, I tried the interview schedule on three respondents who are now resident in Pietermaritzburg, but claimed to have rural connections. The aim was to test whether the questions were easy to understand or whether they needed clarification. Though the respondents had asserted that their knowledge about wild plants and animals was wide, my findings were contrary to their claims. When later compared with their rural counterparts, it was evident that their knowledge, especially about the names of plants and animals was scanty and superficial.

The pilot study helped me, however, to establish that the interview schedule was understandable, and also provided me with a base against which to compare and assess environmental knowledge of rural people.

2.3 DATA ANALYSIS

2.3.1 Content analysis

Following Hopkins (1980); Best (1981); Sanders and Pinhey (1983) and Kerlinger (1986), the process of content analysis was used to analyze the findings of this research. The data which had been taped was transcribed and written from Zulu into English. It was, therefore, this transcription which had to be

analyzed, hence Best (1981) refers to content analysis as document analysis. The usual difficulties of translating were experienced, such as the loss of rich idiomatic expression for which there is not necessarily an English equivalent. My fluency in both Zulu and English helped, however, to keep loss of meaning to a minimum.

The analysis of the data was concerned with establishing the occurrence, in the communities studied, of certain practices like hunting, in Chapter 4, gathering in Chapter 5, and the observance of some customs related to plants and animals in Chapter 6. Following Sanders and Pinhey (1983) word counting was used to establish the variety of hunted animals, animal preferences in hunting and the use of animal products (chapter 4); in assessing the availability of edible fruits, spinach and the medicinal use of certain plants (Chapter 5); In analysing some aspects of hunting, gathering and custom practices, I had to quantify the data. This was in line with Hopkin's (1980) and Sanders and Pinheys' (1983) descriptions of content analysis. These writers describe it as a method of systematic quantification of written material.

2.4 EVALUATION OF THE METHODOLOGY

2.4.1 Constraints

2.4.1.1 Choice of Communities to be studied

As noted earlier (see section 2.2.2), the endemic violence in Natal was a major constraint in the selection of study areas and hence the communities I could work with. The two communities eventually chosen for the study were 600 km and 200 km from my place of residence (see Fig.1.1). This was a disadvantage because I could not make pre-visits to familiarise myself with the areas. If I had lived closer I could have also made assessments of the suitability of the informants suggested by the magistrate and the CDO. The choice of these communities was expensive in terms of travelling costs and accommodation.

2.4.1.2 In the Maphumulo district

Some of these have been mentioned in Section 2.2.3.3.

One of the reasons for reticence on the part of women in the first visit might have to do with the timing of the research which took place during faction fighting in the area. People might have been affected in one way or another and were just not keen to talk to outsiders. During faction fighting most males hid in the bush ready to defend the community in the event of being attacked. Women remained to tend the home. Women at this time were pre-occupied with their safety and security, and the naming of plants and fruits was not of prime importance.

2.4.1.3. In Ingwavuma

The four wards in Ingwavuma are far apart. Travelling between wards would take me an hour or more on dirt roads. This meant that only one informant could be interviewed in a day.

The interest and co-operation shown by the magistrate of Ingwavuma, in this study, had both advantages (as discussed in Section 2.4.2) and disadvantages. A minor problem was the matter of 'historical expectations' referred to in Section 2.2.3.2.

2.4.1.4 Interview

Focus group interviews would, in my view, have been more valuable and effective if the entire research had been designed around this method. The reason for this being that there was a tendency for the informants to invite friends or neighbours to participate in the interviews (see Figure 2.6). Patton (1990) had a similar experience when he went to interview a chief in an African village. Group discussions are indigenous styles of dealing with issues which affect the family or the community.

The data about wild plants would have been presented in a more complete form, had I embarked on the study prepared to collect specimens of plants used by informants for identification at the herbarium. I am aware, however, that the collection of specimens for identification would have created problems in terms of the times and availability of when the plants were in bloom. According



Figure 2.6 Focus group interviews are preferred to individual interviews. Informant has invited a friend to join the interview.

to Tarr (pers.comm.) and Ngwenya (pers.comm), botanists at Pietermaritzburg Botanical Gardens and Durban Herbarium respectively, specimens collected for identification should be in bloom.

2.4.2 Advantageous Applications

The co-operation and interest shown by the Ingwavuma magistrate and the Maphumulo Community Development Officer in my study facilitated my acceptability in the two communities. Their help with identifying potential informants saved me time and money which would have been spent driving around the communities searching for suitable informants.

The advantage of knowing the language of the community being studied, was evident in this study. For instance, women in Mabhobhane used a historical event, *uvuvatha* [the influenza of 1918] to assess their ages. Some would say "*ngingokavuvatha*" or "*babehlosa or babelusa abovuvatha*", meaning that they were born during the influenza or at a time when those born during the influenza were teenagers, respectively. Another instance was when one informant pointed at one wild plant species, the *Fida rhombifolia* and as a side remark said "...*elokugayinga*" which is synonymous with 'hair perm' (See 5.2 and Figures 2.3, 2.4 & 2.5). I would not have been able to pick up this information if I had not been Zulu speaking and able to grasp idiomatic subtleties.

CHAPTER 3

LITERATURE SURVEY

3.1 INTRODUCTION

In recent years there has been a growing realisation and recognition, among a wide range of professions including education, science and medicine, of the need to promote what Menchu (1993:2) refers to as, 'a spirit of partnership', amongst different cultures and ethnic groups. The importance of indigenous knowledge and its application in practice can be seen in the rapidly developing worldwide network of indigenous knowledge centres in 1993, and the emergence of numerous journals some of which are:

* *The Institute for Indigenous Theory and Practice* based in Cape Town. Professor van Zyl has offered the following restatement of it's mission statement :

"to identify and propagate a Southern African people based human service and social work practice, flowing from the people, related to their needs and customs and appropriate to ecological realities" (van Zyl 1992:30).

* *The Indigenous Knowledge and Development Monitor*, based in the Hague, whose publication is of and for the international community of people who are interested in indigenous knowledge.

* *The Indigenous Plant Use Programme* in Pietermaritzburg, which has a newsletter whose aims are to:

"promote awareness and interest in indigenous plant use; foster and strengthen regional links; contribute to and shape the future direction of the programme; and provide exposure to people who can contribute to the development of the programme" (Mander 1993:3).

In 1987, the United Nations World Commission on Environment and Development suggested that the international community could learn a great deal from the traditional skills of indigenous peoples in managing complex ecological systems Anon. (1993a). McKinley, *et al.* (1992) assert that people want to draw on their own culture and traditions in the formulation of school curricula and at the same time want to benefit from western science. This 'partnership' in education is also advocated by Archenhold, *et al.* (1980) who contend that for education to be effective, it must allow a genuine meeting place between the old and the new. Swift (1992) recommends that science includes analysis of traditional culture.

It is in support of these calls for partnership that my research is undertaken. It is my hope that the investigation and documentation of the environmental knowledge among the two rural communities studied will benefit education in general and environmental education in particular.

Rountree (1981) notes that educational institutions are so powerful in determining and rewarding worthwhile knowledge that people from a culture outside these institutions often accept that their own knowledge is inferior. Howes (1980) also expresses concern about this perceived inferiority which he views as the most serious problem for the indigenous populations. My research is more interested in environmental knowledge which is based on the culture and opinions of people than in the international knowledge systems generated by universities and research institutions. Heelas (1981) describes these knowledge systems as "unique and invented".

3.2 THE SIGNIFICANCE OF INDIGENOUS KNOWLEDGE

In South Africa, as in many countries, there is a growing realisation that for the aims of the World Conservation Strategy (IUCN\UNEP\WWF 1980 & 1991) to be realised, there is a need for a synergistic blend of western knowledge and ethics with those of indigenous rural people (Collinson 1992). Matowanyika (1991) suggests that it is essential to identify rural knowledge bases and environmental practices and to base sustainability strategies, at least in part, on these. Suping and Collinson (1992) propose that there should be greater acknowledgment and use made of the conservation practices and aesthetic appreciation of the natural environment that are present in the traditions of the rural people of Southern Africa.

Kwapena (1984) has argued that in different parts of the world, rural communities have evolved knowledge and life-styles which deliberately set out to conserve the natural environment. These include practices such as seasonal hunting, giving special protection to certain plant and animal species that are important to the community, gardening techniques, soil conservation, composting, conserving certain forest plants and species of wild life and preserving quality of water in the streams for domestic purposes. Traditional knowledge and life-styles, the so called "wisdom of the people" has generally neither been recorded nor acknowledged by western scientists, however, in the view of (Webb and Smyth 1984).

Warren (1991) contends that indigenous knowledge is important because it is the basis for local-level decision-making in agriculture, health care, food preparation, education, natural-resource management,

and a host of other activities in rural communities. He further argues that researchers coming from outside the community to study indigenous knowledge, can increase the effectiveness of communication and information gleaned by using the proper vernacular terms in relation to explanations rooted in the formal knowledge sector, as was discussed in 2.4.2.

Matowanyika (1991:2) justifies the need for studying indigenous knowledge for possible incorporation into policy-making, noting on moral grounds that by

"employing indigenous definitions of meaning and reality on matters of environmental management, there is an in-built respect for the people" Matowanyika (1991:2).

Rajasekaran *et al.* (1993) argue that though indigenous knowledge systems may appear simple to outsiders their incorporation into agricultural extension organisations can help to strengthen agricultural extension programmes. Despite these, however, it is probably still true to say that the sciences of geology, botany, and zoology still have an ambivalent attitude to indigenous knowledge in these areas and fail to see it as an integral part of human culture and cultural practices.

3.3 INDIGENOUS KNOWLEDGE AND MEDICINE

With the gradual change of attitude towards the rights of indigenous people, traditional healing is receiving increasing scientific interest. Researchers have noted that of the earth's 265,000 species of plants only 1,000 have been thoroughly studied by western science, but as many as 40,000 are already used by traditional healers, and many of these have medicinal and nutritional value (Linden 1991).

In South Africa, a programme entitled Tramed (a joint programme by the University of Cape Town Medical School's Department of Pharmacology, and the National Botanical Institute at Kirstenbosch) is to gather, catalogue and analyze information on traditional medicine and its uses. This programme has realised, and is exploring the value of taking into account the skills of the traditional healers when improving national primary health care, since 66 to 80 percent of blacks consult traditional healers. (Sole 1993).

Gorman (1992) confirms this when he suggests that a majority of the world's population receives its health care from traditional systems that are outside the formal health services.

Though Bryant (1970:16) is critical and sometimes derogatory of traditional medicine he does admit that the "native doctor does sometimes work a cure....where the efforts of European physicians have proved

utterly unavailing". Gorman (1992) holds that no matter how unscientific the origin of the traditional medical knowledge can be, it is a treasure which cannot be ignored.

3.4 INDIGENOUS KNOWLEDGE AND SCIENCE

Colorado (1991) suggests that indigenous knowledge be called science to bring it closer to western science as knowledge is structured by people. Linden (1991) further contends that indigenous science be valued as part of the science to be learnt. McKinley, *et al.* (1991) discuss how Maori students in New Zealand bring their existing knowledge into the science classroom. While Ritchie and Butler (1990) describe how the inclusion of culture in science courses is done to enhance the relevance of the school curriculum for Aboriginal students. These writers further declare that research into learning, and the constructivists views of learning, emphasise the importance of the ideas for the natural and technological worlds that students bring to learning science in the classroom. The inclusion of culture in the teaching of science can be considered as motivational for the children.

The existing ideas may be traditional world-views and beliefs which George and Glasgow (1988:117), have labelled "street science." They give a wide selection of examples of street science, such as that the 'drinking of a lot of milk makes one intelligent', and that 'when one is young, and plants, (either crops or fruit trees), those plants will not bear well'. Swift (1992) distinguishes between superstition and street science- described as those social customs and beliefs that deal with the same content areas that are dealt with in conventional science, but which sometimes offer different explanations to those offered in conventional science.

Custom beliefs, (see Section 6.2.2) can also be considered for blending with Western know-how. Some of the custom beliefs contribute towards the conservation of nature (refer to Section 6.4). Hammond-Tooke (1974) maintains that the logic behind the custom beliefs is based on the association of ideas, particularly the concepts that like produces like, and that things that have once been in contact can continue to affect one another. One example is the belief that if a child is made to inhale the smoke of a skin of a honey badger that child will be brave and also a fierce fighter for the rest of his or her life.

Knamiller (1984) suggests the possibility of exploiting the potential of local indigenous technologies for the teaching of science. This writer, however, regrets that the struggle for relevance in science education throughout the world, is strongly emphasized at policy level but it is not known how it can be translated into teaching materials and how it should be taught, yet it is evident that the implementation

would be very effective. Vielfaure, (1980), as quoted by Knamiller (1984:65), in response to the Zambian Ministry of Education's decision to include a project counting for 15 percent of the Form III final science examination, encouraged his rural students to discover what scientific principles were involved in things done by their ancestors and which were still being practised. Traditional Home-making and Bellow-making were some of the projects which were developed and included in the school syllabus for examination. This shows that, with the support of the policy makers, indigenous knowledge can be introduced into the school alongside the more usual scientific knowledge.

3.5 INDIGENOUS KNOWLEDGE AND EDUCATION

With reference to Environmental Education, the Tbilisi Principles (UNESCO\ UNEP 1978) recommend that cultural and historical perspectives should be considered when focusing on current and potential environmental situations. Vulliamy (1988) warns however that where environmental issues are taught in school, it must be ensured that the school knowledge does not conflict with indigenous knowledge and felt needs. He, for example, notes that Kaduwangans of New Guinea know more about local growing conditions than do the experts sent in to help them.

Tobayiwa (1988) also notes how rural children, where schools do not integrate indigenous knowledge, lose most of the knowledge about the natural environment and the conservation ethic when they start going to school. It is my view that if indigenous knowledge is to be promoted and utilised it should be targeted to the youth in schools. Ulluwishewa (1993) fears that if this is not done, indigenous knowledge may be lost with each succeeding generation. He has observed that the younger generation is not prepared to adopt indigenous knowledge systems which have been practised by their ancestors.

3.6 CONCLUSION

The importance and the recognition of indigenous knowledge is becoming more widespread in the last few years. This is evidenced, partly, by the publication of various journals and books, and by the emergence of organisations which are dealing with different approaches to indigenous knowledge, such as, among others, science, medicine, education, health and agriculture. From this chapter, we can surmise that indigenous knowledge can provide a valuable resource for sustainable development if it is shared between the indigenous people and those interested in it.

CHAPTER 4

INDIGENOUS KNOWLEDGE RELATED TO HUNTING

4.1 INTRODUCTION

This chapter aims at discussing hunting activities of the two rural communities under study. It examines the variety of game hunted, the impact of nature reserves on hunting, and attempts to establish how the informants perceive the decline in the numbers of animals hunted

Rural people are often noted for their knowledge and meticulous observation of nature (Pooley 1980, Walker 1981, Fox & Young 1982, Jungeruis 1986, Howes 1990). They often have highly developed observation skills which are demonstrated in their ability to identify a wide variety of both plant and animal species. In my view the rural adult population, upon whom the study was conducted, when compared with their urban counterparts, was also astonishingly good at giving detailed knowledge of some aspects of wildlife such as habitats and behaviour patterns. The response by informants to question 1.2 (Appendix A, question A1.2), about the types of animals hunted, evoked responses not just about the enumeration of the variety but also the physical description of each species, their habitats, and in some cases even personal encounters with the animals.

4.2 VARIETY OF HUNTED ANIMALS

Evidence obtained through the interviews showed that the informants hunted a wide variety of animals. (see Table 4.1). Although 50 species of animals and birds were mentioned, this number was not exhaustive because informants believed that they could have remembered more had they been forewarned about the types of questions to be asked by me. They claimed that it was not possible for them to remember all the animals within the limited time of the interview. The comment is justified if one considers that most of the informants were over the age of 70 years, and people in that age range are prone to forgetting. Another factor which could have resulted in a richer response would have been if the interview had been done in a group situation (see 2.4.1.4).

