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BEYOND THE DEBATE: EXPLORING THE UNDERLYING VALUES AND
ASSUMPTIONS OF BIODIVERSITY CONSERVATION IN PROTECTED AREAS

by

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BEYOND THE DEBATE: EXPLORING THE UNDERLYING VALUES AND
ASSUMPTIONS OF BIODIVERSITY CONSERVATION IN PROTECTED AREAS

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DEDICATION

This work is dedicated to the two women without whom none of this would have been possible:

my mother, Ina Malan and my wife, Mary.

ABSTRACT

This dissertation examines the current disagreement among scientists and scholars about best practices for biodiversity conservation in protected areas. There is no clear consensus among the scientific community about the most effective approach to conserve biodiversity and several conflicting positions form part of an ongoing debate in the field. Most disagreements and conflicts are based on differences in the underlying values and assumptions of the parties involved in the conflict. The more we know and understand those underlying values, the more constructive the dialog, and the more likely acceptable policy decisions will be developed. This study, presented in three parts, uncovered some of the major discourses and perspectives that exist in the exchanges in literature. I used discourse analysis and Q-methodology, and then applied a policy sciences framework to suggest practical application. The first part of the study is a discourse analysis of eight works representing the breadth of strongly held opinions about biodiversity conservation and the roles of human inhabitants. The results of the discourse analysis identified some dimensions of the conflict that were used in the interpretation of discourses in the subsequent Q-study.

The second part of the dissertation explored the underlying values and assumptions in biodiversity conservation using Q-methodology. A total of 275 definitive statements were extracted from a survey of the literature and then categorized according to the dimensions identified in the preceding discourse analysis. Twenty two participants, all actively involved in conservation in protected areas, and some authors of the statements used in the procedure, sorted 48 statements on a scale of -5 (Most unlike my point of view) to +5 (Most like my point of view). Following a Q-methodology analysis of the data, three distinct discourses emerged: a *Social Justice* perspective that emphasizes the need for a fair and just process, a *Concern for Biodiversity* perspective based on the need to protect biodiversity from human impacts, and a *Biodiversity Across the Landscape* perspective based on a need to conserve biodiversity beyond protected areas with a concurrent concern that existing free market mechanisms are not adequate to protecting biodiversity. Though there were clear differences in the underlying assumptions of the three perspectives, there were also some areas of agreement, which raises the potential for dialog and collaboration.

The final part of the dissertation was an application of a policy sciences framework to illustrate how the different discourses would lead to different perceptions of problem identification, social processes and decision processes. Some directions for future research based on my findings are both practical (e.g., apply Q-methodology to help understand and resolve biodiversity conservation conflict; develop capacity in negotiation and conflict management) and conceptual (e.g., more research on poverty alleviation; more research to demonstrate the economic value of biodiversity conservation). The results of the Q-study suggest that a dialog among stakeholders involved in conservation efforts, based on common understanding of underlying assumptions uncovered in the Q-study, could lead to advances in developing more effective, innovative and creative conservation approaches.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

Conservation biology, one of the most rapidly growing professional scientific societies in the world (Soulé & Orians 2001) is at a crossroads. Unlike many other disciplines, conservation biology is a field born from a sense of urgency and crisis (Soulé 1985). Faced with the evidence of a rapidly deteriorating level of biodiversity on earth, the scientific community felt compelled to respond (Meffe & Carroll 1997: 4). Whether the response is successful or not, conservation biology is described as an important discipline with a deadline (Wilson 2000). The World Resources Institute provided some quantifiable evidence of the nature of the crisis:

- Half of the world's wetlands were lost last century.
- Logging and conversion have shrunk the world's forests by as much as half.
- Some 9 percent of the world's tree species are at risk of extinction; tropical deforestation may exceed 130,000 square kilometers per year.
- Fishing fleets are 40 percent larger than the ocean can sustain.
- Nearly 70 percent of the world's major marine fish stocks are over fished or are being fished at their biological limit.
- Soil degradation has affected two-thirds of the world's agricultural lands in the last 50 years.
- Some 30 percent of the world's original forests have been converted to agriculture.
- Since 1980, the global economy has tripled in size and population has grown by 30 percent to 6 billion people.
- Dams, diversions or canals fragment almost 60 percent of the world's largest rivers.
- Twenty percent of the world's freshwater fish are extinct, threatened or endangered.

(World Resources Institute 2002)

Conservation biology, as a discipline, originated from a need to address the problem of preserving the rapid loss of species and habitats (Thomas & Pletscher 2000: 547). However, 20 years after the formation of the Society for Conservation Biology, there is a sense that “nature is losing badly” (Meffe et al. 2006). Scientists with long experience in the field have expressed

their concern about the loss in biodiversity for quite some time. Oates (1999), with a lifetime of experience in Africa has reported species extinctions and dangerously small populations of certain primate species. In an even more desperate and gloomy note Terborgh (1999) called for action suggesting that, in many cases, it may even be too late to protect biodiversity. Similarly, the study commissioned by The Nature Conservancy, *Parks in Peril* (Brandon et al. 1998), suggested that conservation efforts are in jeopardy. The common theme in these publications is that certain areas contain an extremely high proportion of the earth's diversity, but the biodiversity in these areas is threatened by human development and activity (Terborgh & Van Schaik 2002). Special action is needed to set aside certain areas and to protect these from the negative impact of humans, but there are fundamentally different opinions in the field of conservation biology on the appropriate ways to protect biodiversity (Brechin et al. 2003; Lovejoy 2006b; Redford et al. 2003).

There is no clear consensus about the most effective approach to conserve biodiversity. Several conflicting positions form part of the current debate in the field and the conflicts are mainly (but not exclusively) about the role and rights of human inhabitants in or adjacent to protected areas. There are obstacles to overcoming the conflict between national parks and local people (Hough 1988), but there are also some deeper conflicting assumptions.

In April 2000, the Society for Conservation Biology hosted a workshop to consider the future research priorities for the discipline (Soulé & Orians 2001). Some of the key changes in the period from 1986 to 2001 were the growth in human population and the increase in global commerce; these changes pose significant challenges for conservation biology (Soulé & Orians

2001: xvi). Workshop participants identified a number of research priorities. Of particular interest to this study is the acknowledgement by members of the society that “incorporating the human dimension in conservation” is an important research priority (Mace et al. 2001). Mace et al. (2001:23) also acknowledge the underlying conflict inherent in this research direction: “We recognize both the challenges and benefits associated with local human communities whose immediate needs and aspirations may conflict with those of biodiversity conservation.” Despite this perceived conflict, there is also the acknowledgement that conservation efforts need to contribute to the improvement of human livelihoods (Robinson 2006: 665).

Parties to the debate, whether they are from the discipline of anthropology, sociology or the natural sciences (e.g. ecology, biology), all share a concern for the future. The differences are mostly based on current conservation practices and approaches, and individuals involved in this debate conclude that the loss of biodiversity cannot continue without harm – in some cases harm to habitat and species, in some cases harm to economic welfare, or in some cases harm to human rights and dignity. In most cases, this concern does not originate from myopic discipline-based bias, but from a level of consciousness about the role, responsibility and moral obligation of humans. It is safe to say that there is a broad understanding that biodiversity is an important component of sustaining life on earth and of maintaining the ecosystem services we need to survive over the long term (Wilson & Howarth 2002). Behind the disagreement about the most effective way to achieve biodiversity protection are some deeper underlying assumptions and beliefs about who we are, what our future ought to look like, and how this ought to shape our behavior. This dissertation study explored the following question:

What are the beliefs, principles, assumptions and feelings that lie behind the ideas of how to best achieve biodiversity conservation through protected areas?

Organization of the Dissertation

The dissertation is presented as three stand-alone chapters that address this research question. These chapters were written with a view to publication as journal articles or book chapters. I approached the research question from different methodological perspectives. I used a combination of discourse analysis, Q-methodology, and a policy process framework to uncover the underlying assumptions held by conservation scientists and practitioners.

In Chapter 2, I analyzed the discourses of eight key texts in biodiversity conservation. These works were selected because they represent a wide view of strongly held opinions about biodiversity conservation. The eight works span opinions on biodiversity conservation over a period of eighteen years. They are quite different and represent global policy documents, case studies, personal experiences, and opinion pieces. The discourse analysis concludes by identifying some dimensions of the conflict in biodiversity conservation and by suggesting a more systematic research of underlying perspectives. From a mapping analogy, this chapter described the features of the landscape, but it did not explain the reasons for the shape of the land.

Following the conclusions and recommendation of Chapter 2, I set out to conduct a Q-study of underlying assumptions in Chapter 3. If the previous chapter was similar to the description of the features of a landscape, this chapter explored the geological forces that shaped the land. This

chapter discusses Q-methodology, the analysis of data, and the interpretation of results. I developed this chapter as a response to a paper by Redford et al. (2003) in the journal *Conservation Biology* and in it I argued for a deeper exploration of underlying assumptions governing the various perspectives in biodiversity conservation. In their paper Redford et al. (2003) study the variety of biodiversity targets and priorities of a number of conservation organizations and they categorize the different approaches to biodiversity conservation. Their conclusion is that “there is an urgent need for conservation organizations and their supporters to come together to discuss informed collaboration...” (Redford et al., 2003: 127). My suggestion, based on the findings of the Q-study, was that this “informed collaboration” requires an exploration of the underlying reasons that give rise to the differences in biodiversity conservation priorities in the first place. I provided an explanation of some of the underlying assumptions in my analysis.

Chapter 4 presents a practical application of the findings of my study. It applied a policy sciences framework presented by Clark (2002; Clark et al. 2000) and Clark et al. (2000) to the Q-study results. I use the Q-methodology results to demonstrate how individuals with different standpoints or perspectives about biodiversity conservation identify the problem in different ways, prefer different social processes, and reach different decision outcomes. I also illustrate areas of consensus and potential for collaboration. The chapter concludes with suggestions for practical application of Q-methodology and a policy sciences approach to improve biodiversity conservation projects.

Chapter 5 concludes the study by reflecting on the research question identified above, identifying some of the study's limitations, and suggesting directions for future research.

A brief primer on Q-Methodology

A review of the literature about biodiversity conservation reveals a great deal of disagreement and conflict. My thesis is that this conflict principally stems from the underlying assumptions and values held by different biodiversity conservation scholars and practitioners and that an understanding and appreciation of those values would lead to a richer and more productive dialog. I chose a research methodology designed to uncover subjectivity (Stephenson 1935). Q-methodology is a social science methodology designed to apply qualitative and quantitative data analysis to uncover underlying assumptions, attitudes or perspectives (Brown 1980). The patterns of responses to selected statements across groups or individuals reveal common attitudes, subjective values and discourses (Addams & Proops 2000).

Q-methodology uses a factor analysis statistical procedure to analyze the data. Factor analysis is a complex form of multiple regression that reduces the variables by finding combinations that explain the greatest degree of variance in the data (Kim & Mueller 1978; Stevens 1992). In the case of Q-methodology, the variables used in data analysis are the participants (in other statistical methods, the participants would be the study sample and the variables would be traits). The consequence of this different statistical arrangement (different to so-called R-studies that are based on hypotheses seeking to find correlation) is that it reveals underlying patterns and common attitudes. "The results produce an in-depth portrait of the typologies of perspectives that prevail in a given situation" (Steelman & Maquire 1999: 365). This methodology was ideally

suited to my research inquiry into the beliefs, principles, assumptions and feelings that lie behind the ideas of how to best achieve biodiversity conservation through protected areas.

In my Q-methodology, I followed the steps outlined by Addams (2000).

- Step 1. Identified an area of 'discourse' to explore.
- Step 2. Collected statements around the areas of discourse from the literature.
- Step 3. Selected from these statements those that represented the diversity of communication on the topic.
- Step 4. Conducted a Pilot Test.
- Step 5. Asked a number of participants (who hold the largest possible diversity of views) to rank these statements in a structured way.
- Step 6. Performed a statistical analysis of the data and used quantitative and qualitative methods to interpret the results.

Several studies have used Q-methodology to uncover attitudes and assumptions relating to environmental issues. In recent years a number of dissertations have used Q-methodology to explore environmental issues. These dissertations include a study of the debate about climate change (Dayton 1999), a study of sustainable forestry in Washington State (Swedeen 2004), a study on the perception of wolves in Minnesota (Byrd 2004), and a study of discourses in environmental justice (Smith 2004). There are no published studies that used Q-methodology to explore assumption about biodiversity conservation in protected areas.

The goal of my research was to uncover the underlying beliefs, values and assumptions in biodiversity conservation. I used a particular research approach, Q-methodology, to achieve some answers to that question. At the outset, I did think that this may be a risky approach because the method has not been used very often to address conservation biology problems, but I

am very satisfied with the results. One concern was that the participants would not be interested in the method. I had the opposite experience. I had almost a 50% response rate and the people who participated in the study represent some of the key contributors to the literature on biodiversity conservation. None of them had ever used the methodology before, but they were all interested in the method and the results.

The analysis of the data produced some very meaningful results. It demonstrated that there are indeed some different underlying perspectives that are responsible for the disagreement and tension in biodiversity conservation. However, the results suggested a far more complicated set of assumptions than the popular literature may imply. Difference in perspectives about biodiversity conservation can not be plotted easily on dichotomous scales, e.g. anthropocentric versus eco-centric, pro-parks versus pro-people etc. The results suggested a complex set of interactions and assumptions that are, in many cases, context-based. Therefore, solutions need to take a range of stakeholders, their perspectives and the unique circumstances into account. This observation and the fact that there appeared to be a number of areas of consensus between the different perspectives lead to the conclusion that solutions in biodiversity conservation are possible, but that achieving them would require a process of negotiation and dialog based on a deeper understanding of the different assumptions of the parties. It is in this area that this study makes a contribution.

CHAPTER 2

DIMENSIONS OF THE CONFLICT IN BIODIVERSITY CONSERVATION: A DISCOURSE ANALYSIS

Introduction

There is broad agreement in the field of conservation biology that the protection of biodiversity is an important objective (Lovejoy 2006b; Robinson 2006; Salafsky et al. 2002; Takacs 1996; Terborgh et al. 2002). One of the key mechanisms for biodiversity protection is the creation of protected areas. Since the establishment of Yellowstone National Park in 1872 as one of the first examples of a national-level, state initiated policy to set aside large tracts of land for protection, we have seen similar examples of this approach to biodiversity protection on a global scale. Today there are more than 100,000 protected areas on every continent and in almost every country covering more than 12% of the world's land surface (West & Brockington 2006).

However, despite this worldwide growth in the number of protected areas, there is no agreement on the best way to achieve biodiversity conservation. Instead, there is an intense debate over the approaches to conservation. The title of Terborgh's (1999) book "*Requiem for Nature*" suggests that we may have already lost the opportunity to conserve biodiversity; in a recent attack on non-profit conservation organizations Chapin (2004) makes the accusation, based on his observations, that the rights of indigenous people are being ignored at the expense of conservation efforts; Oates (1999) draws on his experience in African forests and observes that economic development activities are incompatible with protection of biodiversity and laments that primates are going extinct as a direct result of human activities; Schwartzman et al. (2000)

question if biodiversity is really threatened and argue that at a smaller scale a large amount of biodiversity remains in tropical forests. In books, journal publications and at academic conferences the debate and disagreement rages on without providing many clear solutions for park managers or for people that live in and around protected areas.

Since much of the dialog, debate and disagreement about biodiversity conservation are taking place in spoken and written form, one starting point in finding the underlying assumptions is to apply qualitative analysis of the discourses. Several qualitative methodologies including ethnography, grounded theory etc. are available to analyze conversations and texts (Marshall & Rossman 1999). One way to analyze a series of interconnected texts and writing is by means of discourse analysis (Phillips & Hardy 2002). An author states his or her opinions in a book or published article; this in turn is followed by another book or article by another author with a rebuttal. An example of this is the exchange between Adams and McShane (1996) and Oates (1999). The book *The Myth of Wild Africa* by Adams and McShane (1996) was followed by a strong refutation by Oates (1999) in his book *Myth and Reality in the Rainforest*. In this chapter, I will use discourse analysis to explore the underlying dimensions of the conflict about biodiversity conservation in protected areas.

A discourse is “a shared way of looking at the world” (Dryzek 1997: vii). Discourse analysis is a way to get behind the assumptions, judgments and contentions underlying the debate or disagreement (Dryzek 1997:8). If we accept the definition of a discourse as “an interrelated set of texts” (Phillips & Hardy 2002:3), it provides a rather apt description of the reality in the biodiversity conservation debate. There are several published works on biodiversity conservation

in protected areas that reference and cross-reference each other in agreement and disagreement, in attempts to build consensus and attempts to find distance from each other's positions (Adams & McShane 1996; Brosius 2004; Oates 1999; Terborgh 2004; Wells & Brandon 1992; Wilshusen et al. 2002). The task of a researcher using this methodology is "to explore the relationship between discourse and reality" (Phillips & Hardy 2002:3).

Since there are several possible theoretical perspectives to discourse analysis, and since no researcher can study everything, I need to make my own approach to this study clear from the onset. Phillips and Hardy (2002) distinguish between two dimensions in the theoretical approaches to discourse analysis. The first dimension relates to a choice between context and text. Though all forms of discourse analysis explore both text and context, the degree of emphasis may be different. In my study, I am not concerned with a detailed, linguistic analysis of a particular text (Fairclough 2003). Instead, I am concerned with a "broader sweep of the discursive elements of particular contexts" (Phillips & Hardy 2002:20). The texts that form the basis of my discourse analysis originate from particular contextual settings. The Manu National Park in Peru (Terborgh 1999), West African parks (Oates 1999), and a comparison of several international case studies (Brandon et al. 1998) are just some examples of the context-based texts I am analyzing.

The second theoretical dimension identified by Phillips and Hardy (2002) refers to the concern with power dynamics in the discourse. They distinguish between a critical perspective that is highly concerned with power dynamics (in the Foucaultian tradition) and a constructivist perspective that is less concerned with power and more concerned with the creation of the

discourse and the social context. There is no doubt that the debate over biodiversity conservation is rife with power dynamics. The power of large conservation organizations lies in contrast to the power of local communities (Brockington 2002; Igoe & Kelsall 2005). Commercial enterprises apply their power to obtain access to natural resources, national governments use their legislative power, and indigenous communities have learned how to use the power of publicity. In some cases, conservation has been equated with a form of colonialism (Murombedzi 2003; Nelson 2003). Though I will not concentrate entirely on power dynamics in biodiversity conservation, it is certainly an element of the social discourse that should not be ignored.

Given the location of this discourse analysis in the theoretical traditions of a preference for context (over linguistic analysis) and for a combination of both a constructivist and a critical perspective, the theoretical tradition of this discourse analysis could be placed in what Phillips and Hardy (2002) call “Interpretive Structuralism.” Studies in this tradition use texts “as background material to understanding context and data that provide insight into the bigger picture, rather than microanalysis of individual texts” (Phillips & Hardy 2002:24). The summary and analysis of texts below provide the context for the analysis of the discourse about biodiversity conservation by means of protected areas. At the same time, the selected texts provided many of the statements that I extracted for the Q-methodology in Chapter Three.

Selection of Texts

A great deal has been written about biodiversity conservation and there is a danger in selecting only a number of texts to represent the discourse because it does not represent the full and complete range of dialog. However, some of the texts are used by others as benchmarks and for

points of departure. In the interest of parsimony, I limited my selection of texts to only eight works:

- WCED (1987) - *Our Common Future*
- IUCN/UNEP/WWF (1991) - *Caring for the Earth*
- Wells & Brandon (1992) – *People and Parks*
- Adams & McShane (1996) - *The Myth of Wild Africa*
- Brandon, Redford & Sanderson (1998) – *Parks in Peril*
- Oates (1999) – *Myth and Reality in the Rain Forest*
- Terborgh (1999) – *Requiem for Nature*
- Chapin (2004) – *A Challenge to Conservationists*

There are limitations to my sample of texts, other than the fact that they represent a small sample. Firstly, they are all published in the English language. There are many works in other languages that represent equally important contributions to the discourse. However, for practical reasons, I am limited to works that do not require translation. A second limitation is that I used published works to represent an ongoing dialog that continues on a daily basis in multiple settings. Park managers, community leaders, government officials, conservation officers, scientists and a host of actors are engaged in unpublished discussions, disagreements, debate and deliberations about the best way to achieve biodiversity conservation all over the globe.

Both of these limitations are part of a larger concern. I can not ignore the inherent power dynamics of the situation. Individuals (and organizations like the IUCN) that have the ability to publish their works in well-read books represent a very small fraction of the people that are part of the larger discourse. The authors of the texts I have chosen have the ability to obtain grants, donations and financial support. They are writing from the privileged perspective of having gained knowledge through studies, research, meetings, and travel. And they are writing for an audience of scholars and policy makers that find themselves in an equally privileged position.

There are many voices that are part of the overall discourse, but that are not heard. The traditional knowledge, perspectives, opinions and views of those without the privilege of power are not represented in these texts.

Since the contribution of this study is aimed at the policy formation level, I chose to focus on the shapers and makers of policy. The individuals involved in publishing their opinions are not necessarily the same as the people experiencing the consequences of the conflicts in biodiversity conservation and I do not believe that they can adequately or fairly “speak for” the underrepresented voices. However, (in most cases) they claim to be representing the experiences of these conflicts as a result of their observations, personal experiences and studies. I do not deny the importance of other voices (and I would suggest that those voices be included in future research) but I am focusing my attention on the texts that claim to represent an aggregation of many voices and opinions and that have the ability to influence policy on biodiversity conservation at a global level.

There was some logic to my selection of these texts. Instead of selecting works to illustrate a certain worldview, I tried to demonstrate the wide variety of perspectives in biodiversity conservation. Two of the works are policy documents that represented a shift in the approach to biodiversity conservation to policies that included development and sustainability (IUCN/UNEP/WWF 1991; World Commission on Environment and Development 1987). Such shifts in thinking at the policy level are often the catalyst or outcome of global summits, or major conferences (e.g. the United Nations World Summits on Sustainable Development in 1992 and 2002, and the World Park Congress in 2003). These documents have been influential in shaping

the thinking about sustainable use. Some works use these two publications as a benchmark for goal setting, yet other books use these two publications as a lightning rod and an example of change in the wrong direction.

Two texts I chose used a case study methodology of protected areas (Brandon et al. 1998; Wells & Brandon 1992). Both these studies have a common co-author, yet the central conclusion differs quite a great deal from one book to the other. These works are well known in the field and I include both because they also demonstrate how the opinions held by a participant in the debate about the appropriate approaches to biodiversity conservation can change over a relatively short period of time.

Two books have a similar theme, but the authors base their conclusions on their work in two different continents. Terborgh (1999) relates his experience in South American parks and Oates (1999) uses his long experience in West African parks. Though the nuances are different, both these authors express concern that attempts to combine economic development with conservation are failing. Oates (1999) is also included because the book is a direct response and critique of the book by Adams and McShane (1996).

The final two works provide an alternative approach by looking at biodiversity conservation from the perspective of local communities and indigenous peoples. Adams and McShane (1996) base their contribution on their experiences in Africa and their central theme is the need to allow for a much greater role of local communities in protected areas conservation. The article by Chapin

(2004) in *WorldWatch* is a direct criticism of large conservation organizations and it elicited a great deal of response from a wide of people in the subsequent publication of *WorldWatch*.

Three of these books were the subject of a critical analysis by Wilshusen et al. (2002). The authors analyzed the books by Terborgh (1999), Oates (1999), Brandon et al (1998) and used them to illustrate the underlying assumptions of a “protection paradigm.” Instead of selecting works to illustrate a certain worldview, I tried to demonstrate the wide variety of perspectives in biodiversity conservation. The objective of this discourse analysis was to gain an understanding of the dimensions of the conflict. I did not want elucidate dichotomous disagreement; I aimed to find the complexity of the dialog by exploring the range of discourses underlying the debate.

I will present the summaries in chronological order to demonstrate the change in discourse over a period of time. The summaries are followed by my analysis of the underlying dimensions of biodiversity conservation in protected areas.

Summary of Texts

1. World Commission on Environment and Development (1987).

Our common future.

Oxford: Oxford University Press.

The World Commission on Environment and Development was an independent body established by the General Assembly of the United Nations in 1983. The commission was chaired by the Prime Minister of Norway, Gro Brundtland – for this reason it is quite often referred to as the “Brundtland Report.” The commission had a broad scope to formulate a “global agenda for

change,” but it was to focus on sustainable development of natural resources and the issue of economic development of developing economies. After a process of collecting data and meeting with thousands of people around the world, the commission delivered the report to the United Nations in 1987.

The commission published their report in the face of some serious environmental disasters. In India, there was the Bhopal chemical leak, in Russia the Chernobyl nuclear reactor exploded, a drought affected most of Africa, and levels of poverty in Africa and Asia caused the deaths of millions of people. The commission stated that in 1980, 340 million people lived under conditions where they did not have adequate levels of daily nutrient intake (p. 20). During the time they were gathering data, 60 million people died from diarrhea as a result of poor quality drinking water. Images from space showed Earth as a fragile sphere floating in the darkness. The idea of a robust planet with unlimited resources that could sustain human life and needs was no longer a valid assumption. It was very clear that the current patterns of consumption, energy use, and resource extraction could not be sustained. It was also clear that the gap between affluent and poor was growing; this condition was not acceptable or sustainable. The report was based on an understanding that the human population reached a critical point – there was a sense of crisis and urgency. There was, however, a sense of optimism that “humanity has the ability to make development sustainable...” (p. 8). The report was based on the assumption that there would be a willingness to change.

Perhaps the key assumption of the report was that the environment and economic development were inseparable. “The environment does not exist as a sphere separate from human actions,

ambitions and needs...” (p. xi). This assumption leads to the concept of sustainable development. There are two components of this concept - needs and limitations. On the one hand there is the need to satisfy human aspirations and basic physiological needs, on the other hand there is the limitation of natural resources to meet those needs. Sustainable development addresses the balance between these two by meeting human needs without exceeding the natural and ecological limitations. The commission felt that it was possible to find a position of harmony between human beings and between humanity and nature (p. 65). However, they make it clear that the overriding priority is to meet the needs of the poor (p. 43). Achieving the goal of sustainable development would require a number of changes in policy and behavior, but at the basis of those changes is the requirement that “those who are more affluent adapt life styles within the planet’s ecological means...” (p. 9).

