

TOWARDS RESOLVING LOCAL COMMUNITY AND PROTECTED AREA MANAGEMENT CONFLICTS: LESSONS FROM THE CHITSA COMMUNITY AND GONAREZHOU NATIONAL PARK, ZIMBABWE

NEVER MUBOKO*

*School of Wildlife, Ecology and Conservation,
Chinhoyi University of Technology,
Private Bag 7724,
Chinhoyi, Zimbabwe*

GAVIN J. BRADSHAW

*Nelson Mandela Metropolitan University,
P. O. Box 77000,
University Way,
Port Elizabeth, 6031,
South Africa*

Conservation-based conflicts between the Chitsa community and Gonarezhou National Park in the south-east lowveld of Zimbabwe remain unresolved. Using historical records, structured interviews and key informant interviews, we assessed the respondents' positions on three issues; whether the key drivers to the Chitsa/GNP conflict remained consistent over the study period, the effects of the human settlement in the GNP on biodiversity conservation, and reactions to the proposed game fence designed to mitigate human-wildlife conflicts. Overall, our results indicate no significant changes on respondents' attitudes on key drivers to the Chitsa/GNP conflict between 2000 and 2012. Human settlement in the park threaten conservation efforts, and mixed views on the proposed game fence were recorded. We conclude that attitudes towards the key conflict drivers to the Chitsa/GNP conflict remain largely consistent over the study period and activities threatening conservation efforts increased in the park due to human settlement.

Keywords: Biodiversity; Community; Conflict; Conservation; Contested Land; Protected Areas.

Introduction

Although protected areas (PAs) remain one of the key conservation strategies (Oldekop et al. 2016), conflicts based on natural resources between protected area management and local communities living in or close to some protected areas (PAs) remain a conservation challenge (Newmark et al. 1993; Mombeshora and Le Bel 2009). These conflicts are often based on factors such as the historical established of PAs (Anthony 2007; Mutanga et al. 2015), boundary disputes (Kellert et al. 2000), access and benefits from natural resources

Corresponding author, Email: nmbok@yahoo.co.uk

(Fiallo and Jacobson 1995; Büscher et al. 2012), especially for communities heavily dependent on such resources and moreover the implications of traditional protectionist policies and approaches on people living in or close to PAs (Roe 2008), which paid little regard to local or indigenous peoples' culture and interests (Himmelfarb 2005:1; Anthony 2007; Brockington and Wilkie 2015). The adoption of the protectionist approach across the world following the establishment of the Yellowstone National Park (YNP) in America in 1872 (Poirier and Ostergren 2002:333) and its subsequent application, especially in developing countries, tended to marginalize important indigenous peoples' socioeconomic, cultural, and political interests (Poirier and Ostergren 2002:332; Andrade and Rhodes 2012; Serra Maggi 2013). Hence, the protectionist approach is often cited as one of the key factors driving PA-Community conflicts (Brown 2002; Roe 2008) as its enforcement resulted in PAs representing different things to different groups (Carruthers 1995; Hammill and Besancon 2007:25; Brockington and Wilkie 2015). For instance, the enforcement of the protectionist approach led to the adoption of a national policy of 'dual islands' in the Americas, where at least two distinct categories of landscapes were created, one for the indigenous Indians and the other for the uninhabited natural preserves (Poirier and Ostergren 2002:333).

In developing countries, the enforcement of the protectionist approach was associated with forced evictions, displacements and relocations for PA establishment, especially during the colonial period. For instance, in India by 1993 more than 600 000 indigenous peoples, representing about 20% of the country's indigenous population had been displaced, without compensation, to pave way for PAs (Pimbert and Pretty 1995; Xaxa 1999:3589). In Africa, between 14 and 39 million indigenous peoples were forcefully displaced to pave way for the establishment of PAs, with the majority of displacements taking place between 1970 and 2000 (DeGeorges and Reilly 2009). Worldwide, Pimbert and Pretty (1995) highlighted that close to 8500 major PAs in 169 countries had been established by 1995, with developing countries having dedicated more than 10% of their land for conservation purposes and by 2012 over 160 000 PAs covering about 12.7% of the world's land surface had been established (Rayner et al. 2014:43). In Africa, PA coverage doubled since 1970 to about 3.06 million km² of terrestrial and marine habitats, involving about 15.9% and 10.1% of the total surface area in the East/Southern and West/Central African regions respectively (Chape et al. 2005; Newmark 2008:321). Newmark (2008:321) citing UNEP World Conservation Monitoring Centre (UNEP-WCMC 2004) states that more than 1100 national parks and related reserves exist in sub-Saharan Africa. The expansion of PAs in Africa coincides with an increase in human population (Newmark 2008), a scenario likely to exert more pressure between PA management and local communities, especially those living close to PAs (Tranquilli et al. 2014).

