Reflections on the relationships between communities and conservation areas of South Africa: the case of five South African national parks

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An evaluation of the relationships between communities around Addo Elephant National Park, Mountain Zebra National Park, Karoo National Park, Golden Gate Highlands National Park and Vaalbos National Park shows that these communities have limited ecological knowledge and understanding of resources occurring within the parks. People within these communities rate relationships with their neighbouring parks as relatively poor. Despite this, these communities are keen to support conservation and management of biodiversity through national parks. The study further revealed that two types of communities occur around the national parks of South Africa. These are neighbouring and the distant communities. The distant communities are more urban in character than the neighbouring communities. These communities are heterogeneous with people from a variety of cultures. The varying lifestyle, age groups, cultural backgrounds and income levels lead to differences in expectations from the national parks by these communities. This, which is critical in determining the level of appreciation of conservation of biodiversity by communities around conservation areas, requires the attention of the park managers. They need to ensure that when distributing the benefits or opportunities linked to conservation, cultural, income and education differences among communities are considered and used as the basis for development and implementation of community development projects.

Key words: community based conservation, biodiversity, natural resources

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Introduction

In the past ten years, there has been a major shift in the approach of managing natural resources, land and environment in South Africa (Kerley *et al.* 1999; Nauta 2001). Linked to this had been political demands for redistribution of land, wealth and access to natural resources (ANC 1994; Cobbett 1987; Ramphele 1991; Sachs 1990). The call for land redistribution saw an influx of land claim applications from traditional societies, some of which threatened the very existence of well-known conservation areas such as the Kruger National Park, St Lucia Wetland Park and the Kgalagadi Transfrontier Park. Faced with these threats, conservation in South Africa has been assumed to be under siege (Ledger 1998). Thus, conservation agencies like the South African National Parks (SANParks) needed to adapt and respond swiftly by providing strategies that would assure the support of national parks by the local communities (Hanekom & Liebenberg 1994).

In dealing with this challenge, SANParks adopted a proactive strategy of conservation-based human development and natural resource management (SANParks 1995, 1997). This included the establishment of various community development projects

in the national parks (SANParks 1995) and the consideration of the possibility of allowing communities around the parks to harvest resources (e.g. fuel wood) (SANParks 1997, 1998). In addition, parks management committees and community fora were formed. These were aimed at increasing dialogue around the management of natural resources and the participation of communities in the management of the parks in general (SANParks 1998). Contractual park agreements, such as those introduced in the Richtersveld National Park (SANParks 1995; Krog 2000), were also adopted and used as a strategy to proclaim new national parks, manage land handed over to local communities and when extending national park borders (SANParks 1995).

However, SANParks still needed to adhere to, and maintain its main mission and objectives, which are:

- to conserve South Africa's natural heritage and biodiversity;
- to manage national parks according to the highest standards;
- to provide assurance of the appropriate use of the natural resources; and
- to ensure that national parks represent the diversity of South African plants, animals, landscapes, natural processes and cultural artifacts (SANParks 1995).

The recognition of this need is a direct response to the concerns raised about, firstly, the possible negative impacts on biodiversity that might be caused by people gaining access to natural resources within the national parks, and secondly, the possibility of SANParks compromising its focus of promoting the conservation of natural resources and biodiversity (Steele 1991; Simmonds 1998).

In addition to these concerns, SANParks was not sure of the role it should play in community development (e.g. Greyling & Huntley 1984). It was, in fact, not clear whether or not the parks would be able to meet the expectations of the local communities. This was exacerbated by the lack of well-defined community structures with which SANParks could work, and also the lack of effective strategies to identify communities for incorporation into established community development projects.

These complications are not unique to SANParks (Hildgard *et al*. 1998). Many conservation agencies in Africa, and elsewhere, face similar challenges when attempting to implement community-based conservation strategies (Bell 1982, Anon 1989). In general, conservation agencies struggle to embrace the concept of human development through conservation (Western & Henry 1979; Zimbabwe Trust 1990; Brandon & Wells 1992; Sibanda 1995), apparently due to the lack of reliable models that can be followed by the conservation agencies (Rothley 1999). As a result, most community-based conservation projects initiated by conservation agencies tend to fail (Richards 1993; Kiss 2004). While heavy reliance of these initiatives on foreign funding and limited participation of communities in their management can be seen as a major cause of their failure in some instances like the Zimbabwean CAMPFIRE project, which drew international admiration, the increase in the number of people who demand benefits and a lack of well defined beneficiaries, is also a common cause for the demise of these initiatives (Matzke & Nabane 1990; Sibanda & Omwega 1996).

In order to avoid this it is necessary to provide a clear definition of the local communities associated with a specific conservation area and to develop strategies that can enhance the full participation of local communities in the project, as well as to formulate frameworks that will guide the design of the project.

With this background, this study evaluates the achievements of SANParks in implementing its community-based conservation strategy, an initiative that was introduced during 1994. This was done by:

- investigating attitudes towards tourists and the conservation of biodiversity by communities around Addo Elephant, Mountain Zebra, Golden Gate Highlands, Vaalbos and Karoo National Parks;

- identifying the local communities associated with these parks, who can participate in development projects;
- highlighting the social, economic and educational profiles of the local communities around the five national parks;
- determining the level of ecological knowledge among these communities;
- determining the impact of education and economic status on the understanding and appreciation of conservation by these communities; and by
- determining if the community development projects initiated by SANParks during the past ten years were effective in developing conservation awareness, and whether or not tangible and intangible benefits were channelled to communities as a result of these projects.

The study tested the hypothesis that attitudes towards conservation among local communities around protected areas could be related to ecological knowledge and perceived benefits. Such interpretations may differ between age groups and people with different levels of education. The study also tested the assumption that communities around South African national parks desire to extract resources from conservation areas. This assumption may differ with age, between cultural groups and with different income levels.