The report explores and makes policy suggestions in a number of broad areas, yet they make it clear that all these areas are interconnected. The areas addressed in the report are: population, food security, loss of species, energy, industry, human settlements. Two of these areas (human settlement and loss of species) have direct bearing on biodiversity conservation.

The report acknowledges the importance of natural resources to human economic welfare and the very real threat of species extinction. However, in protecting these resources the authors suggest that new approaches to conservation are needed. The “historical” approach to the establishment of national parks needs to be replaced by approaches that combine conservation and development. Governments should consider “parks for development” (p. 159). At the same

time the growth of human population is targeted as a reason for concern and a factor that will contribute to unsustainable extraction.

The report concludes with a call for action. It recommends to the United Nations General Assembly to “transform this report into a UN Programme for Action on Sustainable Development” with specific follow-up conferences to review progress and to set benchmarks. History tells us that this call was heeded and that that United Nations established a number of specific programs to promote sustainable development and that global summits on sustainable development were held in Rio de Janeiro in 1992 and Johannesburg in 2002.

2. IUCN/UNEP/WWF (1991).

Caring for the Earth: A strategy for sustainable living.
Gland, Switzerland: IUCN, UNEP & WWF

As the title suggests, this is a strategy document drafted by three organizations: IUCN (The World Conservation Union), UNEP (United Nations Environment Programme), & WWF (World Wide Fund for Nature). As a strategy document, it contains 132 specific strategic action objectives. The document is largely prescriptive, is based on information collected by the three organizations and it sets a common goal to achieve a sustainable global future. In 1980 these three organizations jointly published the “World Conservation Strategy” (IUCN/UNEP/WWF 1980). In that publication they concluded that conservation is not the opposite of development and they called for a “globally coordinated effort to increase human well-being and halt the destruction of Earth’s capacity to support life” (IUCN/UNEP/WWF 1980: 1). The 1980 document originated the term “sustainable development.” This document (the 1991 publication)

was designed to be a strategic action document building on the ideas of the 1980 document and the subsequent report by the World Commission on Environment and Development (1987). More specifically, this document was a preparation for the first United Nations World Summit on Sustainable Development to be held in Rio de Janeiro in 1992 and the preparation for input into what became known as “Agenda 21” – an agenda for environment and development in the 21st Century.

The argument and key assumptions of this document are based on the recognition that current human activities are unsustainable. Levels of human resource extraction and energy consumption would not be possible without depleting the natural rate of recovery and the carrying capacity. The document poses this situation as a serious risk for the welfare of future generations. The authors make the assumption that human should achieve a satisfactory quality of life for themselves and for future generations, but they state that this will not be possible without changes to existing ways of life. It is possible to overcome the risks of environmental degradation, but it would require accepting the principles of sustainability and following the strategic action proposed in this document.

The document makes a distinction between “sustainable development” (which it supports) and “sustainable growth” (which it believes to be a contradiction in terms). It refers to the World Commission on Environment and Development document of 1987, but observed that that definition was criticized for being too wide. However, this document accepts the same basic goal of harmony between all people and with nature without the predisposition to economic growth (IUCN/UNEP/WWF 1991: 9). Sustainable development is defined as “improving the quality of

human life while living within the carrying capacity of supporting ecosystems”

(IUCN/UNEP/WWF 1991: 10). Sustainable development gives rise to sustainable economies and if people live according to the nine principles of sustainability, it gives rise to sustainable societies.

The nine principles of sustainability that give rise to 122 specific action statements elucidated in the document are:

1. Respect and care for the community of life
2. Improve the quality of human life
3. Conserve the Earth’s vitality and diversity
4. Minimize the depletion of non-renewable resources
5. Keep within the Earth’s carrying capacity
6. Change personal attitudes and practices
7. Enable communities to care for their own environments
8. Provide a national framework for integrating development and conservation
9. Create a global alliance

The document is based on an assumption that there is an accepted world ethic to live in a sustainable way, but it also acknowledges that utopian ideals need to face pragmatic realities.

There are some inherent conflicts and this report acknowledges some of those. The need to protect human welfare and survival often comes in direct conflict with the protection of non-human species. One example is the eradication of species that cause harm to humans – like certain pathogens. Another, even more complex, conflict is that between species protection and human subsistence. An example of this conflict is the impact that protecting elephant populations may have on the crops of subsistence farmers. What should get priority – feeding children or saving elephants? The report does not seek to resolve these dichotomous conflicts, but states that ethical principles need to be developed to resolve such dilemmas (IUCN/UNEP/WWF 1991: 15).

The report addresses biodiversity conservation and calls for a comprehensive system of protected areas (IUCN/UNEP/WWF, 1991: 36), improving conservation of wild plant and animals (IUCN/UNEP/WWF, 1991: 38), improving knowledge and understanding of species and ecosystems (IUCN/UNEP/WWF, 1991: 39), and conserving species and genetic resources by means of both *in situ* and *ex situ* ways (IUCN/UNEP/WWF, 1991: 40). In what may be considered a contradiction by some, the report deals with the sustainable use of biological resources. Two specific aspects, harvesting wild resources sustainably (IUCN/UNEP/WWF, 1991: 41) and supporting the management of wild resources by local communities (IUCN/UNEP/WWF, 1991: 42) have been the source of contention and debate.

3. Wells, M., & Brandon, K. (1992).

People and Parks: Linking Protected Area Management with Local Communities.
Washington DC: The World Bank, The World Wildlife Fund, U.S. Agency for
International Development

The point of departure for this study is the protection of biodiversity. The authors acknowledge that protected areas are crucial to protect biodiversity, but argue that many are at risk because they pose an undue hardship on local communities. Traditional approaches to protected areas have been unsympathetic to the needs of local people; new approaches must be developed. Integrated Conservation- Development Projects (ICDP) were created to address both the conservation objectives of protected areas, and the needs of local people.

Wells and Brandon (1992) refer to two policy events that influenced their study: the publication of “World Conservation Strategy” (IUCN/UNEP/WWF 1980), and the 1982 World Congress of

National Parks in Bali. They also point to several successful projects by the World Bank and the U.S. Aid for International Development (USAID) (both of these institutions were sponsors of this particular study). The impetus of the study, and the consequent development of a different approach, is twofold. On the one hand, there is a concern for the conservation of biodiversity (especially in developing countries). On the other hand there is the need to bring economic development, to communities that live in proximity to protected areas.

The authors selected examples of projects that combined protected areas with some component of social or economic development. Nineteen cases were selected in Asia, Africa and Latin America. All the projects were in countries that could be described as “developing economies.” Seven of the 19 projects received funding from one of the three sponsoring institutions (World Bank, USAID, or WWF). The authors gathered information by means of site visits, project proposals and written reports.

Despite a range of different sizes and types of protected areas, the main conclusion was that biodiversity in all the projects was threatened by human activity. Without an analysis of the underlying causes of the threats, the authors identified aspects like poaching, livestock, fuel wood collection, agriculture, logging, and road construction as threats to biodiversity. Hence, the authors find support for alternative approaches that would engage local communities in the conservation effort. And this approach is an Integrated Conservation-Development Project (ICDP).

ICDPs cover three areas: Protected area management, buffer zones around protected areas, and local social and economic development. However, local social and economic development issues are considered the central area of concern in the report. The objective of ICDPs is to be both economically and biologically sustainable and to conserve the ecosystem of the protected area. Some of the specific suggestions to improve local development include community social services, nature tourism, road construction, and direct employment.

The report claims that “while the overall goal in integrated conservation-development projects (ICDPs) is to conserve biological diversity, specific project activities are focused on people and on changing human behavior” (Wells & Brandon 1992: 42). Hence, the conclusions about all projects in this study include some form of local participation as a way to empower communities. The authors list five ways in which local people can participate in ICDPs: Information gathering, consultation, decision making, initiating action, and evaluation. However, they also acknowledge the inherent conflict of interest in the objectives of ICDPs and communities. “Overlooked by most of the projects is the fact that ICDPs by definition limit participation. For an ICDP to achieve its basic objective – biodiversity conservation – people can only be empowered in aspects of development, including local resource management, that do not lead to overexploitation or degradation of the protected wildlife and wildlands.” (Wells and Brandon, 1992: 47).

The authors find that ICDPs can play only a “modest role in mitigating the powerful forces causing environmental degradation” (Wells and Brandon, 1992: 60). They conclude that “innovative, well-designed ICDPs at carefully selected sites that constructively address local

people-park relationships are essential to the conservation of biodiversity and thus to sustainable development” (Wells and Brandon, 1992: 61).

4. Adams, J.S., & McShane, T.O. (1992, 1996).

The Myth of Wild Africa: Conservation without illusion.
Berkeley: University of California Press.

The two authors of this book base their argument on their personal experiences in conservation, mostly in Africa. McShane worked as African project officer for the World Wide Fund for Nature. He gained insight into conservation in Africa by means of discussions with people, visits to protected areas and experience with policy initiatives. Together with Adams (a writer) they gathered archival information and literature to supplement the anecdotal experiences. The book was published in 1992, and released in paperback in 1996 with an added afterword. I used the 1996 paperback issue.

The authors draw upon anecdotal experiences in parks in a wide range of African countries – Gabon, Mali, Kenya, Tanzania, Malawi, Zambia, South Africa, and Botswana among others. In addition to relating their own experiences, the authors quote the voices and opinions of some African conservationists, academics, and villagers. They draw on books and scientific literature and they also draw on their interaction with the faculty and students at the College for African Wildlife Management in Tanzania.

The key thesis of the book is that the prevailing approach to conservation in Africa is a European imperial artifact. The “myth” of a wild Africa full of animals, savannahs, and natural beauty

excludes local people. European expansion in the 17th century was not as successful in occupying Africa as other continents and regions (Crosby 1986), giving rise to the notion of Africa as a dark and mysterious continent. Images of Africa were brought to Europe by explorers like Mungo Park, Livingstone and Stanley who “discovered” lakes, rivers and people in Africa. Furthermore, Africa was seen as place where an abundant natural diversity could be exploited. The authors recount the “scientific” expedition of U.S. President Teddy Roosevelt that killed and shipped “five thousand mammals, four thousand birds, five hundred fish, and two thousand reptiles” to the Smithsonian (Adams and McShane, 1996: 29).

The authors expose the misguided attempts at biodiversity conservation by a number of non-African conservationists that may be regarded as “saints” and “heroes” elsewhere. These attempts, though sincere about conservation, are critiqued because they fail to fully engage Africans in the process of conservation and because they import Western approaches without a thorough understanding of contextual complexities. Richard Leakey is singled out for his insistence on fences around Serengeti and for his misguided banning, in the authors’ opinion, of all African ivory sales. Dianne Fossey is similarly critiqued for her single species myopia, and Mark and Delia Owens for their failure to include any local Africans in their scientific work.

As an example of the approach that they oppose in their book, they quote Bernard Grzimek (President of the Frankfurt Zoological Association and active in conservation policy in Africa in the 1960s and 1970s):

“A National Park must remain a primordial wilderness to be effective. No men, not even native ones, should live inside its borders” Adams and McShane, 1996: xvi).

Adams and McShane are concerned that conservation efforts in Africa are based on a “mythical” image of nature and a top-down approach based on Western methodology and ideology instead of an African-based approach to conservation. They favor an approach to conservation that includes people in the process and they do not see an inevitable conflict between people and wildlife. Citing examples of communities in Zambia, Zimbabwe, Tanzania and Botswana where rural communities have lived successfully adjacent to protected areas in the absence of fences as models of success, they state their preference for a “style of conservation based not on an ideal vision of an Africa that never was, but rather on fitting wildlife management into the practical realities of life in an African village” (p. 161). Clearly, they do not see conservation and development as incompatible, but instead “as two parts of the same process” (p. xix)

A second, and associated, point the authors make is that African solutions to conservation must be designed by Africans. They dispel the myth that Africans and wildlife do not belong together and they claim that there is ample evidence that Africans have the capacity and the desire to protect biodiversity at the local community level as well national policy level. The answer is for conservationists (especially Western scientists and NGOs) to trust and allow Africans to do the job.

The authors do not engage much with the other texts I have selected in this analysis. They mention the Brundtland report (World Commission on Environment and Development 1987) and support the idea of combining development and conservation, but regard the lack of clear guidelines in the report as “blurred ideas on general directions” (Adams and McShane, 1996:

104). The authors also mention Integrated Conservation-Development Projects (ICDPs) as innovative and experimental, but “far from perfect” (Adams and McShane, 1996: 107).

The afterword that accompanies the 1996 paperback edition illustrates just how rapid political changes can happen. In the time between the two publications from 1992 to 1996, Africa experienced the independence of South Africa, violence in Rwanda and Burundi, and political upheaval in Zaire (which became the Democratic Republic of the Congo). In the afterword, the authors reiterate their support of conservation based on solid science, community involvement, and African solutions. They do not have any illusions that “once human beings begin exploiting a particular part of any ecosystem that ecosystem quickly loses some portion of its previous stock of biodiversity” (Adams and McShane, 1996: 260). They also urge conservationists to accept the reality that protected areas will be surrounded by human settlement. However, they are hopeful that solutions can and will be found provided they are not based on mythical unrealistic expectations and that Africans are allowed to work on appropriate approaches.

5. Brandon, K., Redford, K.H., & Sanderson, S.E. (1998).
Parks in Peril: People, Politics, and Protected Areas.
Washington, DC: The Nature Conservancy and Island Press.

The motivation for this book is an acknowledgement that biological diversity is important, but that there is no agreement about what the term means or how to achieve preservation of biodiversity. This book is posed as a counter to a trend that, according to the authors, focuses more attention to aspects outside protected areas than on the integrity of biodiversity inside protected areas. More specifically, the book claims to challenge some of the “catchy phrases”

and slogans like “community-based conservation,” “sustainable development,” and “conservation for development.” The authors also make it quite clear that they question the assumption of sustainable development as articulated by the World Commission on Environment and Development (1987) study and subsequent 1992 World Parks Congress in Caracas. “The trend to promote sustainable use of resources as a means to protect these resources, while politically expedient and intellectually appealing, is not well grounded in biological and ecological knowledge” (Brandon et al., 1998: 6).

The stated premise of the book is that: “protected areas are extremely important for the protection of biodiversity, yet requiring them to carry the entire burden for biodiversity conservation is a recipe for ecological and social failure” (Brandon et al., 1998: 2). The authors use a case study approach exploring nine protected areas in Central and South America. All of these parks were part of the “Parks in Peril” program launched by the Nature Conservancy in 1990. The U.S. Agency for International Development was a key partner in the program as part of the agency’s mission to promote biodiversity conservation in developing countries. (Brandon et al., 1998: 3). Case study collaborators, external to the Nature Conservancy, visited the parks in 1995 and recorded their findings. This book uses these published findings to draw conclusions about the success of protected areas in protecting biodiversity.

A recurring theme in the book is the metaphor of parks as islands surrounded by a threat. And the threat is the social context within which the park exists. “Virtually all threats to biodiversity result from human actions” (Brandon et al., 1998: 415). The island metaphor extends to objective physical boundaries as well as subjective socially constructed boundaries between the park and

the outside (Brandon et al., 1998: 438). Inside the park there is a higher level of biodiversity, things are in order and natural. Inside the park are people quietly dedicated to biodiversity protection “frequently mute in the published literature, intimately involved in trying to achieve on-the-ground park protection, and little aware of the debate swirling around it” (Brandon et al., 1998: 455). Outside the park is a social context. There are problems like poverty, conflict and there are lower levels of biodiversity. The “outside” is more vocal and better represented in the published literature by writers with limited connection to what happens inside parks and “more contentious in their tone” (Brandon et al., 1998: 455). In the metaphor, it is the forces outside the islands of protection that threaten the existence of biodiversity and natural order of things inside the parks.

The authors express their concern that there is the added expectation that parks should bear the responsibility to address some of the social problem outside their boundaries. It is impossible for parks to bear this burden. “Parks are established to *protect nature*, not to cure social and structural problems like poverty, economic injustices or market failures” (Brandon et al., 1998: 457) (my italics added). In fact, the book concludes that biodiversity is a social good. The authors argue that, as a society we should find ways to protect and secure the biodiversity that exists inside parks. The authors do not deny the need for economic development and the existence of social problems, but they are concerned that undue pressure is being placed on parks to address social problems in addition to the already onerous task of protecting biodiversity.

6. Oates, J.F. (1999)

Myth and Reality in the Rain Forest: How conservation strategies are failing in West Africa.
Berkeley: University of California Press.

John Oates writes from the perspective of a researcher (primarily of primates) with decades of experience in West Africa. In the first sentence of his book he mentions the book *The Myth of Wild Africa* (Adams & McShane 1996) and it is quite clear that his book is designed to take issue with the views expressed by Adams and McShane and also with the policy of sustainable development supported by the WWF and IUCN. He states his opinion that these policies are “myth-based.”

Oates uses his personal anecdotal experiences to support his views. As a researcher, he has had the opportunity to visit protected areas in several West African counties (Cameroon, Nigeria, Uganda, Sierra Leone, and Ghana). He also uses his experience in the protected forests of Tamil Nadu state in southern India as a comparison. As a researcher, his focus is clearly on the protection of habitat and species inside protected areas and his conclusion is that there is a crisis and that actions need to be taken urgently.

His main argument has two sides to it. First, he argues that there are serious flaws in the theory that wildlife can be conserved through promoting human economic development. A second, and related, point is that community involvement in conservation has questionable results. He is clearly in favor of protected areas that exclude human presence and activity and he believes that central governmental efforts in conservation are more successful than community involvement.

Underlying these positions is his stated bias in favor of the intrinsic value of nature and his view that human ‘materialistic philosophy’ is a threat to conservation (Oates, 1999: 254).

Oates devotes an entire chapter to sustainable development and he clearly opposes the policy initiatives articulated in the Brundtland report (World Commission on Environment and Development 1987) and IUCN document (IUCN/UNEP/WWF 1991). He sees these documents and the policies they support as a progression away from “a position that nature should be protected for its own intrinsic value, toward the position that conservation should be integrated with efforts to satisfy basic human needs” (Oates, 1999: 46). The rationale for this shift in policy, in his view, was motivated by financial expediency and political compromises (Oates, 1999: 57). The consequence of these policies will be a loss of wild habitat and species. His conclusion is that “some of the policies being pursued by large international conservation organizations hinder rather than advance protection of threatened nature” (Oates, 1999: 253).

Interestingly, Oates does not use the *Park in Peril* results (Brandon et al. 1998) as support for his argument. He does make reference to ICDPs by citing a prior publication by Brandon and Wells (Brandon & Wells 1992). His interpretation of the work by Brandon and Wells (1992) is that “local people, once fully empowered, might well decide to use resources in an unsustainable way...” (Oates, 1999: 57).

Though the title of the book indicates a geographical focus on West Africa, Oates relates his experience in India and uses it to make some comparisons. Conservation in India has worked because it involves “conventional” protected areas. The Indian Government took a more

proactive role in prohibiting hunting and logging and in introducing strong enforcement – these were lacking in his African experience. He attributes these differences to the presence of a participatory democracy and the absence of foreign development aid in the case of India. “The low level of development aid has inevitably meant that rather little money has been available for foreign-sponsored conservation and development projects, and this seems to have benefited rather than harmed wildlife conservation” (Oates, 1999: 244).

Oates delivers a personal and impassioned message. The forests of West Africa are in crisis, but the policy initiatives of conservation organizations (IUCN, WWF) are supporting humanistic materialism at the expense of the intrinsic value of nature. He does not see the possibility of conservation and economic development coexisting and he proposes the establishment of “conventional” protected areas and relocating threatened species to these areas to save them from extinction.

7. Terborgh, J. (1999)

Requiem for Nature.

Washington, DC: Island Press.

Terborgh is a well-known figure in the tropical ecology and conservation biology disciplines with decades of field work experience as well as experience as a board member of conservation organizations. The back cover of the paperback edition comes with recommendations from Jared Diamond (Pulitzer Prize winner), E.O. Wilson (the “father” of biodiversity), and Kathryn Fuller (President of WWF). It is interesting to note that the cover design of the book is a painting by Henri Rousseau. Adams and McShane (1996) also use a Rousseau painting as the cover of their

book to illustrate the notion of an unrealistic “dream.” Terborgh makes no mention of the book by Adams and McShane.

Terborgh uses his experiences as a field biologist and his long involvement in conservation as support for his observations and opinions. His association with the research station in the Manu National Park in Peru since 1973 forms the bulk of his practical experience he uses in this book.

Clearly, Terborgh wants to communicate a message of a crisis. The title of the book *Requiem for Nature*, suggests that it may even be too late to save tropical forests and we need to say goodbye. In several places he repeats the message of a crisis and a dire situation. Unless there is a change in current practices, the last tree of a primary forest may fall before 2045 (Terborgh, 1999: 121). Parks are the “last bastion” of nature, but they are threatened and under siege. In the face of this crisis, conservation organizations lack the necessary vision and direction. They are like “rudderless ships lacking both visions and knowledge” (Terborgh, 1999: 7). With an increasing focus on public relations and fund raising, these organizations have become “prisoners of the bottom line” (Terborgh, 1999: 9).

Terborgh strongly believes in the importance of the intrinsic value of nature. The fundamental reasons for protecting biodiversity must be “spiritual, and aesthetic, motivated by feelings that well up from our deepest beings” (Terborgh, 1999: 19). However, he feels that these motivations are not shared by people and governments in developing countries. These countries do not have a “vision that includes wildlands” (Terborgh, 1999: 153). Instead, wildlands are a mark of embarrassment, a sign of economic underdevelopment (Terborgh, 1999: 153). By contrast, the

United States is used as an example of success. He uses the example of national parks in the United States as places where nature is preserved because no human settlement is allowed in those areas. “The wonderful thing about the U.S. land tenure system... is that it has conserved most of the country’s biodiversity” (Terborgh, 1999: 158).

An entire chapter is devoted to a discussion of sustainable development and the failure of ICDPs. Terborgh does not fully reject the notion of sustainable development, but he claims that the aim is unattainable. The realities of population growth, global economy, and the motivation to maximize economic growth are obstacles to sustainable development. Initiatives like pharmaceutical value of biodiversity, ecotourism, or non-timber forest products all fail because “economic pressures will always be in the direction of intensifying use” (Terborgh, 1999: 139). Terborgh argues that sustainable use will diminish biodiversity.

Terborgh (1995:65) argues that the basic concept of ICDPs is flawed and represents little more than “wishful thinking.” The projects are not long term and they focus on local people instead of parks and natural resources. Instead of lessening the pressure on parks, ICDPs draw more people closer to protected areas with a resulting increase in pressure on natural resources. One of the crucial problems with ICDPs is the issue of land tenure rights. These projects ignore the reality that the same system of land tenure does not apply in developing countries where land is very often occupied illegally or informally with very little enforcement. Here again, he uses the settlement of United States as a contrasting example of success. “Following cultural practices inherited from their English forebears, government agents sent surveyors into the wilderness to

measure and map the land prior to settlement.” This degree of organization and forethought does not apply to many tropical countries (Terborgh, 1999: 167).

An associated issue to land rights is the rights of indigenous people. Based on his experience in Manu National Park, Terborgh supports the rights of indigenous people, but finds their presence inside protected areas a dilemma. Citing the example of national parks in the United States, he has a strong preference for parks as places “reserved for nature, a place where humans are permitted as visitors but not as permanent residents” (Terborgh, 1999: 51). His solution in the case of the indigenous groups inside the Manu National Park is a voluntary relocation program.

Despite his observations that biodiversity is under threat, he is optimistic that “objectivity and popular opinion” will eventually prevail in the United States to bring conservation and development into balance. He is, however, not so confident about prospects in the developing economies. In contrast to developed economies (he uses the United States and Northern Europe as examples), developing countries in the tropics suffer from several institutional impediments to conservation. These include power imbalance, lack of social welfare and education, ethnic tensions, lack of law enforcement, and a culture of corruption.

Terborgh provides a clear vision of the ideal world. It would be a place where biodiversity is preserved, where top predators are protected and a place where “much of the landscape would remain wild” (Terborgh, 1999: 188). He does not believe that bottom-up approaches to conservation can be successful. “The creation of parks is a quintessentially top-down function” (Terborgh, 1999: 207). He concludes with some specific suggestions. One of these is to create

new funding mechanisms and to reform and reinvigorate some of the existing funding agencies like GEF (Global Environmental Facility) and USAID. Without funding, proper enforcement would not be possible and without enforcement protected areas can not exist. He strongly believes in the internationalization of nature protection. This includes international armed enforcement authority. A second suggestion is to buy and protect more land. Terborgh is in favor of the full internationalization of nature under the auspices of a global body (like the United Nations) with the equivalent of a Peace Corps and with a global monitoring organization. The “ultimate goal must be to protect nature from the forces that threaten to destroy it” (Terborgh, 1999: 203).

8. Chapin, M. (2004)

A challenge to conservationists: Can we protect natural habitats without abusing the people, who live in them?

WorldWatch, 17(6), 17-31.

This last document in my summary is a departure from the preceding works because it is not a book or a full report, but an opinion piece published in the World Watch Institute publication. I include this contribution because it is recent, because it has certainly evoked some reaction, and because it represents a view on conservation not covered by any of the other works. The article is written by Mac Chapin, Director of the “Center for Native Lands” and an anthropologist by training. In his article Chapin directly confronts conservation NGOs and their policies and practices. Chapin singles out three conservation organizations in particular, but his criticism goes far deeper than the actions of those three organizations.