The comparison of the variety and the frequency of the hunted species of the different orders has interesting features. For instance, the order *Artiodactyla*, to which the antelopes belong, is the most hunted group of animals when compared with other groups of animals. Of the 50 species mentioned, 18

species were from this order and had the highest frequency of (n=94). 16 bird species were mentioned as being hunted yet with a frequency of only 18. (see Table 4.1). In contrast, the order carnivora had a variety of only 6, and yet it had a frequency of 27. There are several possible reasons for this pattern.

All the *Artiodactyla* are sources of food, with the grey duiker and the female bushbuck reported to be hunted by (n=19) 85% and (n=17) 75% of the informants respectively.

The carnivora order had only six hunted species with a frequency of 27, yet none of its species were hunted for food. The slender mongoose and the black-backed jackal were reported to be hunted by (n=10) 50% and (n=5) 20% respectively of the total sample. All the informants who hunted these two carnivora claimed that they hunted them because they are notorious poultry and small livestock thieves. These claims are confirmed by Walker (1981). The remaining five carnivora species were hunted for their medicinal value. The lagomorpha had only two hunted species, the rabbit being the most hunted for food by (n=12) 60% of the informants.

TABLE 4.1 VARIETY OF HUNTED ANIMALS			
ZULU NAME	COMMON NAME	SCIENTIFIC NAME	FREQ.
1. MAMMALS			
ORDER: ARTIODACTYLA (even-toed hoofed animals)			
impunzi/igadu	grey duiker	<i>Sylvicapra grimmia</i>	17
imbabala	bushbuck (female)	<i>Tragelaphus scriptus</i>	14
ingulube yasendle	bushpig	<i>Potamochoerus porcus</i>	9
unkonka	bushbuck (male)	<i>Tragelaphus scriptus</i>	9
umgakla	kudu	<i>Tragelaphus strepsiceros</i>	7
umziki/inxala	reedbuck	<i>Redunca orundinum</i>	5
iphithi	blue duiker	<i>Cephalophus monticola</i>	5
impala	impala	<i>Aepyceros melampus</i>	4
inkonkoni	blue wildebeest	<i>Connochaetes taurinus</i>	3
umsumpe	red forest duiker	<i>Cephalophus natalensis</i>	3

Table 4.1 Continued			
ZULU NAME	COMMON NAME	SCIENTIFIC NAME	FREQ.
iqhina	steenbok	<i>Raphicerus campestris</i>	3
iphiva	waterbuck	<i>Kobus ellipsiprymnus</i>	3
igogo	klipspringer	<i>Oreotragus oreotragus</i>	3
inyathi	buffalo	<i>Syncerus caffer</i>	2
inyala	nyala	<i>Tragelaphus angasii</i>	2
isibhebhu	could not be identified		2
invubu	hippopotamus	<i>Hippopotamus amphibius</i>	2
iphofu	eland	<i>Taurotragus oryx</i>	1
ORDER: LAGOMORPHA			
unogwaja	rock rabbit	<i>Pronolagus crassicaudatus</i>	12
intenesha	hare	<i>Lepus saxatillis</i>	1
ORDER: CARNIVORA			
uchakide	slender mongoose	<i>Herpestes sanguineus</i>	10
insimba	genet	<i>Genetta genetta</i>	7
impungushe	black-backed jackal	<i>Canis mesomelas</i>	4
ingwe	leopard	<i>Panthera pardus</i>	3
intsele / ingobamakhosi	honey badger	<i>Mellivora capensis</i>	2
iqaqa	polecat	<i>Ictoryx striatus</i>	1
ORDER: PRIMATES			
inkawu	monkeys	<i>Cercopithecus pygerythrus</i>	6
imfene	baboons	<i>Papio ursinus</i>	4
insimango	samango monkey	<i>Cercopithecus albogularis</i>	1
ORDER: RODENTIA			
ingungumbane / inungu	porcupine	<i>Hystrix africaeaustralis</i>	5

Table 4.1 Continued			
ZULU NAME	COMMON NAME	SCIENTIFIC NAME	FREQ.
ivondwe	cane rat	<i>Thryonomys swinderianus</i>	3
ORDER: PROBOSCIDEA			
indloyu	elephant	<i>Loxodonta africana</i>	3
ORDER: PERISSODACTYLA (odd-toed hoofed animals)			
idube	zebra	<i>Equus burchelli</i>	1
ubhejane	black rhinceros	<i>Diceros bicornis</i>	1
ORDER: TUBULIDENTATA			
isambane	aardvark	<i>Orycteropus afer</i>	1
2. BIRDS			
Family: Numididae (guinea fowl)			
impangele	helmeted guinea fowl	<i>Numida melegris</i>	2
Family: Plataleidae (ibises)			
inkankane	hadeda	<i>Hadeda ibis</i>	2
Family: Musophagidae (louries)			
igwalagwala	purplecrested lourie	<i>Tauraco porphyreolophus</i>	1
Family: Cuculidae (cuckoos)			
uphezukomkhono	redchested cuckoo	<i>Cuculus solitarius</i>	1
Family: Alcedinidae (kingfishers)			
isiquba	ped kingfisher	<i>Ceryle rudis</i>	1

Table 4.1 Continued			
ZULU NAME	COMMON NAME	SCIENTIFIC NAME	FREQ.
Family: Malaconotidae (bush shrikes)			
i. umnguphane / ungquphane	blackcrowned tchagra	<i>Tchagra senegala</i>	1
ii. ingongoni	gorgeous bush shrike	<i>Telopharus quadricolor</i>	1
Family: Ploceidae (weavers, widows)			
i. ujojo / utshotsho	redcollared widow	<i>Euplectes ardens</i>	1
ii. ihlokohloko	spottedback weaver	<i>Ploceus cucullatus</i>	1
Family: Phasianidae (francolins and quail)			
i. intendele	greywing francolin	<i>Francolinus africanus</i>	1
ii. isigwaca / isigwaqa	common quail	<i>Coturnix coturnix</i>	1
Family: Columbidae (pigeons and doves)			
ijuba	rock pigeon	<i>Columba guinea</i>	1
Birds for which only Zulu names are available			
ushwalana			1
isinanda			1
unkosiyedwa			1
ibhokodwe			1

Table 4.2 ANIMAL PREFERENCES IN HUNTING			
ZULU NAME	COMMON NAME	SCIENTIFIC NAME	FREQ.
ORDER: ARTIODACTYLA (even-toed hoofed animals)			
impunzi	grey common duiker	<i>Sylvicapra grimmia</i>	9
impala	impala	<i>Aepyceros melampus</i>	4
unkonka	bushbuck (male)	<i>Tragelaphus scriptus</i>	4
umziki	reedbuck	<i>Redunca orundinum</i>	2
umgakla	kudu	<i>Tragelaphus strepsiceros</i>	1
iphithi	blue duiker	<i>Cephalophus monticola</i>	1
imbabala	bushbuck (female)	<i>Tragelaphus scriptus</i>	1
igogo			1
umsumpe	red forest duiker	<i>Cephalophus natalensis</i>	1
ORDER: LAGOMORPHA			
unogwaja	rock rabbit	<i>Pronolagus crassicaudatus</i>	1
ORDER: RODENTIA			
ivondwe	cane rat	<i>Thryonomys swinderianus</i>	1
ORDER: CARNIVORA			
insimba	genet	<i>Genetta genetta</i>	1

4.3. USES OF ANIMAL PRODUCTS

While most of the meat from hunted animals is used for domestic consumption, skins and horns, and some of the animal organs are used for medicinal purposes and for clothing.

4.3.1. Skin

(N=11) 55% of the informants claimed that animal skins are used for making male and female loin cloths. The following animals are hunted for this purpose; impala, nyala, reedbuck, red forest duiker and genet, while the skin of the leopard and the lion are used by the royal family only. Webb and Wright (1986) verify the historical basis of this claim.

4.3.2. Horns

(n=4) 20% of all the informants stated that the horns of the hunted animals are used for storing medicine and also for making bugles. The following animals were used for this purpose: bushbuck, blue wildebeest, and nyala.

4.3.3. Animal Organs

Only one informant, a practising herbalist, uses a number of animal organs for treating a variety of illnesses. For example the heart of the grey duiker is used for controlling high blood pressure; the offal of a female bushbuck is used for treating aching body joints and asthma; the testicles of the male bushbuck are considered ideal for those afflicted with venereal disease, while the burnt vertebrae of the python is used for those with backaches.

4.4. THE SOCIO-CULTURAL VALUE OF HUNTING.

All the informants knew something of the rituals connected with hunting. Some knew the rituals in general terms and others in more detail. They all related them with relish and a sense of nostalgia. It was evident that the formal characteristics and the contexts within which the hunting rituals were performed were generally the same but that the modes of performances varied slightly between the two districts. For instance all the informants stated that the herbalist had to treat the hunting party with various herbs before the party set off. These claims are supported by Schapera (1937) and Krige (1965) who report that hunters had to be treated with various medicines to ward off the evil machination of enemies and to ensure that hunters kill as much game as possible.

All the informants also agreed that the leader of the hunting party was chosen for his abilities to lead the party. This hunting leader was variously referred to as *umthonga* or *umphaki wenqina* or *iphisi*. Krige (1965:204)

refers to this hunting leader as "the master of ceremonies". The qualities looked for in the choice of the hunting leader varied according to the informant. In some wards the leader had to be a man who is highly talented; who is articulate, lucky and musical; while in other wards they would choose someone who is sluggish and reserved, and still in other wards there were no specifications and *umthonga* was chosen at random. There were beliefs that the personality of *umthonga* would affect the behaviour of animals. Some believed that if the *umthonga* was articulate, lively and intelligent those qualities would attract the animals towards the hunting party. Others believed that a sluggish and softly spoken person would make the animals dull and thereby render them easy prey. The variety of herbs used by the herbalist to treat the hunting party demonstrate how the herbalists and the informants relate or connect the natural properties of herbs to human and animal behaviour.

4.5. THE IMPACT OF NATURE RESERVES ON HUNTING PRACTICES AND THE IMPLICATIONS THEREOF

Though there was no specific question in the interview schedule which related to nature reserves, the responses to the question A1.1 (Appendix A, question A1.1), "Do people still hunt?" evoked answers which related to the creation of nature reserves. The frequency of reference to nature reserves was determined by the informants' proximity to the reserves. Informants from the Ingwavuma area who are near the Ndumu Nature Reserve are, on the one hand, more aware of the hunting limitations caused by the creation of the reserve, hence their references to the reserves were frequent and spontaneous. The Maphumulo informants, on the other hand, live far away from a reserve and to them this is not an issue.

While all the Ingwavuma informants expressed dislike for nature reserves, it was evident that the degrees of dislike varied. Only (n=3) 30% of these who felt strongly negative towards the nature reserves, and it was these people who were forthcoming with their objections and dislikes.

The following are some of the reasons given for objecting to the creation of nature reserves:

- * Nature reserves have deprived people of the much valued opportunity of hunting. Traditionally hunting was regarded as a very important event which was connected to a wide variety of customs. It was a time for celebration, where members of the community met to share and exchange ideas. It was during hunting that men's different skills and talents were identified, acknowledged and nurtured. Eloquent and articulate speakers, singers, dancers, skilled hunters all had an opportunity of being recognised for their worth. This observation is supported by MacKenzie (1991) who cited Ballantyne's

work which describes hunting as a means of communal co-operation, a definer of leadership and a source of praise and epic poetry. The disappearance of this activity warrants a study to establish whether there are other activities which have replaced this event. In this light it is worth noting Koch's (1993) view that people from around the game reserve have been victims rather than beneficiaries of conservation.

- * The hunting season also provided men and women with an opportunity to apply self discipline in sexual matters. Men had to abstain from sexual activities the night before going out hunting. Abstinence ensured that men were pure and strong. This abstinence from sex can be likened to that of sportsmen such as athletes, boxers, soccer and rugby players who are discouraged from spending nights with spouses and girlfriends before tournaments. Schapera (1937) and Ngubane (1977) report that the seminal emission was considered as polluting. Ngubane (1977) further argues that since the semen is regarded as the reproductive fluid, therefore, any activity which will entail its loss should be discouraged. Loss of semen is equated with loss of power energy and virility .
- * The meat from culled game in the nature reserves only benefits those who live on the periphery of the reserves, or those who have close links with the staff. There is no attempt by the officials of the nature reserve to reach those who live far away from the reserve, to inform them about the times when the meat is available. An official of the Kwa-Zulu Bureau of Natural Research confirmed that the availability of meat is announced by word of mouth (W.Elliot pers. comm.).

The (n=3) 30% who were not in favour of reserves also argued that activities mentioned in the first two points above promoted social and cultural cohesion. The banning of hunting weakened the moral fibre of the community. People's interdependence and strong reliance on the larger social organisation was undermined. It is my view that with the absence of an accepted base for unity which was provided by organised hunting, people started to be individualistic.

These informants furthermore maintain that their hunting practices also adhered to the conservation ethic because hunting took place only in winter. They argue that seasonal hunting compares favourably with scientific culling.

This claim is supported by Engel's (1990) observation that science and tradition sometimes complement each other.

It is, however, my contention that these informants, like many people in traditional societies, do not have perceptions of the physical environment that go beyond the obvious knowledge of a particular issue. For

instance, since hunting takes place only in winter, to them the possibility of extinction is remote. Other complex processes involving a number of factors are not considered. These include political transformations and ecological factors like the climate, conservation of biodiversity, increase in human population, land issues and a host of environmental problems of social and economic importance.

The (n=7), 70% of Ingwavuma informants, who were tolerable towards the nature reserves gave the following reasons:

- * They view nature reserves as a useful medium for the preservation of our heritage.
- * Nature reserves serve a valuable educational purpose since they provide children with a place to see the animals they only know by name.
- * One informant reported that he had no problem with finding culled meat because he stays next to the reserve. This claim supports the allegation made by those opposed to the nature reserves that culled meat is available to those living near the reserves.

It is significant to note that all the informants who were in favour of nature reserves had visited the nature reserves. They acknowledged that these visits, organised by the officials from the reserves, had helped them to view nature reserves favourably.

In the light of the foregoing, it was felt important for this research to establish the extent of community involvement at the time of the creation of the Ndumu Nature Reserve. The Ndumu Reserve was established in 1924 and occupies an area of 10117 hectares (Pooley 1980). According to Clay (1985), in the past most protected areas were set aside without the advice or consent of local residents. It is likely that the establishment of the Ndumu Nature Reserve took place in this way as no records of consultation could be traced.

Houseal *et al.* (1985) argue that the establishment of nature reserves must be a participatory process that involves local indigenous groups. While Khan (1989) emphasises the significance of the past history of a country to understand the present day attitudes and responses to conservation and environmental issues. Houseal *et al.* state that in Central America, eleven of the countries in this regions have successfully designed national parks and protected areas with the understanding that they must be planned and managed by the indigenous peoples themselves in order to integrate indigenous needs for the future effectively with their traditional lands.

4.6. PERCEPTIONS OF THE DECLINE IN NUMBERS OF HUNTED ANIMALS

The creation of nature reserves with the resultant restriction in hunting is viewed both positively and negatively by communities which had historically depended on hunting for subsistence. There was no significant difference between the Ingwavuma and Maphumulo informants in their responses to the question about the decline in numbers of hunted animals. This could be attributed to the fact that both communities engage in illegal hunting practices. The answers to the question of decline were qualitative and numbers were referred to only as either 'many' or 'few'. This could be attributed to the fact that rural people, who have not received formal education, tend to generalise, and seldom quantify.

Seventy percent (n=14) of all the informants maintain that there is a decline in the number of hunted animals because they no longer see much game when they go out gathering fruits, plants and wood. They give various reasons for this decline viz.;

- * People now hunt illegally and do not stick to hunting seasons. This means that people hunt right through the year even during breeding seasons. Related to illegal hunting is a tendency to hunt individually. This individualistic behaviour tends to be susceptible to a variety of malpractices such as using snares and rifles.

The informants were inclined to blame the whites for the use of rifles when hunting. There is evidence that even in the 19th Century rifles were used not only by whites. Mtshayankomo ka Magolwana, James Stuart, the historian's, informant reports how Ntanyana accidentally killed Sibiba with a gun during a hunt called by the then Prince Cetshwayo (Webb and Wright 1986:130).

- * Some attribute the decline in numbers of hunted animals to prolonged drought.