Methods

A questionnaire survey was conducted among local communities around Addo Elephant National Park (AENP), Mountain Zebra National Park (MZNP), Golden Gate Highlands National Park (GGHNP), Karoo National Park (KRNP) and Vaalbos National Park (VNP). This aimed to obtain information about community attitudes towards the parks, tourists and resources within the parks. The survey also aimed to determine whether members of the local communities visited their nearby park, and whether or not communities have obtained benefits from the established community development projects. The survey did not attempt to exhaustively cover all socio-economic issues of the communities, but rather focused on issues identified as being relevant to SANParks.

A sample of 400 people, aged between 15 and 60 years, was interviewed in the vicinity of each park, a total of 2000 people. Interviews were based on an informal discussion with each interviewee (Arber 1996). Some interviews took place in household situations where only one person in the household was interviewed. A household is here defined as all people who live together and who make joint economic decisions (Mohr & Fourie 2003). The interviews were conducted by interviewers recruited from each sampled community and were held in appropriate local languages (Afrikaans, IsiXhosa, Setswana and seSotho).

Interviewers undertook a one-day training course. During training, they were acquainted with the format of the questionnaire and were introduced to the acceptable way of approaching interviewees. Interviewers conducted trial interviews, using a sample of ten people at each park, before they started the formal interviews.

Interviewees were classified into six age groups (Procter 1996). These were: Group I (15–20 yrs), Group II (21–30 yrs), Group III (31–40 yrs), Group IV (41–50 yrs), Group V (51–60 yrs) and Group VI (above 60 yrs). This allowed the assessment of income disparities and differences in education levels among people of different ages, and also the assessment of age-based differences in attitude towards tourists and conservation.

For AENP, MZNP and KRNP, which have more than one cultural group living near the park, representation of all relevant groups was ensured by sampling two settlements around each park. At AENP, the Valencia settlement, occupied mainly by Coloured people, and Nomathamsanqa, dominated by Xhosa people, were surveyed. At MZNP, Michausdal (Coloured) and Lingelihle (Xhosa) were surveyed. At KRNP, KwaMandlenkosi (Xhosa) and Newlands (Coloured) were surveyed. At VNP, only one settlement was surveyed as only one cultural group existed. At GGHNP, two communities—Qwaqwa and Kgubetswana—of the same cultural group (BaSotho) were intentionally included in the study, as these two communities had different political histories. Under the previous political arrangements, Qwaqwa settlement was located within the self-governing state of Qwaqwa, while Kgubetswana was located within the Republic of South Africa. It was anticipated that this might influence attitudes of the communities towards the GGHNP.

Due to the large size of some of the settlements (Table 1), it was impossible to include all parts of the settlements for each community in the survey. The focus was therefore given to those portions of the settlements that were closest to the national park. This approach was mostly applied to the Qwaqwa community. The communities were then defined as either "neighbouring" or "distant", based on their proximity (see results) to the park, and were assessed as being serviced or less serviced, based on available infrastructure and social services. These definitions accord with the SANParks approach to identifying communities as stakeholders. This approach differs from other similar surveys conducted elsewhere in Africa, where communities and conservation areas are more tightly coupled.

Additional information about the number of people in each settlement and other general information pertaining to community assessment were obtained from the offices of the local municipality, through the social ecologists of each park.

Table 1
Neighbouring and distant communities of the five national parks (AENP = Addo Elephant, MZNP = Mountain Zebra, VNP = Vaalbos, GGHNP = Golden Gate Highlands, KRNP = Karoo national parks)

Park	Settlement	Race / ethnic group	Estimated number of people as provided by local municipality	Distance from the park (km)	Class	Type of settlement
AENP	Bergsig	Xhosa	2000	30	Distant	Less serviced
	Bontmug	Xhosa	500	30	Distant	Less serviced
	Valencia[a]	Coloured	1500	20	Neighbouring	Serviced
	Enon	Xhosa	1800	38	Distant	Less serviced
	Nomathamsanqa[a]	Xhosa	27 500[b]	1	Neighbouring	Serviced
	Bersheba	Xhosa	1500	38	Distant	Less serviced
MZNP	Lingelihle[a]	Xhosa	35000	27	Distant	Serviced
	Michausdal[a]	Coloured	9000	27	Distant	Serviced
VNP	Longlands[a]	Batswana & Coloured	2375	5	Neighbouring	Less serviced
GGHNP	Kgubetswana[a]	Basotho	2500	17	Neighbouring	Serviced
	Qwaqwa[a]	Basotho	1000000	35	Distant	Serviced
	Kestell	Basotho	4500	40	Distant	Serviced
KRNP	KwaMandlenkosi[a]	Xhosa	5157	3	Neighbouring	Serviced
	Rustdene Newlands[a] Essopville Newtown Hooyvlakte	Coloured	17341	5	Neighbouring	Serviced

[a] Communities in which interviews were conducted.
[b] From Geach (1997).

Statistical analyses

A descriptive analysis of age and levels of income and education of interviewees was calculated using Sigma Stat™. Differences in age groups among the parks were compared using a Kruskal-Wallis ANOVA (Zar 1984). Differences in income and levels of education between communities of VNP and AENP (parks surrounded by less serviced neighbouring communities) and GGHNP, MZNP and KRNP (parks surrounded by serviced distant communities) were compared using a Student's *t*-test. The numbers of people within households between parks with distant (GGHNP, MZNP & KRNP) communities and those with neighbouring (VNP and AENP) communities were compared using a Kruskal Wallis ANOVA. The attitudes of respondents towards tourists were measured according to the Likert scaling method, where respondents are asked to respond to an item through answers such as positive, neutral or negative (Arber 1996). The prediction that communities around conservation areas have a negative attitude towards conservation was tested using the Chi-squared test (Zar 1984). Differences of visits to the parks by local people as a way of supporting tourism and the management of the parks were compared using the Chi-squared test (Zar 1984).

Results

Descriptive analysis of the results

Responses to questions varied, with some respondents not answering all questions. This did not appear to create a bias against particular questions, but it did provide a small deviance from the intended target sample of 400 interviewees at each park. The effects of this deviation are reflected in the results.