The article starts with a review of the origins and history of three conservation organizations – CI (Conservation International), TNC (The Nature Conservancy), and WWF (World Wildlife Fund). He does include the IUCN (International Union for the Conservation of Nature) in his criticism by claiming it to be a close partner of WWF. The main argument is that the large conservation organizations have become so focused on raising money and protecting biodiversity in a top-down manner, that they have neglected the rights of indigenous peoples. Chapin approaches these issues from the perspective of indigenous peoples.

Chapin couches his argument as a series of dichotomous conflicts with opposite sides: on the one side are conservationists with a need to establish protected areas that are off-limits to people, and on the other are indigenous peoples with a need to protect their lands and make a living. Conservationists base their decisions on biological science as the sole guiding principle for protected areas; indigenous peoples emphasize their history, traditions and cultural identity. Conservationists have access to large amounts of money, indigenous people have very little. These dichotomous approaches lead to a debate between “those who do not see human inhabitants as part of the ecological equation, and those who argue for partnerships and the inclusion of indigenous peoples...” (Chapin 2004: 26).

Chapin believes fundraising is at the center of this debate. According to Chapin there has been a sharp decline in money available for conservation since 1990. Conservation NGOs have responded by expanding the scope of their fundraising and casting a wider net that included large corporations and national governments. Instead of small, local projects (that had limited potential to attract large sums of money), conservation NGOs pitched large scale ambitious projects.

Chapin points to the fact that these projects are labeled with names like “Global 200” (Olson & Dinerstein 1998) “hotspots” (Mittermeier et al. 1998) or “ecoregions.” They use sophisticated GIS (Geographic Information Systems) mapping technology and scientific evidence to impress potential donors. These fundraising strategies have been successful, but, Chapin argues, they have some negative consequences.

Chapin’s concern with the fundraising success of large NGOs is that the donors are often companies with a poor record on the environment or large funding institutions (like the USAID) with a record of imposing ideological changes on developing nations. Since the conservation NGOs have grown accustomed to large donations, they have become dependent on these donors. Corporations involved in mining, logging and other activities that are destructive to biodiversity and that ignore the rights of indigenous peoples as well as governments that support these activities, are now in a position to guide the implementation of conservation projects in ways that will suit their objectives. Chapin accuses the large international NGOs of “allying themselves with forces that are destroying the world’s remaining ecosystems while ignoring or even opposing those forces that are attempting to save them from destruction” (Chapin 2004: 26).

The paper restates the position that “conservation can not be effective unless the residents of the area to be conserved are thoroughly involved” (Chapin 2004: 26). Chapin calls for greater transparency and for a series of independent non-partisan bodies to investigate the funding and practices of large NGOs. However, Chapin departs from the seven other works in this analysis with his critical stance on the power differential between conservation organizations and because

he approaches the consequences of biodiversity conservation effort from the viewpoint of indigenous peoples.

Analysis and Findings

I analyzed the inherent discourses represented by these eight texts in several different ways. Firstly, I identified the obvious inherent tensions that existed in the dialog. However, this approach is limited because it has the potential of suggesting that the differences about biodiversity conservation in protected areas could be easily described by means of a few dichotomous opposites. I wanted to demonstrate that there were deeper underlying paradigmatic assumptions inherent in the dialog. For this reason, I used the analytical framework for environmental discourses developed by Dryzek ((1997) to illustrate some of the underlying assumptions. Finally, I sought to identify some specific dimensions of the debate that could be used for further analysis. Since the debate about biodiversity conservation in protected areas have similarities with the global climate change debate, I used the dimensions developed by Dayton (1999) in his research on the underlying reasons for differences about global climate change.

Inherent Tensions in the Texts

There are several tensions inherent in the works cited above. Rather than dichotomous conflict that assumes one position at the exclusion of another, I argue that most of the authors are dealing with a series of equilibrium-seeking tensions. Some of these tensions are evident in ideological differences between different authors, but very often these tensions are the result of incompatible objectives. This issue is so complex, not because of strong and intransigent positions, but

because each author or work struggles with a series of tensions. Like a rubber band, if you pull too far in one direction, the opposite forces increase in their intensity and pull you back again. Yet, there is no position of static equilibrium either.

One of the tensions, evident from the literature about the topic, is related to the focus of biodiversity conservation. Should the focus be on the preservation of non-human species or should it be on human economic welfare? Obviously, neither of these extremes is feasible or called for, but they produce a tension in the debate. An anthropocentric focus on human economic development may lead to an increased exploitation of natural resources and habitat destruction. At the same time, excluding people from large tracts of land for the exclusive benefit of biodiversity conservation is likely to result in anger, hostility and opposition to protected areas.

Another tension is related to the scope of biodiversity protection. A global species perspective is concerned with species extinction and habitat destruction at a global level. The extreme position from this perspective, would be to introduce a global task force that would identify areas where biodiversity is threatened and take action to protect species. This approach excludes local people from the process of seeking solutions and runs the risk of imposing broad solutions without taking unique local conditions into account. On the other hand, a narrow local perspective of biodiversity may not recognize that locally abundant species may be globally at risk.

A third tension is related to the implementation of biodiversity conservation. Large undisturbed areas of habitat are required to ensure the most effective protection of biodiversity. Yet, it is

expensive to acquire and maintain large protected areas. One approach is to develop projects at a large scale, raise enough money to implement them, get support of national governments, and implement these projects from the top-down. In the process, small local communities without access to funding or political voice are often ignored. Projects that involve a large number of constituencies and that are implemented from the bottom-up may produce greater legitimacy, but they are not always practically feasible and the process of democracy takes a long time.

These are the obvious tensions that became evident when I explored the eight works, but I found that was far too superficial and it tended to typecast the dispute without exploring deeper assumptions. The danger of this characterization is that it may lead to the conclusion of solutions that are either “right” or “wrong.” The reality of biodiversity conservation in protected areas is that it is not a choice between right and wrong, it is choice between right and right (Brechin et al. 2003). This raises the question: if it is a choice between “right” and “right” why is there so much disagreement inherent in the exchanges between the authors I have selected? The answer to this question is found in the underlying assumptions, judgments and contentions of different discourses. These discourses or “shared ways of apprehending the world” (Dryzek, 1997) are an indication of the environmental belief structures that shape the way an individual or group of individuals make sense of phenomena. In the next section, I will explore the environmental beliefs inherent in the works I analyzed. I will combine assumptions about the focus of biodiversity conservation with economic assumptions to explain at least four different sets of environmental beliefs underlying biodiversity conservation in protected areas.

Environmental Beliefs

At a broad level one can place the eight works in one of two perspectives, either anthropocentric (human-centered) or eco-centric (Callicott et al. 1999; Eckersley 1992). I am aware that even these labels may be troublesome because they are not monolithic and represent multiple shades of meaning. I use these labels to indicate a focus and not an exclusive preference. A human-centered focus, for example, would not deny the need to conserve biodiversity, but the efforts and investment would be concentrated on improving human welfare. In the same way, the actions of an “eco-centric” focus would be motivated by a concern for non-human biodiversity, but not to the absolute exclusion of people.

Four of the works (Adams & McShane 1996; Chapin 2004; IUCN/UNEP/WWF 1991; World Commission on Environment and Development 1987) could be described as “anthropocentric.” At the center of their focus is human welfare. Biodiversity is important, but conservation has to enhance the human condition by, for example, alleviating poverty, protecting cultural integrity, or involving people in decisions that may affect their destiny. The other four works (Brandon et al. 1998; Oates 1999; Terborgh 1999; Wells & Brandon 1992) could be described as “eco-centric.” The focus of these works is the protection of biodiversity by maintaining a system whereby tracts of land are set aside and protected from human influence. These works do not deny the importance of human welfare and the need to pay attention to aspects like poverty alleviation, but they argue that the burden should not fall on the shoulders of biodiversity conservation projects. These broad categories of environmental belief could be broken down further to improve our understanding of the reasons for differences.

Since power and perceptions of legitimacy surface in many of the discourses, it is worth exploring the underlying beliefs in more detail. One of the recurring themes in the eight works seems to be a disagreement about the way biodiversity conservation projects are implemented. As described above, there is a difference between some authors who believe that conservation should be implemented by global and national actors in a top-down manner, and those who believe that conservation should be part of a local democratic process. Behind these positions are some assumptions about the world or some underlying discourses (Dryzek 1997). Dryzek (1997) explores in great depth the range of environmental discourses based on the degree of departure from “industrialism.” I will use one of Dryzek’s classifications in combination with the anthropocentric/eco-centric divide to demonstrate how the discourses differ. At the outset, I need to make it clear that a great deal more needs to be done to fully explore underlying assumptions in biodiversity conservation, and I do that by means of a Q-method analysis in Chapter Three.

“Industrialism may be characterized in terms of its overarching commitment to growth in the quantity of good and services produced and to the material well-being which that growth brings” (Dryzek 1997: 12). A departure from industrialism, according to Dryzek (1997) could be along two different dimensions. A *reformist/radical* divide and a *prosaic/imaginative* divide. I will use Dryzek’s *reformist/radical* dimension, but not the *prosaic/imaginative* dimension. The reason is not because I dismiss that dimension, but an analysis of the eight works did not reveal strong arguments for a “wholesale transformation” of the political-economic dispensation. Most of the arguments advocate changes that are possible within existing political and economic realities. (i.e., what he calls the *reformist* realm)

A *reformist* departure in biodiversity conservation would accept the underlying ideological premises of growth-based industrialism, but would advocate a policy position that would ensure a degree of protection for the environment. A *radical* departure from industrialism in biodiversity conservation would challenge the benefits of material accumulation. A combination of *reformist/radical* dimension and the *anthropocentric/eco-centric* dimension, yields a matrix with four cells. (Table 2.1). The environmental beliefs underlying the eight works that I analyzed fall into all four different quadrants.

Table 2.1. Biodiversity Conservation Discourses along two dimensions: Departure from Industrialism, and Focus of Concern

		Departure from Industrialism	
		Reformist	Radical
Focus of Concern	Eco-Centric	<p><i>Reformist/Eco-Centric</i></p> <p>(Wells & Brandon 1992)</p> <p>(Brandon et al. 1998)</p>	<p><i>Radical/Eco-Centric</i></p> <p>(Oates 1999)</p> <p>(Terborgh 1999)</p>
	Anthropocentric	<p><i>Reformist/ Anthropocentric</i></p> <p>(World Commission on Environment and Development 1987)</p> <p>(IUCN/UNEP/WWF 1991)</p>	<p><i>Radical/ Anthropocentric</i></p> <p>(Adams & McShane 1996)</p> <p>(Chapin 2004)</p>

(Adapted from Dryzek, 1997: 14)

Reformist/Eco-Centric

A reformist/eco-centric view would accept the basic premise of industrialism and look for ways to achieve biodiversity conservation within that framework. Perhaps the best illustration of this attempt is the ICDP (Integrated Conservation Development Projects) approach advocated by Well and Brandon (1992). The focus of their interest is clearly to protect biodiversity, but they

see the value of providing alternatives for local communities in the process of conservation. The assumption is that social and economic benefits for people living outside parks will lead to reduced threats to biodiversity inside park boundaries (Wells & Brandon 1992: 31). This perspective is reformist because it supports sustainable economic development, but it is eco-centric because the focal point remains conservation of biodiversity (Wells & Brandon 1992: 61).

A slight departure from the reformist view is reflected in the work of Brandon et al. (1998). The focal point remains protected areas as vehicles to conserve biodiversity, but the authors question whether parks are required to bear the burden of social conditions outside parks. Though they do not reject political or economic frameworks the authors raises some limitations of sustainable development and questions the success of ICDPs. They do acknowledge that local political realities play a role in conservation and they caution that conservation efforts that do not take social and political factors into account are bound to fail. It would be fair to say that Brandon et al. (1998) take a stronger context-based perspective than the earlier work by Wells and Brandon (1992).

Both of these works represent a set of beliefs about biodiversity conservation that is more or less based on maintaining the status quo: protect the biological integrity of parks, and acknowledge political and social arrangements outside parks. They do, however, acknowledge the high level of complexity in such an arrangement.

Radical/Eco-Centric.

A *radical/eco-centric* view would focus on biodiversity, but would present a stronger challenge to the political and economic arrangement. Two works, Oates (1999) and Terborgh (1999) both share this perspective. Biodiversity is portrayed as being under threat and the causes are human activities. Neither Oates (1999) nor Terborgh (1999) support sustainable development. In fact, both are strongly opposed to the concept. Whereas the *reformist/eco-centric* perspective promotes conservation organizations and global funding mechanisms (like GEF – Global Environmental Facility), this perspective questions the role of certain conservation organizations. In his book Oates (1999) is highly critical of the “corrupting effect of big money (Oates 1999: 231), and he dismisses the policies of conservation organizations like the IUCN and WWF that are aimed at sustainability. Perhaps the strongest evidence of the “radical” departure from industrialism is his rejection of a “human materialistic” philosophy. He sees the “promotion of human economic development” as the major threat to biodiversity (Oates 1999: 55).

Terborgh (1999: 9) is equally critical of certain conservation organizations and accuses them of becoming “prisoners of the bottom line, much as corporations are”. He rejects sustainability and he describes the threat to biodiversity as, “the beauty of nature is being replaced by the banal handiwork of humans” (Terborgh 1999: xii). Though authors like Oates (1999) and Terborgh (1999) are both placed in the *Radical* dimension on the basis of their rejection of materialism and free market capitalism, their underlying economic ideology is much different to that of other authors. Authors like Chapin (2004) or Igoe & Brockington (2008) may equally depart from the dominant economic dispensation (free market capitalism), but for very different ideological reasons.

These two books represent a view of biodiversity conservation that challenges the status quo of a global market economy. They would rather see international efforts concentrated on protecting biodiversity than on encouraging economic development around protected areas. Conservation and economic development are not compatible in this view – they are in opposition and can not both succeed in the same place. Underlying many of the threats to biodiversity is the human desire for growth and resource extraction. This perspective may be criticized by some as being misanthropic (Terborgh even poses that possibility in his book on p.188). I suggest that this perspective is also motivated by the real desperation faced by many dedicated conservationists when they see habitat destroyed and species going extinct.

Reformist/ Anthropocentric.

The policy positions supporting global sustainable development are examples of a *reformist/anthropocentric* perspective. It is anthropocentric because the primary focus is on poverty alleviation and economic development, but without unsustainable depletion of natural resources. This perspective is reformist because it does not question the dominant global political economic framework. In fact, a free market economy is seen as the mechanism for achieving sustainable development. Two works share this perspective - *Our Common Future* (World Commission on Environment and Development 1987) and *Caring for the Earth* (IUCN/UNEP/WWF 1991).

Our Common Future (World Commission on Environment and Development 1987) is concerned with poverty and uneven development and the basis of its recommendations is the assumption

that poverty, equality and environmental degradation are linked. The route to conservation would be by means of “a new era of economic growth” that would limit the need to use resources unsustainably (World Commission on Environment and Development 1987: xii). This report sees a role for bodies like the World Bank and the GEF (Global Environmental Facility funds administered by the United Nations Development Programme) in stimulating sustainable economic development. This is an important distinction because perspectives that take a more radical approach to the global economy (Hoogvelt 1997) would be more critical of the role of those global financing bodies by demonstrating how they lead to a form of economic dependence.

One would expect that a publication by three conservation organizations (IUCN/UNEP/WWF 1991) would be more eco-centric because their central mission is biodiversity conservation. I include this document in the *Reformist/ Anthropocentric* category because it has been criticized by some other authors (notably Oates and Terborgh) as a departure from the central mission of conservation. This document as well as the earlier strategy publication by the same three organizations (IUCN/UNEP/WWF 1980) takes a position that conservation and development are not opposites. *Caring for the Earth* (IUCN/UNEP/WWF 1991) probably strikes a better balance between an anthropocentric and an eco-centric view than does *Our Common Future* (World Commission on Environment and Development 1987), but the definition of sustainable development still suggests a focus on human wellbeing; “improving the quality of human life while living within the carrying capacity of supporting ecosystems” (IUCN/UNEP/WWF 1991: 10).

Though *Caring for the Earth* calls for a transformation in beliefs and actions, it is aimed at a personal and philosophical level; “We must learn to live differently” (IUCN/UNEP/WWF 1991: 4). The document does not challenge the framework of industrialism and it recommends development policies and priorities within the existing political and economic frameworks. Another way to look at it, given the comments by some of the other authors, is that these two works represent the dominant conservation establishment that other authors want to change (Chapin 2004; Oates 1999; Terborgh 1999).

Works by authors like Oates (1999) and Terborgh (1999) mention these two works publications (IUCN/UNEP/WWF 1991; World Commission on Environment and Development 1987) by name and reject the notion of sustainable development advocated by them. Chapin (2004) is highly critical of the role of conservation organizations and would advocate a more radical perspective that would replace the perspective held by the *reformist/anthropocentric* view.

Radical/ Anthropocentric.

Both the contributions by Chapin (2004) and Adams and McShane (1996) are more anthropocentric in their focus. Chapin’s focus is on indigenous peoples, their rights to land and resources and their cultural integrity. Chapin pictures indigenous peoples as marginalized and disadvantaged by the imbalance in power between them and large multinational corporations who fund conservation organizations. He advocates a radical change of the current framework of a global economy based on the mechanics of a free market. In such a system, indigenous peoples have very little power to protect their interests. Though he does not offer a clear alternative, he is distrustful of the ability of the “Big Three” conservation organizations to lead independent

research. Underlying this perspective is a distrust of power, centralization, and market-based solutions.

Adams and McShane are equally anthropocentric in their focus on African local communities. They are also critical of the large power hegemonies that resulted in the African colonial heritage of conservation. I do not think, however, that they would be as strongly opposed to the involvement of the specific conservation organizations and funding agencies as Chapin may be. The radical change they advocate lies in the political process more than in the economic framework. They suggest a change from a top-down colonial approach to an inclusive process of democracy that involves people at all levels in making conservation decisions that would ultimately affect their destiny. Their view is based on the assumption that people, when given the opportunity to make decisions, will recognize that protecting local natural resources will be in their own self-interest.

Looking at the environmental beliefs of the eight works through the lens of these four different perspectives illustrates the complexity of biodiversity conservation. The dialog and debates are driven by deeper, underlying environmental views. Instead of dichotomous “either or” positions, the discourses are formed by underlying assumptions of power, economic arrangement, priorities, and preferred outcomes. In order to develop a much fuller understanding of these views I used my analysis of the eight publications to identify some specific dimensions of the debate.

Dimensions of the Conflict

Biodiversity conservation is not the only environmental issue characterized by debate and disagreement. Another such issue is the intense debate over global climate change. In my discourse analysis of the eight publications, I searched for some underlying dimension of the conflict. By “dimensions” I mean the aspects that capture the range of the disagreement. Another way to explain “dimensions” is to ask the question: what are the bases of disagreement?

I used the example of global climate change because a study was done by Dayton (1999; 2000) to explore the dimension and tensions in that debate. Dayton used a policy frames approach (Schon & Rein 1994; Stone 2002) as a theoretical framework to understand the complexity in the debate about climate change. “Policy frames are dynamic and ever changing ‘scripts’ for analyzing and understanding the social and political world” (Dayton 1999: 16). I found that Dayton’s dimensions were very useful in making sense of the debate in biodiversity conservation as it manifested in the eight publications that I analyzed. These dimensions, adapted for this study, are:

- Policy prescriptions
- Notions of Biodiversity
- Blame, causes, and negative impact
- Actors, involvement and methods
- Fundamental beliefs
- Future challenges and success

Identifying the dimensions of a debate and disagreement are useful as an analytical tool in most circumstances. When faced with a policy decision where multiple stakeholders have a range of opinions, these dimensions are useful to describe the landscape of disagreement. Who are the actors or stakeholders, what are their preferred policy prescriptions, how do they define the

problem, and what are their underlying values and beliefs? These are important questions to address and I will return to these questions in Chapter Four when I apply a policy sciences framework (Lasswell, 1971) to the debate about biodiversity conservation.

Policy prescriptions

To a very large extent the arguments reflected in this discourse analysis were of a policy nature. The authors were using their experiences and persuasion to convey an image of how biodiversity conservation in protected areas ought to be. The audience, in most cases, are not those individuals living in communities in or near protected areas. The intended audience of these publications are those individuals and groups that have the power to make decisions and to implement policies. Publications like *Our Common Future* and *Caring for the Earth* are, by design, aimed at global policies rather than local solutions. Both of these documents were specifically aimed at “those who shape policy and make decisions that affect the course of development and the conditions of our environment” (IUCN/UNEP/WWF 1991: 3). Very little, if any, local concerns are reflected in the findings and prescriptions of these two documents. One can put both works in the category of “top-down” approaches to conservation policy. Instead of defining the details of biodiversity conservation, these documents set objectives, and suggest that global organizations and funding agencies adopt those objectives in their policy directives.

Both documents strongly support the notion of sustainability. The principles of sustainability, by definition, favor an approach that includes rather than excludes local communities in decision making. Sustainability is founded on “a belief in people as a creative force, and in the value of every human individual and each human society” (IUCN/UNEP/WWF 1991: 13). This

assumption means that, paradoxically, despite the top-down formulation of global development and conservation policy objectives, local communities and people affected by conservation policy ought to be involved in decision making.

Some of the other works also take a “top-down” approach to biodiversity conservation policies, but they argue that “sustainable development” is impractical. “The function of parks is to conserve biodiversity – not to promote sustainable development” (Brandon et al. 1998: 437). Both Terborgh (1999) and Oates (1999) also take a strong position against sustainable development. These authors (Brandon et al. 1998; Oates 1999; Terborgh 1999) promote a view that biodiversity is under threat and that immediate and dramatic actions are necessary to save biodiversity. A critical theory perspective would argue that this “crisis” is used as justification to suspend participatory and democratic processes because they take too long (Bailey 2006; Habermas 1975). It allows the creation of parks in a top-down manner (Terborgh, 1999: 207) and it justifies international and national policies, including using the armed forces to protect the boundaries of protected areas (Kramer et al. 1997). Local communities are perceived to lack the big picture and they are excluded from the decision process on the basis of expediency. “Bottom-up approaches (to conservation) are unlikely to generate lasting change because people near the bottom of the economic ladder are so fundamentally dependent on decisions made at the top” (Terborgh 1999: 203).

The unilateral and undemocratic approach to biodiversity conservation articulated by these preceding works discussed above form the critique of Chapin (2004) and of Adams and McShane (1996). Chapin portrays conservation organizations as paternalistic and lacking

concern for the rights or aspirations of indigenous peoples. He accuses conservation organizations of taking a position that “rural people are of nature, rather than as political actors who can form an environmental constituency” (Chapin 2004: 27). He calls for conservation that “thoroughly involves” residents of the area.

Adams and McShane also reject “top-down” approaches to biodiversity conservation by pointing to the colonial history of Africa. They argue that even in modern times protected areas act as instruments of imperialism and are “surrounded by people who were excluded from the planning of the area, do not understand its purpose and derive little or no benefit from the money poured into its creation” (Adams & McShane 1996: xv). They are strong proponents of a “bottom-up” process aimed at “getting cooperation, understanding and participation of local people” (Adams & McShane 1996: 139).

Underlying these different approaches to policy formation are assumptions about what is meant by “biodiversity conservation.”

Notions of Biodiversity

A discussion of the meaning of the word “biodiversity” could be rather lengthy and much has already been written about the topic (Brechin et al. 2003; Leakey & Lewin 1995; Takacs 1996). In his study on the underlying assumptions about global climate change Dayton (1999) found that one of the dimensions of the debate was related to disagreements about the science and technology of global warming. The analysis of these eight publications does not suggest the same intensity of disagreement as in the case of global warming. In the climate change debate

there are authors who completely rejected the phenomenon, while in the biodiversity conservation publications all the authors agreed that biodiversity need to be conserved. However, there are disagreements about what exactly is meant by “biodiversity.”

Terborgh (1999:12) equates biodiversity with species and biodiversity conservation is aimed at establishing conditions that will minimize the future extinction of species. However, it is quite clear that humans do not form part of this equation. In fact, humans and human activities are seen as threat to biodiversity. Oates (1999: 254) would take a similar view and may put it even stronger when he states that “the first priority for nature conservation organizations should be the protection of threatened nature from the destructive effects of human materialism.” Both of these authors reject the assertions made in other studies that human activity actually contribute to levels of species richness and biodiversity (Ghimire & Pimbert 1997; Schwartzman et al. 2000).

Brandon et al. (1998) point to the fact that biodiversity could be broadly defined and used by several stakeholders to advance their policy objectives. The authors object to this as “politically expedient” and they call for the mission of protected areas to be focused on biodiversity conservation, without the social, cultural and economic expectations associated with the term. In their view biodiversity is found inside parks and is threatened by the actions of people outside park. Parks are islands of biodiversity surrounded by the threat posed by human activities.

Adams and McShane (1996) see the establishment of protected areas to protect biodiversity as part of a western myth that expects Africa to be populated by wild animals without any people. They make the argument that humans were part of the landscape in Africa for over 100,000

years. Humans are very much part of the biodiversity equation. Protected areas are seen, not as separate entities to protect biodiversity, but as part of an overall landscape containing different levels of biodiversity. The authors argue that protected areas would disappear “unless they become embedded once again in the economic and aesthetic life of local people” (Adams & McShane, 1996:174). The notions of biodiversity are quite different in these cases and varies from a view of protected areas as the bastion of biodiversity where human activity is excluded from the landscape, to a view of humans as part of and responsible for the species richness in an ecosystem.

A related area of difference about notions of biodiversity is the scientific basis used for determining what is meant by biodiversity. Adams and McShane (1996: 113) point to the deficiencies of training African conservationists abroad where “the emphasis on scientific research simply perpetuates Western conservation values and methods.” Their strong insistence that African conservation should be left to Africans raises the argument for local and traditional ecological knowledge (Berkes 1999). The assumptions about the importance of traditional ecological knowledge and the argument for supplementing Western scientific approaches to conservation with traditional knowledge (Fraser et al. 2006; Kimmerer 2002) is yet another reason for the differences about notions of biodiversity.