Bruton *et al.* (1980) also confirm that there was a decline in numbers of hunted animals. These writers report that in the late 19th Century Maputaland, of which Ingwavuma is part (Maud 1980:2), there were vast herds of game which attracted hunters from all over the world. They report that in one season one hunter was alleged to have shot 150 elephants and 91 hippopotami. These writers further report that by 1870 there was not much hunting because of indiscriminate shooting, habitat destruction, rinderpest and nagana which are cattle diseases.

Fifteen percent (n=3) of the informants claim that there is no decline in animal numbers because animals breed continuously and thereby replace the hunted ones. These informants do not understand that certain population

levels are required for successful breeding to take place. Lovejoy (1986) also records concern about the difficulties in getting precise information about the number of available species. This writer asserts that these difficulties lead to a wide spread of estimates.

The last (n=3) 15% of the informants do not know whether numbers are declining or not. They contend that since the game is kept in the nature reserves it is not easy for them to establish the number of various species.

4.7. CONCLUSION

The number of species identified by the informants is evidence of the local people's detailed knowledge of the ecosystems they live in. It is significant to note how specific they are in their naming of the antelope, when compared with the English-Zulu, Zulu-English dictionary, (Dent and Nyembezi 1969) which is confusing and not consistent. For instance, these writers describe the *impunzi* as a 'buck' in the Zulu-English section, and in the English-Zulu section it is made clear that the word buck is a generic term for such species as the bushbuck, the steenbuck and the springbok. The informants are, however, very specific- *impunzi* is the grey duiker. While these writers, in the English section refer to the duiker as *impunzi*, the informants differentiate between the grey, the blue and the red forest duiker as *impunzi*, *iphithi* and *umsumpe* respectively. The *igogo*, which presented me with problems in finding its English equivalent, is described as a kind of antelope. [*Igogo* is the klipspringer (Gcumisa pers. comm.)].

This study also indicated the informants' understanding of the animals' behaviour which was evident in their anecdotes about their personal encounters with different animals. Story, short-play, magazine and book writers could use these personal accounts to develop their material. In this way the information could be documented and disseminated in a coherent and systematic way.

The fact that hunting was restricted to the winter season ensured that the game was hunted at a time of the year which promoted a sustainable way of hunting. The informants understand that spring and summer seasons are not ideal for hunting because they are mating times. Another reason for informants to prefer winter to summer is one which favours them. They maintain that in winter it is easy to spot game because vegetation is dry and sparse.

The lack of evidence for local involvement in the creation of nature reserves, can be viewed as a contributory factor towards the negative attitude shown by (n=3) 30% of Ingwavuma informants towards nature reserves.

This study shows how effective education programmes could be when these are organised for local people living near the nature reserves. (n=7) 70% of the informants who had been exposed to education programmes organised by the nature reserves, assisted in creating a tolerable attitude towards them.

This study showed a need for community environmental education to introduce people to such issues as extinction, population growth and its implications, political transformation, land issues, biodiversity conservation and a host of other environmental issues. Such information would assist the communities to understand that the capacity of the land is finite and they could thus acknowledge its limits.

There are other aspects of the hunting activity which I feel need further investigation, but are beyond the scope of this research. For instance, I suggest a study of the sociological effects of the banning of hunting. Since hunting provided people with an opportunity for socio-cultural activities it would be interesting to establish whether there are other activities which replaced this event. The study could be taken further to examine what socio-cultural implications these new activities have on the communities.

CHAPTER 5

GATHERING

5.1. INTRODUCTION

The aims of this chapter are; to record the various wild plants gathered by the informants in the two communities under study; to investigate the uses of these plants by the subjects of the research; to establish the extent to which honey is gathered and to discuss the socio-cultural and economic implications of gathering.

5.2 VARIETY OF WILD PLANTS GATHERED IN MAPHUMULO AND INGWAVUMA

Tables 5.1a, 5.1b, 5.2a, 5.2b of wild fruits and wild spinach gathered by informants from the two communities support Knight's (1980), Howe's (1980), Fox and Youngs' (1982) and Robert's (1990) assertions that rural African societies are often rooted within, and dependent upon the environment. The informants have a highly developed ability to identify plant life and have a wide knowledge of medicinal uses of plants. The Ingwavuma informants identified 19 species of wild fruits and 12 species of wild spinach while the Maphumulo informants identified 15 species of wild fruits and 29 species of wild spinach.

The gender of the informants might have influenced the results. In Ingwavuma the informants were 90% males, hence a higher number of wild fruit species was recorded, whilst in Maphumulo, where 60% of the informants were females, a higher number of wild spinach and a lower number of wild fruits was recorded. Males are the ones who hunt and herd animals, therefore they are the ones who are out in the veld longer and more frequently. I also observed in Ingwavuma that the women who were not part of the sample were keen to identify a wide variety of wild plants and spinach around the homesteads (see Figures 5.1 & 5.2). This identification occurred when I was interviewing male informants in their homes. In one instance a wife of one informant identified *uvemvane* (*Fida rhombifolia*) and proudly demonstrated how it is used to treat hair, with the same effect as the modern hair curler (see Figures 2.3, 2.4 & 2.5). This observation of women knowing more about wild plants in general and wild spinach in particular is also supported by Fox and Young (1982)



Figure 5.1



Figure 5.2

Figures 5.1 - 5.2 Women collecting wild spinach around their homesteads.

TABLE 5.1 VARIETY OF WILD FRUITS GATHERED

ZULU NAME	COMMON NAME	BOTANICAL NAME
a. WILD FRUITS GATHERED IN MAPHUMULO		
izindoni	water berry	<i>Syzygium cordatum</i>
amathunduluka	monkey plum / large sour plum	<i>Ximenia caffra</i>
amaviyo	forest wild medlar	<i>Vangueria infausta</i>
imincaka	red ivory	<i>Berchemia zeyheri</i>
amakhiwane	brown cluster fig	<i>Ficus capensis</i>
amahlala	green monkey oranges	<i>Strychnos spinosa</i>
imgwenya	wild plum	<i>Harpephyllum caffrum</i>
amabhelebhele	[same family as flatcrown]	<i>Albizia adianthifolia</i>
amaganu	marula	<i>Sclerocarya birrea</i>
imiklelo	puzzle bush	<i>Ehretia rigida</i>
imivuthwamini	common turkey berry	<i>Canthium inerme</i>
imiqhoqho	jacket plum	<i>Pappea capensis</i>
indende	maesa	<i>Maesa lanceolata</i>
amagonsi	large-leaved dragon	<i>Dracaena hookeriana</i>
amagontshi (roots)	unknown	<i>Ipomoea simplex</i>
b. WILD FRUITS GATHERED IN INGWA VUMA		
amaganu	marula	<i>Sclerocarya birrea</i>
amaviyo	forest wild medlar	<i>Vangueria infausta</i>
imncaka or mneyi (swati)	red ivory	<i>Berchemia zeyheri</i>
imivuthwamini	common turkey berry	<i>Canthium inerme</i>
ukholojane / amathunduluka	monkey plum / large sourplum	<i>Ximenia caffra</i>
imgwenya	wild plum	<i>Harpephyllum caffrum</i>
amakhiwane	brown cluster fig	<i>Ficus capensis</i>
amahlala	green monkey oranges	<i>Strychnos spinosa</i>
ilala	palm	<i>Hyphaene natalensis</i>

ZULU NAME	COMMON NAME	BOTANICAL NAME
iminweba	forest mulberry	<i>Manilkara discolor</i>
amancongo	sycamore fig	<i>Ficus sycamorus</i>
izindoni	water berry	<i>Syzygium cordatum</i>
inhlaba	red aloe	<i>Aloe ferox</i>
isithathatha or umsuzwane	stinkboom	<i>Premna mooiensis</i>
imithombethombe	giant-leaved fig	<i>Ficus lutea</i>
indende	maesa	<i>Maesa lanceolata</i>
uyaweyawe	white berry bush	<i>Securinega virosa</i>
umhlakela	hairy drypetes	<i>Drypetes gerrardii</i>
umsobo	common nightshade	<i>Solanum nigrum</i>

ZULU NAME	COMMON NAME	BOTANICAL NAME
a. WILD SPINACH GATHERED IN MAPHUMULO		
intshungu	unknown	<i>Momordica foetida</i>
isankuntshana	adder's tongue	<i>Ophioglossum reticulum</i>
imbuya\uqadolo	cockscomb	<i>Amaranthus thunbergii</i>
indiya	common bersama	<i>Bersama tysoniana</i>
intebe	unknown	<i>Zantedeschia</i>
imbilikicane	"	<i>Chenopodium album</i>
ububazi	"	<i>Urtica dioca</i>
unquntane	"	unable to establish
amadinsane	"	"
uzi	"	"
ubhontshela	"	"
isantshungwana	"	"
ukhilisi	"	"

Table 5.2 Continued		
ZULU NAME	COMMON NAME	BOTANICAL NAME
imbobela	"	"
umbabane	"	"
imbodla	"	"
imbatī	"	"
imbhunci	"	"
amsunku	"	"
izibabane	"	"
umkhokha	"	"
amacwebecwebe	"	"
imbuyabathwa	"	"
isampontshane	"	"
isiqonqo	"	"
idwangube	"	"
isimuncwane	"	"
uklabeklabe	"	"
udekane	"	"
b. WILD SPINACH GATHERED IN INGWA VUMA		
isheke	cockscomb	<i>Amaranthus hybridus</i>
imbuyaluqadolo	cockscomb	<i>Amaranthus thunbergii</i>
intshungu	unknown	<i>Momordica foetida</i>
ububazi	"	<i>Urtica dioca</i>
umhlondlo (roots)	"	<i>Euphorbia ingens</i>
izintondo (roots)	"	<i>Argyrolobium marginatum</i>
isantshungwana	"	unable to establish
igushe	"	"
uklabeklabe	"	"
umsunku	"	"
amagonantaba (roots)	"	"
izikhwendle (roots)	"	"

5.3. USES OF WILD PLANTS

5.3.1. Wild plants as a source of food

5.3.1.1. Wild spinach

Wild spinach are an important supplement to the predominantly starchy staple diet of mealie meal in these communities. Cunningham (1985) gave an account of the potential dietary role that these wild edible spinach could play as a source of food complementing the starchy staple diet. The nutrient elements which he recorded were, proteins, calcium, riboflavin, nicotinic acid, vitamin C and thiamine. All these nutrients are essential to healthy life. These spinach are usually prepared by frying with cooking fat, onions, tomatoes and a little curry. Mbangata, *et.al.* (1985) compiled and recorded a variety of recipes of wild spinach.

In Maphumulo, *uqadolo* or *imbuya* (*Amaranthus thunbergii*) is the most popular wild spinach because it is available for a longer period of the year, from the beginning of spring until the end of winter. The *isankuntshane* (*Ophioglossum reticulum*), which was reported by Maphumulo informants to be very tasty and satisfying, is only available in January and February. The claim about the pleasant taste of the *Ophioglossum reticulum* is also noted by Fox and Young (1982) who describe it as a popular and nutritious wild spinach which tastes like the yolk of an egg. The *intshungu* (*Momordica foetida*) and *ububazi* (*Urtica dioca*) are claimed to have a unpleasant smell and to be bitter in taste. If it was through trial and error that people learnt which plant to eat (Fox and Young 1982), it is difficult to understand why these communities have left these bitter-tasting species on their dietary list, if these species are so bitter. The informants maintained that it was simply habit that made them continue eating these species.

The informants regret that the younger generation is neither interested in knowing about, nor in collecting and eating these wild plants. The loss of interest in wild plants can be attributed to what Matowanyika (1991) describes as constraints in the recognition and promotion of indigenous knowledge as a valuable resource. The lack of acknowledgement of indigenous knowledge is evident in the agricultural programmes organised by the government departments in these communities. Dumakude (pers. comm.) and Mweli (pers. comm.), agricultural advisers in Maphumulo and Ingwavuma respectively, confirmed that their programmes promote the cultivation of cash crops to the total exclusion of wild plants.

Verdcourt (1968) believes there are many areas where the ground has been cleared of vegetation potentially more valuable than the miserable crops produced afterwards. Informants reported that they cultivate a variety of 27 and 18 cash crops in Ingwavuma and Maphumulo, respectively.

5.3.1.2. Wild fruits

Some fruits are more valued than others. The popularity depends on the taste and the usefulness of the fruit or tree. For instance the marula, *amaganu* (*Sclerocarya birrea*) is highly prized for its taste and its other various benefits it offers to people; the fruit can be eaten fresh or dried and stored for later consumption; it can be fermented to make a very popular beer and the seeds when cracked yield tasty embryos which are eaten either raw or cooked with wild spinach, soup or samp. In Ingwavuma the informants have observed that the embryo is tastier if it is picked from the goats' droppings. The embryo also yields oil which is used for the skin or to soften hides of animals when making skin clothes. In fact, virtually all parts of the marula are utilised. The roots, bark and leaves are used for medicinal purposes. The Ingwavuma informants tended to be more knowledgeable about the *S. birrea* than the Maphumulo informants. This situation could be attributed to the fact that the *S. birrea* is more abundant in the Ingwavuma area than in the Maphumulo area. The marula is the only edible wild fruit of South Africa which has been commercialised (Holtzhausen 1993).

Some fruits like *amaviyo* (*Vanguera infausta*), *amathunduluka* (*Ximenia caffra*) are valued because, like the *umganu* (*S. birrea*) they can also be dried and eaten when they are out of season. Other fruits like the *uyaweyawe* (*Fluegg virosa*) and the *umsobo* (*Solanum nigrum*) are only popular with young children, especially boys. The young boys collect these when they are in the veld herding cattle.

5.3.2. Wild plants and their medicinal uses

According to Cunningham (1989) more than 400 indigenous and 20 alien plant species are being used as traditional medicinal plants in the urban areas of Natal/KwaZulu alone. The rural traditional communities have vast knowledge of medicinal use when compared with their urban counterparts. In the two communities under study there was evidence that the knowledge of medicinal plants is not just confined to practising traditional healers, but is also shared by the ordinary members of the community. Although (n=6) 30% of the informants were practising herbalists and (n=5) 25% of the informants claimed not to know anything about medicinal plants (a claim which was viewed with suspicion by other informants and is discussed later), the rest of the sample (n=9) exhibited knowledge of medicinal plants which had been inherited from parents through practical involvement in the gathering of plants and oral tradition.

As in many other societies, it is not every ailment which is taken to a doctor, clinic or hospital. The rural communities also have a wide variety of home remedies which are used to treat minor and common illnesses. It is only serious illness which are taken to western specialists. As one informant (a practising herbalist) noted, it is mostly illnesses related to 'nerves' and stress-related illnesses, such as high blood pressure and paralysis, which they cannot treat which need hospital referral. This informant acknowledged that in order to understand stress-related illness one needs to study anatomy. I could, however, not persuade the same informant to accept that knowledge of human anatomy is necessary for the treatment of all ailments.

From Table 5.3 it is evident that twelve ailments which were identified as minor could be treated with a variety of 56 medicinal plants. This data illustrates the vast knowledge of medicinal plants held by the ordinary rural people, other than the herbalists, especially the elderly. Table 5.4. illustrates how one plant species could be used to treat more than one ailment. Krige (1965), however, tends to doubt the medicinal value of a herb which is used for many diverse ailments, but the use of one plant species for a variety of ailments is also applied in western medicine. Brewer's yeast treats a variety of illnesses such as alcoholism, anaemia, burns, etc.. Comfrey treats acne and asthma (Nutriway Marketing, undated).