However, in most cases, relations between local communities and PA management have been conflictual and this has been widely reported (Fiallo and Jacobson 1995; Sibanda and Omwega 1996:177; Matiru 2000; Kellert et al. 2000; Roe et al. 2003; Büscher et al. 2012). This conflictual situation has been partly attributed to policies and approaches such as protectionism (Roe 2008). The acknowledgement of the weaknesses of the traditional protectionist policies resulted in some governments and conservationists

adopting a cocktail of conservation approaches, with some incorporating local community needs and participation in their conservation practices and processes (Kellert et al. 2000; Brown 2002; Hutton et al. 2005; Jones 2006; Kaimowitz and Sheil 2007; Robinson 2011; Ferraro et al. 2013). Some of these approaches include national and regional initiatives that incorporate spatial conservation practices that incorporate the wider landscape including protected areas and adjacent communities (Allan 2013:2), and at the international level, a number of agreements and protocols such as the Convention on Biological Diversity (CBD)'s Section 2 of the Addis Ababa Principles and Guidelines for sustainable use and the IUCN's Whakatane Mechanisms are designed to promote the wise utilisation of ecosystem goods and services, promote justice in conservation and address conflicts with indigenous peoples (Finlayson et al. 2011; Freudenthal et al. 2012).

In Zimbabwe, the need to broaden stakeholder involvement in wildlife conservation, reduce human-wildlife conflicts and improve relations between local communities and PA management (Child 1996; Mutanga et al. 2016) was effected through the 1982 amendments to the Parks and Wildlife Act of 1975 which stimulated the establishment of more private wildlife conservancies and promoted pro-community conservation initiatives like the Community Areas Management Programme for Indigenous Resources (CAMPFIRE). However, despite the introduction of these initiatives, conservation-based conflicts are still being reported between some communities living adjacent to PAs and PA management. Such is the case with the Chitsa community and the Gonarezhou National Park (GNP) in the south east lowveld of Zimbabwe.

The dispute between the GNP and the Chitsa Community over a piece of land approximating 40 km² located in the northern section of the GNP (Chipinda Pools Area) has dragged on for the past 16 years, i.e. since the year 2000 and even four years after the end of this study in 2012 there were no prospects of a solution in the foreseeable future. In the year 2000, the people from the Sangwe Communal Land under the headmanship of Chitsa took advantage of the Land Reform Programme and occupied land within the northern section of the GNP, arguing that they were reclaiming their lost ancestral land incorporated into the GNP (Wolmer et al. 2004). The historical circumstances surrounding the exclusion of the Chitsa community from their ancestral land, now part of the GNP is well documented (e.g. Ferreira 2004; Wolmer et al. 2004; Mombeshora and Le Bel 2009; Gandiwa et al. 2013; Anderson and Cumming 2013). This resulted in about seven hundred and forty households (740) settling in the contested land in the year 2000, followed by an additional 530 households by 2011 (GNP Scientific Services 2011, *unpublished report*).

Previous studies reported traditional chieftainship disputes within the Sangwe communal land, land boundary disputes or land claims, unsuitability of proposed relocation sites and livelihoods disruption as some of the key drivers of the conflict between the Chitsa community and the GNP (e.g. Wright 1972; Bannerman 1981; Wolmer et al. 2004; Mugadza and Mandizadza 2006; Mombeshora and Le Bel 2009; Anderson and Cumming 2013).

Attempts to resolve the Chitsa-GNP conflict included the involvement of the traditional leadership structures, e.g. Chief Mahenye, from the neighbouring Chipinge District, was appointed as a neutral mediator (Mombeshora and Le Bel 2009). Further attempts to resolve this dispute saw the Zimbabwe Parks and Wildlife Management Authority (ZPWMA,

the land-holder) exploring a number of ways, including the holding of several multi-stakeholder meetings with key players such as non-governmental organizations (NGOs) working in the area; the local and provincial administrative and political leadership, local community groups and local traditional leadership. In addition to the ZPWMA efforts, the government of Zimbabwe (GoZ), through Cabinet, gave a directive for the Chitsa people to be relocated, but this directive could not be implemented, largely because the Chitsa community doubted the authenticity of the directive (Mombeshora and Le Bel 2009). The Chitsa community also raised concerns over the proposed re-location plans, including disagreements over the park boundaries as defined in the Zimbabwe Parks and Wild Life Act (Chapter 20:14) of 1996, unsuitability of proposed relocation sites and fears associated with dislocation of livelihoods (Mombeshora and Le Bel 2009). Some of the key concerns from the ZPWMA were that; i) the Zimbabwe Parks and Wildlife Act (Chapter 20:14) of 1996 in its current form does not allow human settlements inside the Parks Estate. Hence, settling people in Parks Estate contravenes this Act, ii) Gonarezhou National Park is part of the Great Limpopo Transfrontier Conservation Area (GLTFCA) and under the Great Limpopo Transfrontier Park (GLTP) Treaty, the size of the Park as defined in the Zimbabwe Parks and Wildlife Act (Chapter 20:14) of 1996 is recognised internationally as a PA and land area reductions due to human settlements will compromise this status and, iii) the GoZ recently entered into a 10-year partnership with a private partner; the Frankfurt Zoological Society, to provide technical and financial support to raise the profile of the park. The settlements in the park are envisaged to compromise the attainment of the set objectives of the GLTP and GNP conservation project and affect Zimbabwe's conservation efforts such as the planned black rhino reintroduction programme (GNP Scientific Services 2011, *unpublished report*).