These differences are manifested in the way different authors identify the threats to biodiversity and the reasons why they believe conservation efforts fail.

Causes of failure, blame, negative impact

Almost all the authors of the eight works agree, to a large extent, that protected areas are not successful and that biodiversity is being threatened. A number of the works point to the same causes for this failure – though they disagree strongly on the courses of action to follow. Uneven resource distribution, population growth, commercial resource extraction (e.g. timber and meat) and poverty of people living around protected areas are mentioned by a number of the works as the reason for environmental degradation (Adams & McShane 1996; IUCN/UNEP/WWF 1991; Oates 1999; Terborgh 1999; Wells & Brandon 1992; World Commission on Environment and Development 1987). Other causes for failure include the slow reaction time by institutions (World Commission on Environment and Development 1987), a focus on single species (Adams & McShane 1996), the lack of enforcement of protected areas (Oates 1999), and the lack of funding for conservation efforts (Terborgh 1999).

Though the causes for failure may appear similar, the perspectives of the different works are vastly different. Terborgh (1999) and Oates (1999) see poor people inside and adjacent to parks as a threat to biodiversity. “People and wildlife don’t go together. If there are people in a park, they will be eating the animals” (Terborgh cited in Steinglass 2004). The answer, in their view, is to remove people from parks and to apply stronger enforcement of protected areas.

The two global policy documents, *Our Common Future* (World Commission on Environment and Development 1987) and *Caring for the Earth* (IUCN/UNEP/WWF 1991) both identify poverty as a cause of environmental degradation, but their solution is to alleviate poverty by means of sustainable development. If people had access to the natural resources and if protected

areas are used to generate income, then economic welfare will improve, people will appreciate the value of biodiversity and will be less likely to either hunt or cut down trees in unsustainable ways. This notion of “sustainable development” is rejected by Terborgh (1999), Oates (1999) and Brandon et al. (1998). In fact, these authors argue that sustainable development in itself is a threat to the biodiversity in protected areas.

Since there appears to be a strong disagreement over the relationship between poverty and biodiversity conservation, it is worth exploring this in more depth. There is no doubt that poverty alleviation has become a key component in international development policies. Nobel Peace award winner, Wangari Maathai makes the case for a reciprocal connection between poverty and environmental degradation: “Poverty leads directly to environmental degradation, because poor people do not think of the future and will cut down the last tree if necessary. Environmental degradation will (also) lead to poverty, because when you have no soil, you have no grasses, no trees, and no water; you cannot really help yourself” (Maathai cited in Graydon 2005: 35). The role of conservation in preventing and causing poverty has become the topic of rather intense debate in the conservation literature (Adams et al. 2004; Brockington et al. 2006; Brosius 2004; Terborgh 2004).

Social scientists and anthropologists are pointing to the examples of poor economic conditions outside protected areas and are suggesting that these “islands of resources” have changed longstanding practices (Igoe & Kelsall 2005) and are denying people access to natural resources (Chapin 2004). Conservationists do not deny the existence of poverty, but the argument is that biodiversity conservation could not bear the additional burden of economic upliftment. This

disagreement is the function of some deeper assumptions and often ignores the structural causes of poverty and environmental degradation. I will return to this topic in the discussion of underlying assumptions.

Some of the works did, however, explore the underlying factors of structural poverty. Adams and McShane (1996) point to the colonial history of Africa (the same logic could also apply to other post-colonial continents). European colonial forces occupied much of Africa from the mid 17th century to the mid 20th century. During that time period, resources from the African continent (e.g. gold, diamonds, copper) were taken to Europe, large numbers of Africans were removed as slaves, and tracts of land were set aside as protected areas (Crosby 1986; Diamond 1999).

Poverty and unequal distribution of resources need to be seen in this historical context (Igoe & Kelsall 2005). Adams and McShane (1996) do not put the blame of environmental degradation on poor people, instead they argue that the imperative of both rich and poor to overexploit natural resources is to blame (Adams & McShane 1996: 104). In a slow reverse of the impact of colonialism, they suggest that conservationists ought to trust Africans to follow the necessary adaptive management practices that will protect their biodiversity.

Oates (1999) also addresses some of the underlying causes of the threat to biodiversity. “The first priority for nature conservation organizations should be the protection of threatened nature from the destructive effects of human materialism” (Oates, 1999: 254). Oates does not elaborate much on this statement, but he seems to suggest that economic arrangements (like a free market ideology) is a cause for the threat to biodiversity. It is rather surprising that more of the works do not focus on this aspect. Though many point to the problems caused by extraction of timber or

mining activities, most of the attention is given to hunting and resource extraction by “poachers” or by local communities. An explanation for this may be the fact that the authors of the works that formed part of this study are predominantly from the United States of America where the free market capitalist system is deeply entrenched and taken for granted.

Though, as I indicated above, the stated obstacles to biodiversity conservation and the causes for failure may be similar, there are multiple stakeholders with very different perspectives.

Actors

An understanding of the different actors (or agents) in the debate is important. A stakeholder map is one of the first steps in mapping the context of complex problems (Clark 2002).

Identifying the different groups and the extent of their interest in an issue is an important analytical tool. It helps to see the distribution of power, it leads to greater inclusion in participatory decision-making, and it leads to policies that are more likely to be accepted by a larger group of people. Biodiversity conservation is no exception. In fact, one could argue that the complexity of this issue calls for a very thorough understanding of stakeholder interests.

Biodiversity conservation involves multiple actors. Individuals, communities, governments, conservation organizations and the United Nations all have a stake in biodiversity conservation and all are affected by practices of conservation one way or the other. An understanding of the actors, their agendas, powerbases and their interactions is an important step toward conflict resolution. The eight works that formed part of this analysis not only identify a whole range of actors, they also take very different perspectives on the role and importance of those actors in

conserving biodiversity. At a very basic level the range of actors is evidence of the global/local tension. Some actors operate from the basis of global conservation agendas, while other actors have very local and more immediate concerns.

Clearly, a document like *Our Common Future* (World Commission on Environment and Development 1987) takes a very global perspective on conservation. The report specifically mentions the role of organizations like the World Bank and International Development Association as effective mechanisms to produce an international economic system geared toward the elimination of world poverty (World Commission on Environment and Development 1987: 18). Governments and the United Nations Environmental Programme (UNEP) are encouraged to take actions that protect biodiversity, but also ensure economic prosperity.

One objective of the report was to convince nations to return to multilateralism. The other global policy document in my sample of works, *Caring for the Earth* (IUCN/UNEP/WWF 1991) mentions the fact that individuals, communities and nations are all involved in caring for the earth. The document was aimed at global policy actors in preparation for the United Nations Earth Summit in 1992. The key actors in this document, as in *Our Common Future*, are more global than local. This is where the clear (and maybe somewhat simplistic) distinction between global and local actors ends. Most of the other works portray a more complex picture of competing stakeholders.

In their introduction Wells and Brandon (1992: ix) describe the conflicts of interest between protected areas and local people and argue that the key to successful conservation is to empower local people. However, government agencies and, conservation and development organizations

play a strong role in establishing protected areas. In fact, almost all the cases of ICDPs (Integrated Conservation-Development Projects) mentioned in their study have some external funding from the World Bank, USAID, WWF or other funding agency. Brandon et al. (1998) overcome this apparent tension by concluding that “local organizations must be strong, national policy upright, and intentions virtuous. The international economic system must be held at bay, and decision makers must understand the dynamics of ecosystems over the long term” (Brandon et al. 1998: 454). Such a cooperative vision may be desirable, but power dynamics, multi-layered interests, and market forces described earlier in this chapter, all increase the level of complexity.

Two of the works focus on the power dynamics of the global/local tension. Adams and McShane (1996) recall the history of European colonial forces occupying most of Africa when they make comparisons to contemporary conservation initiatives. They accuse Western scientists and conservationists of applying “myth-based” conservation policies in Africa that ignore local people and local ecological conditions. Citing Weber (1981), they agree that conservation efforts must weigh local social, economic, political and ecological factors. Their conclusion is that African conservation solutions need to be developed by Africans. By extension, their argument would be that local actors (communities, scientists, governments) need to develop local solutions to biodiversity conservation.

Chapin (2004) takes a view from the perspective of indigenous peoples and poses the conflict as one between large, wealthy and powerful conservation organizations on the one hand, and marginalized, poor and politically powerless indigenous peoples on the other. The conservation organizations gain even more power because they have the financial support of large

multinational corporations like Chevron and Texaco. In his critique Chapin argues that conservation organizations are dominated by a view that perceives indigenous peoples as “enemies of nature” (Chapin 2004: 27). Thus, in his view, actors in biodiversity conservation are faced with an uneven power distribution that is to the detriment of rural and indigenous people.

Both Oates (1999) and Terborgh (1999) are suspicious of the role of conservation organizations, but they see a very different role for actors. Oates and also Terborgh reject the “sustainable development” argument. They are concerned that big conservation organizations (like the IUCN) are supporting economic development objectives because they need the financial backing and support of governments, development agencies, and multinational corporations. Oates and Terborgh are strongly opposed to the principles of sustainable development as promoted by the policy documents *Our Common Future* (World Commission on Environment and Development 1987) and *Caring for the Earth* (IUCN/UNEP/WWF 1991). At the same time, both Oates and Terborgh believe in a degree of centralization in conservation efforts. They believe that strong government agencies are important to enforce protected areas and that a top-down approach to conservation is preferable to local participation. This apparent paradox is symptomatic of many aspects of the debate about biodiversity conservation. In this case the authors believe that global and top-down approaches are necessary to intervene and to protect biodiversity from the negative impact of people. At the same time, they are critical of the fact that some of the organizations capable of global, top-down approaches (like large conservation organizations) have close links with global financial resources and national governments.

A brief summary of my analysis of the important actors in the biodiversity conservation debate as manifested in the publications is presented in Table 2.2.

Table 2.2. Overview of Key Stakeholders in Biodiversity Conservation

Actors	Characteristics
Global Development Organizations (e.g. UNDP)	<p><u>Interest</u>: Reduction of world poverty.</p> <p><u>Challenge</u>: Sustainable development is seen as a way to reduce poverty without harm to biodiversity. Natural resources and protected areas are seen as one way to provide economic development opportunities (e.g. tourism) that will reduce poverty.</p> <p><u>Power Base</u>: The power base of this group of actors is in making global policy recommendations and in funding (via the GEF, World Bank etc.) certain projects and not others.</p> <p><u>Critique</u>: These organizations are accused of being removed from the reality and the science of biodiversity conservation. The focus on sustainability, according the critics, is unrealistic and does not help the biodiversity conservation agenda.</p>

Actors	Characteristics
Conservation organizations (e.g. IUCN, WWF, CI)	<p data-bbox="605 369 992 401"><u>Interest:</u> Biodiversity Conservation.</p> <p data-bbox="605 474 1403 646"><u>Challenge:</u> These organizations are acutely aware of pressures to be democratic and to avoid a “colonial” approach of unilaterally setting aside protected areas. Several organizations support the idea of sustainable development, because they see poverty surrounding protected areas as a threat to the integrity of protected areas. At the same time, these organizations rely on donors to support their conservation efforts. In some cases these donors include large corporations that have an interest in using natural resources for profit.</p> <p data-bbox="605 825 1403 1031"><u>Power base:</u> Conservation organizations have the power of funding biodiversity conservation initiatives. As a group, they are a powerful lobby to national governments and also the United Nations agencies. Scientists working for these organizations are prolific and publish widely in peer reviewed journals and other publications. They can shape the debate and influence policy.</p> <p data-bbox="605 1104 1403 1241"><u>Critique:</u> These organizations are accused of having “sold out” to corporate interests, and they are also being accused of a heavy handed top-down approach to conservation that does not always take local interests or the rights of indigenous peoples into account.</p>

Actors	Characteristics
National Governments	<p data-bbox="607 369 889 401"><u>Interest:</u> Political stability.</p> <p data-bbox="607 474 1377 642"><u>Challenge:</u> National governments seek political stability, economic welfare of citizens and protection of natural resources. Protected areas are a potential source of foreign income (by means of tourism), but they also contain natural resources that could be used by corporations and by local populations.</p> <p data-bbox="607 720 1390 852"><u>Power Base:</u> Governments have the power to create and enforce policy in regard to protected areas. They manage protected areas, enforce laws and engage with local as well as global stakeholders. They have the ultimate enforcement ability</p> <p data-bbox="607 930 1386 1167"><u>Critique:</u> Governments are accused of weak enforcement of protected areas and of allowing corporations to extract natural resources (e.g. timber) at the expense of biodiversity and also to the long-term detriment of local communities. In some cases they are accused of not protecting enough land. Local communities criticize governments for paying too attention to protected areas at the expense of their economic welfare and livelihoods.</p>
Local Communities	<p data-bbox="607 1215 1317 1247"><u>Interest:</u> Social and economic welfare, full and equal participation.</p> <p data-bbox="607 1283 1386 1486"><u>Challenge:</u> “Local Communities” is a term used loosely in the literature. A group of people living in an area do not necessarily represent a “community” and they do not act as a single decision making body. As individuals, the main interest is likely economic welfare and security. As a group, the interest would be political participation, social welfare, and cultural integrity.</p> <p data-bbox="607 1564 1377 1696"><u>Power Base:</u> Local communities have democratic power – though this power depends to a large extent on the nature of democracy in a particular country. In many cases local communities have the power of property rights and can deny land to be proclaimed as “protected areas.”</p> <p data-bbox="607 1732 1377 1835"><u>Critique:</u> Local communities are accused of lacking a global perspective of biodiversity priorities and of threatening the integrity of protected areas by cutting trees and killing animals.</p>

Actors	Characteristics
Indigenous Peoples	<p><u>Interest:</u> Cultural integrity, traditional property rights.</p> <p><u>Challenge:</u> “Indigenous peoples” is another very loosely defined group. The fact that people live in a particular area does not make them “indigenous.” The term does not always account for migration and movement of people in and out of an area. Though there are certainly traditions and property rights, these are not always easily defined.</p> <p><u>Power Base:</u> In recent times, indigenous peoples have used an “international voice” more effectively by representation at conventions and summits.</p> <p><u>Critique:</u> Indigenous peoples living inside protected areas are seen as a threat because they hunt animals. Technological advances (e.g. modern guns) and market factors have influenced and altered the traditional cultural relationships of many of these groups to the natural resources around them.</p>
Scientific Community	<p><u>Interest:</u> Biodiversity Conservation and improving the knowledge base.</p> <p><u>Challenge:</u> Assigning a label to the “scientific community” is risky because this group is made up of a number of fiercely independent individuals. However, the works I analyzed were written in most cases by people who would describe themselves as “scientists.”</p> <p><u>Power Base:</u> Scientists have access to financial resources through research grants and they have a strong “voice” by means of publications in journals, conferences etc. They have the power of “expertise.”</p> <p><u>Critique:</u> Scientists (especially conservation biologists) are accused of being too concerned with non-human life forms and out of touch with human suffering, economic, and social conditions.</p>

In my discourse analysis, I confirmed the fact that there are multiple stakeholders with different, and often conflicting, views on biodiversity conservation in protected areas. Identifying the range of stakeholders and their perspectives is an important component in analyzing the policy process and in finding ways to resolve conflict (Lasswell, 1971; Clark, 2002). In my analysis I started to

also explore the underlying beliefs held by different actors, but I will explore that in much greater depth in Chapter Three.

Fundamental beliefs

Earlier in this chapter I illustrated the environmental beliefs of the authors in my analysis. I will not repeat that discussion here, but it is perhaps necessary to emphasize that the fundamental beliefs and assumptions can not be captured by linear dichotomous labels (e.g. parks versus people, top-down versus bottom-up). In the next chapter I will provide a deeper analysis and discussion of the underlying assumptions and beliefs.

Future challenges and success

Each one of the eight works has an ideal vision of the future and the policy prescriptions are designed to achieve that vision. Though one may criticize these visions as “idealistic” and beyond the realm of achievement, they do play a role in shaping the direction taken and decisions made. Many organizations have a mission statement that provides the motivation and direction for both daily actions and for long-term strategic policy formations. The actors engaged in biodiversity conservation similarly are driven by visions of an ideal world.

Our Common Future (World Commission on Environment and Development 1987) has a vision of a world with no poverty and no human welfare problems. The ideal way to achieve that vision is by means of sustainable extraction of resources. Natural resources will not be depleted and biodiversity will remain intact because people will have adequate means and because they will

understand the value of intact natural ecosystems. In part the vision is one global cooperation and multilateralism where world nations all cooperate to achieve development objectives.

Caring for the Earth (IUCN/UNEP/WWF 1991) has a similar vision of sustainability where both development and conservation goals are met simultaneously. This report anticipates a future based on lifestyle changes of both the wealthy and the poor. Sustainable living will be a “new pattern for all levels: individuals, communities, nations and the world” (IUCN/UNEP/WWF 1991: 5). The principles of such a sustainable lifestyle will include respect for human integrity and quality of life, conservation of natural systems, and integration of both development and conservation.

Wells and Brandon (1992) apply the notion of sustainability more directly to conservation. They advocate a particular approach involving Integrated Conservation-Development Projects (ICDPs). These projects are designed to reduce the levels of conflict between protected areas and local people by “promoting development activities that not only improve local living standards but also lead to strengthened management of protected areas” (Wells & Brandon 1992: x). In their ideal world protected areas and parks will remain intact and will remain mostly without people living inside their boundaries, but the surrounding people will help to maintain the integrity of the protected areas. “The ultimate objective of ICDPs is the conservation of biological diversity in parks and reserves” (Wells & Brandon 1992: xi). The ideal future includes protected areas with clear boundaries that are respected by local communities who benefit from the existence of the protected areas because most of their economic welfare aspirations have been met.

Adams and McShane (1996) hold a vision of the future where the outcome may appear similar to that of Wells and Brandon (1992) but the process would be very different. They support the idea of integrating development and conservation (Adams & McShane 1996: 107), but their argument is that local people (in their case Africans) should be involved at all levels. Their ideal vision of the future would be one where Africans use their ecological knowledge, design conservation projects, and involve a broad range of local and national actors in the process of deliberations and decision making. In their vision there will still be room for protected areas with firm boundaries in addition to some “buffer zones,” but the most important aspect of their ideal world is a one of full democratic participation of local actors.

Brandon et al. (1998) develop a vision based on a metaphor of protected areas as threatened islands of remaining biodiversity that need to be protected against “outside” influences. The ideal vision would be to protect the biodiversity integrity inside protected areas in ways that meet the political, social and economic goals of people outside the protected areas. These islands will remain intact if local organizations are strong, national policy upright, the international economic system held at bay, and decision makers understand the dynamics of the ecosystem over the longer term (Brandon et al. 1998: 454).

Oates’ (1999) ideal vision harkens back to the days in the 1960s when, as a graduate student, he visited West Africa, learned about the rich wildlife and collected specimens for scientific study. He has a vision for park boundaries to be strongly enforced, with no hunting and gathering inside protected areas. His vision includes protected areas where plants and animals are safe from

human exploitation and where scientists can learn more about biodiversity. Underlying his vision is a belief in the aesthetic value of nature and a deep concern that “humanistic materialism” is a threat to the long term survival of wildlife. Ideally human activity would be guided by “ethical and aesthetic considerations, not economic motivations” (Oates 1999: 254).

Terborgh (1999: 68) has a vision of intact parks “reserved for nature” with no people inside. Development outside parks, preferably not in the buffer areas close to parks (Terborgh 1999: 169), will be adequate to provide economic welfare. Inside the protected areas would be intact wilderness with top predators restored to the ecosystem. He has a national vision of “wildlands” similar to the National Park system in the United States being expanded on a global scale. Strong enforcement by central authorities at national and global level will keep protected areas from being threatened by human activities. Underlying the vision would be an appreciation of the beauty of nature and the political will to protect it.

Chapin (2004) has a vision that includes humans (more specifically indigenous peoples) in the biodiversity equation. Biodiversity will remain intact if we leave indigenous peoples to live on the land and to find ways to make a living without destroying the natural resources (Chapin 2004: 21). His vision would exclude the consequences of a global economy that distorts the power balance between indigenous peoples and large corporations. Money is a threat to his vision. Conservation organizations and indigenous peoples compete for money and power to the detriment of biodiversity. In an ideal world, Chapin would remove the power of money, give a stronger voice to indigenous peoples, and allow them to determine the conservation priorities in

their own lands. However, he does not offer an alternative economic vision to the existing global free market economy.

These different visions of an ideal world in which biodiversity is conserved offer some insight into the complexity of the issue and also suggest that there are deeper levels of beliefs and assumptions that shape the different visions.

Conclusion

This analysis is based on eight texts dating from 1987 to 2004. There is the danger that these texts do not represent the field adequately and also that the ideas in these texts have become outdated. Recent articles in conservation biology suggests that the dimensions of the conflict outlined here are just as valid as ever and that solutions in biodiversity conservation remain as elusive as ever. In June 2006 the journal *Conservation Biology* published a series of reflective articles to celebrate its 20th anniversary. The level of the disagreement, the degree of urgency and the intensity of the debate mirror the issues I have uncovered in the eight works. Agrawal and Ostrom (2006) comment on the tensions between political scientists and conservation biologists and call it a “dialog of the deaf.” West and Brockington (2006) point to displacement of people to make room for protected areas and a top-down approach to conservation as sources of conflict. They lament the lack of sustained conversations between social and natural scientists about the need to take social beliefs and practices into account in implementing conservation projects (West & Brockington 2006: 614). Meffe, Ehrenfeld & Noss (2006: 596), the journal editors, suggest that it is time to “break down intellectual and disciplinary barriers”. These and other articles and publications strongly suggest that the level of disagreement about biodiversity

conservation in protected areas and the dimensions I identify above remain as valid today as they were when these books that I analyzed were written.

A second issue related to this discourse analysis is about the value of the dimensions I have identified and how greater understanding of them could help to move the conflict toward resolution. This discourse analysis of dimensions of the conflict in biodiversity conservation was in no way intended to provide easy solutions – in fact it has more likely demonstrated the complexity of biodiversity conservation and the difficulty of reaching acceptable solutions. In the same way that a topographic map of a particular area shows features like steep cliffs, rivers, forested areas, or wetlands, this analysis is intended to show the dimensions of the terrain. A skilled map reader would be able to pick the best route on the map. This clarification of the dimensions of the conflict in biodiversity conservation is designed to deepen the level of dialog, to extend the search for alternatives, and to include a more comprehensive set of stakeholders in the discussion. The analysis is not designed to distinguish between “right” and “wrong,” but to illustrate a number of perspectives (some of them held with strong conviction) that every conservationist, politician, anthropologist, or biologist needs to take into account. I echo the observation of Lovejoy (2006a: 712) that we need to value the diversity of opinion and perspectives in the endeavor of biodiversity conservation as much as we value diversity in the natural world.

Finally, I need to address the next step. This discourse analysis, like a topographical map, provided a description of the features of the terrain. It did not explain the geological reasons for the features. In the debate about biodiversity conservation there are underlying values and

assumptions that shape the statements and policies. The next step would be to explore these in much greater depth. Several studies have used Q-methodology to explore deeper discourses in environmental issues (Dayton 2000; Swedeen 2006; Webler et al. 2001). In Chapter Three I use Q-methodology to uncover the discourses that underlie the dimensions I have identified in this discourse analysis. Robinson (2006: 661), President of the Society for Conservation Biology, sets the objective for the future of biodiversity conservation when he said that “As we look into the future, I argue that incorporating values into our science is necessary...” I agree, but I suggest we need to fully explore the range of those values.

CHAPTER 3

A Q-STUDY OF THE UNDERLYING PERSPECTIVES IN BIODIVERSITY CONSERVATION

Introduction

In the previous chapter I suggested that the debate and disagreement about biodiversity conservation in protected areas were the manifestation of some deeper underlying differences in values and assumptions. In this chapter, I will explore these underlying values and assumptions in more depth.

In their article in *Conservation Biology* on the conservation landscape Redford et al. (2003) call for a “widespread informed collaboration” based on an understanding of underlying approaches and principles. Redford et al. (2003) observed that a precondition for collaborative approaches in conservation is an understanding of the different approaches of conservation organizations. They identify a range of conservation targets, the extent of conservation, and they also identify some underlying principles. However, one of their conclusions is that there appears to be some fundamental differences underlying the principles and approaches to biodiversity conservation. The title of their article *Mapping the conservation landscape* (Redford et al., 2003) draw on the topographic image I used in the conclusion of the previous chapter. In that chapter I identified the dimensions of the conflict, or the features of the landscape. To complete the “map” of the conservation landscape, we need some understanding of the geological forces that shaped the features of the landscape. The dimensions of the debate and conflict may be captured by the topographic information of a map, but we need more layers of information about the forces that gave rise to the shape of the landscape and the features that are not obvious on the surface. This

chapter will explore underlying assumptions and values in biodiversity conservation and, using the mapping image, provide information layers that give shape to the topographical features we can observe.

The purpose of exploring underlying values and assumptions in biodiversity conservation is to find collaborative solutions for the disagreements. Collaboration as a form of dispute resolution is based on the assumption that parties with different interests are mutually dependent on the outcomes. One party can not achieve an outcome without the help of another party. It forces parties to negotiate and seek acceptable outcomes. It does not, as some may suggest, mean that parties have to change their worldview and it is not judgmental by allocating labels like “right” or “wrong” to perspectives (Fisher et al. 1992; Lewicki et al. 2005).

I will conclude this chapter by returning to the need for collaboration and I will continue the discussion of practical applications in the following chapter.

Research Methods

Since assumptions and values are normally unstated, I needed a methodology to uncover subjective attitudes and values. One such method is Q-methodology (Addams 2000; Brown 1980, 1996; McKeown & Thomas 1988), developed by Stephenson (1935) and used widely since, mostly in social sciences. The method is a type of discourse analysis that combines qualitative and quantitative analyses to uncover underlying social perspectives about a particular issue (Tuler et al. 2005).