TABLE 5.3 EXAMPLES OF AILMENTS TREATED WITH PLANTS		
ZULU NAME	COMMON NAME	BOTANICAL NAME
STOMACH-ACHE		
umsobo	black night shade	<i>Solanum nigrum</i>
umncaka or isinini mbiza	red ivory	<i>Berchemia zeyheri</i>
ingwavuma	Transvaal saffronwood	<i>Cassine transvaalensis</i>
umsilinga	syringa	<i>Melia azederach</i>
umganu	marula	<i>Sclerocarya birrea</i>
iboza	ginger bush	<i>Tetradenia riparia</i>
umqalothi	Natal teak	<i>Strychnos henningsii</i>
umqoqongo	white cat's whiskers	<i>Clerodendrum glabrum</i>
umthwethwe	umbrella thorn	<i>Acacia tortillis</i>
umsasane	sickle bush / sekelbos	<i>Dichrostichys cinerea</i>
umkhamba	paper bark acacia	<i>Acacia sieberiana</i>
isisila sikanogwaja	unknown	unable to establish

Table 5.3 Continued		
ZULU NAME	COMMON NAME	BOTANICAL NAME
COUGHS		
isibhaha	paper bark	<i>Warburgia salutaris</i>
iboza	ginger bush	<i>Tetradenia riparia</i>
ikalumuzi		<i>Achorus calamus</i>
isinini or umncaka	red ivory	<i>Berchemia zeyheri</i>
ixhaphozi	blister leaf	<i>Knowltonia vesicatora</i>
iqwaningi	woolly caper bush	<i>Capparis tomentosa</i>
umthunduluka	monkey plum or large sour plum	<i>Ximenia caffra</i>
mkhamba	paper bark acacia	<i>Acacia sieberana</i>
uzagogwana	unknown	unable to establish
indacuywe	"	"
BACKACHE		
umsenge	cabbage tree	<i>Cussonia spicata</i> or <i>Cussonia sphaerocephala</i>
umncaka	red ivory	<i>Berchemia zeyheri</i>
umkhuhlu	Natal mahogany	<i>Trichilia emetica</i>
inkokhokho	red leaved rock	<i>Ficus ingens</i>
umkhiwane	brown cluster fig	<i>Ficus capensis</i>
inkunzane or inkunzi	lavender tree	<i>Heteropyxis natalensis</i>
udlutshana	castor-oil bush	<i>Ricinus communis</i>
ihlomuhlomu	unknown	unable to establish
umanqokodo	"	"
uzagogwana	"	"
HEADACHE		
umkhamba	paper bark acacia	<i>Acacia sieberana</i>
ingobamkhonto	red mangrove	<i>Rhizophora mucronata</i>
usingalwesalukazi	milkweed	<i>Asclepias fruticosa</i>

Table 5.3 Continued		
ZULU NAME	COMMON NAME	BOTANICAL NAME
isibhaha	paper bark	<i>Warburgia salutaris</i>
umdlonzo	old man's beard	<i>Clematis brachiata</i>
ihlomuhlomu / umbhemiso	Swazi ordeal tree	<i>Erythrophleum</i>
umsuzwane	fever tree	<i>Lippia javanica</i>
umunga	sweet thorn	<i>Acacia karoo</i>
TUBERCULOSIS		
isibhaha	paper bark	<i>Warburgia salutaris</i>
intozwane	green flower tree	<i>Peddiea africana</i>
inkalumuzi	unknown	<i>Achorus calamus</i>
insangu	dagga (leaves)	<i>Cannabis sativa</i>
NAUSEA		
umnqandane	bluebush	<i>Diospyros lycioides</i>
SPRAIN		
umhlabelo	(leaves)	<i>Talinum caffrum</i>
inkominameva	(leaves)	
HEART BURN		
uqadolo	bruinsapblaar (roots)	<i>Maesa lanceolata</i>
umkhiwane	brown cluster fig (roots)	<i>Ficus capensis</i>
DROPSY		
indende	bruinsapblaar (leaves and roots)	<i>Maesa lanceolata</i>
BLOCKED NOSE		
ikhathazo (roots)	unknown	<i>Alepidea amatymbica</i>

Table 5.3 Continued		
ZULU NAME	COMMON NAME	BOTANICAL NAME
STOMACH CRAMPS		
mneyi	red ivory (roots)	<i>Berchemia zeyheri</i>
imklele	puzzle bush (roots)	<i>Ehretia rigida</i>
BLADDER PROBLEMS		
udekane	soap nettle	<i>Pouzolzia mixta</i>
umkhuhlu	Natal mahogany (bark)	<i>Trichilia dregeana</i>
GOOD LUCK MEDICINES		
intelezi	spekboom (leaves, roots and bark)	<i>Portulacaria afra</i>
inhlokoshiyane	tree fuchsia	<i>Halleria lucida</i>
WOUNDS		
umsinsi	coral tree (leaves)	<i>Erythrina lysistemon</i>

TABLE 5.4. EXAMPLES OF MEDICINAL PLANTS USED FOR TREATING VARIOUS AILMENTS		
ZULU NAME	BOTANICAL NAME	AILMENTS
umncaka	<i>Berchemia zeyheri</i>	stomachache, coughs, backache, stomach cramps
isibhaha	<i>Warburgia salutaris</i>	coughs, headaches, tuberculosis
iboza	<i>Tetradenia riparia</i>	stomachache, coughs
umkhiwane	<i>Ficus capensis</i>	backache, heartburn
umkhamba	<i>Acacia sieberana</i>	headache, stomachache
inkalumuzi	<i>Achorus calamus</i>	tuberculosis, coughs
uhlomhlomu	unable to establish	backache, headache
uzagogwana	"	stomachache, backache, coughs

5.4.HONEY GATHERING

All the informants gathered honey. Honey is used as a food sweetener, for making beer, and also as medicine for treating coughs. To all informants the mention of the word honey resulted in them relating their encounters with the honey-guide, *Indicator indicator*. They all maintained that the honey -guide leads one to a bee-hive and during this trip the bird makes its call, which they are very good at imitating. The person who is led communicates with the bird by either repeating or singing praises to the bird. " *Hi mame, mame zomtsheketshe, ingede umame. Ngibeke*" (Hail mother, mother of termites, honey guide is mother. Guide me). Once a person has collected honey it is common practice to leave some comb around for the honey-guide. There were a number of personal accounts experienced by informants who had neglected leaving some honey comb for the honey-guide. These stories varied from a defaulter being led to mambas and pythons to him being led to wild dogs.

The story of the honey guide, which is famous both in fiction and scientific reports, is of significance in environmental education. In it we can identify some features encompassed in environmental education, such as the inter-relationship between human beings and nature. Smyth (1988) suggests that environmental teaching be based on things which are familiar and issues that are topical and not too abstract.

The disadvantages of a culture which is predominantly oral in its tradition are evident in this instance. This story has in many instances not been recorded by local people. Some writers have reported the story with bias like for instance the remark "Zulu folk tales are so often pure exaggeration that one is apt to discount them altogether" (Cowles 1959:109). Such reporting results in the story losing its environmental value. Contrary to Cowles' negative account, Gcumisa and Ntombela's (1993) sensitive reporting of the honey guide story enables the reader to be motivated to respect and appreciate nature. These differences in approaches to reporting about one topic by people from different backgrounds confirms a call made by Pearce (1991) to encourage local people to be involved in environmental education.

5.5.THE SOCIO- CULTURAL AND ECONOMIC IMPLICATIONS OF GATHERING

Gathering, unlike hunting, is an activity which takes place individually. People go out to collect fruits or plants to satisfy their own personal needs at that particular time. There are no rituals to be performed before going out to the veld to collect. Gathering therefore does not have the same socially cohesive effect on the community as is seen in the hunting activity.

5.5.1. The opportunity of facilitating a partnership between indigenous knowledge and science.

The wide range of knowledge of wild plants as a source of food and for medicinal use, shared by the rural communities, confirm pleas made by Gorman (1992), Linden (1991), Gcumisa and Ntombela (1993) and Rwomire (1993) for a need for the preservation and recording of indigenous knowledge for posterity. Since many traditional healers are already using some plant species for useful purposes, Linden (1991) suggests that the partnership with scientists and traditional healers could help researchers to focus on plants already identified as having useful properties. In establishing this partnership between the professionals and local people, care must be taken to protect the knowledge of the latter from being exploited by the former. The Centre for International Research and Advisory Network (CIRAN 1993) in its journal, *Indigenous Knowledge and Development Monitor*, suggests the introduction of patent rights for indigenous knowledge in order to prevent uncompensated expropriation by outsiders.

This partnership could be extended to other fields of study like agriculture, nutrition and dietetics. For instance inter-cropping is practised in these communities for very sound reasons. Belshaw (1980) expresses his concern about agricultural research scientists, who have neither systematically explored the rationale for inter-cropping, nor attempted to improve it. In the two communities studied, informants practise intercropping in order to ensure maximum utilisation of available land. Mealies are planted together with pumpkins, or with beans and millet. In the same way the nutrition specialists could help establish the nutrient values of the different wild spinach.

5.5.2. A case for comparing value differences between rural and modern societies.

I learnt from the informants that those who use medicinal plants collected supplies sufficient only to satisfy their immediate needs. The informants are aware that if they gather more than they need the supplies will be depleted. If it is the roots or bulbs which they wish to dig, they know that they have to take only portions of the original to allow the plants to repropagate. Similarly, if they debark stems they ensure that the mud is smeared on the wound so that the tree does not die. The informants are concerned about the urban herbalists who come to the rural areas to gather their medicinal plant supplies. My informants report that the urban herbalists tend to harvest the plants with medicinal value without any consideration for future supplies. They do this in order to save themselves repeated trips to the far away rural communities. When we compare the attitudes and practices of the two herbalists, namely the rural and the urban, one notes that the former tend to promote a sustainable style of life; they use the available resources with due consideration for the future. By contrast, the herbalists from the urban areas are inclined to take more from nature than nature can replenish.

The different attitudes of the rural and urban herbalists towards conserving the plant species can be due to several factors. On the one hand, my informants were in the herbal practice because they believed in the medicinal value of plants. On the other hand, I have observed that most urban herbalists are in the trade to accumulate wealth. There are many pressures in the city which lead people to herbal practice. One of these could be unemployment. If we bear in mind that according to World Health Organisation estimates, 66 to 80% of blacks in South Africa consult herbalists in the cities (Sole 1993), one understands why this practice attracts so many unemployed city people. Another factor could be the rise in the number of affluent blacks in the city which puts more pressure on the poor and unemployed to aspire to an improved quality of life. In their effort to escape poverty, the urban herbalists contribute towards damaging the environment when they harvest large quantities of medicinal plant species.

Maybury-Lewis (1992) describes the modern urban society as characterised by striving to get the best and most in all aspects of life. This approach to life can also be identified among some of the urban herbalists. Some of them combine herbal practice with divining which gives a wider scope of illnesses to be attended to, than the herbal operation on its own. The diviner also treats psychological, mental and sometimes even alcoholic problems. The inclusion of these maladies, which are rife in contemporary society, widens the area to be covered by the herbalist\ diviner. The inclination to create new needs so that people consume more is a common feature in what Maybury-Lewis(1992) terms "driven society". The diviner always works towards not easily being put out of practice. In contrast, most rural traditional herbalists are 'ordinary' herbalists. Krige (1965) and Hammond-Tooke (1974) describe ordinary herbalists as those who claim no special relationship to the spirits, but simply dispense their medicine without any ceremony. It was in fact the absence of ceremonies that are common among diviners which facilitated interviewing. In the case of a diviner there is a variety of activities in which the diviner engages before talking to strangers. These activities depend on the type of diviner. Krige (1965) identified the thumb-doctors, bone-diviners, stick-diviners, and whistlers, who are all approached differently.

5.5.3. Reasons for not acknowledging knowledge about the use of medicinal plants

(n=15) 75% of the informants openly acknowledged their knowledge about, and use of medicinal plants. The other (n=5) 25% claimed to be ignorant about medicinal plants. This denial of understanding of traditional medicinal knowledge was dismissed by the other informants as evidence of identity problems. Various possible reasons were given for this denial, viz.;

- i. The informants might belong to organisations which do not encourage the use of traditional medicine, like some mainstream churches.
- ii. They might have thought me to be associated with those organisations which are opposed to the use of traditional medicines. The denial of knowledge could have been used to please me.

5.5.4. A medium for observing customs.

The informants value the existence of traditional laws. They regard them as having a unifying power and as effective instruments of promoting respect in communities. They believe that a community which has no communal laws to observe, is a lost one with regard to the development of such basic human capabilities as cooperation and tolerance. The gathering of some fruits was governed by certain laws which had to be obeyed. For instance, the *iminweba* (*Manilkara discolor*) were reserved for the kings and chiefs. Anybody who collected this fruit had to present it to the royal family. The *amaganu* (*Sclerocarya birrea*) could not be eaten before the king had made a decree. The informants regret that these laws are neither strictly applied nor observed today.

5.5.5. Gathering as a source of small scale income.

The use of gathering as a source of income was evident in the Ingwavuma area. Ingwavuma has four wards, with varying vegetation, viz. Ingwavuma; Mathenjwa and Kwa-Ngwanase wards (which are particularly known for their abundance in marula *Sclerocarya birrea*), and the Nyawo ward. This variance in vegetation is utilised to their advantage by those who are enterprising. For instance the Mathenjwa people carry their supplies of marula *Sclerocarya birrea* in baskets, their marula beer, and marula seeds to the Ingwavuma ward to sell outside the Ingwavuma Hospital, which is regarded as the centre of town.

5.6 CONCLUSION

Knowledge about wild spinach and fruits is vital in order to utilise them as a source of food supplement available from the garden. There is a danger that this knowledge will soon disappear because in the first place it is not documented and remains only in the minds of local people. Secondly, the informants report that the younger generation is not prepared to adopt the indigenous knowledge systems which were practised by their grandparents. Thirdly, as food gathering is gradually being replaced by cultivated crops, the names of edible

plants will soon be forgotten. In Ingwavuma, for instance, the informants recorded a variety of 27 crops which they cultivate as compared with 12 species of wild spinach which they gather. In Maphumulo 18 different crops were reported grown in contrast to 29 species of wild edible spinach.

The knowledge of elderly persons in using plants for medicinal purposes can be utilised in combination with Western know-how as long as the local people are compensated for their contribution. The contrast in the modes of behaviour of the herbalists from the rural and urban backgrounds displays the latter as greed-motivated, while the former's approach is renewable resource-reliant and self-sustaining.

There were problems in finding the scientific names of many wild plants and fruits because I relied on names supplied by the informants in searching for scientific names in books. The fact that local names are used for many wild plants, that a single plant may have many vernacular names, and that a single name may apply to many species (Bofolo and Johnson 1988) all contributed to the problems of identification. For future studies of this nature, it is recommended that the researcher collects specimens for identification in the herbarium. According to Tarr (pers. comm.) and Ngwenya (pers. comm.) plants for identification must be in bloom.

CHAPTER 6

INDIGENOUS KNOWLEDGE IN RELATION TO CUSTOM BELIEFS AND CUSTOM PROHIBITIONS

6.1. INTRODUCTION

The aims of this chapter are to discuss the concepts of custom prohibitions, and custom beliefs; to record custom prohibitions associated with some clan names *izibongo* of the informants; to record custom prohibitions in relation to animals and trees and also investigate the relationship of these prohibitions with the conservation of nature.

6.2. THE CONCEPTS OF CUSTOM PROHIBITIONS AND CUSTOM BELIEFS

6.2.1. Custom prohibitions

Custom prohibitions are rules of behaviour associated with a belief that non-observation will result in some minor or major misfortune (Radcliffe-Brown 1939). The prohibitions discussed in this chapter are those which concern the killing or eating of the animals listed in Table 6.1.

Another way of referring to these prohibitions would have been to use the word 'taboo'. There seems, however, to be disagreement among anthropologists about a satisfactory definition of the term taboo. For instance, Wundt (as cited by Freud), divided the taboos into three classes as they concern animals, plants and other objects. Freud (undated) dismisses Wundt's division as a disappointing description. Similarly, Radcliffe-Brown (1939:16), after his discussions of Durkheim's, Frazier's and Malinowski's definitions of taboos was unable to arrive at a satisfactory definition. He made a suggestion "to avoid as far as possible the use..... until there is some general agreement about them". Steiner (1956) and Whisson (pers.comm.) believe that the term taboo has linguistic problems. For these reasons I will heed the warnings of these anthropologists and refrain from using this term.

Sociologists, by contrast do not seem to have a problem with the use of the term taboo. For instance Mc Gee (1980) and Shepherd (1987) refer to a taboo as a norm that is so strong that its violation ought to be punishable by the group or societies. These writers maintain that taboos are those norms which are considered so basic

that to violate them would weaken the moral integrity of the society. In my study there was, however, no evidence to suggest that the violation of the prohibitions resulted in punishment. Therefore, the definitions of the sociologists do not satisfy the conditions under which the prohibitions take place.