Previous efforts to resolve this conflict flopped due to stakeholder disagreements and a way forward has to be mapped. Building up from the previous studies on this conflict we attempt to ascertain claims made initially and whether these claims remained consistent 12 years later following the actions taken to settle on the northern section of GNP and determine any changes in community positions or interests following past efforts. The need to ascertain the consistency of these claims is also informed by the cognitive dissonance theory (Festinger 1957), which refers to a scenario involving conflicting (i.e. dissonance) attitudes, beliefs, values and behaviours over time. Dissonance could be influenced by a number of factors including, but not limited to, i) informational inconsistency, where contradictory information to what respondents already know or believe is received, ii) disconfirmed expectations, where people's expectations were never met, and iii) insufficient justification for behaviour, where people do things which they cannot later justify, and this rhymes well with what is termed 'post decision dissonance' where after every decision, one may feel dissonance as one tends to become more certain of their decisions afterwards. In the case of the Chitsa community's behaviour to occupy part of the northern section of the GNP in the year 2000, one is interested to know if attitude dissonance did not occur over time due to intervening factors like contradictory information, unmet expectations and lack of behavioural justification. The test was to interrogate three specific objectives; 1) 1) to retrace the importance of the conflict drivers that influenced the Chitsa community's

occupation of the northern section of the GNP around the year 2000 and establish whether they remained consistent over time (i.e. 2000-2012), given the human socio-demographic changes, 2) determine the respondents' views on the effects of the human settlement in the GNP on biodiversity conservation, and 3) assess the respondents' attitudes on a proposed game fence designed to mitigate human-wildlife conflicts resulting from the human occupation of part of the northern GNP (Figure 1). Findings from this study are expected to inform stakeholders on steps necessary to move forward the stalled negotiation process and bring closure to the current Chitsa/GNP conflict. A settlement to this conflict is beneficial to both humans and biodiversity conservation interests.

Methods

Study Area

Our study focused on the northern section of GNP and the Chitsa community, located between 21° 00'–22° 15' S and 30° 15'–32° 30' E in the Chiredzi District, southeast Lowveld of Zimbabwe (Figure 1). Covering about 5,053 km², GNP is Zimbabwe's second largest PA after Hwange National Park. It is characterised by semi-arid conditions with an average annual precipitation of about 466 mm and high temperatures reaching average monthly maximum temperatures of between 25.9 °C in July, i.e. during the winter season and 36 °C in January, i.e. during the summer season, and average monthly minimum temperatures of between 9 °C in June and 24 °C in January (Gandiwa 2012). The vegetation type is typical of a semi-arid environment and Martini et al. (2016) provides a comprehensive description of plant communities existing in the GNP. GNP has a diverse vertebrate fauna that include 89 mammals, 400 birds, 76 reptiles, 28 amphibians and 50 fish species (DNPWM 1998) and this diversity is significant when compared to the national biodiversity which consists of 196 mammal species, 672 bird species, 156 reptile species, 57 amphibian species and 132 fish species (GoZ 2010).

The northern section of the park is bordered by communal areas such as Chizvirizvi, Chitsa, Mtandahwe and a private wildlife reserve, Malilangwe. GNP is also connected to the Kruger National Park, South Africa, by the Sengwe-Tshipise Wilderness corridor and together with other national parks like the Limpopo in Mozambique formed the Great Limpopo Transfrontier Park (GLTP) since 2002 (Wolmer 2003). However, parts of what is now the GNP existed as game reserves between 1934 and 1975, and the present boundaries were set in 1975 after the then Gonarezhou reserves and some adjacent areas were co-opted into the present GNP when it was declared a National Park in 1975 [Wolmer et al. 2004; Ferreira 2004; Zimbabwe Parks and Wildlife Act (Chapter 20:14) of 1996]. The details on the shifting of boundaries, their reasons and the movement of indigenous peoples in this part of Zimbabwe are well documented (Mugadza and Mandizadza 2006; Mombeshora and Le Bel 2009; Anderson and Cumming 2013).

Methodology: stakeholder analysis and conflict management

The study was informed by the conceptual framework for stakeholder analysis and conflict management following Ramirez (1999). According to Ramirez (1999)'s stakeholder analysis and conflict management conceptual framework, propositions 1-5 (inclusively) are relevant in a situation with no crisis, but where one seeks to understand the dynamics