Recently, Q-methodology has been applied to environmental questions in a number of instances. Webler et al. (2003) used it to explore factors that influence decisions in watershed management planning; Mattson et al. (2006) explored the conflict about the presence of large carnivores in Northern America; Burns and Cheng (2007) investigated the conflict over wildfire mitigation in Colorado; Focht and Lawler (2000) used Q-methodology to identify areas of conflict and to facilitate policy dialog; Dayton (2000) used Q-methodology to uncover some of the underlying discourses in the debate about global climate change; Swedeen (2006) applied the methodology sustainable forestry in Washington State. Addams and Proops (2000) edited a volume with several applications of Q-methodology to environmental policy. A Q-study involves six steps: 1) Identify an area of ‘concourse’ to explore, 2) collect statements from the full range of people with opinions about the topic, 3) select from these statements those that represent the diversity of communication on the topic, 4) select participants (who hold the largest possible diversity of views) to execute the Q-sort, 5) statistical analysis and, 6) interpretation of discourses (Addams 2000). I used the following steps in the methodology.

1. Identify the area of ‘concourse’ to explore

The “concourse” in my study is biodiversity conservation by means of protected areas. Conservation biologists would agree that, if we have the conservation of biodiversity as an objective, it is important to set aside certain areas where ecological integrity is protected as much as possible. In many cases, this implies certain limits on human activities in those areas. In the literature the definition of a “Protected area” by the World Conservation Union (IUCN) is broadly accepted:

an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, managed through legal or other effective means (IUCN 2000 :5).

However, the extent to which these areas exclude human development activities could range from “protected area managed mainly for the sustainable use of natural ecosystems” to “protected area managed mainly for science or wilderness protection” (IUCN 2000:5). The IUCN definition recognizes the wide interpretation of the term “protected area” and developed a range of categories (Table 3.1). My study concentrated on categories I and II.

Table 3.1. Categories of Protected Areas (IUCN, 2000)

IUCN Category	Purpose and Description
Ia. Strict Nature Reserve	To preserve habitats, ecosystems and species in as undisturbed state as possible. To limit public access
Ib. Wilderness Areas	To maintain the essential natural attributes and qualities of environment over the long term. Public access at levels and types that will serve best the physical and spiritual well-being of visitors and maintain the wilderness qualities of the area for present and future generations.
II. National Park	To perpetuate in as natural state as possible, representative examples of physiographic regions, biotic communities, genetic resources, and species to provide ecological stability and diversity.
III. Natural Monument	To protect and preserve in perpetuity specific outstanding natural features because of their natural significance, unique or representative quality, and/or spiritual connotations.
IV. Habitat/Species Management Area	To secure and maintain habitat conditions necessary to protect significant species, groups of species, biotic communities or physical features of the environment where those require specific human manipulation for optimum management.
V. Protected Landscape/Seascape	To maintain the harmonious interaction of nature and culture through the protection of the landscape and/or seascape and the continuation of traditional land uses, building practices and social and cultural manifestations.
VI. Managed Resource Protected Area	To protect and maintain the biological diversity and other natural values of the area in the long term. To promote sound management practices for sustainable production purposes.

The two key aspects of the IUCN definition of protected areas are biodiversity protection and management. However, a third component is equally important in the interpretation and implementation of protected areas. “Natural and cultural resources” add a social and political component to the definition that can not be ignored. The assumptions are that biological diversity is important, that it needs protection, and that the protection needs to be a conscious or managed effort. Since access to natural resources has economic, social and cultural implications, the establishment and operation of protected areas take on a political dimension.

Although the definition of protected area may be widely accepted in the literature, there are differences in how to achieve the goals of biodiversity conservation and management and the extent to which stakeholders are included in the decision making processes. Since biodiversity is a relatively new concept there are different interpretations about the meaning and intended benefactors of this term (Meine et al. 2006; Redford et al. 2003).

I restricted my discourse analysis to the debate about biodiversity conservation in protected areas in developing countries and I confined my literature search mainly to the discipline of Conservation Biology.

2. Collect statements from the full range of people with opinions about the topic

A great deal of material and viewpoints on biodiversity conservation has been published recently. I believe that the “communication discourse” and the current debate is being shaped by those publications, especially by individuals with a high profile in the conservation biology field. In many cases the dialog was conducted by means of published articles or books. A good

example of this is the book by Oates (1999), *Myth and Reality in the Rainforest*. The title of this book was a direct response to and critique of the book by Adams and McShane (1996), *Myth of a Wild Africa*. In addition to books, the pages of academic journals are used to engage in some form of “virtual” debate. An example is the June 2004 issue of *Conservation Biology* where Brosius (2004) and Terborgh (2004) use essays to present different perspectives of the World Parks Congress held in Durban in 2003. The special section of publications celebrating the 20th anniversary of the journal *Conservation Biology* (Volume 30, number 3, June 2006) added perspectives on biodiversity conservation from several different disciplines. All these publications served to add material and strength to the various, and often contending, discourses.

While Q-methodology typically uses interviews to generate statements, secondary sources are also an appropriate method for generating statements. Dryzek and Berejikian (1993) used newspapers, magazines, ethnographic studies, pamphlets etc. to gather statements for their study on political discourse. I drew statements directly from the published material on biodiversity conservation. Since the dialog, debate and disagreement in conservation biology is mainly by means of published articles, books and opinions, I felt that this was be a good place to collect statements around the area of discourse.

I extracted definitive statements from the literature described above (seminal books, editorials in *Conservation Biology*, journal articles, newspaper and magazine articles). Definitive statements are statements that express an opinion or belief without ambiguity. Since the debate is relatively new, I limited my search to articles published after 1987. This date marked the publication by the *Brundtland Report* (World Commission on Environment and Development 1987) which

suggested a policy of sustainable development and has been a controversial subject ever since its publication (Terborgh 1999). The works by Terborgh (1999) and Oates (1999) and the stream of responses (Brechtin et al. 2002; Schwartzman et al. 2000; Wilshusen et al. 2002) are more recent. I read each book and article and extracted simple statements (short statements that address one key thought) that represent the author(s) articulation of an opinion or a position.

Ultimately, I extracted 275 statements that represented 92 different authors. At this stage I reached a point where additional statements failed to add any new ideas or perspectives that were not covered by the collection of statements and I assumed that I have reached saturation.

3. Select statements for the Q sample

Q-methodology requires a set of statements of between 48 and 60, also referred to as the 'Q-sample' (Brown 1980). After extracting 275 statements from the discourse, I needed to reduce the number of statements to a manageable number for the purpose of the research method. Once I reached saturation of extracted statements from the available material in print, there was a choice of either a structured or unstructured approach in selecting statements (Addams 2000). A structured approach is suitable if there are some *a priori* hypotheses or if there is an existing theoretical framework that could be applied to the topic. Dryzek and Berejikian (1993) gathered 300 statements before they started the process of selection and then used a predetermined theoretical framework to make the selection.

In the previous chapter, I identified some dimensions of the debate in biodiversity conservation. These dimensions of the debate in biodiversity conservation were similar to the dimensions of

the global climate change debate (Dayton 1999, 2000). I used these dimension that were the result of my discourse analysis as the selection framework for Q statements.

- A. Policy prescriptions.
- B. Notions of Biodiversity
- C. Causes, blame and negative impact
- D. Actors
- E. Fundamental Beliefs
- F. Future challenges

All 275 statements were allocated to these six categories and I then identified several sub-categories. The resulting sampling matrix for Q-sort statements that represented each of the six categories as well as the subcategories had 20 cells (Table 3.2).

Table 3.2. Sampling Matrix: Categories and sub-categories for Q Statements.
(the numbers represent the number of statements per category that was used in the Q-sort)

Categories	Representation of 48 Statements
A. Policy Prescriptions <ul style="list-style-type: none"> • Social Justice, human rights, political process • Local communities • Indigenous rights • Primordial wilderness • Market mechanisms 	2 2 3 2 3
B. Notions of Biodiversity <ul style="list-style-type: none"> • Human impact • Scientific foundation (Whose knowledge?) • Biodiversity and human welfare 	2 2 3
C. Blame, causes, negative impact <ul style="list-style-type: none"> • Rural people, hunting, exploitation • Impact on people • Economic factors • Political ideology • Institutions 	2 2 3 2 2

Categories	Representation of 48 Statements
D. Actors, involvement, methods <ul style="list-style-type: none"> • Global and national actors • Local communities • Level of participation 	3 2 2
E. Fundamental beliefs <ul style="list-style-type: none"> • Aesthetic rights of nature • Human perspective • Rationale for parks and protected areas 	2 3 3
F. Future Challenges and success <ul style="list-style-type: none"> • Common Challenges 	3

Selecting statements for each sub-category that best exemplified that topic in the most unambiguous way, resulted in a set of 48 statements. See Table 3.6 for a list of all statements.

4. Select participants to execute the Q-sort

Since Q-methodology does not rely on a large sample size of respondents (typically not more than 40 – (Brown, 1980)), it is important to select participants that represent a wide range of perspectives. I selected 22 participants for this study who were actively engaged in research, and publication. Participants were deliberately selected to represent a wide range of different viewpoints. Several of them (14 of the 22) were authors of the 275 statements that I extracted from the literature. I invited participants that represented a wide range from different “sides” of the debate. Perhaps one of the best confirmations of the diversity of views in the participant came during an interview with one of the participants. When I asked the person to elaborate on his response to a particular statement, he said that the statement sounded like something made by

a particular person and he disagreed with that view. The other person happened to be one of the other participants who indeed supported that particular statement strongly.

As this study aimed to explore and uncover the assumptions of participants in the dialog, the sample of participants in the study was limited to only one group of actors – the intellectual community. Though it is true that practitioners, government officials and a range of other groups also represent some views on the most appropriate ways to conserve biodiversity, the “debate” I am exploring in this study is mainly confined to books, journal articles and conferences. The research question in this study is focused on the range of discourses represented by those actors that are shaping the conceptual and theoretical terrain bounded by the same constraints as I have set for the concourse.

The selection of the participants in this study is not a suggestion that only views of an intellectual elite are important. On the contrary, I fully acknowledge this limits the ability to generalize from my findings. However, the reality of power distribution and resource availability enables some individuals to publish their ideas widely while others remain silent. Since it is also a reality that those who publish widely are in a strong position to shape policy, it is a good starting point to explore their underlying assumptions in this debate.

Of the 45 participants I invited, 27 agreed to participate and I received results from 22 participants. Each participant received by mail a letter explaining the study, a set of index cards with the 48 statements (each card had a statement with a number, but I shuffled the cards beforehand to avoid any suggestion that the numbers had meaning), conditions of instruction

(Appendix B), and a scoring sheet (Table 3.4). Participants returned the completed scoring sheets by mail, fax, or e-mail.

Table 3.3 List of Participants
(ordered alphabetically by first name in the Q-sort, their titles and affiliations at the time of the study, and publications if used as a source for the Q-sort)

NAME	TITLE and PUBLICATIONS.
Crystal Fortwangler	<p>PhD in Anthropology and Natural Resource & Environment, University of Michigan, USA.</p> <p>Brechin, S. R., P. R. Wilshusen, C. Fortwangler, & P.C. West, Eds. (2003). <u>Contested Nature: Promoting international biodiversity and social justice in the twenty-first century</u>. Albany, NY, State University of New York Press.</p>
Dan Brockington	<p>Senior Lecturer, Institute for Development Policy and Management University of Manchester</p> <p>Brockington, D., J. Igoe, et al. (2006). "Conservation, human rights, and poverty reduction." <u>Conservation Biology</u> 20(1): 250-252.</p>
David Wilkie	<p>Associate Director Living Landscapes Wildlife Conservation Society</p> <p>Wilkie, D. S., G. A. Morelli, et al. (2006). "Parks and people: Assessing the human welfare of establishing protected areas for biodiversity conservation." <u>Conservation Biology</u> 20(1): 247-249.</p>
Delali Dovie	<p>Restoration & Conservation Biology Research Group School of Animal, Plant & Environmental Sciences University of the Witwatersrand SOUTH AFRICA.</p> <p>President of the Africa Section of the Society for Conservation Biology</p>

NAME	TITLE and PUBLICATIONS.
Eleanor Sterling	<p>Director Center for Biodiversity and Conservation American Museum of Natural History New York USA</p> <p>Ex officio member, Board of Governors, Society for Conservation Biology.</p>
James Morumbedzi	<p>Regional Director IUCN Regional Office for Southern Africa</p>
Jeffrey A. McNeely	<p>Chief Scientist IUCN - The World Conservation Union Switzerland</p> <p>Board of Governors, Society for Conservation Biology, President of Asia Section.</p>
Jim Igoe	<p>Assistant Professor of Anthropology University of Colorado, Denver</p> <p>Brockington, D., J. Igoe, et al. (2006). "Conservation, human rights, and poverty reduction." <u>Conservation Biology</u> 20(1): 250-252.</p>
John Hart	<p>Coordinator, DR Congo Inventory and Monitoring Program Wildlife Conservation Society</p>
John Hough	<p>Principal advisor on biodiversity for UNDP</p> <p>Hough, J. L. (1988). "Obstacles to effective management of conflicts between national parks and surrounding human communities in developing countries." <u>Environmental Conservation</u> 15(2): 129-136.</p>
Kamal Bawa	<p>Professor, Department of Biology University of Massachusetts-Boston, USA</p> <p>Bawa, K. S. (2006). "Globally dispersed local challenges in conservation biology." <u>Conservation Biology</u> 20(3): 696-699.</p> <p>Bawa, K. S., R. Seidler, et al. (2004). "Reconciling conservation paradigms." <u>Conservation Biology</u> 18(4): 859-860.</p>

NAME	TITLE and PUBLICATIONS.
Kent Redford	<p>Director, WCS Institute Wildlife Conservation Society</p> <p>Ex officio member, Board of Governors, Society for Conservation Biology.</p> <p>Redford, K. H., P. Coppolillo, et al. (2003). "Mapping the conservation landscape." <u>Conservation Biology</u> 17(1): 116-131.</p> <p>Brandon, K., K. H. Redford, et al., Eds. (1998). <u>Parks in Peril: People, politics and protected areas</u>. Washington, DC, The Nature Conservancy and Island Press.</p>
Lisa Naughton	<p>Associate Professor, Department of Geography University of Wisconsin-Madison</p> <p>Research Fellow, Center for Applied Biodiversity Science, Conservation International</p> <p>Naughton-Treves, L. (2002). "Wild animals in the garden: Conserving wildlife in Amazonian agroecosystems." <u>Annals of the Association of American Geographers</u> 92(3): 488-506.</p>
Michael Mascia	<p>Senior Program Officer/Social Scientist U.S. Headquarters World Wildlife Fund</p> <p>President of the Social Science Working Group of the Society for Conservation Biology</p>
Michel Masozera	<p>Rwanda Country Director for Wildlife Conservation Society. PhD Candidate at University of Vermont, USA.</p>
Nick Salafsky	<p>Co-Director Foundations of Success</p>
Pedro Vaz Pinto	<p>Centro de Estudos e Investigação Científica - UCAN (Universidade Católica de Angola) Luanda Angola</p> <p>Recipient of a Whitley Award in 2006.</p>

NAME	TITLE and PUBLICATIONS.
Peter Wilshusen	<p>Assistant Professor of Environmental Studies Co-director, Bucknell University Environmental Center USA</p> <p>Brechin, S. R., P. R. Wilshusen, et al., Eds. (2003). <u>Contested Nature: Promoting international biodiversity and social justice in the twenty-first century</u>. Albany, NY, State University of New York Press.</p> <p>Wilshusen, P. R., S. R. Brechin, et al. (2002). "Reinventing a square wheel: Critique of a resurgent 'protection paradigm' in international biodiversity conservation." <u>Society and Natural Resources</u> 15: 17-40.</p>
Randall Kramer	<p>Professor of Resource and Environmental Economics Nicholas School of the Environment and Earth Sciences Duke University, USA</p> <p>Kramer, R. A. and C. P. Van Schaik (1997). Preservation paradigms and tropical rain forests. <u>The last stand: Protected areas and the defense of tropical biodiversity</u>. R. A. Kramer, C. P. Van Schaik and J. Johnson. New York, Oxford University Press.</p> <p>Kramer, R. A., C. P. Van Schaik, et al., Eds. (1997). <u>The last stand: Protected areas and the defense of tropical biodiversity</u>. New York, Oxford University Press.</p> <p>Van Schaik, C. P. and R. A. Kramer (1997). Toward and new protection paradigm. <u>The last stand: Protected areas and the defense of tropical biodiversity</u>. R. A. Kramer, C. P. Van Schaik and J. Johnson. New York, Oxford University Press.</p>
Robert Nelson	<p>Professor, Maryland School of Public Policy University of Maryland USA</p> <p>Nelson, R. H. (2003). "Environmental colonialism: "Saving" Africa from Africans." <u>Independent Review</u> 8(1): 65-87.</p>

NAME	TITLE and PUBLICATIONS.
Steve Brechin	<p>Professor, Center for Environmental Policy and Administration Maxwell School of Citizenship and Public Affairs Syracuse University USA</p> <p>Brechin, S. R., P. C. West, et al. (1991). Resident peoples and protected areas: A framework for inquiry. <u>Resident peoples and national parks: Social dilemmas and strategies in international conservation</u>. P. C. West and S. R. Brechin. Tucson, University of Arizona Press: 5-28.</p> <p>Brechin, S. R., P. R. Wilshusen, et al., Eds. (2003). <u>Contested Nature: Promoting international biodiversity and social justice in the twenty-first century</u>. Albany, NY, State University of New York Press.</p> <p>Wilshusen, P. R., S. R. Brechin, et al. (2002). "Reinventing a square wheel: Critique of a resurgent 'protection paradigm' in international biodiversity conservation." <u>Society and Natural Resources</u> 15: 17-40.</p>
Thomas Lovejoy	<p>President, The H. John Heinz III Center for Science, Economics and the Environment, Washington, D. C., USA</p> <p>Lovejoy, T. E. (2006). "Glimpses of conservation biology, Act II." <u>Conservation Biology</u> 20(3): 711-712.</p>

Participants in Q-methodology were asked to sort the statements and order them in the distribution according to the sorting grid (Table 3.4). The methodology imposes a quasi-normal distribution on the sorting. The purpose of this forced distribution is to facilitate statistical analysis based on relationships between responses that may be typical of a certain perspective.

Participants normally start by putting the cards into three piles; those statements they felt represented their point of view, those statements that were unlike their point of view, and those

they feel ambivalent about. These sets are then further sorted by ranking the statements against each other. I provided a scoring sheet with a forced distribution that the sorting had to conform to (Table 3.4).

Table 3.4. Q-sorting grid for 48 statements used in this study
(number of statements in each column shown in brackets)

MOST UNLIKE

MOST LIKE

My Point of View

My Point of View

- 5	- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4	+ 5
(2)										(2)
	(3)								(3)	
		(4)						(4)		
			(5)				(5)			
				(6)		(6)				
					(8)					

“The act of sorting therefore reveals the participants’ subjectivity, and the structure of the forced quasi-normal distribution facilitates comparisons of many Q-sorts” (Addams, 2000). By sorting the statements into categories that are relative to one another and that indicate a degree of strength of agreement, the participant applied some subjective meaning to the statements. It is

this subjective meaning and, ultimately, the assumptions that underlie that subjectivity that the research aims to uncover.

Participants were interviewed by phone after they completed the sort and returned the results. The value of post-sort interviews is to support the quantitative data with qualitative analysis. The interviews were used to explore the contextual framework and assumptions used to sort the cards and to add to the discourse interpretation. I will return to the interview data in the discussion of results. Logistical constraints prevented me from interviewing each participant after the Q-sort. I contacted 19 of the 22 participants by phone for a post-sort interview.

Participants were ensured that their comments and Q-sort results would not be attributed to them individually. I list the participants here, but in the remainder of the results, I use numbers (not in the same order as the list below) to discuss individual results where needed. Many of the participants are very prolific with a long list of publications. I list only the publications that were the source of one or more of the 275 statements that I extracted.

Context

The context within which biodiversity conservation actions are taking place is of crucial importance to understanding the origins of conflict. Since several of the participants commented on the difficulty of sorting statements without knowing the context within which the statement was made, it is worth addressing this issue. One invited participant objected strongly to the study and refused to participate because it was felt that conservation is “context-specific” and that answers to all the statements would be “it depends.” The statements on the cards were direct

quotes taken from the literature. On their own, they are certainly devoid of context. However, they do represent some consistent points of view. In other words, a person that made a particular statement normally supported that view with examples and defended that position in the rest of the article or book.

Some of the reasons for the debate and disagreement in the literature over the approaches to conservation in protected areas may indeed be the result of “ideological” and strongly-held dogmatic positions that do not take context into account. It is important to look carefully at each case, identify the priorities and develop solutions that address the expectations of multiple stakeholders. The question remains however: how does someone else attach context to the set of out-of-context statements?

At one level, context is a background factor. For example, if someone made statements as follows: “women should not be educated because their role is in the house...” or “thieves should have their hands cut off...”, there will be some reaction, either in support or opposition to the statement, in the absence of context. The reaction is based on some deeply held beliefs and values. If the response to these statements were “it depends on the situation,” then one would find oneself in a position of extreme ethical relativism. Setting moral guidelines, policy, or legal framework in such a case will be a real challenge. So, at one level, this study is looking for those “gut-level” value-based reactions to statements that are not necessarily based on a specific contextual setting.

A context-based approach to conservation is based on certain ontological assumptions. On the one hand, the ontological assumptions may see reality as captured in the circumstances. The context would be defined in objectively measured or observed phenomena. On the other hand, from a different ontological perspective, reality would be seen as something socially constructed. Context in this case would be a function of the worldviews and assumptions of the observers. I argue that we can not ignore this value-based approach to conservation. It would be unrealistic to expect two people with different worldviews (say Marxist economist and free market economist) to agree on the “context” of a certain situation. Where one may see an opportunity for development, the other may see potential for exploitation.

Context is also dealt with in the underlying assumptions of the research methodology. Q-methodology is designed to explore the “subjective structures, attitudes, and perspectives from the standpoint of the person or persons being observed” (Brown, 1996). The way Q-methodology deals with context is to claim that “the participant attaches the context, meaning and strength to the statement” in the way he/she places this in relation to other statements. In addition, the process of sorting is usually accompanied by a qualitative component. Researchers will discuss the meaning of statements with participants either during the sort or afterwards to gain a better insight into the context the person applied to the statements. In this case, I gained the contextual background by means of interviews with participants after they submitted their results. So, at another level, context is addressed by the participant who attaches context meaning to the statements by articulating it to the researcher. In the case of my particular study, most participants applied context to the statements based on their experiences and then talked about it in the follow-up interview.

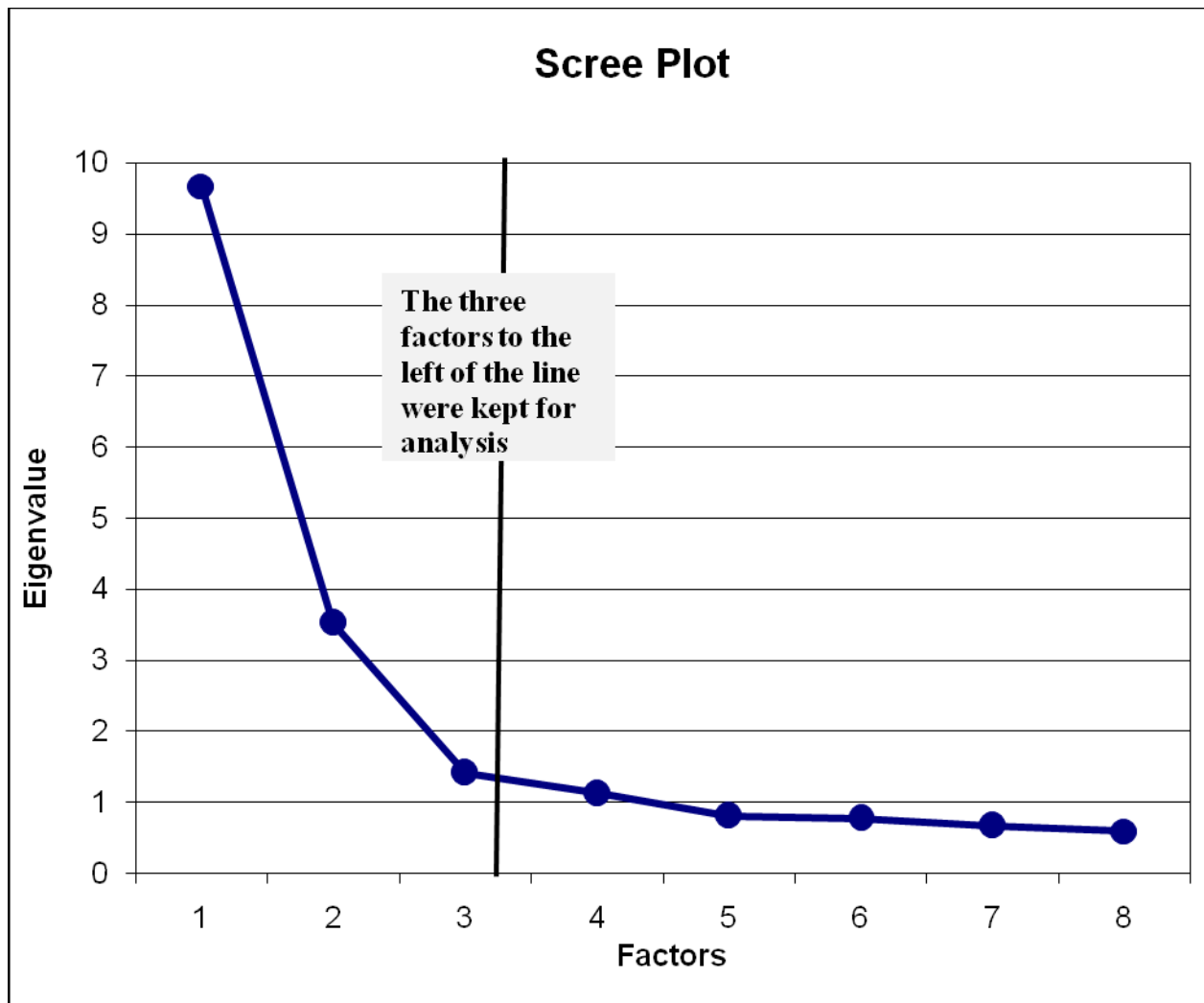
5. Statistical analysis

The statistical analysis for Q-methodology is similar to factor analysis. It requires a correlation matrix, extraction and rotation of factors, and the computation of a set of factor scores for each factor (McKeown & Thomas 1988). The key difference, however, is that the participants performing the Q-sorts are the variables being correlated and subsequently factored (Addams, 2000). The statements (48 in this case) are similar to the sample size in a factor analysis. Instead of a correlational methodology (R Methodology) where the emphasis is on extracting generalizable factors, in Q-methodology the emphasis is on similarities and attitudes within the group (Addams, 2000). I used PQMethod 2.11 (Schmolck 2002) to analyze the data (this is a freeware software application available for download) and I also used SPSS to confirm the results.