Two types of community (neighbouring and distant communities) were identified. Neighbouring communities were defined as being closer than 20 km from the park, while distant communities were defined as being further than 20 km from the park (Table 1). Distant communities are normally associated with the town near where the park is situated. For example, for MZNP, the distant community was in Cradock (situated 27 km from MZNP), while for GGHNP, the distant community was in Qwaqwa (situated 45 km from GGHNP) (Table 1).

Addo Elephant National Park, KRNP and MZNP had communities with mixed cultures and were composed of two recognisable language groups, iSixhosa and Afrikaans. Sesotho-speaking people dominated GGHNP and Setswana and Afrikaans-speaking people dominated VNP. Communities around AENP, KRNP and MZNP were notably settled along the cultural lines brought about by the previous Group Areas Act of 1966. Such an arrangement was more prevalent in the Nomathamsanqa (Xhosa) and Valencia (Coloured) communities of AENP, the Lingelihle (Xhosa) and Michausdal (Coloured) communities of MZNP, and the Kwamandlenkosi (Xhosa) and Newlands (Coloured) communities of KRNP.

The Kgubetswana and Qwaqwa communities of GGHNP, the Nomathamsanqa of AENP, the Michausdal and Lingelihle of MZNP and all communities around KRNP (Table 1) featured modern amenities such as tarred roads, electricity, tap water and sewage systems. These communities were classified as serviced (Table 1), as the presence of these amenities indicated better social conditions and lifestyles. The remaining communities were classified as less serviced (Table 1) as they had neither tarred roads nor electricity and appeared more rural in the nature of their services.

In all parks, the age distribution was typical of a rapidly growing population (Starr & Taggart 1987), with young people (i.e. Group II, aged 21–30 yrs) making up the highest proportion of the population. For AENP, the average age of respondents was 39.6 ± 0.9 (Mean ± SE), VNP (34.7 ± 0.9), MZNP (23.8 ± 0.6), KRNP (39.7 ± 0.6) and GGHNP (30.8 ± 0.7). The age distribution differed significantly between parks (Kruskal-Wallis ANOVA = 141.5, $df = 4$, $p < 0.001$), with GGHNP having a larger number of young people (Table 2) than all other parks. Numbers of people within households differed significantly between the parks with GGHNP (mean = 5.0 ± 0.4), MZNP (mean = 4.9 ± 0.03) and VNP (mean = 5.7 ± 1.4) having a significantly (Kruskal-Wallis ANOVA, H = 75, $df = 4$, $p < 0.05$)

Table 2

*Age distribution (within six age groups) of people interviewed around the five national parks (Park codes as for Table 1). Column totals indicate the numbers of respondents who provided their ages for each national park. Distribution is expressed as: a) actual numbers (*n*) recorded in each group, and b) their percentages (%) within the age group*

	AENP		MZNP		VNP		KRNP		GGHNP		Mean
Group	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	(± SD) across parks
I (15 – 20 yrs)	36	9.0	52	13.6	57	19.3	5	1.3	89	23.8	13.4 ± 7.9
II (21 – 30 yrs)	122	30.7	153	40.0	106	35.8	109	28.4	139	37.4	34.5 ± 4.3
III (31 – 40 yrs)	79	19.9	90	23.6	43	14.5	107	27.9	80	21.4	21.5 ± 4.4
IV (41 – 50 yrs)	68	17.4	43	11.3	28	9.5	84	21.9	39	10.4	14.1 ± 4.8
V (51 – 60 yrs)	32	8.0	31	8.0	28	9.5	48	12.5	14	3.5	8.3 ± 2.9
VI (> 60 yrs)	60	15.0	13	3.5	34	11.4	31	8.0	13	3.5	8.3 ± 4.5
TOTAL	397	100	382	100	296	100	384	100	374	100	

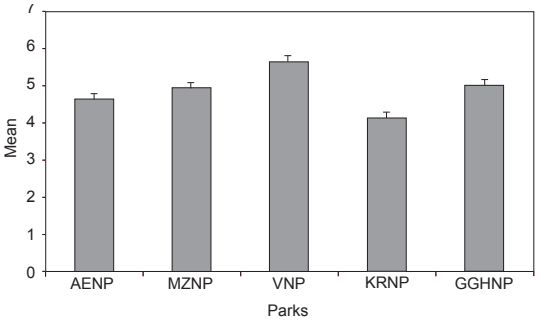

Fig. 1. Mean (± SD) number of people living in households of the communities around the five studied national parks. AENP = Addo Elephant National Park; MZNP = Mountain Zebra National Park; VNP = Vaalbos National Park; KRNP = Karoo National Park; GGHNP = Golden Gate Highlands National Park).

higher average number of people living in each household (Fig. 1) than AENP (mean = 4.4, $df = 4$, $p < 0.05$) and KRNP (mean = 4.2, $df = 4$, $p < 0.05$).

The education levels of those people around national parks with distant communities differed significantly (Kruskal-Wallis, H = 1.35, $df = 4$, $p < 0.05$) from those people associated with neighbouring rural communities. Mountain Zebra National Park (mean educational grade = 8), GGHNP (mean educational grade = 8) and KRNP (mean educational grade = 8), had larger numbers of people with grade