I have noted that the observation of certain custom prohibitions is falling away in African society. The relaxation of some of these prohibitions can be related to many factors. One of these is migratory labour, which results in rural people interacting with people from different cultures in the urban areas. This exposure to many different cultures results in evaluating one's own culture and consequently either discarding or modifying certain aspects of customs.

For instance, there was historically, and still is in some parts of Natal, custom prohibition with regard to the eating of chickens by young maidens. Women could eat chicken only after they had given birth to at least two children after marriage. It was believed that a young maiden who ate chicken failed to control her sexual desires, because in the chicken world hens succumb to the cock's sexual advance with minimal resistance. This prohibition custom is slowly being relaxed both in rural and urban areas.

6.2.2. Custom beliefs

The informants, like people all over the world, have their own custom beliefs which are often referred to as superstition. Fairchild (1961) describes a custom belief as an acceptance of any given proposition as true. He identifies two types of beliefs, the scientific, based on factual, and superstitious, based on prejudice and intuition. It is, however, not clear what he means by factual, because in my view a superstition can also be based on facts in that the people themselves believe that certain things "actually happen". The Universal Dictionary (1987) describes a superstition as any belief, practice, or rite unreasonably upheld by faith in magic, chance or dogma. Haining (1979) uses the term superstition interchangeably with the word belief. Margaret Mead (as quoted by Haining 1979) views superstition as a form of control over the natural world in which humans live.

Haining (1979) argues that because humans are partly irrational creatures, many of their achievements in science, philosophy, and religion have stemmed from irrationality. He gives examples of great people whose activities have been at some time influenced by superstition. Among such great people he mentions Julius Ceaser, Shakespeare and Winston Churchill.

The occurrence of numerous custom beliefs related to animals and plants among the informants is, in my opinion, due to the fact that their lives are centred around nature. Haining (1979) claims that the superstitious ideas gathered around most animals can be tracked back to antiquity when people worshipped animals. I have, however, been unable to establish whether there was any form of animal worship among the Nguni people. Karsten (1935), who has extensively researched this subject, reports the occurrence of animal worship to be common among the Native Americans, the Australian aboriginals, the Papuans of the New Guinea and many others. He did not find the presence of animal worship among the Nguni people. Mbiti (1969) maintains that every African who has grown up in the rural environment will know about the beliefs or superstitions associated with plants and animals.

6.3. CUSTOM PROHIBITIONS AS THEY RELATE TO CLAN NAMES *IZIBONGO* OF INFORMANTS

Table 6.1. shows the wide occurrence of animal custom prohibition in the clans of the informants. The animals in the table are respected by the members of the clan and respect is shown by people not killing or eating the animals. The living animals are also treated with respect, awe, and fear. The customs of prohibition involving these animals help to bind the members of the same clan name *isibongo* in some mystical way.

There are several myths which explain how the custom of prohibition originated within the clan name. Among the informants, however, only one knew the origin of the custom. It is my observation that the ignorance about the history of the custom could be associated with the breakdown of culture and oral tradition. It is possible that relating the history of the myth might have been ignored as the story was passed from generation to generation orally. The tendency might have been to emphasise the results of non-observance as it is indicated in Table 6.1.

TABLE 6.1 MAMMALS, BIRDS, AND REPTILES AS OBJECTS OF CUSTOM PROHIBITIONS OBSERVED IN INFORMANTS' FAMILIES.		
ANIMAL	FAMILY	ORIGIN OF CUSTOM AND RESULTS OF NON-OBSERVANCE
1. Mammals		
goat	Mathenjwa	origin unknown; if eaten, causes mental illness
sheep	Dlamini	origin unknown; if eaten, causes mental illness
monkey	Gumede	origin unknown; regarded with reverence
bushbaby	Gumede	origin unknown; regarded with reverence
baboon	Fakude	clan shares the same name (mfene); regarded with honour
2. Birds		
ground hornbill	Myeni	revered for its service during wartime, warning the clan of impending attack by enemies
doves and pigeons	Mngomezulu, Mtombeni, Magagula	origin unknown; if eaten, causes eye problems like watery eyes, eyebrows fall off
3. Reptiles		
green mamba	Mhlongo	respected and treated as member of family
crocodile	Myeni	respected for its service during wartime, not attacking when crossing the river

The occurrence of a green snake, in this case the green mamba, only once as a custom prohibition is remarkable. I would have expected this custom to be more widespread because several species of green snakes are regarded as ancestors among black Africans. These species are not to be killed even if they enter the house. Gcumisa and Ntombela (1993) identified '*ifulwa*', the green water or the south eastern green snake, '*inyandezulu*', the spotted bush snake, and '*umabibi*' the brown house snake, as some of the green snake species regarded as ancestors (the English names were provided by Gcumisa (pers. comm.)). [Note that he classifies a brown snake with green snakes]. This custom is respected even in urban areas; if a green snake enters a house it is regarded as a good omen of ancestors visiting the family. There was, for example, once

confusion in my home, which was in a township, when a monitor lizard entered the house. Some people in the community wanted the family to believe that the monitor lizard was a variation of a green snake. When I had an epileptic attack for the first time a week thereafter, there was a belief in the community that the illness was some kind of punishment from the ancestors.

6.4. CUSTOM PROHIBITIONS RELATED TO ANIMALS AND THEIR CONTRIBUTION TO THE CONSERVATION OF NATURE

The traditional laws which prohibit the killing of the 25 species belonging to eight classes of animals (Table 6.2.) in these two communities is, in my view, a significant contribution towards the conservation of nature and biological biodiversity. The reasons given by informants for custom prohibition vary from those which can be classified as being based on superstitions or beliefs, to those which are based on the usefulness of the species.

Among the animal species which are not to be killed are some which are less spectacular like the snails, the glow worms, the ants and termites. Ehrlich (1988) notes that Western public sympathy seems more aroused over the plight of the cuddly and furry animals like the leopards, the whale and the rhino. He appeals to the public to regard even the less cuddly species as equally important. By contrast it is interesting to note that the concern about conserving animal species in these communities studied is not limited to large species, but spreads to even the very small ones.

The World Charter for Nature and the (IUCN) now World Conservation Union, World Conservation Strategy of 1980, as cited by Ledger (1991), have produced an ethical basis for conserving biodiversity which could be applied effectively by recognising customs, beliefs and prohibitions related to animals and plants, in communities where these occur. According to these documents, diversity in ethical and cultural outlooks towards nature is to be encouraged by promoting relationships that respect and enhance diversity of life, irrespective of the political, economic, or religious ideology dominant in a society.

6.5 CUSTOM PROHIBITIONS BASED ON CUSTOM BELIEFS

My observation is that for custom belief to be effective, it must be, to some degree, linked to fear. The bataleur, the hamerkop, the ground hornbill, and the grey heron are birds associated with rain and, according to the informants, should not be killed. The killing of these birds is believed to cause lightning. Lightning is an unpleasant experience which may lead to the destruction of homesteads or death of members of the family and should therefore be avoided at all costs.

Another custom belief is that if children kill crabs their sexes change. It is also believed that if women kill frogs when they cook chicken, its taste will be as bitter as that of aloe. The killing of a snail is believed to invite bad luck.

These beliefs might sound weird, but in terms of being observed by the informants, they are, in my view, more effective than a mass of provincial ordinances and by-laws which are passed to protect animal species, especially in urban areas. Knowledge about these beliefs poses a challenge to the conservationists, law-makers and law enforcers. The challenge is to consider blending those aspects of the customs which are appropriate for conservation, with those aspects currently being used when formulating the nature laws.

6.6. CUSTOM PROHIBITION BASED ON THE USEFULNESS OF THE SPECIES

I have observed that the traditional laws based on the usefulness of the animal species are not respected as much as those based on custom beliefs. For instance the weasel is protected because it feeds on mambas, yet most kill it because it preys on fowls. Similarly, although snakes are known for their ability to control the rat population, that does not completely deter people from killing them. Crabs and crocodiles, it is believed should not be killed because they are river animals which help to keep the water level up in the rivers. It is believed that if these animals are killed rivers would dry up. The honey-guide is a respected bird because people believe it guides them to the honey. These beliefs have clear implications for conservation.

There are animals which the informants believe should not be killed because their beauty adds to nature. The elephant, the hippopotamus, and the wildebeest were identified as animals whose sizes call for conservation. One informant in Maphumulo claimed that elephants are, according to his observation, very similar to humans, and therefore, they were not to be killed. This informant's observation is supported by Dalton (1987) who reports that there are many features in the elephant which resemble humans. He maintains that elephants live a highly sociable life. The members of the family look to the oldest and largest cow for guidance. He further states that elephants, like humans, are the only other mammal which stop breeding with age. Furthermore unlike other animals, they nurse the sick and injured, and bury the dead.

The killing of the bat and the trumpeter hornbill were regarded as senseless because they are not edible, their meat is said to be unappetising. Some other animals were reported not to be killed because of their harmless nature. These were the frog, the platana, the glow worm, the grasshopper, the ants, the termites, the millipedes and the sungazer.

TABLE 6.2 LIST OF ANIMALS INFORMANTS CLAIM CUSTOMS PROHIBIT FROM BEING KILLED.

ZULU NAME	COMMON NAME	SCIENTIFIC NAME
1. Mammals		
indlovu	elephant	<i>Loxodonta africana</i>
imvubu	hippopotamus	<i>Hippopotamus amphibius</i>
inkonkoni	wildebeest	<i>Connochaetes taurinus</i>
inyathi	buffalo	<i>Syncerus caffer</i>
uchakide	striped weasel	<i>Poecilogale albinucha</i>
umthini	otter	<i>Aonyx capensis</i>
ilulwane	fruit bat	<i>Ephomophorus wahlbergi</i>
2. Birds		
uthekwane	hamerkop	<i>Scopus umbretta</i>
ilanda	egret	<i>Bubuleus ibis</i>
ingede	honey guide	<i>Indicator indicator</i>
unokilonki	grey heron	<i>Ardea cinerea</i>
ikhunatha	trumpeter hornbill	<i>Bycanistes bucinator</i>
insingizi	ground hornbill	<i>Bucornus leadbeateri</i>
ingqungqulu	bataleur	<i>Terathopius ecadatus</i>
3. Reptiles		
ingwenya	crocodile	<i>Crocodilus niloticus</i>
isibankwa	sungazer	<i>Cordylus giganteus</i>
izinyoka	all snakes	

Table 6.2 Continued		
ZULU NAME	COMMON NAME	SCIENTIFIC NAME
4. Amphibians		
iselesele	frogs	
5. Insects		
idiye	grasshopper	
ukhanyi-khanyi	glow worm	
intuthwane	ants	
itsheketshe	termite	
6. Myriapoda		
ishongololo	millipede	
7. Crustaceans		
inkalankala	crab	
8. Molluscs		
umnenke	snail	<i>Achatina semidecussata</i>

6.7. TREES AND CUSTOM BELIEFS

6.7.1. Trees as a base of mystical powers

The informants regarded trees as either good or bad. The good trees are those which have practical qualities such as providing fruits, timber, medicine and those with magical powers which improve life. Indeed, informants believe it is common knowledge that all fruit trees should not be cut down at all because they are a source of food. Bad trees are those which the informants consider to be either poisonous or those which bring bad luck when brought to the homestead.

The mystical properties of trees are accepted and practised by many Africans, whether they are from the urban or rural backgrounds. The following are some of the practices which were reported by informants, which I know are also practised in urban areas. For instance when people return from the grave after a funeral, they are given water in which are soaked any of the following plants, *ugunga*, *umsuzwane* or *imbozisa* for washing their hands. The practice of using the *Ziziphus mucronata* for transporting the spirits of the dead from the death place, quite often being the hospital, to the home is a common practice even in the urban areas. The requirement that the person who is carrying the leaf of the *Z. mucronata* should remain silent until he/she arrives at the home tends to pose a problem because of the long distances, which are often travelled in public transport, between the hospital and the home.

6.7.2. Custom beliefs about trees and conservation

The following discussion displays how the prohibitions against cutting the trees in Table 6.3 based on the beliefs held by informants, could contribute to the conservation of trees.

The magic powers of *umdlebe* (*Synadenium cupulare*), are well-known. There were many stories reported by informants about this tree. All the informants believe that the tree can strike a person dead if he/she comes too close. Some claim that the *S. cupulare* bleats like a goat if people and animals pass it. Others maintain that near this tree can be found many bones of dead animals. Similar accounts about this tree are recorded by Palmer and Pitman (1972). These writers suggest that legends about the *S. cupulare* are founded on solid fact. A highly toxic latex found in the stem of this tree blisters the skin and causes blindness. Watt and Breyer-Brandwijk (1962) cite several sources to have all confirmed that this tree is poisonous. One informant, a herbalist, claimed to have magical powers to handle the tree without being affected. He declared that the tree has medicinal value to soothe tooth aches.

All the informants acknowledge that the *idungamuzi*, (*Euclea schimperi* or *Euclea diaphnoides*), is not to be used for making fire because it causes quarrels and misunderstandings within the family if brought into the homestead or if used for fire. Watt and Breyer-Brandwijk (1962) have also reported this claim. Palmer and Pitman (1972) recorded that the specific name of the *E. schimperi* commemorates the German collector, Schimper, who was embroiled in the internal quarrels of the country. One wonders whether the name given to this tree by the Africans (*dungamuzi* = stirrer in the family) had any connection with Schimper, or whether it was just a coincidence.

The cycads *Encephalartos lebomboensis* and *Encephalartos natalensis* are found in abundance in the Ingwavuma area, and most homesteads in this area grow one or two. The informants believe that the cycads have magical powers to overcome evil spirits and to make life easy and fruitful. The Zulu name for this species 'isigqiki-somkhovu' means a sorcerer's seat. The implication is that all the evil intentions brought by a sorcerer or any person into the homestead are detected and captured by the magic powers of this tree. In this way the evil spirits do not enter the house. The informants have also observed that the cycads are commonly grown in most government buildings like the magistrates and supreme courts, hospitals, and provincial buildings. The informants claim that the government officials are also aware of the magical powers of this tree, and that is why they have protected it and have stipulated that to grow one, one must have a licence. The informants understand why the authorities have not made the magical powers of the tree public; it is a means of conserving because otherwise it could be in great demand.

The *Diospyros lycioides* is alleged by informants to cause a thunderstorm if used for making fire. The informants claim that this species should be used only by herbalists who specialise in rain-making. According to Palmer and Pitman (1972) the *Dichrostachys* is a small genus split up into several species. There is, however, no single species which is reported to have magical powers. This species was mentioned by the Maphumulo informants only, and they could not advance any reason. Since this species is known to be an abundant fodder for herbivores, in my view, the prohibition might be a way of ensuring that animals do not run out of food supplies.

COMMON NAME	SCIENTIFIC NAME	MYSTICAL PROPERTIES
umdlebe	<i>Synadenium cupulare</i>	not to be touched, kills by constriction
idungamuzi	<i>Euclea schimperi</i>	causes misunderstanding in the family if it is brought to homesteads
umkhangala		causes death if touched by one who still has parents
utshobhane/ cycad	<i>Encephalartos lebomboensis</i>	not to be cut, drives evil spirits if planted in homesteads
ugagane	<i>Dichrostachys</i>	not to be used for fire making
umnqandani	<i>Diospyros lyciodes</i>	not to be used for fire making

6.7.3. Trees regarded as river trees

Palmer and Pitman (1972) confirm that the *Ficus ingen*, the *Ficus sycomorus*, and the *Barchemia zeyheri* grow near rivers or water courses. The informants believe that if trees growing near rivers are cut down they could affect the water level in the soil. Besides being river trees the *F.ingen* and the *F. sycamorus* are regarded by informants as noble trees because of their enormous size. The *F. ingen*, was for instance, first found in the 18th Century by a missionary, Robert Moffat in the Rustenburg area. He reports that it was inhabited by about 17 families (Palmer and Pitman 1972).