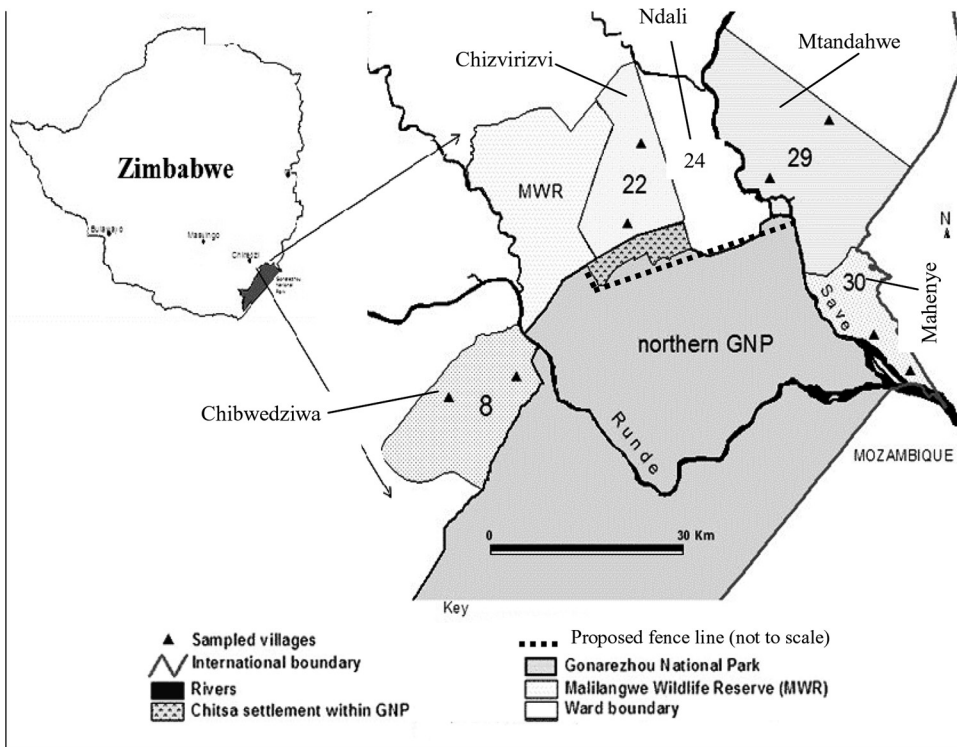


Figure 1: Northern section of GNP (Chipinda Pools) indicating the part occupied by the Chitsa community and the proposed fence line (drawn not to scale).

Source: Adapted from Gandiwa et al. (2013)

of a natural resource management issue or to intervene in it. Propositions 6-9 are more specific to decision-making behaviour by groups faced with a social conflict (Figure 2). However, all propositions are interactive, such that they can be read beginning from anywhere. Since the GNP/Chitsa situation was already conflictive, we followed Ramirez (1999) propositions 6-9, where in the introductory section we first explored literature on the genesis of the conflict and the procedures followed by involved stakeholders to deal with the conflict. Here we explored whether there were attempts for joint decision-making, third party assisted decision-making or stakeholder attempts to make decisions as separate groups. Secondly we looked at the type of negotiations done, attempts made to resolve the conflict and the use of third parties such as mediators. This process helped to identify the problem setting in terms of the situation and the conflict drivers, the direction taken by stakeholders and how agreed positions were implemented. In the results and discussion section, we then presented the identified conflict drivers and whether they were consistent 12 years later and how widely were they shared among the respondents/stakeholders.

Sampling and data collection

To gather the stakeholders'/respondents' attitudes, we used the mixed methods approach. Using the internal records of meetings conducted to resolve the Chitsa/GNP case kept at the local National Parks Office (Chipinda Pools), we purposively selected 8 traditional