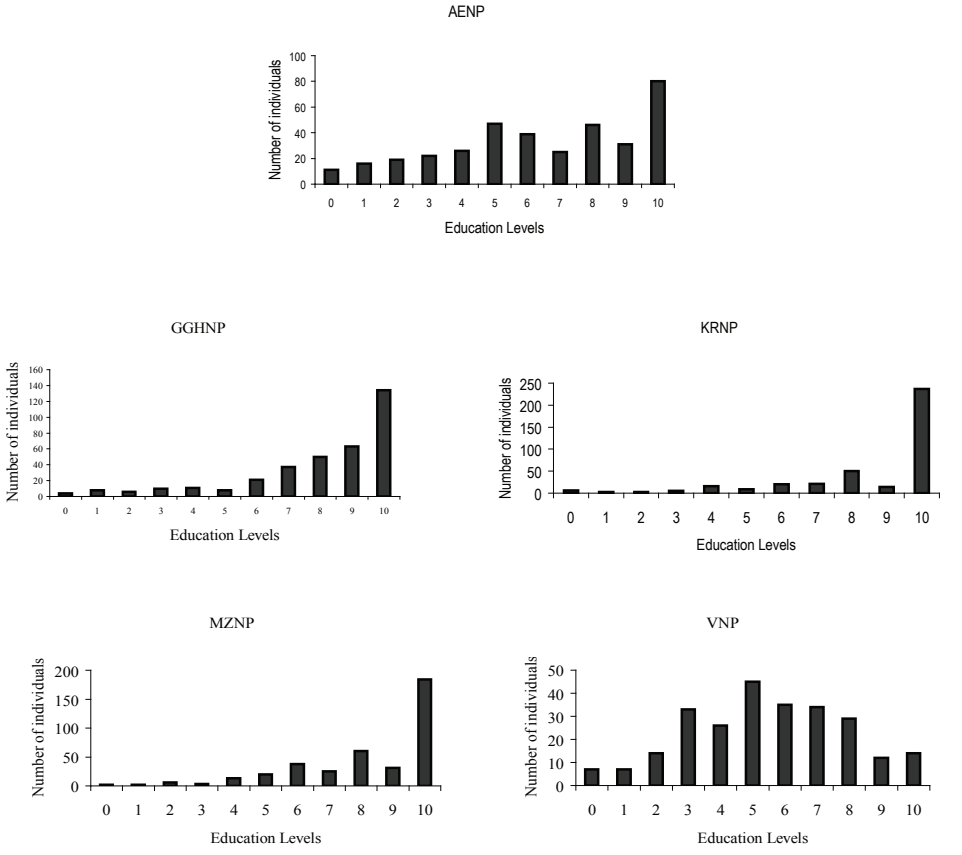

Fig. 2. Distribution of respondents within ten education levels (standards). The data reflects the status of education within the communities adjacent to the studied national parks. (Park codes as for Fig. 1).

ten education than AENP (mean educational grade = 7) and VNP (mean educational grade = 6) (Fig. 2). For all five parks, the highest proportion (47.7 %, n = 648) of people with grade twelve education were aged between 21 and 30 years (Group II). Addo Elephant National Park and VNP had a comparatively larger percentage (23 % and 35 % respectively) of people with no formal education (classified as illiterate) than GGHNP, KRNP and MZNP. This was more common among older people (Group V, 51–60 years and Group VI, > 60 years). At MZNP and KRNP, two age groups (MZNP Group II (21–30 years), KRNP Group IV (41–50 years) had an unusually high proportion of people with no formal education (Fig. 3). This contrasts with the other parks where the low education levels were mainly in three groups (Groups II (21–30 yrs), V (51–60 yrs) and VI (> 60 yrs) (Fig. 3).

AENP (34.0 %), MZNP (21.0 %) and VNP (48.0 %) had comparatively more people with a monthly income ranging between R400 to R500 (Table 3). This category was classified as a low-income category. Income categories, however, differed significantly (Kruskal-Wallis ANOVA, H = 273.8, $df = 4$, $p < 0.001$) between the parks, with KRNP (14.0 %)

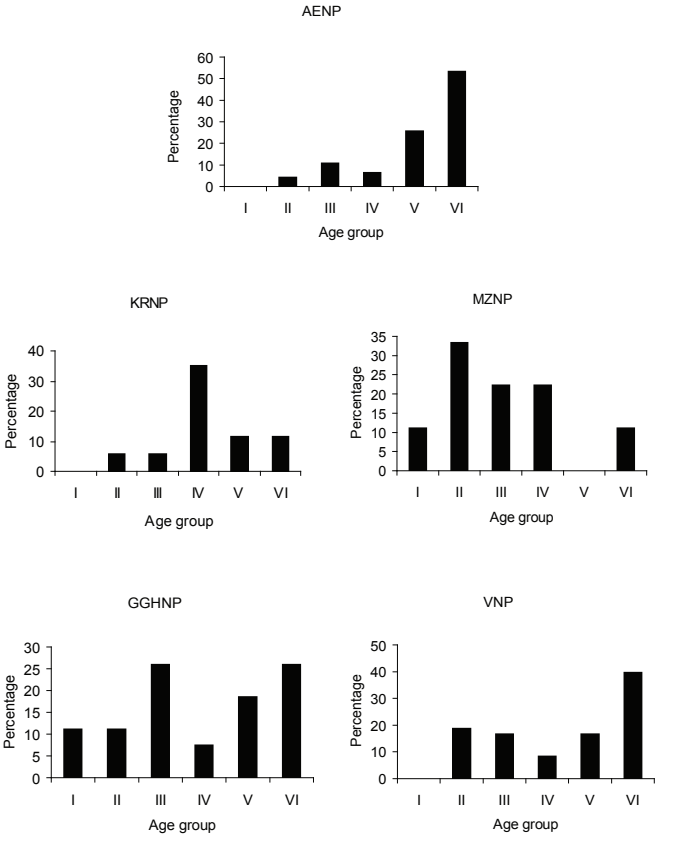

Fig. 3. Percentages of people with no formal education (illiterate) within six age groups, interviewed from the five studied national parks (Group I = 15-20 yrs, Group II = 21–30 yrs, Group III = 31-40 yrs, Group IV = 41-50 yrs, Group V = 51-60 yrs and Group VI = > 60 yrs) . (Park codes as for Fig. 1).