TABLE 6.4 TREES WHICH SHOULD NOT BE CUT BECAUSE THEY ARE REGARDED AS RIVER TREES

ZULU NAME	COMMON NAME	BOTANICAL NAME
umncaka	red ivory	<i>Berchemia zeyheri</i>
inkokhokho	wild fig	<i>Ficus ingens</i>
umkhiwane	sycamore fig	<i>Ficus sycomorus</i>

6.7.3. Trees which are associated with ancestors

The *Ficus craterostama* was mentioned by informants from the Mathenjwa ward in the Ingwavuma area. This species is highly respected in this area because under one of them is buried one of the oldest Mathenjwa chiefs, Sibhamu. For this reason, all the *F.craterostama* species in this ward are revered and should under no circumstances be cut.

The *Ziziphus mucronata* is used by the informants to attract ancestral spirits from an old dwelling to a new one. This fact is also documented by Palmer and Pitman (1972) and Gcumisa and Magqubu (1993). The informants also maintain that this species is also used to cover the graves of chiefs.

6.8. CONCLUSION

This account about animals and trees and related beliefs shows how extensive knowledge about animals and trees and their usefulness is, among the rural people studied. The custom prohibitions against the killing of animals protects a wide range of animals ranging from the very huge ones, like the hippopotamus and the elephant to the tiniest and the least spectacular, like the ants and glow-worms. Since these customs contribute towards the general conservation of a reasonable number of animal species in these communities, it would be worthwhile for conservation institutions and bodies like museums, wild life clubs and nature reserves to consider retrieving and documenting these customs. These institutions can also encourage the observation of such customs by integrating them in the community programmes.

One such instance where local knowledge can be considered for integration, could be when conservation institutions organise Arbor Day activities in these communities. Instead of merely encouraging local people to plant trees [in most cases exotic trees] (Dumakude pers. comm. and Mweli pers. comm.), local people can be asked to share their knowledge about customs and beliefs with professionals and the wider community.

CHAPTER 7

EDUCATIONAL IMPLICATIONS

7.1. INTRODUCTION

In this chapter I will consider the possibilities of how the environmental knowledge collected in this research could contribute to environmental education. The chapter consists of three parts. In the first part (Section 7.2), I will briefly review the inequalities in the present education system in the Republic of South Africa and will also draw attention to those aspects, which in my view will have to be considered by future education planners. I will then proceed to analyze some aspects which have made it difficult for environmental education to be implemented within the present education system.

The second part (Sections 7.3), discusses the data from Chapters Four and Five. The data from these chapters is mainly about the different animal and plant species found in the communities under study. The discussion will be mainly based on the World Conservation Strategy's argument that

" a new ethic embracing plants and animals as well as people is required for human societies to live in harmony with the natural world on which they depend for survival and well-being. The long-term task of environmental education is to foster or reinforce attitudes and behaviour compatible with this new ethic" (IUCN 1980).

This argument emphasises the importance of understanding biophysical surroundings. The discussion of the data will be done on the basis of the different types of education viz., formal, non-formal and informal.

In the third part of the chapter, (Section 7.4) I will refer to the suggestions made by informants regarding the ways in which such customs could be revived. In addition I will argue that some customs are important for a sustainable society. As examples I will discuss two specific customs, viz. the puberty and rain-making ceremonies.

7.2. THE PRESENT EDUCATION SYSTEM AND FUTURE PROSPECTS

7.2.1 Background

The de Lange Report as quoted by Irwin and Janse van Rensburg (1991) describes **formal education** as that education which takes place in a planned way at recognised institutions such as schools, colleges and universities. **Non-formal education** proceeds in a planned way outside the sphere of formal and informal education like in-service training in the work situation. Lastly, **informal education** is reported as that education which is given in situations in life that come about spontaneously such as within the family circle, the neighbourhood, social and cultural institutions.

The present education system of the Republic of South Africa makes provision for the separate education of the main population groups, whose pupil enrolment (SSA-STD10) is as presented in Table 7.1. (Strauss *et al.* 1993).

Blacks	8 536 345	(80.5) percent
Whites	937 598	(8.8) percent
Coloureds	870 443	(8.2) percent
Asians	254 395	(2.4) percent

This system of education is fraught with inequalities - inequalities in terms of pupil/teacher ratios, teacher qualifications, financial provisions and quality of educational facilities in the four racially segregated departments (Ballantyne and Oelofse 1989). These inequalities make the implementation of a curriculum which on paper looks the same for all students, impossible.

Christie (1993) argues that because the curriculum policy and development have been the responsibility of the white education department, with an official policy of Christian National Education (CNE), and with white Afrikaner dominance, the result is a curriculum which favours historically-white schools and students. A curriculum which is based on the knowledge and interests of the whites and the ideology of CNE, does not

include educational material acquired from rural blacks who are a non-dominant group. The present approach in education, which does not make provision for the integration of local knowledge in the syllabus makes it not only impossible for the black schools to learn about the findings of my research, but also the other race groups.

To ensure the implementation of a multicultural approach, which is completely different to the current system of education, the total school system will have to change. Griessel *et al.* (1990) cite some advantages of a multicultural curriculum. These writers claim that such a curriculum may help pupils from a non-dominant culture to perform better academically because they will no longer be expected to turn their backs on the cultural values taught at home. They also claim that a multicultural curriculum will make a significant contribution towards the acceptance of children from non-dominant cultures as being an integral parts of the society.

Vulliamy (1988) warns that curriculum innovations must be very sensitive to the specific context in which they are attempted. He cites other writers who have observed problems where attempts were made to relate the school more to the community, like in Tanzania where an effort was made to link education with production in self-reliance programmes. Knamiller (1984) reports the fate of the Swaneng Hill School in Botswana which attempted to provide a more relevant curriculum by integrating academic with practical work. Tambo (1990) also describes how, in the Camerouns, attempts at designing school programmes that were relevant to the African environment were rejected by parents and pupils.

The rejection of ruralization was on the basis of the suspicion that it was inferior. It is my view that curriculum innovations which incorporate local knowledge and environmental problems could be acceptable to both parents and students if they are given a high status examination rating.

7.2.2. Difficulties in implementing Environmental Education

The aims and objectives of environmental education outlined in the White Paper on Environmental Education (RSA 1989) are congruent with the Tbilisi Principles (UNEP 1977) that environmental education should consider the environment in its totality; be a continuous lifelong process; be interdisciplinary in its approach; involve active participation by learners; and stress individual responsibility towards the environment. The data about local plant and animal species presented in chapters 4 and 5, and about local beliefs and customs in chapter 6 provides ideal material which could be integrated into the school curriculum to further the aims and objectives of environmental education.

Though the South African White Paper was tabled in the Tricameral Parliament in 1989, not much has been achieved in terms of having it implemented in the school curriculum. This, however, had to be expected if we note Irwin's (1991) comment that years of resistance from some of the more conservative education departments preceded the tabling of this document in parliament. He further reports that there was limited consultation during the formulation of this document by the government with people involved and interested in environmental education during its formulation. Taylor *et al.* (1993) report another incidence of attempted unilateral restructuring done by the Council for the Environment's Committee for Environmental Education, when it prepared the document entitled *The Development of core Syllabus for Environmental Education in South Africa*.

Blignaut (1991) notes that the successful implementation of a process of environmental education into formal education needs to be supported by a National Schools' Environmental Education Policy. She suggests that this Policy should recognise the basic objectives and principles of environmental education, and should cater for regional and local diversity. Up to now it has been problematical to find strategies for the implementation of environmental education. Blignaut (1991) cites lack of time within the curriculum as impeding active learning, compartmentalised time-tabling mitigating against holistic learning, teachers not generally familiar with or trained to use environmental education methodologies.

Vulliamy (1988) argues that for environmental education to be effective it should adopt student-centred learning strategies, project work, discussion groups, drama, games, and simulations, and teaching methodologies which encourage enquiry-based learning. Such an approach in teaching implies the consideration of a wider range of tasks for teachers. For instance the Dikhololo Workshop of 1993 suggested aspects which could be considered for inclusion by universities and colleges when developing environmental education teacher programmes (Anon.1993(b)). Some of the aspects are critical thinking, problem solving, local context studies, appropriate knowledge of environmental issues and processes.

In my view these suggestions could be helpful if applied, because my observation is that one of the fundamental constraints for the implementation of environmental education could be that the majority of teachers have limited education and training. Such teachers tend to be unsure of the subject matter they teach and they discourage the asking of questions. It is for this reason that Irwin (1991) believes that the outdated modes of teaching, which comprise only the transmission of facts, should be replaced by more flexible learning theories as suggested by constructivist theory. The whole ethos and structure of formal schooling has not been conducive to the achievement of environmental education goals (Ballantyne and Oelofse 1989).

Katunzi (1991) is of the view that the environmental education approach places greater emphasis on problem-solving which presupposes the use of one's immediate environment. She further suggests that this approach encourages children to research different aspects of the environment, to locate and read appropriate sections of the texts and to make use of community resources. From the writings of many educationists it is evident that the South African education system is defective in terms of considering the needs, aspirations, and knowledge of the local people. These defects need to be addressed. Luthuli (1985) noted that the problem with black educational institutions in South Africa is that they do not teach ideologies which perpetuate the black communities' own life. Harris (1978:124) suggests that the future South Africa be "open to the past, simply to be open to the roots of the present". This suggestion is appropriate to this study, since it is evident from the findings that the environmental knowledge of the older members of the rural communities has been ignored, yet this knowledge has assisted in providing livelihoods and security for long periods of time.

Okot-Uma and Wereko-Brobby (1985) also pointed out the importance of the human dimension of environmental concern, stressing the need to include the socio-cultural element when considering environmental issues. Chapter 6, in examining the beliefs and customs of the rural people as related to trees and animals, confirmed the common belief that the environment is a natural starting point for any kind of education in society and that it is easily incorporative of socio-cultural values. For such information to be incorporated into the classroom experience, teachers who have benefited from the type of teacher education suggested at the Dikhololo conference, as cited above, would be needed.

7.3. "UNDERSTANDING OF THE PHYSICAL SURROUNDINGS"

This section discusses the information about animals and plants presented in Chapters Four and Five. Since the information about animals and plants is so significant, I will consider possible means of ensuring that this knowledge is shared effectively and meaningfully. I will acknowledge that this sharing can take place within the context of the three commonly understood types of education viz. formal, non-formal and informal.

The theme "understanding of the physical surroundings" is taken from the frequently referred to, and widely accepted, IUCN definition of environmental education on which I am going to base my discussion viz.:

"The process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self formulation of a code of behaviour about issues concerning environmental quality" (IUCN 1971).

It is my contention that one of the ways of understanding the environment is to know the plants and animals in one's immediate environment. This notion is supported by the IUCN\UNEP\WWF (1991) document, *Caring*

for the Earth: A Strategy for Sustainable Living, which outlines how the plants and animals have made the planet fit for the forms of life we know. This document further describes the different benefits of the diversity of nature as a source of beauty, enjoyment, understanding and knowledge; a source of food, raw materials and genetic material for agriculture and medicine.

In this study the Ingwavuma and Maphumulo informants, combined, identified 50 species of wild animals (Table 4.1), 34 species of edible wild fruits (Tables 5.1a and 5.1b), and 41 species of wild spinach (Tables 5.2a and 5.2b). This data is significant since it reflects detailed knowledge by the elderly rural people of their immediate environment. The realisation by writers like Ulluwishewa (1993), that the younger generation is not as knowledgeable about this information as the older generation arouses concern, since it is an indication of another possible loss of valuable knowledge and understanding.

By comparison, an informal and superficial survey which I carried out with urban people who have rural connections, yielded very scanty and vague information about wild plants and animals (Refer to 2.4). As a result of the contrast between the rich rural environmental knowledge and the scanty superficial urban knowledge, I suggest the sharing of the knowledge about the rural environment with educational institutions. I will discuss later the various ways in which this sharing could be done.

7.3.1. Formal Education

7.3.1.1. Schooling and Curriculum Implications

At present, curriculum development in South Africa is controlled by white structures. It is permeated by the Christian National Education (CNE) philosophy and reflects the particular perspective of Afrikaner nationalism (NEPI 1992a). Amongst the principles which the National Education Policy Investigation (NEPI 1992a) report suggest for consideration when addressing the curriculum development problem, is that of democracy. Democracy entails active participation of various interest groups in the curriculum process. This participation by different population groups has implications for multicultural education. This report further notes that if a national core curriculum were established, multicultural education programmes would be part of this. It would then be possible for curriculum developers to draw up modules which reflect local interests and knowledge.

If the recommendations of the NEPI (1992a) report, could be considered for implementation, it might make the application of the data about local plants and animals found in this study possible. The incorporation of this data in the education programmes in the Ingwavuma and Maphumulo schools could have a potentially positive

impact on the education of the children, as they would be learning about information which source is in their community. Schools could even invite informants to share their knowledge and skills with the children. In Tanzania for instance, deliberate attempts are made to incorporate culture and environment into primary education. Community needs and problems form the core of the curriculum (Katunzi 1991)

Illich (1990) refers to this sharing as skills exchange. According to him, knowledgeable people could teach children the skills they use every day. For instance one 72 year old informant from Ingwavuma makes a living out of carving wood. He expressed interest in sharing his skill with the younger generation before he dies and is very proud of his trade since he is confident that it contributes towards the conservation of nature. The type of wood he uses grows as a parasite on the marula tree *Sclerocarya birrea*. The informant maintains that if this fungi is allowed to grow, it could eventually destroy the marula tree. I am certain that there are many other elderly people in the community with skills which they would be willing to share with children, if they were given the opportunity to do so.

One informant in Maphumulo suggested some kind of an exchange programme for urban children. He was prepared to make arrangements during holidays to take in children interested in hunting and gathering. He would prefer such a programme to take place in winter so that he could take them out into the forest to hunt, and could also point out to them the different types of trees, shrubs and plants with medicinal value.

7.3.1.2. Language

The names of the plants and animals discussed in Chapters 4 and 5 have been presented in vernacular, English and scientific terms. This was to make the data accessible and useful to all levels of education, e.g., lower and higher primary, junior and high school levels. The vernacular names could benefit the primary school children in these communities..

The advantages of using mother tongue during the first years of education are alluded to by (Cummins and Swain 1986; Desai,1991; (NEPI 1992b) and Seery 1993). Cummins and Swain (1986) suggest that the school, through the use of vernacular, could enhance the children's comprehension and improve academic performance by inviting local people fluent in the children's language to talk to them. These writers contend that whatever could be done to involve the home and community in the school programme could help to convince the children that the school is sincere in its regard for their language and culture.

7.3.2. Non-formal education

One of the proposals of Agenda 21, which is a document resulting from the United Nation Conference on Environmental Development (UNCED) in Rio in 1992, was that of strengthening people participation and responsibility in promoting sustainable development. Agenda 21 clearly stated what the governments could do to strengthen the role of non-governmental organisations (NGO) in this field (Wynberg 1993).

I observed that in the Mabhobhane area in Maphumulo, the government through the CDO, has already initiated projects which are aimed at helping women apply their skills and experience. During rainy seasons, they grow their own crops which they sell to markets in towns, they make wire mesh to sell to the public and they make flowers for decoration from waste plastic paper. It is through such community-based structures that I intend sharing the information collected in this study. For instance, the Mabhobhane women could be invited to share their knowledge about cooking and preparing wild spinach with a group of women from the urban areas.

In South Africa the majority has received formal education which is not adequate. The National Literacy Co-operation (NLC) put the estimate of illiteracy at 50 per cent (n=15m) of the people (Race Relations Survey 1992\93). There is a need to devise ways of sharing environmental knowledge, the aim being to disseminate the information as widely as possible. The radio could be used to reach as many people as possible even in rural areas. During the study I observed that all the homesteads visited had battery-operated radios. The radio can be effective in transmitting information if it is presented in a format that avoids didactic lecturing, but rather incorporates messages into stories and events with everyday significance.

Community theatre is another approach which could be effective in disseminating the information in the communities. Plays with environmental themes could be developed around such topics as animals, plants, customs and beliefs associated with the conservation of nature. The actors could go out into the communities to put on their plays in the same way as the Aids Programmes are presented. Plays with environmental themes are already quite widely done by *Theatre for Africa*, but are unfortunately played at venues which are not easily accessible to the majority population.

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The informants speculated that the reason for the children not being interested in this knowledge might be that they have realised that love for plants in particular entails responsibility. This responsibility requires walking in the veld and forest, searching for and gathering plants. Most of the children have an unfounded fear of snakes and even of antelopes, according to the subjects interviewed.