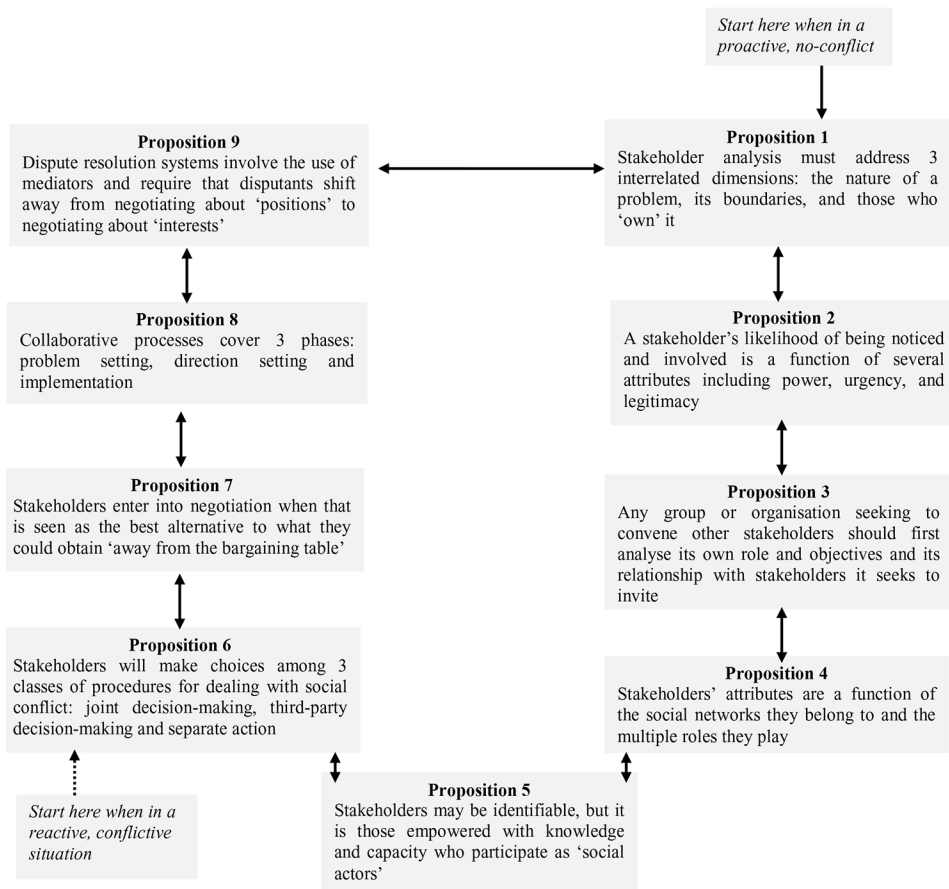


Figure 2: Conceptual framework for stakeholder analysis and conflict management. *Source:* Adopted from Ramirez, R. (1999:105).

Notes: Stakeholders in the context of natural resources are defined as '.....natural resource users and managers,' (Roling and Wagemakers, 1998:7), while stakeholder analysis refers to a 'range of tools for the identification and description of stakeholders on the basis of their attributes, inter-relationships and interests related to a given issue or resource' (Ramirez, 1999:102). Grimble et al. (1995:3-4) defines stakeholder analysis as an approach for understanding a system by identifying the key actors or stakeholders in a system, and assessing their respective interests in that system.'

leaders and councillors who frequently attended these meetings as listed on the attendance registers. In addition, 120 household heads (HHs) living in the contested area were selected using the snowball sampling technique following Goodman (1961). To start the snowball sampling of HHs, we first randomly picked 15 names of local community members who attended the meetings more than once as indicated by the meetings attendance registers, who became the initial contacts.

The initial 15 contacts were each asked to refer to two other persons who would fulfil our research criteria (i.e. persons who were HHs or their representatives, were over 18 years and were residents with 5 or more years lived in the study area). The rationale behind asking each initial contact to provide two possible respondents, instead of as many

as possible, was to minimize biases associated with snowball sampling as identified by Heckathorn (1997), which include being referred to more cooperative members, protecting friends by not referring them and over sampling on people who share similar views. The researcher then approached people referred to at their homesteads and invited them to participate in the structured questionnaire interviews. HHs were first briefed about the purpose of the study, that their participation was voluntary and confidential. If the person referred to was not available, an adult member of the same family (≥ 18 years) who the other family members present verbally consented to be their representative, was asked to participate following methods by Granados and Weladji (2012). This chain referral process continued, resulting in the participation of 120 respondents after which the interviewers decided to stop the interviews after a data saturation point seemed to have been reached as most of the responses became repetitive with no new themes or ideas emerging.

Before data collection, pilot interviews were done by one of the authors, with a sample of 10 community members who live in a neighbouring village. During the pilot test two research assistants from the local communities were trained on how to administer the structured questionnaire interviews. Through the pilot study adjustments were made to the structured questionnaire guide. To collect data, three methods were used; key informant interviews with traditional leaders, structured questionnaire interviews with HHs and literature review which extended beyond the primary data collection period. Data was collected between March 2010 and April 2012. Questions for both key informant interviews and structured questionnaire interviews were similar and focused on the drivers behind the occupation of the northern part of the park by the Chitsa community (i.e. based on previous studies by e.g. Mugadza and Mandizadza 2006; Wolmer et al. 2004; Wolmer 2005; Milgroom and Spierenburg 2008; Mombeshora and Le Bel 2009; the key conflict drivers were grouped into six categories; socio-cultural interests, economic interests, contested land claims, anti-conservation attitude, chieftainship disputes and political interests)¹, views on the effects of human occupation of part of the Park on biodiversity conservation and local community attitudes towards the proposed game fence designed to mitigate human-wildlife conflicts (HWCs) resulting from human settlement in a park (Table 1).

Data Analysis

Descriptive statistics and qualitative analyses were used to describe respondents' attitudes and perceptions on the proposed game/boundary fence and on the effects to biodiversity conservation of the human occupation of the northern part of the GNP. The Chi-square tests (at $P < 0.05$) were used to determine the level of participation by gender and association

1. Socio-cultural interests (related to access to ancestral land for traditional rituals like rain making ceremonies); economic interests (e.g. related to the need for more cropping land and employment opportunities); contested land claims (related to deep rooted historical problems associated with misunderstandings over the park boundary); anti-conservation attitude (related to preference to competing land uses like livestock grazing and crop production over wildlife conservation in contested area); chieftainship disputes [related to disagreements over the heir to the chieftaincy between Headman Chitsa and Chief Tsovani] (Wolmer et al. 2004; Wolmer 2005; Milgroom and Spierenburg 2008; Mombeshora and Le Bel 2009)]; political interests (related to local power dynamics and resource governance systems and policies).

Table 1: Outline of the questions asked in structured questionnaire-interviews on the attitudes of respondents about the proposed game fence designed to control human-wildlife interactions.

Notes: Happy = refers to satisfaction about the fence proposal.