and MZNP (11.0 %) having more people in the higher income brackets (R2001–R3000) than AENP (1.0 %), GGHNP (7.0 %) and VNP (0.0 %) (Table 3). While this was more expressed among parks, the distribution of income within age groups reflected that, for VNP (r = -0.0001), MZNP (r = -0.24), GGHNP (r = -0.33) and KRNP (r = -0.09), income was negatively correlated to age, indicating that young people had higher incomes than older people. For AENP (r = 0.13), it was positively correlated to age, reflecting that older people at this park had higher incomes than young people. The overall comparison of income among the parks reflected that the average monthly incomes of communities near parks with distant communities (i.e. MZNP, R1342; GGHNP, R1279; and KRNP, R2285) were significantly (t = 4.7, df = 1, p < 0.001) higher than those of parks with neighbouring rural communities (i.e. AENP, R650; and VNP, R496) (Table 3). With an average of 4.9 ± 2.1 people per household in studied communities (both rural and urban) (Fig. 1), it was calculated that people around the national parks we studied survive on an estimated daily income of R3.28 per person. Social welfare in the form of state pensions (restricted to Groups V and VI) was the main source of income in neighbouring, less serviced communities. Private enterprises, such as farms (as in AENP) and diamond mines (as in VNP), provided additional jobs for neighbouring less-serviced communities of AENP and VNP. Many of these jobs were casual and seasonal. In all parks, young people (Group I) (63 %) in both distant and neighbouring communities were still at school while Groups II (21–30 yrs), III (31–40 yrs) and IV (41–50 yrs) of neighbouring communities were either not working (55 %) or had seasonal jobs (32 %) on the farms (as in AENP) or diamond mines (as in VNP). In distant communities, Groups II (21–30 yrs), III (31–40 yrs) and IV (41–50 yrs) were either not working or held a permanent job, with teaching being a common profession.

Table 3
Income distribution among people in the communities of the five studied national parks. (Park codes as for Table 1)

Income category (Rands/month)	AENP (n = 277) %	MZNP (n = 185) %	GGHNP (n = 145) %	KRNP (n = 250) %	VNP (n = 141) %	Mean (± SD) across parks
<100	2.0	0.0	1.0	0.0	0.0	0.6 ± 0.8
100-200	16.0	3.0	8.0	2.0	3.0	6.4 ± 5.2
201-300	12.0	4.0	8.0	2.0	7.0	6.6 ± 3.4
301-400	8.0	2.0	3.0	4.0	14.0	6.2 ± 4.4
401-500	34.0	21.0	15.0	14.0	48.0	26.4 ± 12.9
501-600	3.0	5.0	4.0	1.0	9.0	4.4 ± 2.7
601-700	3.0	4.0	3.0	1.0	8.0	3.8 ± 2.3
701-800	6.0	9.0	8.0	4.0	4.0	6.2 ± 2.0
801-900	1.0	2.0	7.0	1.0	4.0	3.0 ± 2.3
901-1000	9.0	7.0	6.0	5.0	1.0	5.6 ± 2.7
1001-2000	5.0	22.0	20.0	22.0	2.0	14.2 ± 8.8
2001-3000	1.0	11.0	7.0	15.0	0.0	6.8 ± 5.7
3001-4000	0.0	6.0	8.0	14.0	0.0	5.6 ± 5.3
4001-5000	0.0	3.0	1.0	6.0	0.0	2.0 ± 2.3
>5000	0.0	1.0	1.0	8.0	0.0	2.0 ± 3.0

Table 4
Percentages of respondents using different forms of energy in the communities sampled around the five parks. (Park codes as for Table 1)

Type of energy used	AENP %	MZNP %	GGHNP %	KRNP %	VNP %	Mean (± SD) across parks
Electricity only	55.5	24.4	25.3	36.3	0.0	28.3 ± 18.0
Paraffin only	3.8	7.7	19.7	1.5	0.0	6.5 ± 7.1
Fuel wood only	6.3	0.0	6.0	8.8	0.0	4.2 ± 3.6
Gas only	3.8	0.0	8.5	0.0	0.0	2.5 ± 3.4
Paraffin and fuel wood	4.9	0.0	18.0	1.8	100.0	24.9 ± 38.1
Paraffin and gas	0.6	0.0	6.5	0.8	0.0	1.6 ± 2.5
Electricity and gas	0.5	13.9	6.4	7.5	0.0	5.7 ± 5.1
Electricity and paraffin	16.7	5.7	3.3	4.0	0.0	5.9 ± 5.7
Electricity and fuel wood	7.9	19.7	2.6	31.5	0.0	12.3 ± 11.7
Electricity, paraffin and fuel wood	0.0	28.6	0.0	7.5	0.0	7.2 ± 11.1

The neighbouring communities of AENP, MZNP, GGHNP and KRNP mainly used electricity as the primary source of energy (Table 4). This form of energy was either supplemented with paraffin, gas or fuel wood (Table 4). More people (55.5 %) in AENP used electricity as their main source of energy. The Longlands community of VNP used either fuel wood or paraffin as their only source of energy (Table 4). This indicated an increased level of poverty within this community, as well as the possible demand of fuel wood for energy among this community.

An average of 77 % of respondents (n = 1829) were positive about the existence of the parks near their settlements (Table 5). Eighty percent of respondents in the communities of AENP, KRNP, VNP and MZNP were positive or satisfied with their national parks (Table 5), and assessed their relationship with

Table 5
Attitude (mean %) of local communities towards tourists and adjacent national parks. Attitudes were measured according to the Likert scale (Arber 1996). (Park codes as for Table 1)

	Feeling	AENP	MZNP	GGHNP	VNP	KRNP	Mean (± SD) across parks
Attitude towards the park	Happy	72.0	61.0	73.0	87.0	89.0	76.4 ± 10.4
	Do not know	16.0	20.0	24.0	9.0	8.0	15.4 ± 6.2
	Unhappy	12.0	9.0	3.0	4.0	3.0	6.2 ± 3.7
Attitude towards tourists	Happy	83.0	86.0	65.0	81.0	86.0	80.2 ± 7.8
	Neutral	12.0	9.0	31.0	11.0	13.0	15.2 ± 8.0
	Unhappy	5.0	5.0	4.0	8.0	13.0	7.0 ± 3.3
Assessment of the relationship	Good	45.0	2.0	57.0	54.0	43.0	40.2 ± 19.8
	Fair	32.0	17.0	39.0	13.0	42.0	28.6 ± 11.6
	Poor	23.0	56.0	4.0	33.0	15.0	26.2 ± 17.7

Table 6
Opinions of the neighbouring communities regarding the importance of tourists in the five studied national parks and their towns (Park codes as for Table 1) Data expressed as % of respondents)

Opinion	AENP	MZNP	GGHNP	VNP	KRNP	Mean (± SD) across parks
Parks are economically important to the region	73.0	92.1	65.0	74.1	86.3	78.1 ± 8.9
Increase international exposure	12.2	7.9	25.0	24.7	3.6	14.7 ± 8.0
Provide information	2.2	0.0	2.5	0.0	4.3	1.8 ± 1.5
Create job opportunities	7.9	0.0	0.8	0.0	5.4	2.8 ± 3.0
Increase the purchase of local arts and crafts	0.4	0.0	6.7	0.0	0.4	1.5 ± 2.4
Do not know	4.3	0.0	0.0	1.2	0.0	1.1 ± 1.5

neighbouring parks as being good (Table 5). However, GGHNP had comparatively fewer positive responses from respondents (65 % being positive about the park) and MZNP had fewer respondents who assessed their relationship as good (Table 5).