I am aware that the older generation could have felt the same when they were also still young. There are numerous factors which can be attributed to this disparity. The marked changes in the relations between parent and children might have a bearing. The absence of fathers from home for long periods, because of migratory labour frees the children from paternal authority for months on end (Schapera 1937). This protracted absence of the authority figure from home results in the youth, especially boys, growing up free and untrammelled without male role models. Another factor might be the exposure of the youth to electronic media which provides an alternative form of recreation. My observation was that almost every homestead had a battery-operated radio which broadcasts the whole day long. Another activity which takes much of the boys' leisure time is soccer. All the foregoing factors were non-existent during the older generation's childhood.

One informant associated the lack of interest by the children in collecting food in the veld with the changing dietary patterns. This informant blamed the introduction of "rice, curry and cooking oil" to the diet. This informant believes that prior to the advent of these food items children took a more active part in the collection of food because they knew that there were no alternative sources.

7.3.3.2. The school influence

(N=18) 90% of the informants regard the school as the major source of knowledge for children of today. They have, moreover, accepted that their own knowledge is regarded by the education system as inferior. They do not believe that indigenous environmental knowledge is taught in schools and they do not think they have the expertise to challenge this exclusion. One informant was confused about the status of their knowledge. While it is not recognised, academics frequently consult rural people about their knowledge. This informant wondered what happened to all the knowledge, because they never get any feedback.

Molteno (1990) traces the exclusion of indigenous knowledge from schools back to 1658 when Jan van Riebeeck established the first school in South Africa. This writer reports that the indigenous people (the Khoi) were persuaded to forego their lifestyle. They had to learn obedience and discipline so that they could be effective labourers. Academic matter had to be imbibed by rote. In my view the situation in most black schools has not changed since then.

In the context of this thesis, the possibilities of the environmental knowledge found in these communities being integrated into the school syllabus depends on the type of education system adopted by the transitional government. If the transitional government adopts a unitary, non-racial and democratic system of education that will mean that there will be a fair representation of all cultures, knowledge, customs, values, art, music, etc. It may thus be hoped that indigenous knowledge will also be recognised in the education system.

7.3.3.3. The church influence

The two communities under study have influential Mission churches at work in their areas which were instrumental in establishing schools and hospitals in the communities. In Ingwavuma the working mission church is of Scandinavian origin. In Maphumulo the first mission was the Lutheran but this has been overtaken by a mission of the Rhema church which has established a huge mission station in the area (Canon Mkhize pers.comm.). These Mission churches generally require their congregants to abstain from certain customs like polygamy, puberty and initiation ceremonies.

However, in these areas, as in other parts of South Africa, there are numerous independent Christian denominations mainly of Zionist origin. King (1993) reports that in South Africa there are 5000 independent churches, most of which, especially those of Zionist origin, openly recognise traditional customs. Pauw (1974) asserts that though the Zionists are syncretistic they desist from openly opposing the missionary churches lest they be labelled as pagans. Only 15 % (n=3) of the informants belonged to the mission churches, the other 85 per cent (n=17) belonged either to the independent churches or to none at all.

The tendency not to oppose the mission churches, because of fear of being labelled as pagans, is compounded by the political power these churches wield in the community. In Maphumulo for instance one of the Rhema churches (Canon Mkize, pers.comm.) owns much land, factories and a supermarket, and thus offers employment opportunities for many in the community. Since there are no industries in the Maphumulo district most people rely on this church for employment. In most cases people in its employ belong to its community. They are offered board and lodging within its premises for which the congregants pay in kind. This church also offers education under the Department of Education and Culture, which yields very good matric results. For these reasons, there are very slim chances for people in the community who benefit from it, to oppose the church even if they feel strongly about it.

7.3.3.4. The emergence of females as heads of household

The emergence of females as heads of households is one general phenomenon which I observed in the communities under study. It is not the concern of this research to outline the socio-politico- economic factors which led the rural population, especially the men, to leave their families to seek employment in the urban areas, but suffice it to state that the migrant labour system resulted in males oscillating between urban and rural areas. The consequences of this oscillation had an impact on rural life in general and on rural family life in particular. The long absence of males from their families resulted in, among other things, the non-observance of some community and family customs. Most of these customs had contributed towards ensuring the wholesome growth of children within the family, and cohesion within the society. Two of these customs viz. the rain-making and the puberty ceremonies will be discussed below.

In the rural home it is the female who has to fulfil multiple roles during the absence of the husband. The role restructuring in the households with the resultant female heads usually takes its toll on the females. They work under stressful situations in which they have to see to the day to day activities of tilling the land, gathering and preparation of food for children, supervision of the herding of cattle and repairing of houses which are falling down. These activities leave women with little energy in the evenings to relate stories and to share any type of knowledge with their children.

In some instances the communication between parents and children continues to break down even in the presence of fathers who might have come home on visits. Wilson and Ramphele (1989:199) report the son's attitudes to their fathers who cohabit while away from home. "We find our fathers with concubines, yet our mothers are starving.....We get fed up and we cannot communicate with our fathers" (Wilson and Ramphele 1989:199)

This breakdown in communication between the fathers and their children denies the younger generation the opportunity of sharing with the older generation the ideas, values and knowledge which could help them to grow to be adults, who not only understand nature but who also appreciate it and its value to them.

The foregoing discussion about the apparent lack of sharing of knowledge in some rural families challenges writers like Tobayiwa (1988) who assume that by the time the rural children go to school they have learnt from their parents about the natural environment and the conservation ethic.

7.4. CUSTOMS TO BE REVIVED

It is my view that African customs, which are rooted in African religious beliefs, incorporate a wide range of values. The recognition of values is part of the process of environmental education.

Referring to the arrival of the missionaries in South Africa in the 19th Century, Eiselen (1934) had this to say: "They cameto uproot the heathen beliefs and customs of the Africans and to replace them with Christian ideals..... their destructive mission" (Eiselen 1934:65).

Since the South African education system was/is based on Christian principles, the African customs and beliefs stood a narrow chance of surviving since they were undermined by two institutions, viz. the education system and the church. I find it ironic that the two institutions which are supposed to sustain the mind and the soul, are the ones which contributed towards the weakening of the African's foundation, their customs and beliefs, and their communal lifestyle.

Table 7.2. shows the customs which informants felt ought to be revived. I have selected two of these to discuss further viz., the puberty ceremony and the rain-making ceremonies. These have been chosen because in my view they have environmental education implications for the family and the community respectively.

TABLE 7.2 CUSTOMS WHICH INFORMANTS WISH TO SEE REVIVED.	
CUSTOM	FREQUENCY
Puberty ceremony for boys and girls	16
Inspection of virginity for girls	11
Rain-making	9
Telling of folk stories	7
Hunting	7
Herding	2
Art (wood-carving, clay making, grass mat making)	2
Forbidding of eating of chicken by young maidens	1
Ceremony of the first-fruit	1
Songs	1
Dance	1

7.4.1. Puberty ceremonies for boys and girls

Under the puberty ceremonies, I will select some aspects of the custom, discuss the significance of the herbs used in medicines for puberty ceremonies, and record the informants' misgivings about the disappearance of this custom.

It is not the concern of this research to describe all the activities performed during these rituals. I will confine myself to those aspects which I consider to relate to environmental education.

For the purposes of this research it will be enough to note that these ceremonies, as stated by my informants and also noted by Eiselen (1934), Krige (1936) and Van der Vliet (1974),

- * occur at the time of first menstruation by girls, and at the time of the boy's first nocturnal emission.
- * have rituals that follow which are marked by the involvement of the community.
- * end with the killing of a goat for a girl, or a cow for a boy. The killing of these animals has to be carried by the father of the child. If we bear in mind that there are some families which are headed by the females (Refer 7.3.3.4), it becomes more evident why some of the customs are disappearing.

7.4.1.1. The significance of herbs and animals used in medicine for puberty ceremonies.

According to the informants these ceremonies involve the use of different herbs to strengthen the boys and girls, but in my view, to weaken the girl. The variety of herbs vary according to the preferences of the family concerned and the availability of herbs. As stated by the informants, the most common herbs used for girls were the bark of the *umqalothi*, coffee bean *Strychnos henningsii* and the aloe. The informants believe that the bitterness of the aloe would affect the nerves of the girl, and thereby tone down the girl's penis envy.

The male informants were very reluctant to divulge the different ingredients used for boy's medicine, but the following ingredients were eventually given;

- * the *soot* from the rafters of the kitchen. The informants state that the smoke which forms the soot is from trees with different properties, which give virility to the boy.
- * the *ear of millet* whose sourish taste is believed to tone down the sexual desires of the boy.
- * and finally the *cockroaches*. These are believed to help the boy in adulthood to love his home and never to desert it. This belief is associated with the cockroaches habitat, the kitchen. It is assumed that the boy, as a man will always come back to his home of origin. My observation about the inclusion of cockroaches, is that the people were concerned about building healthy and strong families.

The species used in this mixture are either of the two common household cockroaches, viz. the *Periplaneta americana* and the *Blattella germanica* also known as the German cockroach. According to Ragge (1973) these species are known to carry pathogenic viruses, bacteria and helminths. They also act as intermediate hosts for such pathogens as the nematoda (gullet worms) and they are capable of causing allergic dermatitis.

In my view this information is important for the informants who use the cockroaches as one of the ingredients. Once this information is available people can then make informed decisions about the inclusion of the cockroaches or they can consider thinking of another healthy substitute.

I consider the preparation of these 'medicines' to be based on untested facts of life about humans, that all women have penis envy, and that all men have such strong sexual urges that need to be curbed. Another doubtful assumption is the long-term effect of the mixture in the body's system. The informants believe that the mixture which is taken at puberty will have a lifetime effect on the body.

7.4.1.2 Informants' misgivings about the disappearance of the puberty custom.

(N=16) 80% of the informants regard the puberty ceremonies as the backbone of African society. The informants relate the collapse of the strong kinship system, which was the hallmark of African life, to the disappearance of this custom. They gave the following moral and social functions fulfilled by this custom:

- * The ceremonies gave the girls and boys the opportunity of being formally introduced to adulthood. They were given explicit guidelines of how to conduct themselves sexually, to prevent such problems as teenage pregnancy.

Teenage pregnancy is a contemporary problem which needs urgent attention. The increase in teenage pregnancy has a bearing on population growth. The warning sounded by Huntley *et.al.* (1989) that human numbers could kill the world, needs to be heeded. It is accepted that in South Africa the problem of regional overpopulation in black areas has been aggravated by apartheid laws. It is reported that some 44% of the total of South African population live in the ten homelands which constitute 14% of the total surface area (Race Relations Survey 1992\93). It is also accepted that the discussion of overpopulation needs to take into consideration the denial of resources to the majority, such as educational, social and political opportunities (Klugman 1991). Since teenage pregnancy is a contributory factor to overpopulation which spells poverty, it is my contention that every effort to deal with teenager pregnancy must be encouraged.

- * During these ceremonies the boys and girls would be warned about the consequences of illegitimacy. It was emphasized that both boys and girls would be subjected to punishment which was in the form of mockery and ostracism by the peer group members. Again both boys and girls would take full responsibility for the illegitimate child. The informants claim that the emphasis on joint responsibility for illegitimacy was a powerful force for conformity. It also encouraged boys and girls to seriously consider the consequences of their actions, before breaking the set norms.
- * When the informants compare their approach to sexual education with that of the school and the church, they identify discrepancies and ambiguity in the latter's. For instance they claim that in their approach, during the puberty ceremony the boys and girls are given explicit guidelines to follow as they experience and experiment in physical contact with each other. In contrast, the church discourages any pre-marital sexual relationships and encourages constraint and self discipline. The church admits that very few adhere to this teaching (Mkhize pers. comm.). The school shuns sexual matters and leaves the onus of deciding what route to follow on the parents. Most parents feel incompetent to handle sex-related issues with their children, and they eventually rely on the guidelines set down by the church.

Efforts by the government to address sexual education have been ineffectual. Prior to 1985 the government had focused on contraception because the greatest concern was to decrease the population growth. It was, however, evident that the method of massive contraception did not lead to a decline in population growth because nothing was done to improve the status of women in the society (Klugman 1991). The department of the National Health and Population Development (NHPD) has since 1985, taken over responsibility for sexuality education in schools (Mtshali, pers. comm.). She reports that the NHPD has designed sexuality programmes from pre-school to high school children. The programmes deal with a variety of personality development aspects, emphasising cognitive, affective and motor skill development. While the programme is well designed, its weakness lies with its implementation. There is only one professional nurse who serves all the schools in the Natal Midlands. The medium used for sexuality education is workshops with the school children. If one considers that the Edendale Circuit, which is part of the Natal Midlands, has 166 schools (statistics provided by the offices of the Departments of Education and Culture and of the Education and Training in 1992) one realises the huge number of school children who could not be reached by one professional nurse.

- * The informants claim that the disappearance of the puberty ceremony presupposed the disappearance of the custom of inspecting girls for virginity. The vanishing of the former custom also led to the fading away of the custom which involved virgins in the treatment of the blight which Krige (1936:198) refers to as top-grub in mealies.

7.4.2. Rain-making ceremonies

Under this topic I will discuss those aspects of this ceremony which in my view could be of interest to environmental education. I will start by giving accounts of the recent rain-making ceremonies in three of the wards of Ingwavuma and Maphumulo. The accounts will be followed by the discussion of the relevance of the rain-making custom to environmental education.

7.4.2.1 Accounts of ceremonies in Ingwavuma and Maphumulo

In Ingwavuma the informants reported that they had last celebrated the rain-making ceremony in November 1992, after a long spell of drought. During this ceremony men went out into the veld and cleared papers, plastics, bottles and tins in the environment. They also removed stones and debris

trapped on the trees. There is a general belief among the Ingwavuma informants that excessive weight on the trees will prevent rain from falling. This belief could be connected to the process of leaf transpiration. The vapour from transpiration may contribute to rain formation as seen in the Amazon rain forest, where transpiration accounts for half of the rainfall (Lersten 1990; Lovejoy 1990).

All the game which was seen in the veld was killed. The litter collected during the campaign was burnt in the most inaccessible point of the forest. The litter which could not be burnt was thrown into the stream in the forest too. This fire was used for cooking the game killed during the cleaning campaign. The informants claim that the fire was extinguished by a great thunderstorm which followed.

In the Nyawo ward in Ingwavuma, the informants reported that the ritual involved both the traditionalists and the Christians. The informants report that hardly had the ceremonies been finished than a thunderstorm followed. They explain that the idea of combining the traditional and Christian approach was realised after several unsuccessful attempts had been made to request for rain separately were made.

In Maphumulo, in the Mabhobhane area, attempts at praying for rain were reported by informants to have been unsuccessful. The informants claimed that this failure was due to the faction fighting which had been, and was still being, experienced by the people in the area. Efforts at praying for rain had been made by certain sections of the area separately. The informants maintain that the effort could have been effective if praying for the rain had been done jointly.

7.4.2.2. The relevance of the rain-making custom to environmental education

It is not my concern to celebrate the scientific logistics of this custom. Mine is to celebrate the success and the significance of community action and community initiative which is evident in the partial success of this ritual.

Without suggesting that strong belief can influence physical phenomenon, such as the rain which fell after the people of Nyawo and Ingwavuma areas had worked together, I respect their belief as long as it promotes cohesion and co-operation among members of the community.

In the activities involved in the rain-making ceremony in Ingwavuma, I could identify some elements which could be compared and contrasted with Seymour and Girardets' (1987) four-point plan for improving the environment.

* **Assess the consequences**

These writers believe that everyday activities either improve or deteriorate the state of the environment and that only a few leave it unchanged. Firstly, I acknowledge that some of the activities of this ritual improve the environment, while others cause deterioration, as it will be discussed in the next points.

* **Encourage positive changes**

They suggest that if an action enhances the environment it should be recommended to others. In this instance the removal of litter in the community is one way of fighting pollution and needs to be encouraged. In fact the litter campaign had been so effective that, when I visited the area three and six months after the ritual had been performed, the area was still litter free.

* **Avoid causing damage**

The writers claim that many actions fall into the category of avoidable damage to the environment. In this community the way in which the litter was disposed of, by throwing it into a stream, could be avoided by discussing an alternative method of disposal with the members of the community. The idea of making compost with some of the waste could, for instance, be considered.