Question	Response options
How do you feel about the establishment of a game/boundary fence in GNP?	Happy/unhappy
What could be the positives associated with the game fence?	Open
What could be the negatives associated with the game fence?	Open
How important are wilderness areas in the GNP for you?	Open
Suggest the best way to protect wilderness values in GNP to promote sustainable ecotourism development	Open

between the period of stay in the study area for two categorized groups, i.e. i) those between 5 and 9 years and ii) those 10 years and above. The Kruskal Wallis H test was used to test whether there were any statistical differences in respondents' age groups. The respondents' gender, age and length of stay in the study area was useful in determining the level and composition of participants in the study which probably had an influence on the respondent's selection of a particular rating scale. Responses to the questions on drivers influencing the Chitsa community's occupation of the northern part of the GNP were evaluated on a rating scale of -3 to +3 (where; -3 = extremely unimportant; -2 = very unimportant; -1 = somewhat unimportant; 0 = not sure; +1 = somewhat important; +2 = very important; +3 = extremely important). To distinguish between more and less influential conflict drivers, we further reduced responses to two categories, 'more important' and 'less important'. Using a 7-point Likert scale, responses falling within the scale of 1-3 were categorized as less important while those ranging between 5-7 were categorized as more important. Responses under the scale of 4 (neutral) were ignored and the Wilcoxon matched-pairs signed rank test was used to determine the relationship between the ranks of these paired response categories at 0.05 level of significance.

Respondents' demographics

A total of 128 respondents, consisting of 68% male ($n = 87$) and 32% female ($n = 41$), participated in the study and a Chi-square test indicates that participation by women and men differed significantly ($\chi^2 = 8.54$; $df = 1$; $P = 0.003$), with more men participating than women. There was no significant difference in the period of stay of the respondents in the study area ($\chi^2 = 0.02$; $df = 1$; $P = 0.90$), where more than forty-nine percent (49.2, $n = 63$) of the respondents had between 5 and 9 years of stay in the study area, while about fifty one percent (50.8 %, $n = 65$) had 10 or more years of stay in the study area. Our KWS H test results showed no significant differences in respondents' composition across the age categories at 5% level of significance ($H = 0.05$ [3, $N = 128$], $P = 0.99$) (Table 2). This implied that though the responses were independent of age and period of stay in the study area, men' views dominated the results.

Table 2: Socio-demographic profiles of respondents. Values indicate numbers of respondents and their relative percentages. *N*: sample size = 128. Chi-square tests (χ^2) conducted on sex and period stayed in the study area variables, while Kruskal-Wallis H test was conducted on the age group variable.

Variable	Respondents	%	df	Chi-sq. (χ^2) / KWS (H)	P _{value}
<i>Sex</i>					
Male	87	68	1	8.54	0.003
Female	41	32			
<i>Age(years)</i>					
≤ 30	21	16.4			
31-40	51	39.8	3	0.05	0.99
41-50	36	28.1			
51-60	20	15.6			
60+	0				
<i>Period stayed in the study area (years)</i>					
5-9	63	(49.2)	1	0.02	0.90
10+	65	(50.8)			

Results and Discussion

The importance and consistency of the drivers influencing the occupation of the northern section of the GNP

When the level of importance of the six drivers influencing the occupation of the northern part of the GNP by the Chitsa community were evaluated on a rating scale of -3 to +3, our results indicated that contested land ownership claims was considered extremely important after scoring a rating of +3, while chieftainship disputes were least rated scoring a rating scale of -3. Based on these results contested land ownership claims appeared to dominate the reasons behind the occupation of the northern part of the GNP. However, when the responses were grouped further into two categories (i.e. less important and more important) to understand the respondents' consolidated views on the rankings of key drivers influencing the Chitsa community to occupy part of the northern section of the GNP, results showed no significant differences in their importance rankings (Wilcoxon matched-pairs signed-ranks test, $Z = -1.48$ $df = 1$, $P = 0.14$) (Table 3). From a statistical point of view, this suggested that the key conflict drivers had similar weightings in influencing the GNP/Chitsa dispute. However, a qualitative outcome indicates that higher responses on the 'more important' category were observed on the following conflict drivers; land claims, socio-cultural interests, and political-economic interests, while anti-conservation reasons, and chieftainship disputes had higher responses on the 'less important category', indicating that they were lowly rated as conflict drivers.

Although chieftainship disputes were lowly rated in this study as drivers in the land occupation question, Mombeshora and Le Bel (2009) in a previous study argued that chieftainship disputes were one of the critical factors fuelling the conflict between local communities and PA management in the GNP context. The low rating of the chieftainship disputes factor as a key conflict driver in this study may be an indicator of shifting respondents' interests towards factors related to land ownership rights and not to intra-community power

relationships. Contested land ownership claims remain the most important conflict driver between the GNP and Chitsa community and can be described as a structural factor. When land ownership claims are linked to park boundary disputes, they constitute circumstances that triggered local communities to overtly express their disgruntlement through settling in Parks land. This scenario is consistent with Mitchell's conflict model (1981) which state situations, attitudes and behaviour as constituting three primary conflict causes (Mitchell 1981; Swanström and Weissmann 2005). In this context, it can be argued that the land claims (Mombeshora and Le Bel 2009) and the subsequent misunderstandings over the park boundary represents situations that ignited some of the key underlying factors precipitating behaviours or actions displayed by the Chitsa community in the occupation of part of the GNP. This situation reinforces previous studies which reported park boundary disputes and land claims based on the frequent shifting of the veterinary fences without local community participation as some of the key conflict causes (Wright 1972; Bannerman 1981; Mugadza and Mandizadza 2006). With reference to the cognitive dissonance theory our findings indicate that the key conflict drivers in the Chitsa/GNP case remained largely consistent over the study period and even in the face of human socio-demographic changes in the study area. It also reveals that conflicts between local communities and PA management often represent a collective argument to a given common stressor.