Theoretically, there are 22 possible unique discourses – one for each participant. The purpose of the factor analysis is to determine if there are a smaller number of consistent patterns of thought that exist between the participants. I used principle component analysis to extract factors and then used a varimax rotation to find the final solution. There are several methods to decide on the number of factors to keep for analytical purpose. One measure is the Kaiser Criterion (Kim & Mueller 1978) where the researcher keeps factors with an Eigenvalue greater than one. Another graphical method is the scree plot criterion where the researcher keeps the factors to the left of the flattening of a line graph of Eigenvalues (Cattell 1965). Ultimately, the choice of the number of factors should be theoretically sound. The statistical analysis of the data set yielded four factors with Eigenvalues above 1, but the scree plot suggested a three factors solution (Figure

3.1). Since only one individual loaded on the fourth factor, I chose the scree plot criterion to select three factors.

Figure 3.1. A Scree Plot of Eigenvalues



Each of the factors extracted in the statistical analysis represents a social perspective of biodiversity conservation and protected areas. Table 3.5 shows the three different factors and the individual loadings per factor. It is significant that all participants loaded on at least one of the factors. Three participants loaded on two factors, which means that their particular perspective was not captured by the characteristics of one or the other factor. I also noted that participants who were co-authors of journal articles or books loaded on the same factor, lending a degree of credibility to the reliability of the results.

Factor loadings were calculated for each participant. These are in essence correlation coefficients that serve as an indication of the person's similarity (or dissimilarity) to the score of an ideal *factor array* (McKeown & Thomas 1988). Statistical significance of a loading is calculated by multiplying the Standard Error with a p-level score. The Standard Error is calculated by the formula $SE = 1/\sqrt{N}$ where N is the number of items in the Q-sample -- 48 in this case. So, to find the statistical significance of factor loadings in this study I calculated the standard error ($SE=1/\sqrt{48} = .144$) and multiplied that with a Z-score of 3.29 ($3.29 \times .144 = .474$). All factor loadings greater than $\pm .474$ are significant at the $p < .001$ level.

The determination of the number of factors (or the number of ways participants are grouped together) was followed by a rotation of the factors to find the most parsimonious explanation. An orthogonal rotation would suggest uncorrelated factors while an oblique rotation will allow the new factor to be correlated (Stevens 1992). In the interpretation of factors the quantitative analysis of data is balanced by judgmental decisions on theoretical salience (Brown 1980: 33;

McKeown & Thomas 1988: 52; Stevens 1992: 381). I used several different types of rotation to find the rotation that would offer the most salient explanation.

The PQMethod (Schmolck 2002) application offers a graphical representation of the data in a two dimensional space. One can see the scores of participant in spatial relationship to one another in a four quadrant space. I searched for participant scores that appeared to be unique or separate from the others and rotated the solution around those. These “hand rotations” did not yield any solutions that were very different to a Varimax rotation. I also used an SPSS statistical application to perform a Quartimax solution (an orthogonal assumption) an Oblimin and Oblimax solution (oblique assumptions) and a Promax solution (an oblique assumption). None of these rotations yielded results that produced a better explanation than a Varimax rotation. A Varimax rotation will extract the smallest number of factors that explain the greatest degree of variance. Ultimately, I chose to accept a Varimax rotation (an orthogonal assumption) of the factors for interpretation. The results of the rotated solution of three factors and factor loadings of participants is shown in Table 3.5.

Table 3.5. Varimax Rotation of Three Factors
(significant loading scores in bold)

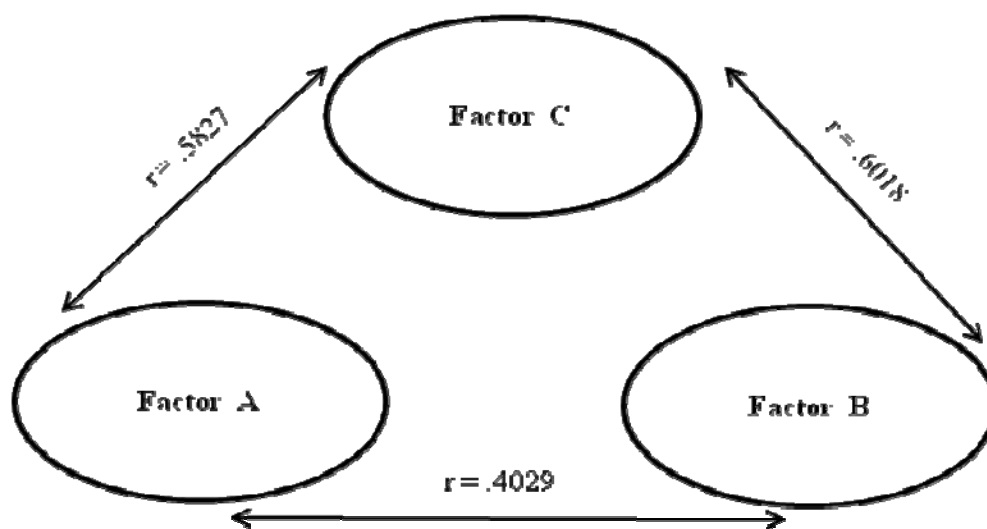
	Loading scores on factors		
	Factor A	Factor B	Factor C
<i>Participants loading on Factor A</i>			
P13	0.862	-0.007	0.249
P3	0.848	0.065	0.120
P11	0.836	0.169	0.211
P16	0.789	0.081	0.314
P5	0.771	0.145	0.295
P8	0.760	0.086	-0.069
P15	0.730	0.435	-0.063
P7	0.701	0.189	0.256
P12	0.631	0.425	0.306
<i>Participants loading on Factor B</i>			
P4	0.177	0.813	0.273
P9	0.162	0.812	0.216
P21	0.049	0.803	0.027
P1	-0.128	0.788	0.224
P17	0.218	0.754	-0.010
P18	0.430	0.698	-0.004
P2	0.278	0.625	0.435
P10	0.302	0.503	0.471
<i>Participants loading on Factor C</i>			
P19	0.165	0.252	0.719
P22	0.432	-0.282	0.647
P20	0.330	0.330	0.538
P6	-0.062	0.486	0.511
P14	0.415	0.488	0.494
<i>Variance Explained</i>	28.9%	25.0%	12.7%

* Loadings of 0.474 or higher were significant at $p < .001$

** Names of individual participants were not attributed to the results. Participants were allocated random numbers from P1 to P22.

The three factors, though representing unique discourses and values also have a degree of agreement with each other. Factor C is correlated more closely with factors A and B, while factors A and B have the biggest degree of difference (Figure 3.2).

Figure 3.2. Correlations between three factors



Once the factors were identified, the program allocated a factor score to the original statements using the same scoring and quasi-normal distribution as the scoring sheet. These scores (-5 to +5) are indicative of the “ideal” sort of a person that held the same belief that the factor represents. In most application of Q-methodology the interpretation is based on factor scores (Brown 1996; McKeown & Thomas 1988). A factor score was calculated for each one of the Q-sort items to represent what an “ideal” sort of a particular factor may have looked like. In other words the same scoring system used in the Q-sort (-5 to +5) is applied to all 48 items for each of

the factors. The score is calculated by first allocating a weight to each individual score. The weight is calculated by the following formula:

$$w = \frac{f}{1 - f^e}$$

where f is the factor loading and w is the weight (McKeown & Thomas 1988). When the weights are applied to each participant's Q-sort and a z-score is calculated per item, these z-scores could then be used to convert the scores to whole numbers consistent with the -5 to +5 scoring regime. See table 3.6 for a list of the 48 statements and their predicted scores for each of the three extracted factors.

Table 3.6. An Ideal Sort showing the 48 statements and converted factor scores for each factor

No.	Statement	Factor A	Factor B	Factor C
1	Biodiversity conservation will fail if it does not successfully address global poverty elimination.	2	-1	-3
2	The best approach to biodiversity conservation lies in the internationalization of protected areas.	-3	-1	-2
3	Indigenous communities should be able to refuse the designation of their lands as protected areas.	1	-1	1
4	Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy.	5	3	4
5	Under the banner of saving the environment, conservationists have subjected local populations to a new form of environmental colonialism in the last half century	2	-2	2

No.	Statement	Factor A	Factor B	Factor C
6	We could really improve the outlook for biodiversity if everyone had more contact with life on Earth.	1	2	3
7	There is a role for the national military in protecting animals. This is not as farfetched as it sounds, since the role of the military is to protect the nation's interest, usually against outsiders but in case of emergency against rebellious insiders.	-3	2	0
8	The gradual species loss now being documented in formally protected areas all over the world represents one of the greatest threats to biodiversity and an enormous challenge to everyone.	1	4	-1
9	All human beings have the fundamental right to an environment adequate for their health and well being.	3	3	4
10	Tourism, while increasing the foreign exchange to a country, is a threat to biodiversity. It is responsible for garbage, uncontrolled settlements, and disturbance of a fragile ecology.	-1	-1	-1
11	Nature protection and parks emerged out of colonial and authoritarian rule as instruments of natural resource control.	0	-3	2
12	There are serious flaws in the theory that wildlife can best be conserved through promoting human economic development.	-1	2	1
13	National parks and areas set aside for conservation are a 'western idea' imposed on developing countries because most industrialized nations have little biodiversity remaining.	0	-5	0
14	Protected areas should be governed by an explicit policy that maintains a sustainable economic return from protected areas.	0	-1	-2
15	Self-reliant local communities with strong decision-making and organizational capabilities will be better able to manage and protect natural resources.	4	1	2

No.	Statement	Factor A	Factor B	Factor C
16	Maintaining top predators, or restoring them to ecosystems from which they have been eliminated by human persecution, is an important approach to protect biodiversity.	0	3	2
17	Local communities should participate in all aspects of the design and operation of protected areas.	3	0	-1
18	The enemy of biodiversity is the hunter and farmer living in or adjacent to protected areas.	-3	-2	-4
19	National parks need to be protected from degradation by strong national government agencies.	1	1	0
20	Poverty leads directly to environmental degradation and loss of biodiversity.	2	0	-1
21	Until people learn how to dwell in the land without fragmenting, overhunting, and simplifying it, we will need to set aside large areas with few people to maintain diverse wildlife communities.	-1	2	0
22	Imposing national parks on rural communities will have a number of negative consequences, including the restriction of access to traditionally used resources.	2	1	3
23	Parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems.	-2	5	5
24	Given the urgent need to protect biodiversity loss, the intrinsic rights of nature should supersede those of people.	-2	0	-2
25	The challenge for the future is to combine conservation that respects human needs with economic development that respects the environment.	4	4	3
26	Global biodiversity conservation efforts should essentially be a top-down function if it is to succeed.	-5	-2	-3
27	Almost all top-down conservation projects that exclude community involvement are bound to fail.	3	0	-4
28	Sustainable economic development is incompatible with the existence of biodiversity or wild nature.	-4	-3	-1

No.	Statement	Factor A	Factor B	Factor C
29	Indigenous peoples should be allowed to continue to harvest plants and hunt animals and in protected areas.	0	0	1
30	The failure of parks to protect biodiversity is partly the failure of institutional support (e.g. lack of enforcement, inadequate staffing etc.).	1	4	2
31	Ethical and aesthetic considerations, not economic motivations, should be the chief reasons for conserving wildlife.	-2	0	0
32	Anthropogenic (people) disturbances of ecosystems are essential for the generation and conservation of biological diversity.	-1	-4	1
33	Biodiversity conservation will succeed when wild animals become a valuable enough commodity that local communities will gain tangible economic benefit from having them around.	0	-1	1
34	Protected areas are especially important when they protect species and populations that are highly sensitive to human disturbance.	0	5	1
35	Indigenous people should be relocated from inside protected areas to save the wilderness.	-3	-2	-3
36	A free market economy (capitalism) is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant.	-2	-3	-5
37	A national park must remain a primordial wilderness to be effective. No people, not even native ones, should live inside its borders.	-4	-2	-5
38	Protected areas are pressured by more and more poor people who depend on subsistence farming and hunting.	0	1	-2
39	Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape.	4	3	4
40	Conservation must provide people with economic benefits and should add to the economic quality of communities.	3	0	0

No.	Statement	Factor A	Factor B	Factor C
41	People and wildlife don't go together. If there are people in a park, they will be eating the animals.	-4	0	-2
42	Protected area initiatives need to pay more attention to empowering local communities and strengthening local institutions.	5	2	3
43	Biological science should be the guiding principle for biodiversity conservation in protected areas.	-1	1	0
44	An ethical concern for animals that leads to setting aside protected areas is a disguised form of imperialism.	-1	-3	0
45	It is more important to achieve social justices and fairness in the process of biodiversity conservation, than to protect specific species.	1	-4	-1
46	The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort.	-5	-5	-4
47	The activities of national parks are now the single largest threat to the integrity of indigenous peoples' lands.	-2	-4	-3
48	Large scale economic activities (e.g. timber, mining) have a much greater impact on conservation than local people.	2	1	5

6. *Interpretation of discourses*

The purpose of the statistical analysis was to identify unique factors that could then be interpreted as discourses with certain underlying assumptions. The interpretation of these discourses is based on a combination of both quantitative and qualitative factors. I used the ideal scores per factor to create a visual image of what a completed scoring sheet would look like for a particular factor (See Appendix E, F and G). I also used the statements with the highest and lowest scores as in indication of strongly held views and then I used the distinguishing

statements (those statements with very little correlation with other factor ideal scores) as an indication of the unique contribution of a particular factor (See Appendix H, I, and J). The interviews with participants and my literature review, including the discourse analysis explained in Chapter Two, added qualitative support for the quantitative analysis.

A small number of participants used in Q-methodology limits the generalization to larger populations. However, the purpose of a Q research is to uncover the discourses that exist in the field. Since discourses are the result of dialog and conversation, and since the participants are people involved in the debate and discussion, it is assumed that these discourses exist in the larger domain and that they should be taken into account in collaborative endeavors.

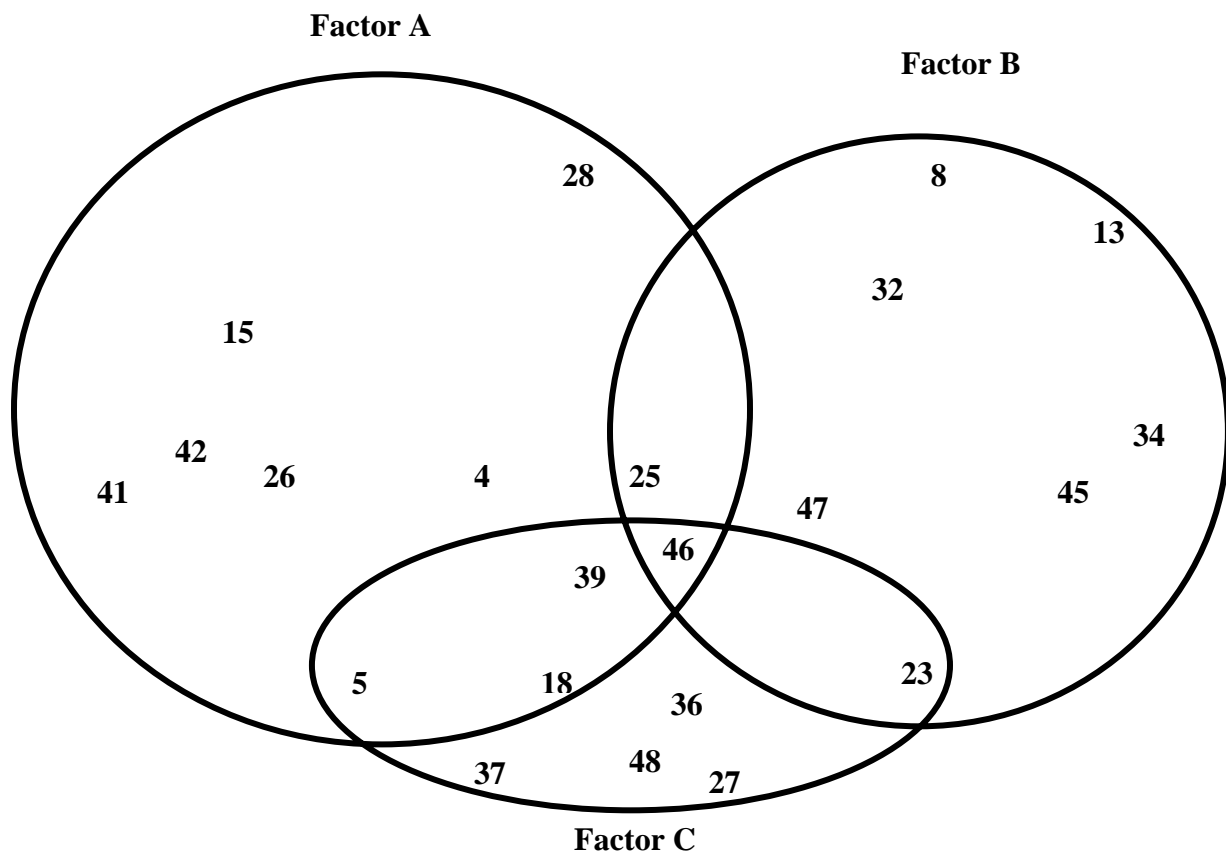
Results

In the sections below I provide a narrative description of each of the factors, which I call Factors A, B and C, and graphical representations of the relationships between factors. In demonstrating the views that constitute different perspectives, I will refer to the way a specific statement scored for a certain factor. For example, the factor score for item 48 was +5 for Factor C. This is evidence that adherents of Factor C have a strong belief that large-scale economic activities have a greater impact on conservation than local people. I will show the relevant statement number in brackets (48) in my discussion below. The statements and their ideal scores are found in table 3.6

A starting point in interpreting the meaning of the perspectives represented by the factors was to explore the aspects that set factors apart as well as the areas of overlap. I plotted most of the statements with high scores (-5, -4, +4, +5) in three overlapping circles representing the three

factors. The circles are of different sizes and are overlapping to illustrate the fact that the factors explained proportionally different variance and also the extent to which factors correlated with each other. This exercise was useful in developing an overall perspective of the dimensions that made certain factors unique, the areas of agreement between two or more factors, and the underlying assumptions that would provide an explanation for the differences. This graphical representation is shown in Figure 3.3.

Figure 3.3. Graphical illustration of unique dimensions and the relationship between factors (the numbers relate to statements, size of circles and degree of overlap are an indication of the relative proportion of the variance explained by a factor and of the strength of correlation between factors)



The relative position of statements provided a good starting point, but could not explain the fullness and multidimensional nature of the underlying discourses. I used a combination of quantitative results from the data analysis and qualitative comments from the participants and I looked at the full picture of each ideal sort to develop meaningful interpretations of the three perspectives below.

Factor A: Social justice perspective

This perspective sees a role and responsibility for parks and protected areas beyond biodiversity conservation. Parks have an obligation to empower local communities (42), provide economic benefits, and to alleviate poverty. This perspective sees parks as political and social instruments. Biodiversity is a problem of human organization (4) and parks have a social justice obligation. This perspective disagrees that sustainability is incompatible with biodiversity conservation (28) or that people inside protected areas are a threat to wildlife (41). This perspective will acknowledge the threat of species loss and will agree that poverty is a threat to biodiversity. A point of disagreement with both other perspectives is on the role of protected areas. This perspective believes that protected areas have a social obligation that includes poverty alleviation and it would disagree with the notion that parks ought to focus on nature protection and not on solving social issues (23).

Underlying values of this perspective include a strong concern for democratic processes, respect for rights and participation in conservation efforts of humans living around protected areas (15, 39, 42), and the possibility of sustainable economic development (28). The focus on local communities (42) is not a scale issue, it is a process issue. In the literature the debate and

disagreement is sometimes characterized as a “local versus global” tension. The *Social Justice* perspective is concerned with the process of democracy, not the scale of biodiversity conservation policy. In this perspective the emphasis on local communities is based on the principles of social justice that include the right to participate at all levels, the right to self representation, and the right to self-determination (Taylor 2000). Consequently this perspective resists authoritarian, top-down approaches to biodiversity conservation that do not take the local community and the democratic process into account (26).

In interviews several of the participants mentioned the idea of biodiversity conservation as part of a “civil society.” Biodiversity is an important objective, but it should be part of a “livelihood-based conservation” that sees humans as part of the biodiversity equation. The participants stressed the importance of a democratic process, the need to respect local knowledge, and the importance of political and social processes in achieving biodiversity conservation objectives.

All perspectives have biodiversity conservation as a common objective, but the *Social Justice* perspective asks the question: *how* are these objectives achieved? The emphasis is on process and fairness.

Factor B: Concern for biodiversity

If the *Social Justice* perspective was concerned with the question, *how* to conserve biodiversity, the proponents of Factor B are focused on the question, *what* should be conserved? This factor does not deny the importance of the process and the rights of people, but its views are motivated by a deep concern for the loss of biodiversity.

There is a greater sense of urgency and crisis present in this perspective (8) which leads to the justification for the use of the military to protect parks (7). One focus of this perspective is on protected areas as a way to conserve biodiversity threatened by human activity (34) and this perspective rejects the notion that human disturbances contribute to biodiversity (32). This perspective is more ambivalent to involvement of local communities in biodiversity conservation (17, 27). I labeled this the *Concern for Biodiversity* perspective to highlight the focal point of concern for this point of view.

This perspective does not blame poverty or hunting as threats to biodiversity (18, 20), and it respects fundamental rights of local communities to live productively on the landscape (9, 39). It shares with the *Social Justice* perspective the strong agreement that the challenge for the future is to combine conservation that respects human needs with economic development that respects the environment (25). However, when it comes to a choice between biodiversity conservation and social justice, this perspective will favor biodiversity (45). In fact, people are not seen as part of biodiversity. The obligation of protected areas, in the *Concern for Biodiversity* perspective, does not include solving social problems and poverty reduction (23). Protected areas are seen as instruments to primarily address threats to biodiversity and not to solve social and economic problems.

This perspective is opposed to the characterization of protected areas as a “western idea” imposed on developing countries as instruments of domination (13) and the accusation that protected areas are a threat to the integrity of indigenous peoples (47). In my interviews participants reacted strongly to these statements. Another aspect that came out of the interviews

was a stronger sense of boundaries. This perspective takes a less ambiguous view of conservation. Participants used opposite terms like “inside” and “outside,” “biological” and “social.” In my view, this perspective is more “crisis-oriented.” It is more likely to suspend democratic processes and social justice if it felt that biodiversity is threatened.

Where the *Social Justice* perspective may emphasize the *how* of biodiversity conservation, this perspective emphasizes the *what*. The assumptions are motivated by a deep concern for the rapid decline in biodiversity across continents. I think it would be incorrect to characterize this perspective as somehow insensitive or in opposition to the needs of people and issues like poverty. In interviews the participants acknowledges poverty and economic welfare as issues that need to be addressed, but they felt that protected areas were already bearing a heavy burden of protecting biodiversity. They could not be expected to solve all problems.

Factor C: Biodiversity Across the Landscape

Where the responses of the *Concern for Biodiversity* perspective are based on an assumption that protected areas are important to conserve biodiversity, this perspective assumes that biodiversity needs to be protected over a much larger landscape. Biodiversity is not confined to protected areas and it is also not limited to non-human nature. Humans are part of biodiversity and human disturbances contribute to biodiversity. I labeled this perspective *Biodiversity Across the Landscape* because the assumptions that biodiversity conservation need to be expanded beyond protected areas.

This perspective appeared to be more complex and with more inherent tensions than the other two. Though it may be highly correlated with both Factor A and Factor B, it is not a compromise position between those two perspectives. For example, it strongly shares the belief that parks are designed to preserve nature and cure social problems (23) with the *Concern for Biodiversity* perspective, in opposition to the *Social Justice* perspective. On the other hand, it shares the accusation that conservationists have subjected local populations to a new form of environmental imperialism (5) with the *Social Justice* perspective, in opposition to the *Concern for Biodiversity* perspective.

This perspective acknowledges the role of parks to protect sensitive habitat from human impact, but parks do not have a role in solving social problems (23). In interviews, participants explained that they have great sympathy for poverty and social conditions, but that they thought it was unfair to impose the burden of social and structural problems on protected areas. There is less emphasis in this perspective on protected areas and more emphasis on biodiversity across a landscape of land use. People are part the biodiversity landscape and, together with other top predators, contribute to biodiversity.

This perspective is strongly opposed to the impact of large-scale economic activities and a free market economy as a way to protect biodiversity (36, 48). It is also more likely to label biodiversity as instruments of domination (5, 11). The concern about large scale economic activities (48) and the rejection of the free market economy as a way to address biodiversity conservation (36) set this perspective apart from the two others. One can see the link between these views and the reluctance to hold parks accountable for addressing social problems. It can

be explained in terms of the limits of organizational mission. Conservation organizations are established with a specific mission and focus. If they used their power and influence to address issues outside their mandate, it could lead to abuses.