* **Cut down what cannot be cut out**

Finally, these writers acknowledge that some actions are almost impossible to avoid. They warn that in such situations people must try to reduce the damage. In this situation I accept that people cannot be prevented altogether from killing some of the game which is seen, while clearing the veld. As these two writers suggest, what cannot be cut out should be cut down, therefore in this instance, the number of animals to be killed during this ceremony could be discussed in order to avoid killing too many buck in the same area. The importance of nature diversity could be introduced to the people.

7.4.3. Informants' suggestions for revival strategies of the customs

Table 7.3 shows us that three informants didn't favour the revival of customs, and these belonged to established churches. They have adopted the teachings of these churches which are opposed to practising traditional customs. Nine informants believe that the school can have an important role to play in the revival of customs because it is the place where the children spend most of their time. The five who suggested meetings, believe in the value of consultation, community participation and involvement in decision-making.

Table 7.3 further shows that one informant calls for the banning of feasting at funerals. He maintains that the goat slaughtered at funerals is treated with some herbs which are specifically meant for the bereaved family. He further maintained that if this meat, which is treated with herbs, is eaten by an outsider it might have negative effects. He has observed that in the townships in particular, younger generation have recently taken active roles at funerals. The youth also eat funeral meat. This informant subsequently attributes the adolescents' aggressive and untoward behaviour to the eating of this meat.

One informant believes that the herbalists' nature of work which is centred around plants and animals, makes them custodians of traditional customs, therefore they should take the lead in the revival of customs.

TABLE 7.3 INFORMANT'S STRATEGIES REGARDING THE REVIVAL OF CUSTOMS	
REVIVAL STRATEGY	FREQUENCY
Involving the school in the process of revival	9
Regular meetings in the community to discuss relevant issues pertaining to revival of customs	5
Banning of funeral parties	1
Start the revival of customs privately at home	1
Traditional herbalists to take lead	1
No need for revival, embrace Christianity	3

7.5. CONCLUSION

This study took place at a time when there were discussions about changes in the field of education, as is evidenced by numerous documents produced by the National Education Investigation (NEPI), which was a project of National Education Co-ordinating Committee (NECC). In this study I have referred to two of the NEPI reports viz., the Curriculum (See 7.3.1.1) and the Language (7.3.1.2), which have provided a foundation for building a new, fairer and more equitable education system for a democratic South Africa.

In the field of Environmental Education the Environmental Education Policy Initiative (EEPI) has hit against problems concerning the development of the education policy (7.2.2). There is a sector which favours product-driven approach as opposed to that which is process-oriented (Clacherty 1993). This has serious implications for the implementation of Environmental Education in Schools.

This study has also showed that the home cannot always be regarded as a place where home education takes place. The factor of the emergence of females as heads of families has a bearing on home education (see 7.3.3.4). Another factor which can influence home education is the lack of interest shown by the children in what is being taught (See 7.3.3.1).

The role played by the school, (see 7.3.3.2) and the church (see 7.3.3.3), in not encouraging the promotion of certain aspects of the rural people's lives, was highlighted in this chapter. These aspects include knowledge of plants and animals found in the community, and knowledge about customs and custom prohibitions.

Two customs viz., puberty ceremonies for boys and girls and rain-making ceremonies were discussed at length (see 7.4.1. and 7.4.2). From the discussion of these two customs, I drew four major conclusions which I believe are significant for environmental education.

- * Indigenous people are often capable of making their own decision, without the assistance of the outsider or expert, to resolve matters which affect the sustainability of their environment. Though this was not addressed directly in this discussion, it is evident from the way the people in these communities have taken action to address the drought problem.
- * Since Christians and traditionalists were able to work together to achieve a common goal, as we observed in the Nyawo ward, the same principles could be applied when traditionalists and

scientist address a common problem. They need to be willing to compromise, respect and tolerate each other.

- * Sometimes indigenous people need an outsider to share expertise and to initiate dialogue in the form of forums. Outside intervention is acceptable as long as the outsider will recognise that the indigenous people have knowledge, communication and cognitive skills which need to be set in motion. This is what I observed when we discussed the puberty custom especially with the Mabhobhane women.

- * Conflict within a community, whether its source is political, economic or social, causes environmental stress, as it was evident in the Mabhobhane ward of Maphumulo.

CHAPTER 8

CONCLUSION

This Chapter critically reviews the findings in Chapters 4, 5, 6 and 7. It discusses recommendations based on the findings of the research and also evaluates the research.

8.1 FINDINGS

For a detailed discussion of conclusions drawn from Chapter 4, see Section 4.7. It is, however, worth reiterating the importance of educational programmes for those people living near the nature reserves. It is evident from this study that those informants who had been exposed to educational programmes arranged by the officials of the nature reserves had developed a tolerable attitude towards the nature reserve when compared with those who had not (See Section 4.5). My view is that such educational programmes would assist the public to understand the importance of conserving animal species and therefore appreciate the rationale underlying the banning of hunting. For example, three of the animal species mentioned by informants as some of the hunted animals in Table 4.1., namely the hippopotamus, the blue and red duikers, are among the species entered in the Red Data book as some of the threatened animals (Smithers 1986).

Books with both vernacular and English names of wild animals such as Walker (1981) are few. Dalton's (1987) book of large South African mammals has no vernacular names. It is for this reason that I strongly feel that Gcumisa and Ntombela (1993) would have made a significant educational contribution if they had added an English version to their Zulu list of South African animals, in the same way as Walker (1981) has done in his book on wild animals. This would assist teachers and pupils who experience difficulties in finding either English or Zulu versions of the names of wild animals about which they teach or learn.

Section 5.6 discusses the conclusions of Chapter 5. Tables 5.2 reveal several wild plant species which scientific names could not be established. This problem could be attributed to the dearth of books with indices with both English, scientific and vernacular names like Moll (1992) and Pooley (1993). For instance, Palmer and Pitman (1972); Fox and Young (1982); Pujol (1990) and Roberts (1990) have vernacular names in the text, but not in the indices. Hobson *et al.* (1975) which is highly recommended

as the only book which deals with both the identification and usefulness of a wide range of plants, has no vernacular names, not even in the text.

The wide variety of plants which the informants allege have medicinal value, (see Tables 5.3 and 5.4) can be considered for further research in the same way as the ethnobotany research projects are run at the University of the Western Cape in the Botany Department, as reported by McKenzie (1993). These projects incorporate the traditional use of indigenous plants into the educational programmes with the aim of developing a sound multi-disciplinary programme that caters for the interests of the community.

The beliefs, customs, and customs prohibitions related to animals and trees discussed in Chapter 6, have implications for the conservation of animal and tree species. It is my opinion that it would benefit conservation institutions like the museums, other nature resource centres and nature conservation departments, to research and record such beliefs in other communities. These bodies could employ researchers with a specific brief to research and record customs, beliefs, traditional laws pertaining to plants and animals and other related practices. There is an urgent need for these cultural beliefs to be retrieved, stored and applied and consider ways of blending them with, or adapting them to Western know-how.

In discussing Chapter 6, which deals with customs and beliefs, I consulted books which were written in a language which is no longer socially acceptable. Such writers as Eiselen (1934), Krige (1936,1965), Schapera (1937) and Bryant (1970), refer to indigenous people as "primitive", "savage", "kaffirs". The use of such words evoke negative feelings to the reader. I assume it was out of such feelings of frustration that Idowu (1973) appealed that words like "tribalism", "primitive", "savage" and "heathens" should be buried and forgotten for ever.

The discussion of the emergence of females as family heads in Chapter 7 reveals in part, how and why there is a decline in the passing down of environmental knowledge by the older generation to the younger generation. This is a significant revelation because many writers such as Tobayiwa (1988) and Ulluwishewa (1993) take for granted the transference of indigenous knowledge from generation to generation. The gradual disappearance of this practice, makes the need for the documentation and dissemination of this knowledge even more important. There is a necessity for this knowledge to be included alongside the more usual scientific knowledge.

The discussion of the two specific customs, viz. the puberty and the rain-making ceremonies, in Chapter 7, revealed that some aspects of them share the same principles as those encouraged and promoted in environmental education. In Section 7.4.1.2, for instance, there is evidence of the encouragement of problem-solving for boys and girls during the performance of the puberty ceremony. Comparing this ceremony with the government's now so called sexuality education programmes introduced in schools in the mid 1980's, the informants identified discrepancies and inefficiency in terms of clarity and implementation strategies respectively (see Section 7.4.1.2). It is my view that environmental education can have an important role to play here in creating opportunities for local people and the professionals from the government health departments to meet and share their knowledge. This could be done through forums, from discussions, the best strategies of dealing with this child development aspect can be identified and combined. The rain-making ceremony, as discussed in 7.4.2 also had all the elements of Seymour and Girardets' (1987) four-point plan for improving the environment.

The occurrence of elements of environmental education in the two customs challenges environmentalists interested in indigenous knowledge to study other customs closely to find out whether similar elements could not be identified.

8.2 RECOMMENDATIONS

The suggestion made in Section 4.7. about a need for a study of sociological effects of the banning of hunting on the people living near the nature reserves is reiterated.

Future researchers in rural communities should consider also helping people to record the history of their own community and keeping the records in the offices of their chiefs for easy access. This was a need which was frequently repeated by informants (see Section 2.2.3.2).

I suggest that the authorities of nature reserves should consider involving the local people in its culling activities. In so doing the nature reserves would create opportunities for local people to participate in an activity which they enjoy. It is my view that this act would help the local people to develop positive attitudes towards the nature reserves and all their conservation programmes. This exercise could, in my opinion, enhance the image of the nature reserves to the local people.

I recommend that I share the data from this study, although a very small sample and very tentative, with other non-governmental organisations (NGO) and governmental organisations. For instance the data about the different wild edible spinach used in the two communities will be made available to the Valley Trust Nutrition Educational Unit which runs nutrition education programmes in urban and rural schools (see Section 7.3.2).

8.3 EVALUATION

As far as I am aware, this is a first study in the field of environmental education to attempt to document local environmental knowledge in rural communities. There are, however, many such studies in other fields as is evidenced by the emergence of several journals interested in this topic (see Section 3.1). It is hoped that those who would like to undertake similar research in other rural communities could learn from the strengths and weaknesses of this study.

At the initial planning stages of this study the importance of having the scientific names of the wild plants was not considered, therefore nothing was done to cater for this aspect. It was only during the process of analysing the data that my supervisor pointed out the value of using both vernacular and scientific names for the benefit of overseas readers. I had then to look up the names in books which, as discussed in Section 8.1 was fraught with difficulties. It is for this reason that Tables 5.1, 5.2 and 5.3 are incomplete. Some readers might consider this as a weakness of this study. I, however, argue that this was not meant to be a botanical study which is supposed to meet all the requirements for plant collection as mentioned by Tarr and Ngwenya (pers. comm.) in Section 5.6

This study has stimulated interest, amongst people in the communities studied, in recording the history of their communities. In my view, this is a very significant breakthrough which needs to be followed up, and be supported as much as possible.

The strength of this study was its wide range of questions which covered a number of aspects. Though much of the data collected was not discussed in this thesis, it helped to give me background information and a better understanding of the community. The areas which were not discussed in this study were about water conservation, harvesting, land issues such as communal property rights and communal grazing, pastoral farming and folk stories.

The wide range of questions could also be viewed as a disadvantage. Too many questions over a wide range of topics did not allow in-depth discussion of every question.

In concluding I would like to challenge those who consider undertaking future studies in rural communities, to make provisions for follow-up as I intend to do (see Section 7.3.2). A study of such nature either creates expectations or stimulates interest in certain areas of life of the community. If these are left unattended they are bound to jeopardise future research in the community. Future researchers in this area of study must also consider identifying areas of interest in environmental education while collecting data in these communities. These identified areas, such as skills development, problem-solving and decision-making, could form part of the follow-up programmes.

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PERSONAL COMMUNICATION

- Dumakude, Agricultural Extension Officer, Kwa-Zulu Department of Agriculture. Maphumulo.
- Elliot, W. Chief Nature Conservator, Environment Conservation, Ulundi.
- Gcumisa, M. Author, *Isilulu solwazi lwemvelo* (1993). Pietermaritzburg.
- Makhanya, A. Programme Director, Valley Trust, Nutrition Education Unit, Durban
- Mkize, V. Canon, Anglican Church, Diocese of Natal. Pietermaritzburg.
- Mtshali, N. Professional Nurse, Sexuality Education, National Health and Population Development.
Natal Midlands.
- Mweli, M. Agricultural Extension Officer, Kwa-Zulu Department of Agriculture. Maphumulo.
- Ngwenya, A. Special Auxiliary Services Officer, Botanic Gardens. Durban.
- Tarr, B. Curator, Botanic Gardens. Pietermaritzburg.
- Whisson, M.G. Professor, Anthropology Department, Rhodes University, Grahamstown.

APPENDIX A

QUESTIONNAIRE

A. PRACTICES WHICH ARE SET TO CONSERVE WILDLIFE RESOURCES.

I. Hunting

1. Do people still hunt?
2. What animals do\did you hunt?
3. Is there a specific season set aside for hunting?
4. Are there any rituals to observe at the beginning or end of this season?
5. If yes, what are the rituals?
6. What are the advantages of this practice?
7. Are there any disadvantages of this practice?
7. Which animals are preferred to others?
8. What are the products, such as horns, skin, teeth used for?
- 9 Are the numbers of animals hunted getting less?

II. Gathering

1. Are there any wild plants (roots, seeds, leaves or fruit) which are gathered?
2. Name them.
3. For what purposes are they collected?
- 4 Are there any traditional laws which govern the gathering of these plants?
5. If yes, specify.
6. Is wild honey still gathered?
7. If yes, how?

B. INDIGENOUS MANAGEMENT SYSTEMS OF LOCAL ENVIRONMENT.

I. Crop production

1. What food crops are grown in this area?
2. How are these grown? (Is inter-cropping practised?)
3. If inter-cropping is practised, find out why.
4. How is the soil kept fertile?
5. Probe whether there are any other agricultural processes which are deliberate natural resource management systems.

II. Harvesting

1. Are there any rituals related to harvesting?
2. If yes, state.
3. If no, what marks the harvesting season?

III. Water

1. What are the sources of water? (Taps, wells, rivers or dams?)
2. How is water fetched from the source?
3. What is it used for?
4. How much water is used daily?
5. If water is fetched from the river now is it purified if it is dirty after heavy rains?
6. How is it stored in the house?

IV. Herding

1. What animals are kept?
2. Where do animals graze?
3. How are grazing fields managed to ensure continuous food supply?
4. On what special occasions are animals slaughtered?
5. How are grazing fields managed to ensure continuous food supply?
6. How many animals (cattle, sheep, goats, etc.) should be owned to indicate wealth?

C. COMMON PROPERTY SYSTEMS

1. Are there common grazing lands?
2. If yes, how do they operate?
3. If no, what is your attitude towards this system?
4. Are there common agricultural lands?
5. If yes, how do they operate?
6. If no, what is your attitude towards them?

D. HOME CURES

1. How do you treat minor ailments like headaches, stomach aches, coughs, sprains, backaches, etc.?
2. How are home cures prepared?
3. How was this knowledge gained?
4. Is this knowledge confined to certain individuals or is it common knowledge?
5. How much do people believe in this traditional healing?

E. LAWS

1. Are there any laws pertaining to the cutting of trees? Are there any specific trees that may not be cut?
2. If yes what are they?
3. Of what significance are they?
4. Are there any laws pertaining to the killing of wild animals - are there any specific animals which should not be killed?
5. Who controls these laws?
6. Are they observed or are they ignored?
7. Are there any traditional laws in the collecting of fruits?
8. Are there any specific people who are allowed or not allowed to collect?

F. TOTEMS

1. Does your clan or family have a totem?
2. If yes what is it?
3. Are there any rituals connected with your totem?

G. GENERAL

1. Do younger people still have this knowledge?
2. Do you pass the knowledge about the environment to your children?
3. If yes, how?
4. What changes have taken place with regard to traditional practices and knowledge?
5. Which traditional practices would you like to see retained?
6. How could this revival be effected?
7. Do you still tell folk stories to your children?