Table 3: Drivers influencing occupation of the northern part of GNP by the Chitsa community in 2000. Notes: Responses were reduced to nominal levels of 'less important' and 'more important.' Rating scale: 1-3 (least important), 4 - 7 (most important) and 4 = neutral. $N = 128$

Influential drivers	Responses		Wilcoxon matched-pairs signed rank test
	Less important	More important	
Socio-cultural interests	10	26	$Z = -1.48, df = 1, P = 0.14$
Economic interests	10	26	
Contested land claims	10	32	
Anti-conservation reasons	36	24	
Chieftainship disputes	20	16	
Political interests	8	20	

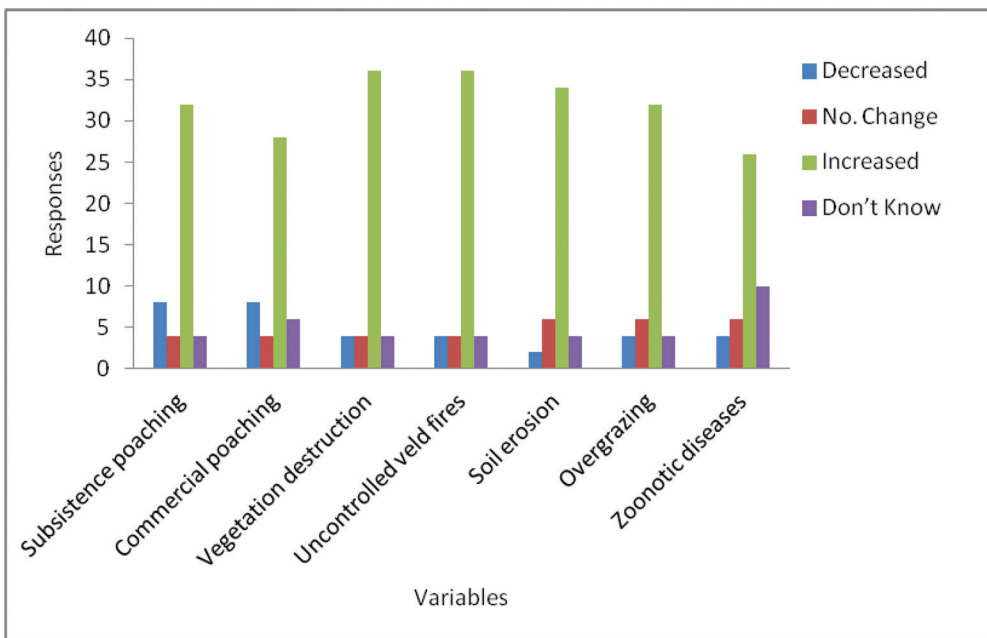
Notes: multiple responses allowed.

Views on the impacts of human settlements in the northern GNP on biodiversity conservation

Our results show that respondents viewed an increase in all human activities with a negative impact on biodiversity conservation in the occupied area. These activities included uncontrolled veld fires, poaching, vegetation destruction, soil erosion, overgrazing and zoonotic diseases (Figure 3). The perceived increase in activities whose impact could be negative to biodiversity conservation could be explained by competing alternative livelihoods demands and practices some of which could be culturally based, e.g. subsistence crop production as a more preferred traditional livelihood practice over biodiversity conservation. This concurs with Phalan et al. (2013) who, in a study on crop expansion and conservation priorities in tropical countries, mentioned that expanding cropland in tropical

countries constitutes one of the main causes of biodiversity loss and is associated with the use of fire to clear cropping land. However, fires may be a sign of protest, e.g. in Kenya, local communities used uncontrolled fires in Chyulu Hills National Park to protest against Park policies (Kamau and Medley 2014). Consistent with Rao et al. (2013), we observed that the compounding effects of uncontrolled veld fires threaten biodiversity conservation, including the species' ability to adapt and survive such stochastic episodes. Researchers like Morrison et al. (1995) and Uys et al. (2004) state that where fire frequency and intensity increases, fire-sensitive plant species are likely to decrease, while fire tolerant species are likely to increase and become dominant.

However, some authors like Siebert and Belsky (2014) argue that some anthropogenic activities like land use changes in PAs have a positive role in biodiversity conservation as the net effect is to increase landscape heterogeneity. This thinking is in sync with the intermediate disturbance hypothesis which predicts that plant species richness will be higher in communities with moderate levels of disturbance and at intermediate time spans following disturbance (Collins et al. 1995). Nevertheless, this hypothesis may be relevant and valid given a defined set of conditions, which in our study area could be different following the intensity and continuous anthropogenic disturbances on vegetation.