Interviews with participants confirmed their concern for biodiversity, but they believe that parks can not be expected to meet dual objectives. “Distrust” may be too strong a term, but I certainly sensed that this group was cautious about the power of large conservation organizations. The strong rejection of a free market approach to addressing biodiversity conservation (36) is one assumption that needs greater exploration. I suspect that there are at least two different sets of underlying assumptions in this particular finding. On the one hand there is a critique of conservation organizations as part of a neoliberal attempt to turn natural resources (and protected areas) into economic commodities (Chapin 2004; Igoe & Brockington 2008), and on the other hand is a concern that human materialism and economic activities of people in or near protected areas are threats to biodiversity (Oates, 1999, Terborgh, 1999). Both of these approaches may reject the free market approach as an effective way to conserve biodiversity, but for very different reasons.

Comparison of the three perspectives

If collaboration is the objective, then we need to understand how the different underlying perspectives compare and overlap with to each other. Q-methodology allows us to compare specific statements across different perspectives and to identify those statements with a high degree of consensus and those statements that distinguish one perspective from the others.

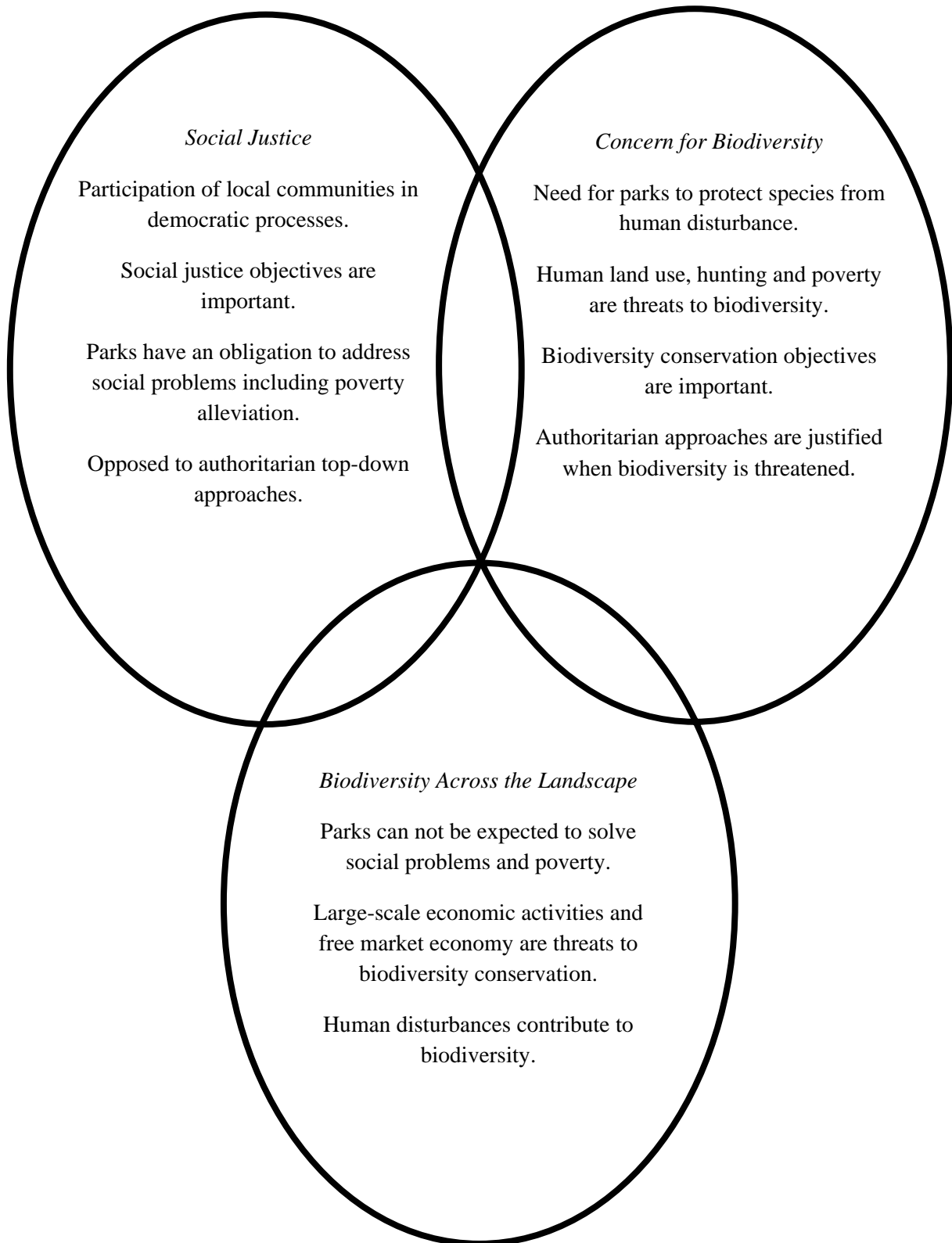
Understanding these areas of potential consensus and conflict is valuable in finding the best options across a collaborative landscape.

However, it is important not to be too reductionist in the use of the Q-method results (Tuler et al. 2005). It is, after all, the entire story of a perspective that is of value – not the ranking of one or two statements. In Q-methodology participants react to a statement based on their perception of the relative position of that statement to all the other statements in set. For this reason, we need to apply qualitative interpretation of the entire discourse and the underlying values it represents.

Distinguishing themes

Though there are areas of overlap between the perspectives, there are some areas of fundamental disagreement (Figure 3.4). One such area is the perceived obligation of parks to social and economic conditions around the parks. The values supported by the *Social Justice* perspective clearly support a role for parks to address economic welfare of the surrounding community (23) including attempts to empower local communities (42) and alleviate poverty (1). Conversely, the *Biodiversity Across the Landscape* perspective opposes this burden on parks and the *Concern for Biodiversity* perspective makes a clearer distinction between parks and “non-parks.” The role of protected areas in alleviating poverty is the topic of intense disagreement in journal articles (Brockington et al. 2006; Leatherman 2008; Sanderson & Redford 2004). It is not something that this study was designed to explore, but I suggest it is a topic for future research.

Figure 3.4. Distinguishing themes of the three perspectives identified in the Q-Methodology



A second aspect of departure lies in the emphasis on democratic processes. Proponents of the *Social Justice* perspective are likely to insist quite strongly on participation of local communities in all aspects of conservation projects (17) and would reject top-down authoritarian attempts (26, 27). Attention to social justice and fairness would be important for this perspective. The *Concern for Biodiversity* perspective may not necessarily insist on top-down approaches, but would point to the importance of protecting biodiversity from human activities (34) and would argue that, given the urgency of the matter (8), biodiversity objectives may supersede social justice concerns (45).

A third distinguishing aspect that sets the perspectives apart is the position of people in biodiversity conservation. The *Concern for Biodiversity* perspective would make a distinction between biodiversity inside parks that need to be protected from the influence of people outside the parks (34). This perspective will also favor biological, as opposed to political or social, principles to apply in making decisions in parks and reject the notion that human disturbances contribute to biodiversity (32). The *Biodiversity Across the Landscape* perspective would see humans as part of the biodiversity equation and this perspective would see human disturbance as contributing to biodiversity. These areas of disagreement notwithstanding, there are some areas of consensus between the perspectives.

Areas of agreement

An important observation is that all three the perspectives have one thing in common – they are concerned with biodiversity conservation through protected areas. It is very encouraging, from

the perspective of collaboration, that there are some strong aspects of overlap in assumptions represented by the three different perspectives. Many of these areas dispel the notion of “idiotic dichotomies” (Lovejoy 2006b) that intensifies the conflict in biodiversity conservation. The differences are in the approaches to this objective.

One of these areas of consensus dispels the accusation that conservation biologists object to the involvement of other disciplines in biodiversity conservation (46). All three perspectives strongly reject this view. I believe that this understanding that biodiversity conservation requires a multi-disciplinary approach in order to be successful will go a long way toward collaborative efforts.

A second area of consensus lies in acknowledging the importance of people in achieving biodiversity conservation objectives. There is strong agreement that biodiversity conservation projects should respect fundamental human rights (9) and the needs of local communities (39). Relocating indigenous peoples from protected areas (35) and accusing farmers and hunters (18) are not seen as successful solutions to biodiversity conservation. There is agreement that the challenge for the future is to combine conservation that respects human needs with economic development that respects the environment (25).

All three perspectives are skeptical of a free market economic approach (36), and they tend to favor the need for strong national government agencies (19) to the internationalization of protected areas (2). This area of agreement may help toward collaboration, but it indicates a potential divide between conservationists and commercial interests, especially large-scale activities like mining or logging (48).

The final area of consensus, and perhaps the most optimistic aspect of future collaborative efforts, lies in the common acknowledgement that biodiversity conservation is a problem of human organization (4) and accepting that “the challenge for the future is to combine conservation that respect human needs with economic development that respects the environment” (25). This area of consensus suggests that all three perspectives share the pragmatic belief in the ability to reform the system (political, social and economic dimensions) in ways that will make it more sensitive to biodiversity conservation.

Conclusion

In the introduction to this chapter, I referred to the study by Redford et al. (2003). My contention was that their study looked at the conservation landscape, while I intended to explore the underlying forces that give rise to the features of the landscape. Not surprisingly, there was very strong agreement between this Q-study and the Redford et al. (2003) findings on conservation targets. Redford et al. (2003) investigated projects implemented by conservation organizations and mapped twelve major conservation targets ranging from biological to nonbiological in nature, but they do not provide much explanation for the reasons why organizations chose these specific targets.

The three perspectives I identified in the Q-study provide some rationale and understanding for the choice of certain targets under certain circumstances. The values of a *Social Justice* perspective will explain why adherents to this perspective would select targets focused on sustainable use, equitable sharing, or people. The *Concern for Biodiversity* perspective would be

more likely to select targets based on species protection and ecosystems science. The third perspective, *Biodiversity across the Landscape*, would select targets that achieve biodiversity across a wider landscape and may include aspects like sustainability in the achievement of the objective.

At the same time one needs to caution against simplistic linear categorization. The selection of a target is not simply the outcome of one particular perspective. In the same way a mountain feature on a map could be the result of several different geological processes, the selection of a conservation target may be the function of any one of a number of perspectives. It is important to uncover the rationale and values that lie behind choices people working on conservation in protected areas make. For example, a person or group may support an initiative to protect a particular species, but the choice is made because the community participated in the process and local people will benefit from the conservation effort. At the same time, another person or group may support this project because of a concern for the loss of a species. The fact that two groups agree on the same conservation target does not imply a degree of value coalescence. Their underlying values are still different and they are likely to encounter strong disagreement in another case.

It is this point that is key to collaborative efforts. Collaboration does not imply consensus (Leach 2006; Peterson et al. 2005). Successful collaborative efforts require a dialog and debate and a process of negotiation. Conflict in collaborative efforts is not seen as something to be avoided. Instead, conflict is seen as inherent and legitimate. However, if the parties do not have the basis for understanding the underlying origin of conflict, collaboration will be rather difficult. This

chapter provided a methodology for exploring those underlying value-based perspectives in conservation disagreements. The results identified three underlying perspectives that provide an explanation for the current level of disagreement in biodiversity conservation.

I agree with the conclusions of Redford et al. (2003) that those involved in conservation work from different disciplines and perspectives need to engage in structured debate, but I add the need to explore more deeply the reasons behind the disagreements. Collaboration in biodiversity conservation is indeed possible, but only if parties accept that there are legitimate reasons for their differences, if they are willing to understand the basis of these differences, if they remain non-judgmental about the perspectives held by others, and if they actively seek for areas of commonality.

In the following chapter I will explore in greater depth the policy process that leads to collaboration and the practical implications of different underlying assumptions and perspectives.

CHAPTER 4

PERSPECTIVES IN PROTECTED AREAS AND BIODIVERSITY CONSERVATION: A POLICY PROCESS APPROACH

Introduction

Despite several prominent events with a focus on global biodiversity conservation (for example, the 1992 Rio Declaration, the World Parks Congress in 2003), the most effective approaches to conservation through protected areas remains a source of conflict and disagreement. There are countless examples of this disagreement in the literature. Conservation organizations do not all agree on the same biodiversity conservation targets (Redford et al. 2003); there are disagreements about the extent (or existence) of biodiversity problems (Schwartzman et al. 2000); there is disagreement about the processes of implementing conservation projects and protected areas (Brandon et al. 1998; Brechin et al. 2003; Robinson & Redford 2004), and there are different perspectives on the social role and responsibility of protected areas (Dowie 2005; Nelson 2003). Disagreement per se is not something to be avoided. An approach based purely on consensus is likely to ignore some minority views and may lack the full participation of a democratic process (Peterson et al. 2005). However, discordance in worldviews and intractable conflict makes policy decisions difficult if not impossible.

Biodiversity conservation is certainly not the only environmental issue that is characterized by intense disagreement based on strongly held views. However, finding workable solutions and policy alternatives is important, not only for the protection of species and habitat, but also for the long term survival of *Homo sapiens*. A similar area of debate and disagreement is global climate

change. Despite the rhetoric and competing underlying perspectives, it is important to find workable and acceptable policy solutions (Dayton 2000).

Clark (2002) building on work done in the policy sciences (Lasswell 1971; Lasswell & McDougal 1992) proposed an analytical framework for solving nature-based conflict. Policy sciences offer professionals as well as scholars a “practical guide to dealing with real-life events in all their complexity” (Clark 2002: 4). This analytical framework can be used to address complex nature-based problems (Wallace 2003), including, I believe, the complexity of biodiversity conservation in protected areas.

Applying policy sciences to address biodiversity conservation issues is not novel. Wilshusen et al. (2002) offered a comprehensive critique of some of the dominant perspectives in conservation from a policy sciences viewpoint and offered some recommendations for action. Brunner and Clark (1997) applied policy sciences to ecosystem management, and in a recent edited publication Clark et al. (2005) addressed the complexity of conservation and large carnivores. In this chapter I use the policy sciences framework proposed by Clark (2002) to address biodiversity conservation policy in protected areas in developing countries. I used Q-methodology to uncover some of the different perspectives behind biodiversity conservation and also to illustrate how the methodology itself has the potential as a practical way to resolve conflicts in biodiversity conservation.

Underlying most areas of conflict are sets of individual perspectives, frames, assumptions and values. The rhetoric, posturing or disagreement observable on the surface are typically underlain

by a set of more complex underlying issues. We can apply a mapping analogy to this phenomenon. On the surface of a landscape are habitat, trees, grass, water etc. One can even map these aspects on a topographic or GIS map by using color or lines. Below the surface are important contributors to the landscape, but they are not immediately obvious. Soil type, water table, and geological features give shape to what we observe on the surface. Clark's (2002: 10) analytical framework is based on a map analogy and he adds a graphical representation of the framework in the image of a landscape. In this paper I will concentrate on one particular aspect of the policy sciences framework – the observational standpoint from which the policy process is approached.

To explore the role of observational standpoint in effective policy process for biodiversity conservation I used discourse analysis and then Q-methodology to elucidate the different standpoints. I then applied these standpoints to the analytical framework for policy process provided by Clark (2002). For more detail about my discourse analysis or Q-methodology approaches, the reader is referred to the explanation of the research methodology and findings in Chapters Two and Three. I conclude this chapter with some specific suggestions for problem solving in biodiversity conservation.

Method

The policy sciences analytical framework has three principal dimensions, problem orientation, social processes, and decision functions, but they are seen through a focal lens of the “standpoint” or perspective of the participant doing the analysis (Lasswell 1971). Clark (2002) mentioned Q-methodology as an effective way to uncover different standpoints in an issue, and

thus improve policy analysis. The method was first proposed by Stephenson (1935). Several studies have used this methodology to address environmental issues from a policy sciences perspective. Hooker (2002) used Q-methodology to explore perspectives of sustainable development, Byrd (2002) used the methodology in the conflict about wolves in Minnesota, and Steelman and Macquire (1999) took a policy sciences perspective in their Q-methodology study of forest management.

Q-methodology combines qualitative inquiry with quantitative analysis to uncover social perspectives about a particular issue (Tuler et al. 2005). It provides the empirical inquiry that is part of the policy sciences approach to analysis. In Q-methodology the qualitative elements of a social perspective (these elements could be written statements or images) are collected from individuals who are involved in or concerned with the issue. The aim of a Q-study is to determine coherent sets of “discourses” or perspectives that indicate some of the underlying values, or standpoints, that would determine individual choices and interpretations. It is fully described in publications by Brown (1980), McKeown and Thomas (1988), and Addams and Proops (2000). I followed the steps outlined by Addams and Proops (2000) in this study.

I started an exploration of the overall discourse with a comprehensive discourse analysis of the literature in biodiversity conservation. Much of the dialog and discussion in biodiversity conservation is reflected in books, journal articles and conference proceedings. In many cases some of these publications are in direct response to other publications. For example Oates’ (1999) book *Myth and reality in the rainforest* is a direct response to the book by Adams and McShane (1996) *The myth of wild Africa*. Wilshusen et al. (2002) conducted a critical analysis of

the underlying values found in four books in biodiversity conservation (Brandon et al. 1998; Kramer et al. 1997; Oates 1999; Terborgh 1999). In the editorial pages of the journal *Conservation Biology*, there are several examples of a dialog and correspondence based on different perspectives (Agrawal & Ostrom 2006; Brosius 2004; Terborgh 2004). I extracted 275 definitive statements that represented 92 different authors. Some of the works represented in this sample of statements included the publications like the World Commission on Conservation Development's *Our Common Future* (World Commission on Environment and Development 1987), John Terborgh's book *Requiem for Nature* (1999), *Contested Nature* by Brechin et al. (2003), Chapin's (2004) critique of conservation organizations in *WorldWatch*, articles and editorials in the *Conservation Biology* journal, and several other sources.

These 275 statements were reduced to a smaller set of 48 statements. This is referred to as a "Q-set" of statements (Addams 2000). To ensure that the set of statements represented a full spectrum of the discourse, I used a theoretical selection framework similar to that used by Dayton (2000) in his study of perspectives in global climate change. A full discussion of Q-methodology, the results and analysis is presented in Chapter Three. The dimensions of the selection framework were:

- G. Policy prescriptions.
- H. Notions of Biodiversity
- I. Causes, blame and negative impact
- J. Actors
- K. Fundamental Beliefs
- L. Future challenges

Participants (the P-set) for the study were drawn from the list of individuals who participated in the dialog and discussion on biodiversity conservation. In fact several of the participants were

I contacted 19 of the 22 participants for an interview after receiving the results. The purpose of the post-sort interview was to gain an understanding for specific choices, to get a sense of the contextuality the participant applied in sorting statements, and to ask the participants about their personal views of biodiversity conservation. This qualitative aspect, combined with the quantitative analysis, added in the interpretation of perspectives.

The 22 rankings were analyzed using a principal component analysis with a Varimax rotation. I found that this solution explained the highest variance, made a clearer distinction between factors, and lent itself best to theoretical interpretation. All factors that explained more than 10 percent of variance and with an Eigenvalue of higher than 1 were retained. The analysis supported a three-factor solution, suggesting that there are at least three strong underlying perspectives in biodiversity conservation. A table with all 48 statements and the allocated score according to each of the three factors are attached as an appendix.

In Chapter Three I interpreted the statements supported by these three factors and the interview data, and I labeled the three perspectives as follows: “*Social Justice*,” “*Concern for Biodiversity*,” and “*Biodiversity Across the Landscape*.” In the section below I will apply these three perspectives (or standpoints) to Clark’s (2002) three principal policy science dimensions and illustrate how the policy process in biodiversity conservation would be influenced by different underlying assumptions.

Discussion

I identified three perspectives, or observational standpoints, based on the discourse analysis and Q-methodology I conducted. I describe each standpoint in detail below. The distinguishing themes that emerged from the three perspectives are represented graphically in Figure 4.2.

Social Justice

Underlying values of this perspective are a strong concern for democratic processes, respect for rights and participation in conservation efforts of humans living around protected areas, and the possibility of sustainable economic development. This perspective sees a role and responsibility for parks and protected areas beyond biodiversity conservation. Parks have an obligation to empower local communities, provide economic benefits, and to alleviate poverty. This perspective sees parks as political and social instruments. Biodiversity is a problem of human organization and parks have a social justice obligation. This perspective disagrees that sustainability is incompatible with biodiversity conservation or that people inside protected areas are a threat to wildlife.

Concern for Biodiversity

This perspective is characterized by a greater sense of urgency and crisis. One focus of this perspective is on protected areas as a way to conserve biodiversity threatened by human activity and this perspective rejects the notion that human disturbances contribute to biodiversity. This perspective is more ambivalent to involvement of local communities in biodiversity conservation

When it comes to a choice between biodiversity conservation and social justice, this perspective will favor biodiversity. In fact, people are not seen as part of biodiversity. The obligation of protected areas, in the *Concern for Biodiversity* perspective, does not include solving social problems and poverty reduction. Protected areas are seen as instruments to primarily address threats to biodiversity and not to solve social and economic problems.

This perspective takes a less ambiguous view of conservation. Participants used opposite terms like “inside” and “outside,” “biological” and “social.” In my view, this perspective is more “crisis-oriented.” It is more likely to suspend democratic processes and social justice if it felt that biodiversity is threatened.

Biodiversity Across the Landscape

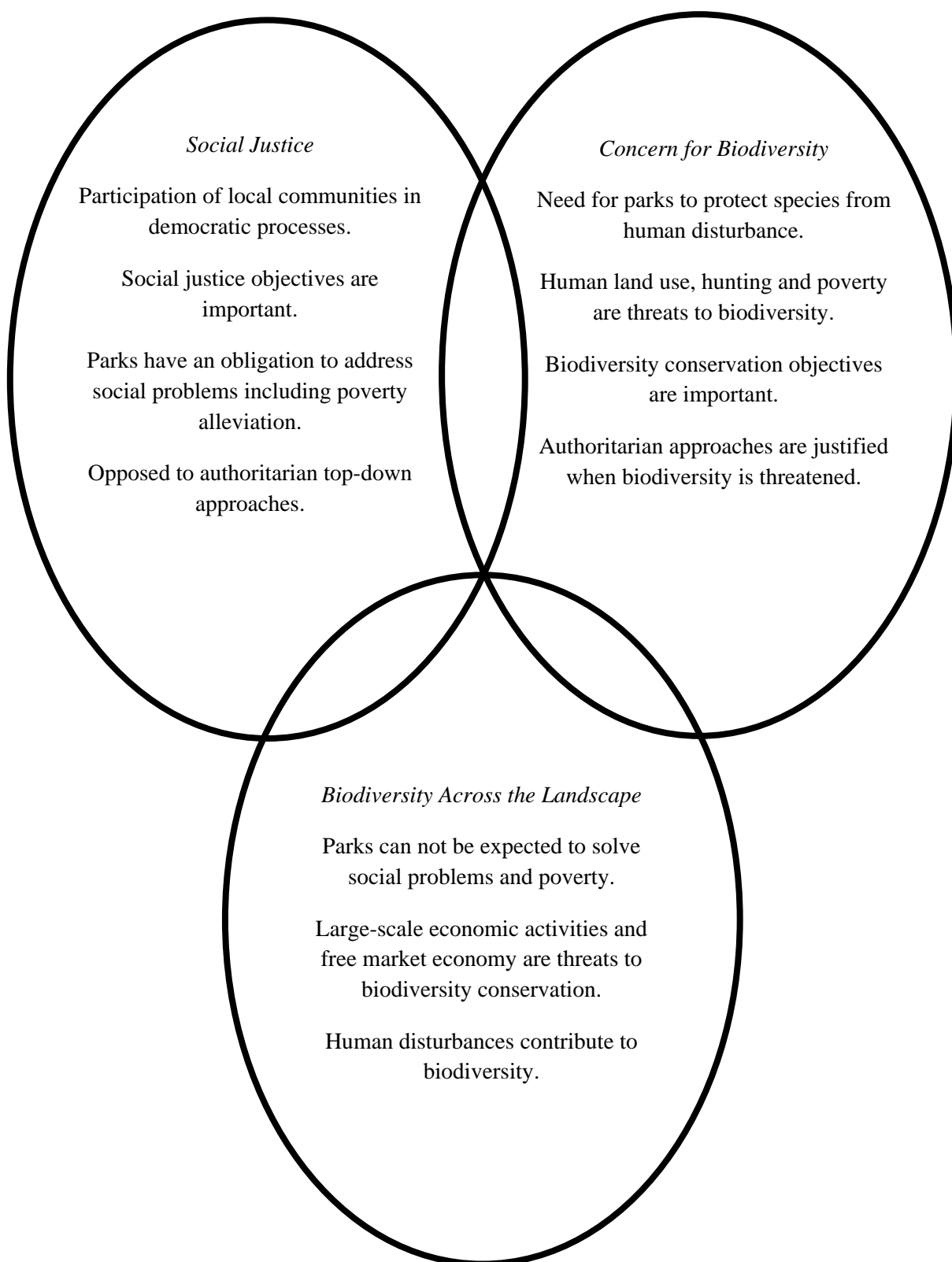
Where *Concern for Biodiversity* perspective is based on an assumption that protected areas are important to conserve biodiversity, this perspective assumes that biodiversity needs to be protected over a much larger landscape. Biodiversity is not confined to protected areas and it is also not limited to non-human nature. Humans are part of biodiversity and human disturbances contribute to biodiversity. I labeled this perspective *Biodiversity Across the Landscape* based on the assumptions that biodiversity conservation need to be expanded beyond protected areas.

This perspective acknowledges the role of parks to protect sensitive habitat from human impact, but parks do not have a role in solving social problems. In interviews, participants explained that they have great sympathy for poverty and social conditions, but that they thought it was unfair to impose the burden of social and structural problems on protected areas. There is less emphasis in

this perspective on protected areas and more emphasis on biodiversity across a landscape of land use. People are part the biodiversity landscape and, together with other top predators, contribute to biodiversity.