Awareness that parks are economically important to local communities was common among all residents around these national parks (Table 6). However, communities were not aware of the direct development opportunities that are provided by the presence of the parks near their settlements (Table 6). Very few respondents indicated that they were aware that parks are the main source of attraction for tourists, or that the park increases the international exposure of their areas and provides job opportunities (Table 6).

Despite the strong support for the parks and awareness of the benefits associated with tourism and conservation, few people were aware of the benefits that they were deriving through development projects initiated by SANParks during the period of the study (Table 7). Most people (86 %), however, felt that the relationship between the local communities and neighbouring parks could be sustained through job creation (65 %), assistance in skills development (25 %), provision of environmental or conservation education (5 %) and the improvement of communication (5 %). This was interpreted as an indication of the willingness of the communities to cooperate with SANParks' community conservation initiatives.

An average of 42.4 % of respondents (n = 961) indicated that they had visited the nearby park at least once. Visits to the parks were positively correlated ($r = 0.34$, $df = 4$, $p < 0.05$) with age, with young people visiting the nearby park either once or twice and

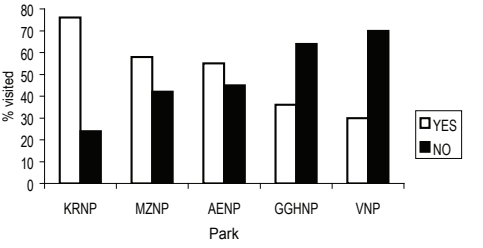

Fig. 4. Percentages of people who indicated that they visited the nearby parks. (Park codes as for Fig. 1).

older people either never visiting the park or unable to visit due to age. KRNP (76 %) and MZNP (58 %) had the highest percentages of visits by local residents (Fig. 4). Visits were for a number of purposes and varied between rural neighbouring communities and distant urban communities (Table 8). Visits for game viewing, enjoyment, picnics, parties and attending functions were mostly cited by people from urban distant communities (Table 8). Visits for work

Table 7

List of benefits realised by communities around the five studied national parks. Variations in the number of respondents reflect the deviance created by the willingness of respondents to provide answers. Park codes as for Table 1. Data expressed as % of respondents. (Note that some respondents provided more than one answer)

Park	Settlement	Benefits mentioned	No. of respondents
AENP	Nomathamsanqa (*n* = 300)	Provided building material	18.9
		Mayibuyendlovu project	15.2
		Sponsored local sports	6.4
		Assisted during elections	4.7
		Do not know	1.7
		Nothingw	0.6
		No response	52.5
		Total	100
	Valencia (*n* = 100)	Nothing	100
		Total	100
MZNP	Lingelihle (*n* = 200)	Nothing	50
	Michausdal (*n* = 200)	Nothing	50
		Total	100
GGHNP	Kgubetswana (*n* = 200)	Environmental education	43.1
		Animals (for aesthetic use)	15.5
		Conservation	6.9
		No response	34.5
		Total	100
	Qwaqwa (*n* = 200)	Do not know	36.4
		Environmental education	10.8
		Nothing	7.3
		No response	45.5
		Total	100
VNP	Longlands (*n* = 400)	Jobs during road construction	15.9
		Environmental education	5.5
		Do not know	5.9
		Nothing	1.4
		No response	71.3
		Total	100
KRNP	KwaMandlenkosi (*n* = 100)	Environmental education	1.9
		Skills development programme	2.6
		Provide job opportunities	21.9
		Bring tourists closer to us	14.2
		Do not know	54.2
		Nothing	5.2
		Total	100
	Newlands (*n* = 300)	Offers an ideal place to relax	3.3
		Provide job opportunities	18.6
		Provide recreation facilities	11.6
		Environmental education	6.1
		Education excursion	1.1
		Conservation awareness	0.8
		Conservation services	4.2
		Assist on some school projects	2.5
		Provide houses for workers	3.0
		Bring tourists closer to us	1.7
		Nature conservation clubs	5.5
		Development opportunities	8.6
		Nothing	3.9
		No response	29.1
		Total	100

Table 8
Reasons provided by respondents for visiting the parks, expressed as the percentage of respondents who visited the park for the specified reason. (Park codes as for Table 1)

Reasons for visiting the park	AENP (n = 178)	MZNP (n = 225)	GGHNP (n = 136)	KRNP (n = 302)	VNP (n = 120)	Mean (± SD) % across parks
Game viewing	21.3	19.1	24.3	10.6	18.3	18.7 ± 4.6
Educational tour	14.0	4.0	13.2	6.3	0.0	7.5 ± 5.4
Attend workshop	8.4	0.9	0.0	8.3	2.5	4.0 ± 3.6
Delivery	2.3	0.0	0.0	0.3	0.0	0.5 ± 0.9
Was working there	4.5	0.9	2.2	3.3	42.5	10.7 ± 15.9
Visit a friend or relative	5.1	7.1	4.4	6.0	5.8	5.7 ± 0.9
Looking for job	0.6	10.7	4.9	0.3	15.0	6.3 ± 5.8
Picnic / party / function	20.2	16.0	21.8	27.3	12.5	19.6 ± 5.1
To fetch something	1.7	0.0	0.7	0.0	0.0	0.5 ± 0.7
For enjoyment	18.5	41.3	20.6	22.5	1.7	20.9 ± 12.6
With a church	1.7	0.0	0.7	0.3	0.0	0.5 ± 0.6
Camping	0.0	0.0	0.0	10.8	0.0	2.2 ± 4.3
Hiking	0.0	0.0	0.0	3.3	0.0	0.7 ±1.3
Eat out	0.0	0.0	0.0	0.3	0.0	0.1 ± 0.1
The curio shop	0.0	0.0	0.0	0.4	0.0	0.1 ± 0.2
To mix with people	0.0	0.0	2.1	0.0	0.0	0.4 ± 0.8
To relax	0.0	0.0	4.4	0.0	0.0	0.9 ±1.8