Multiple responses allowed

Figure 3: Perceived effects of human occupation of the northern part of the GNP on biodiversity conservation efforts. Notes: Values indicate the actual responses to each variable.

Respondents' attitudes on the proposed game fence and the GNP

Responses to a proposed game fence expected to cede approximately 92 km² of parks land to the Chitsa community, representing about 1.8% of the entire GNP and aimed at minimizing HWC and stop cattle encroachment into the park's interior in response to the

land occupation (GNP Scientific Services 2011), saw 48.4% ($n = 62$) of the respondents indicating that the fence enhanced their security, while slightly more respondents (50%, $n = 64$) said the fence was of no help to them (Table 4). Those who said it was of no help to them indicated that it restricts and reduces the land available for their livestock and limits access to cultural sites within the park where their forefathers used to conduct traditional rituals like rainmaking ceremonies. Some expressed worries that the game fence would limit their land claim which they indicated runs along the Chionja hills extending to the confluence of Save-Runde junction. Our results concur with those of Mugadza and Mandizadza (2006), who in their study on the historical and social background to the Chitsa community and GNP land dispute, reported the same as the extent of the boundary claimed by the Chitsa community as representing their ancestral land. By establishing the proposed game fence (which was completed later in 2012), the park authorities intended to reduce HWCs and dissuade people from further encroachment into the park. Resolving HWCs is important as it has the potential to trigger problems between local communities and PA management, especially where underlying conflict causes remain unresolved. HWCs could therefore ignite latent PA-community conflicts which are of increasing concern, particularly in developing countries given the increasing human population around protected areas, deepening poverty, effects of unpredictable and frequent climate variability and land claims. A similar scenario was also observed by Thondhlana et al. (2011) in their study on the Kgalagadi Transfrontier Park (KTFCA) and its land claimants in Botswana, that land claims by local communities remain a challenge to conservation plans.

However, when asked questions about the importance of the GNP and wilderness values, the majority indicated that these variables were important (Table 4). Most of the reasons attributed to the importance of the GNP and wilderness values were associated

Table 4: Respondents' attitudes and perceptions on the game fence in the northern part of GNP, Zimbabwe. Notes: wilderness areas are sections of the park designated as wilderness areas according to the Parks and Wildlife Act (Chapter 20:14) of 1996 which are protected in their pristine conditions by limiting human activities. Wilderness values refer to the aesthetic, naturalness and tranquil conditions of wilderness areas.

Question	Responses	N	%
How do you feel about the establishment of a game/boundary fence in the GNP?	Happy	54	42.2
	Unhappy	74	57.8
What could be the positives associated with the game fence?	Enhanced protection	62	48.4
What could be the negatives associated with the game fence?	Was of no help (i.e. limit access to cultural sites inside the park and restricts land available for livestock)	64	50
	Not sure	2	1.6
How important are wilderness areas in the GNP for you?	Very important	78	61
	Important	50	39
Suggest the best way to protect wilderness values in GNP to promote sustainable ecotourism development	Maintain current land area for wilderness conservation	78	61
	Increase current conservation land	50	39

with the Great Limpopo TFCA development expectations, e.g. that wilderness areas encourage collaboration among different countries and attract tourism which in turn provides employment opportunities for the community members.

Conclusion and Recommendations

Based on our results we conclude that there is sufficient evidence to suggest that there is no statistical significant difference on respondents' views on the importance of tested drivers influencing the GNP/Chitsa dispute, which have largely remained unchanged between the years 2000 and 2012, with the land claim factor remaining dominant. This observation is consistent with findings by authors like Wolmer et al. (2004) and Mugadza and Mandizadza (2006) who, in their studies in the same area, observed that land claims and boundary disputes were at the core of the Chitsa/GNP conflict. We also conclude that the respondents viewed human activities such as poaching, uncontrolled fires, vegetation destruction, soil erosion, overgrazing and livestock-wild animal diseases to have increased as a result of the human occupation of the northern part of the GNP. We also conclude that respondents' attitudes were polarized between those who were for and against the proposed game fence. We conclude that though the respondents had positive attitudes of the GNP and its wilderness values, the exclusion of local community interests aggravate the challenges between local communities and PA management, especially where the local communities view the exclusion as an attempt to entrench past injustices. Here lessons can be drawn from cases involving the Kruger National Park, South Africa (Carruthers 1995: 90) and the Selous Game Reserve, Tanzania (Adams and Hutton 2007) where the displacement of indigenous people during the creation of the PAs caused problems which were later mitigated by involving the affected communities in park management planning and benefit sharing. We recommend for the adoption of the stakeholder analysis and conflict management framework and similar models like the mutual gains approach which advocates for a win-win solution in order to find a sustainable solution to the Chitsa/GNP case. We also recommend for conservation policies that are sensitive and relevant to local community needs, especially those communities who are dependent on natural resources. However, we are also cognisant of the fact that situations differ with places therefore a one-size fits all conservation model may not be feasible.

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