reasons or to seek employment were mostly cited by people from neighbouring rural communities. Parks with distant communities had a significantly higher number of visits (χ^2 = 40.6, df = 2, p < 0.01) than those with neighbouring communities (Table 8). Since their income was comparatively higher than that of neighbouring rural communities, this was interpreted as being due to the availability of extra disposable money for these communities. In addition to the various cited reasons for visiting the parks, activities of the social ecologists contributed towards motivating local people to visit the parks (Table 8). This was expressed more in AENP (8.4 %) and KRNP (8.3 %), where there were comparatively more people visiting the park to attend meetings or workshops organised by the social ecologist (Table 8).

Although it was expected that past politics and the history of managing parks might have highly influenced communities not to visit their neighbouring park, the results reflected that this was not the case (Table 9). Very few people indicated that they did not visit the parks either because of a history of being removed or through certain forms of exclusion (Table 9).

The perception was expressed that national parks were the domain of white people, but this was limited to AENP (Table 9). Lack of money, transport, awareness and interest were the common reasons for people not visiting the parks. Negative attitudes towards the local residents were also cited as an additional reason for people not visiting the parks (Table 9), although this was limited to AENP and KRNP.

In all five parks, the level of knowledge of resources that are available within the parks was significantly low (Kruskal-Wallis ANOVA, H = 0.34, df = 4, p < 0.05), with interviewees citing not more than five resources as occurring within the parks (AENP (Mean ± SE = 2.1 ± 0.2), VNP (Mean = 1.2 ± 1.01), MZNP (Mean = 1.3 ± 0.01), GGHNP (Mean = 2.1 ± 0.4) and KRNP (Mean = 1.5 ± 0.3)). The majority of resources provided were

Table 9
Reasons provided by respondents for not visiting the park, expressed as the percentage of respondents who had not visited the park for the specified reason. (Park codes as for Table 1)

Reasons provided for not visiting the park	AENP (n = 178)	MZNP (n = 162)	GGHNP (n = 240)	KRNP (n = 96)	VNP (n = 400)	Mean (± SD) % across parks
Financial problem	27.1	35.9	45.4	4.1	16.4	25.8 ± 14.5
Do not have transport	19.8	35.2	3.3	30.2	24.3	22.6 ± 10.9
Like to go there but do not have time	5.1	11.1	9.6	10.4	17.9	10.8 ± 4.1
Never had an opportunity, now too old to go there	0.0	4.3	0.3	10.4	8.9	4.8 ± 4.3
Poor state of health	0.0	0.0	0.0	0.0	10.4	2.1 ± 4.2
Not interested	14.7	7.4	20.4	18.7	12.8	14.8 ± 4.6
Restricted by Apartheid	31.3	1.2	1.3	6.3	0.4	8.1 ± 11.8
Not aware of such possibility	1.4	3.7	2.1	5.2	0.7	2.6 ± 1.6
Not well informed about the park	0.0	0.0	10.8	12.5	5.0	5.7 ± 5.3
Negative attitudes from the staff	3.2	0.0	0.0	1.1	0.0	0.9 ± 1.3
Never thought of visiting	0.0	0.0	5.0	0.0	0.0	1.0 ± 2.0
Afraid of animals	0.9	1.2	1.3	0.0	3.2	1.3 ± 1.1
Poor relationship with the park	1.4	0.0	0.0	1.1	0.0	0.5 ± 0.6
Too lazy to go there	0.0	0.0	0.4	0.0	0.0	0.1 ± 0.2
No reason	1.4	0.0	0.1	0.0	0.0	0.3 ± 0.6

animals (23 %). Demand on the resources was low, with most interviewees indicating that they do not support the idea of harvesting resources from the parks. This was expressed more by those people in parks with distant urban communities (KRNP, GGHNP and MZNP) than those with neighbouring rural communities (AENP and VNP).

Discussion

The study revealed that, in AENP, MZNP, VNP, GGHNP and KRNP, the communities have limited understanding of the resources that occur within these parks. It also showed that these communities are keen to support conservation of natural resources. Their limited understanding of resources is understandable because, in South Africa, most conservation areas are surrounded by fences and communities have, for some time, been excluded from either harvesting or accessing resources from the conservation areas. This physical exclusion has thus restricted their understanding of resources, which has in turn limited their understanding of biodiversity within these areas.

The study has also revealed that two types of communities occur around the national parks of South Africa, namely neighbouring and distant communities. As indicated by the study, the distant communities are more urban in character than the neighbouring communities (Table 1). Based on their levels of income, lifestyles and age group composition, the expectations of these communities from a national park may differ widely. For example, communities with low incomes, fewer educated people and a high level of unemployment (e.g. VNP and AENP) largely expect SANParks to provide them with immediate solutions to current problems, including creation of job opportunities and access to natural resources. On the other hand, communities with better-educated people and higher incomes (e.g. KRNP and GGHNP) expect SANParks to provide them with recreational, pleasure and learning opportunities (Table 8). The recognition of these differing expectations, as identified in the study, is critical for the

design of community-based projects. Such projects need to be aligned with community expectations as guided by income, lifestyle and education level of the people for whom they are intended. The projects must also aim to bring social and economic prosperity to communities that are highly affected by conservation (e.g. rural neighbouring communities).

Through this study it has emerged that communities around national parks may be heterogeneous with people of different cultures, as is the case with the AENP, MZNP and KRNP (Table 1). In such cases, attention needs to be given to addressing the wide range of expectations of culturally diverse communities (van Wyk & Rossouw 1992). Thus, in order to give fair consideration to community development projects, both during formulation and implementation, SANParks needs to be aware of the differences in the use of natural resources as interpreted by the various cultural groups (Brockett 1990; Wells & Brandon 1992; Fourie 1991,1994). Social Ecologists (as referred to in SANParks) or Community Liaison Officers (as referred to in other conservation agencies) need to establish an understanding of the differences among the communities and their diverse interpretations of the resources that are available in the parks (Wells & Brandon 1993).

Of great importance is that, if more than one cultural group exists around the conservation area, conservation agencies need to ensure that they distribute benefits equally among all cultural groups (McNeely 1988; Haynes 1998). For example, when establishing development projects aimed at exploiting identified development opportunities, community expectations as motivated by lifestyles should be regarded as a foundation for project development (Hales 1989; Brown & Wyckoff-Baird 1995; Sibanda & Omwega 1996). This may be attained through ensuring that, as far as possible, the projects are established in line with the lifestyles, levels of education and incomes of the communities involved (McNeely 1988; Brown & Wyckoff-Baird 1995). In so doing, care should be taken to address the expectations of all cultural groups. Giving more attention to the needs and demands of one cultural group may hamper the chances of establishing the balanced community support that is essential to extend conservation objectives by other groups to communities (Byers 1996). This may then thwart the chances of achieving meaningful input from all communities around a conservation area (Hackel 1999).

The study has indicated that SANParks is battling to attain this balance, and that some communities have not yet realised the benefits to be derived from development projects (Table 7). What conservation agencies need to realise is that successful implementation of a community-based conservation strategy lies in the design of the development projects, so that they catch the attention of different cultures and age groups at all levels of the project development and implementation cycle (Colchester 1994). Such involvement creates a sense of project ownership among the communities (Colchester 1994; Little 1994). It also ensures that communities realise the benefits of the project at an early stage of development (Little 1994; Fabricius 1994). This results in the development of a long-term relationship between conservation areas and communities (Hanekom & Liebenberg 1994; Little 1994). Communities then start to appreciate the existence of the conservation areas and thus realise the objectives of the existence and purpose of conservation areas (Hampicke 1994; Engelbrecht & van der Walt 1994; Fabricius 1994).

The study did not clearly show if SANParks was involving communities at all levels of project development but it did indicate that almost a quarter (averaged across all five studied parks) of respondents rated the relationships with the parks as poor. However, the high percentage of people who indicated their willingness to take part in the conservation of natural resources is encouraging.

This analysis provides SANParks with an opportunity to implement participatory processes for the support of conservation of biodiversity in national parks. The high level of recognition by the communities of the

economic benefits of national parks (Table 6) reflects the awareness of the communities towards development opportunities provided by conservation. This allows SANParks to effectively implement strategies of sustainable utilisation of natural resources through options such as ecotourism (Geach 1997). This is of particular importance as conservation provides a wide range of sustainable opportunities (Cater & Lowman 1994; Geach 1997; Weinberg 2000). These include the creation of sustainable job opportunities and the generation of economic activities while conserving biodiversity (Kerley & Boshoff 1997). As conservation is starting to gain preference as a form of land use that promotes the sustainable use of natural resources (Kerley *et al*. 1995; Ashely 1996), conservation agencies need to ensure that development opportunities that are associated with conservation are realised and utilised by the local communities (Kiss 1990; Colchester 1994). However, for communities to exploit all opportunities that are provided by conservation of biodiversity, it is necessary that they obtain relevant training, which may include business skills development (Fourie 1994; Weinberg 2000).

Although conservation areas are often regarded as associated with poor rural communities (Kock 1995), it has here emerged that some communities around national parks are well serviced in terms of infrastructure. As described in this study, modern amenities such as tarred roads, electricity, piped tapwater and sewage systems are found in communities around AENP, MZNP and KRNP. These amenities provide opportunities for communities to participate in eco-tourism related business initiatives (DBSA 1998). Tarred roads promote visits to local settlements by tourists and electricity increases the intensive production of arts and crafts that can be sold to tourists. The participation of communities in such economic activities will not only develop interest in conservation but may also create an awareness of development opportunities that are provided by conservation (Wells *et al*. 1992). It should be noted that the relatively high level of infrastructure available to these communities may explain their relatively low reliance on natural resource use (e.g. firewood). This identifies an urgent need to investigate further the relationship between socio-economic development and reliance on traditional natural resources.

In certain cases, this study has identified findings that are not in accord with other studies conducted in Africa (Bell 1987; Beinart 1989; Alcorn 1993; Alien 1995; McNeely 1997; Bolton 1997). This specifically applies to the issue of resource demand and extraction from the parks. For example, the demand for and use of fuel wood has emerged to be relatively low in comparison with similar studies conducted elsewhere in Africa. While this serves as a point of departure of this study from other similar studies, it is worthy of note that four of the studied parks (i.e. KRNP, VNP, MZNP and GGHNP) are located in arid, relatively unwooded areas where the use of fuel wood is not as common as in other parts of the country.

The positive attitudes towards national parks shown here reflect a change in the attitudes of communities around national parks in South Africa (Hough 1988; Newmark *et al*. 1993; Fourie 1994; Boonzaier 1996; Weaver 2000; Munnik & Mhlope 2000; Berger & Ntiati 2000; Hove 2000; Jacobson 2000). It remains imperative, however, that conservation areas are seen to be promoting the conservation of nature and biodiversity (Cater & Lowman 1994). Communities around conservation areas need to be made to understand and appreciate that conservation areas exist to conserve nature and biological diversity (Alien 1995; Alcorn 1995). Thus, the development of relationships with communities should be geared at increasing conservation awareness rather than demand for resources within the conservation areas (Preston *et al*. 1991; Bookbinder *et al*. 1998; Colchester 1994; Bebbington & Kopp 1998).

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