This perspective is strongly opposed to the impact of large-scale economic activities and a free market economy as a way to protect biodiversity. It is also more likely to label biodiversity as instruments of domination. The concern about large scale economic activities and the rejection of the free market economy as a way to address biodiversity conservation set this perspective apart from the two others.

Figure 4.2. Graphical representation of the distinguishing themes of the three perspectives that emerged from the Q-methodology study



Lasswell (1971) identified three principal dimensions in the policy process framework: problem orientation, social processes, and decision functions. However, the interpretation and analysis of each of these dimensions will be different based on the observational standpoint of groups or individuals (Clark, 2002). The three perspectives I identified above and the underlying values and assumptions of parties involved in biodiversity conservation represent three different observational standpoints or approaches to the policy process. I will use the results from my Q-study to demonstrate how different underlying perspectives may influence choices of approach to policy process in biodiversity conservation.

Problem Orientation

In a way “biodiversity conservation” is the articulation of a solution to a perceived problem. The discipline of Conservation Biology has been described as a “mission-based” or a “crisis-bases” discipline (Meine et al. 2006; Soulé 1985). It is clear, however, that different perspectives in biodiversity conservation have different orientations to the definition of the problem. Problem definition shapes the public articulation and also how people talk and think about an issue (Rochefort & Cobb 1994). A very positive outcome of the results of my study is the strong degree of agreement between the three perspectives on the nature of the biodiversity conservation problem (Figure 4.3).

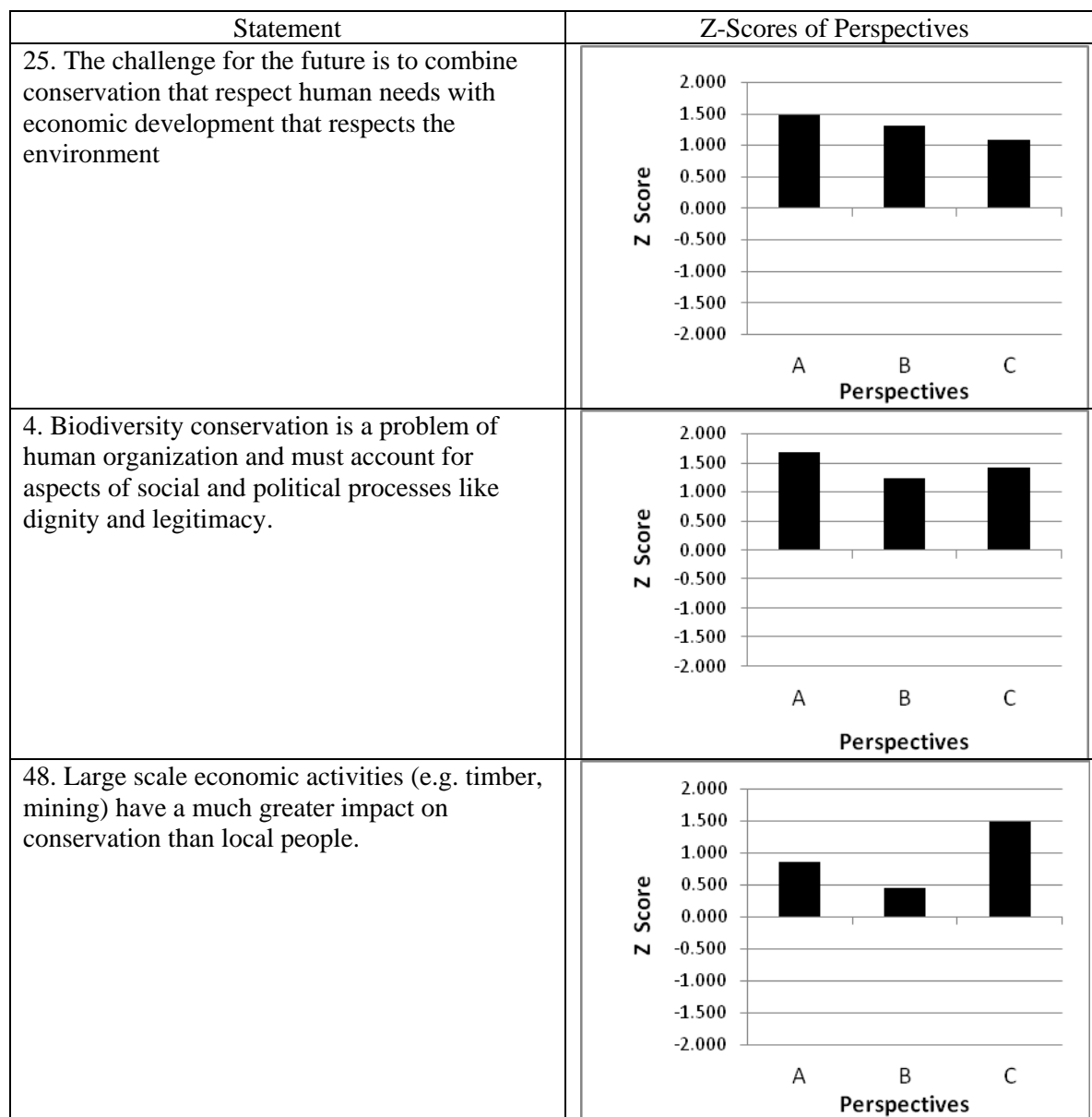
The statistical analysis of Q-methodology applies a weight to each participant that loaded on a factor based on the strength of the participant’s correlation with the factor. These weights are then used to allocate a total score for each one of the statements. When the total scores are converted to z-scores, it gives an indication of the extent to which a particular statement is

representative of the point of view of a perspective. For instance, the statement with highest positive z-score for Factor A (*Social Justice perspective*) was: “Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy.” If a z-score is negative, it would be an indication that the statement is not representative of the point of view. In the figures below I use the z-scores of statements to illustrate the standpoint of the different perspectives.

All three perspectives recognize the challenge to combining a respect for human needs and human development with economic development that respects the environment (Adams & McShane 1996). This agreement sets a solid basis for problem orientation. It is phrased as a challenge rather than an outcome and it recognizes that conservation is a tenuous balancing act. The second statement of agreement is equally important. All three perspectives understand that biodiversity conservation is a problem of “human organization” which implies that the search for a solution needs to take social and political processes into account (Brechin et al. 2003). The third statement of agreement provides greater complexity and potential for conflict. All three perspectives agree that large-scale economic activities are responsible for greater environmental destruction that local communities (Kramer et al. 1997). This statement taken together with the rejection of the free market system as an effective way to conserve biodiversity (see the discussion under decision processes) has the potential of setting conservationists in opposition to commerce and industry – at the moment these organizations are still responsible for large monetary support for conservation non-profits.

Figure 4.3. Points of agreement in the Problem Orientation dimension of the policy process framework

(statements where the different perspectives have a similar standpoint on the problem orientation in the policy process framework)



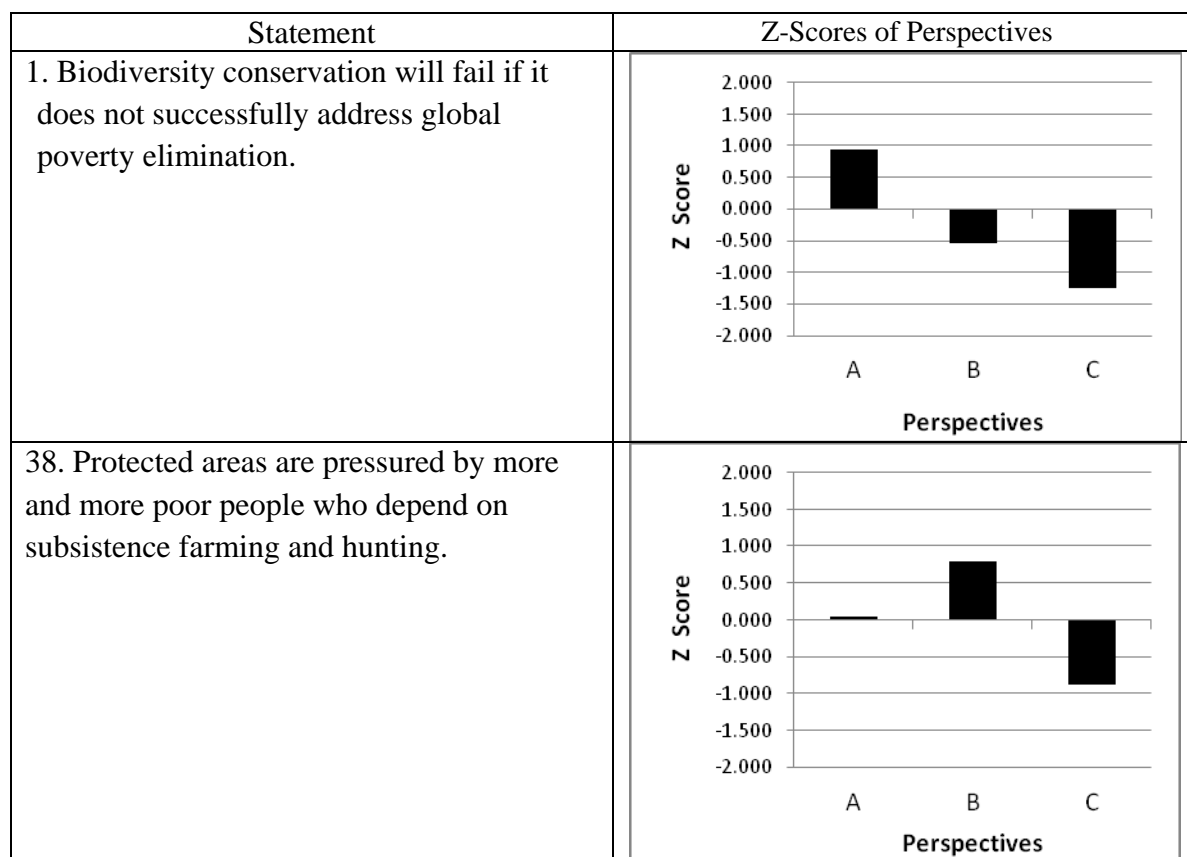
Despite some areas of agreement, there are, however, some areas of strong disagreement on the problem orientation between the three perspectives (Figure 4.4). One such area deals with the

issue about poverty. In my interviews with participants, the issue of poverty produced some strong reactions. The *Concern for Biodiversity* perspective sees parks surrounded by poor people as a source of the problem. Poor people are seen as a threat to biodiversity and parks need to protect the habitat and species from people. Poor people, because they have a limited source of income, are regarded as a threat because they are more likely to cut down trees for cooking and heating homes, and kill animals for food. The *Biodiversity Across the Landscape* perspective disagrees with this statement because of an underlying fundamental difference. If people are seen as part of the biodiversity landscape, as this perspective does, then there is no distinction between “in” and “out.” The entire landscape, including poor people, represents biodiversity that needs to be conserved.

The *Social Justice* perspective defines poverty (not biodiversity) as an important problem that needs to be addressed and this perspective believes that biodiversity conservation efforts have a responsibility to address poverty alleviation. In interviews, participants that support this perspective objected to the statement by some conservationists that “parks are designed to preserve nature, not to cure structural problems such as poverty...” (Brandon et al. 1998: 457). They take a position based on the idea of civil society and social responsibility that all institutions have social obligations. In particular, they feel that biodiversity conservation efforts have a responsibility to alleviate poverty. The honor of a Nobel Peace award given to someone like Wangari Maathai in 2004 who actively supports the importance of poverty alleviation as a way to protect the environment (Graydon 2005), underscores the viewpoint of this perspective.

Figure 4.4. Points of disagreement in the Problem Orientation dimension of the policy process framework

(statements where the different perspectives have dissimilar standpoints on the problem orientation in the policy process framework)



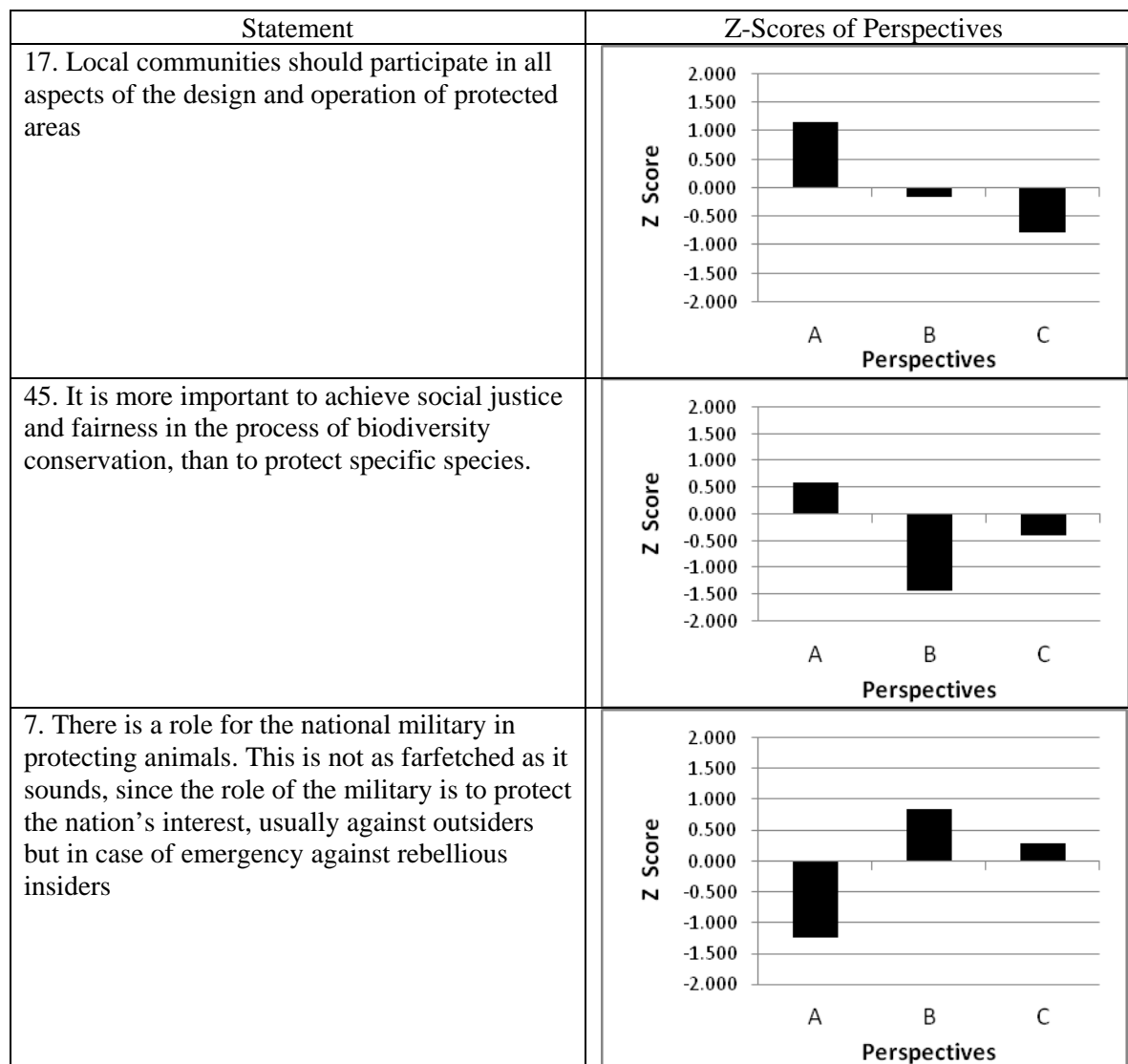
Social Processes

This dimension includes factors like participants, perspectives, situations, base values, strategies and outcomes. It is often the most overlooked dimension in policy making (Clark 2002). This is also an area where I found some of the greatest degree of difference between the three perspectives in biodiversity conservation.

One area of contentious disagreement in biodiversity conservation is the participation of local communities in the establishment and management of protected areas. At one extreme of the conflict is the view that local communities lack the broader global perspective required for biodiversity conservation (Terborgh 1999), or that their hunting and farming activities are in fact the source of a threat to biodiversity (Oates 1999). Not surprisingly, this disagreement is reflected in the results (Figure 4.5).

The difference about the participants involved in biodiversity conservation is a function of assumptions about the degree of democracy required in decision making. Since the *Social Justice* perspective has a stronger process orientation, it is not surprising that this perspective will require a greater degree of participation by all parties, especially local communities, in biodiversity conservation policy. This is not shared by the other two perspectives. The *Biodiversity Across the Landscape* perspective is in the strongest opposition to participation by local communities. This is not, in my view, because they reject democratic processes. I suggest that they hold that position because the reality of large-scale across the landscape conservation projects requires a degree of centralized planning and national/international policy that may exclude wide-spread participation.

Figure 4.5. Points of disagreement in the Social Process dimension of the policy process framework
 (statements where the different perspectives have dissimilar standpoints on the social process dimension in the policy process framework)

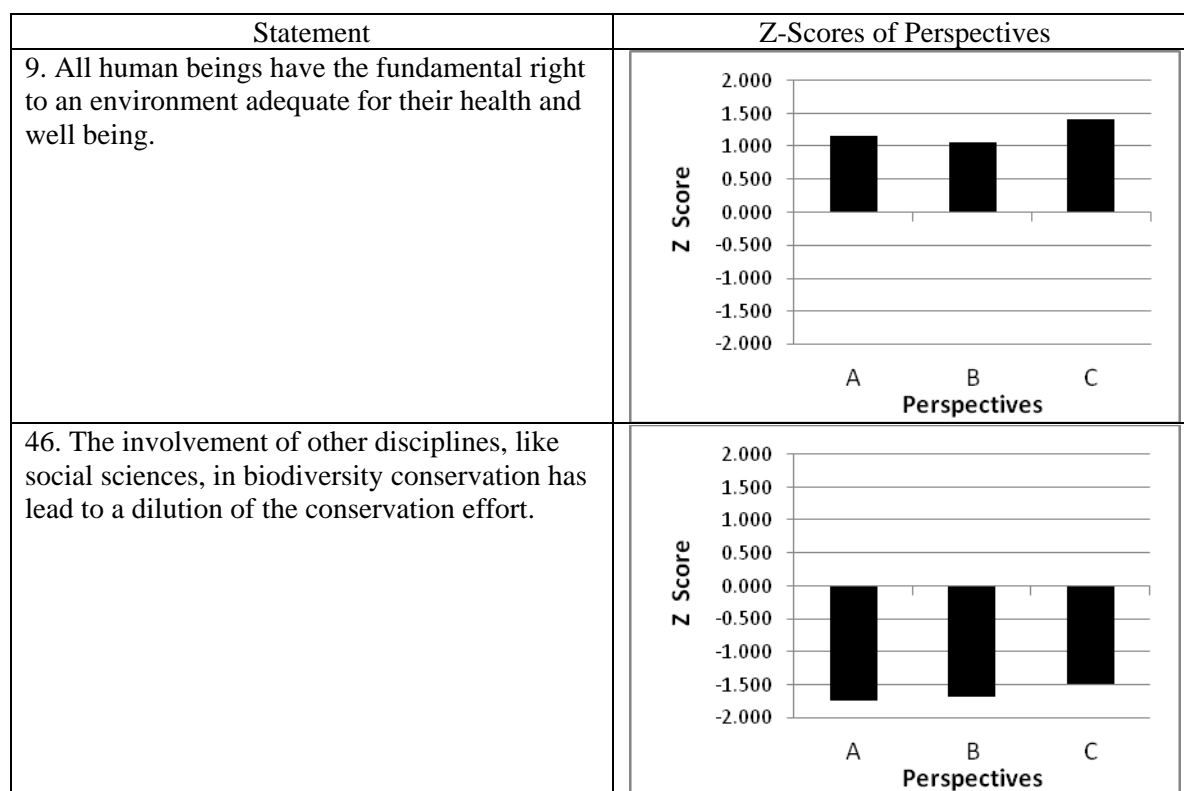


The sense of urgency is illustrated in the difference between the three perspectives. While the *Social Justice* perspective gives preference to social justice over the protection of a particular species, the *Concern for Biodiversity* perspective would be in favor of using the military to

enforce the protection of species. My feeling is that this view is not due to a disregard for human welfare and social justice, but rather motivated by a deep concern for biodiversity loss and a sense of desperation in protecting endangered habitat and species.

There are some areas where all three perspectives have strong agreement on the social processes in policy formation (Figure 4.6). All three perspectives support the statement that all human beings have a fundamental right to an environment adequate for their well being (World Commission on Environment and Development 1987: 348). This common point of departure is a very solid foundation for collaboration between the three perspectives. A second area of agreement between the three perspectives is the need for a multidisciplinary perspective. All three perspectives reject the statement that the involvement of social sciences has led to dilution of the conservation effort (Brandon 1997: 107). The ability to move beyond narrow disciplinary boundaries and look at the policy process from multiple perspectives is consistent with what Clark (2002) would call “policy-oriented professionalism.” This level of professionalism is essential for conflict resolution in an area where there are differences based on perspectives and values.

Figure 4.6. Points of agreement in the Social Processes dimension of the policy process framework
 (statements where the different perspectives have a similar standpoint on the social processes dimension in the policy process framework)

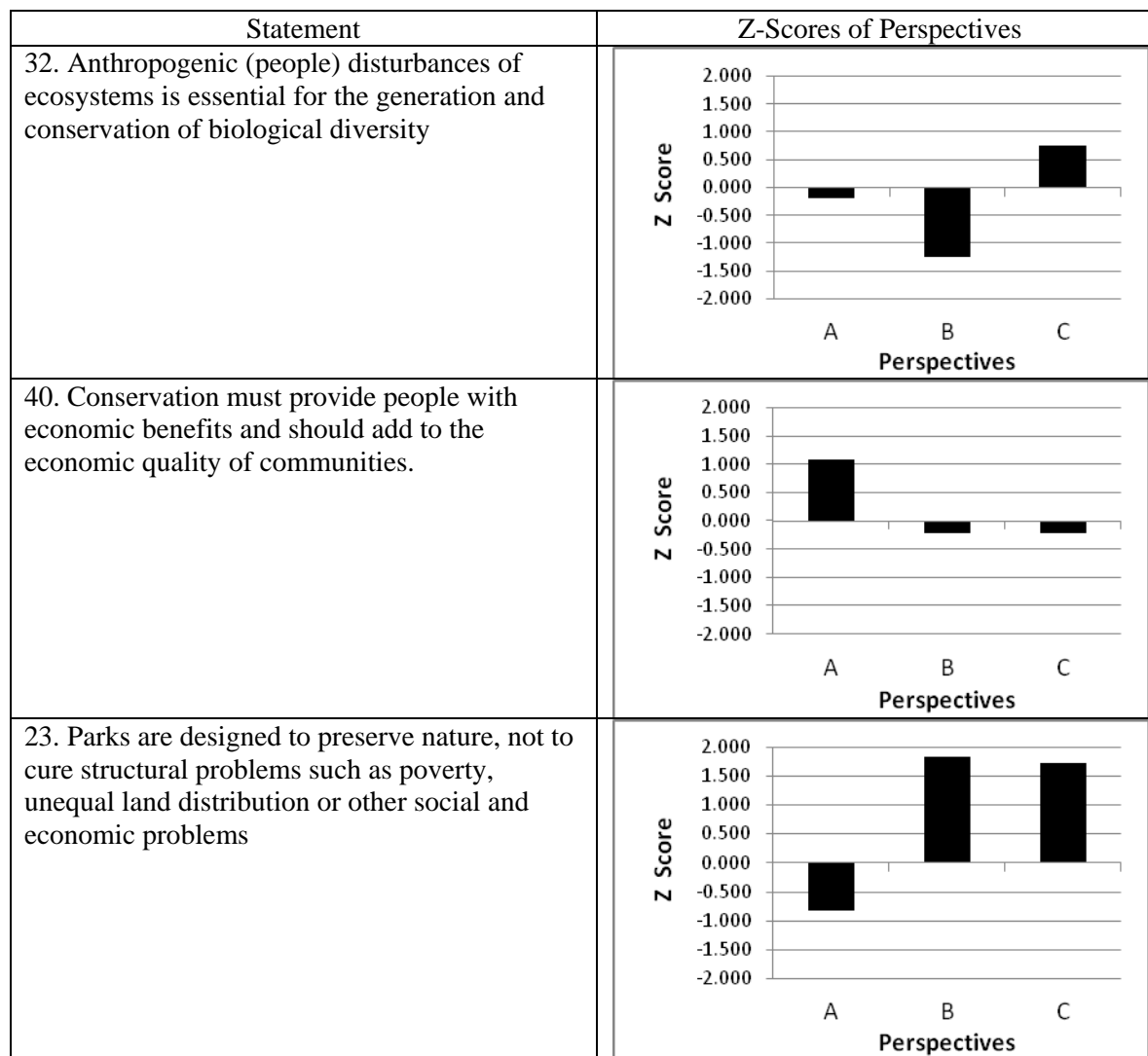


Decision Processes

The literature on biodiversity conservation contains many different prescriptions on how to address the problem. While the decision processes to achieve the desired outcomes may not be a source of disagreement, the desired outcome prescriptions vary based on the underlying perspectives (Figure 4.7).

Figure 4.7. Points of disagreement in the Decision Process dimension of the policy process framework

(statements where the different perspectives have dissimilar standpoints on the decision process dimension in the policy process framework)



One of the sources of disagreement between the *Biodiversity Across the Landscape* perspective and the *Concern for Biodiversity* perspective is the influence or importance of human disturbance in protected areas. The *Concern for Biodiversity* perspective sees human disturbance

as a threat to biodiversity and would favor policy outcomes that would protect parks from human influences. The *Biodiversity Across the Landscape* perspective, on the other hand, agrees with the statement that “anthropogenic disturbances of ecosystems are essential for the generation and conservation of biological diversity” (Ghimire & Pimbert 1997: 14). Since this perspective is based on an assumption of biodiversity that includes human actors, those holding the *Biodiversity Across the Landscape* perspective are more likely to favor decision outcomes that acknowledge the role of human disturbance patterns as an element of biodiversity (Fairhead & Leach 1996; Schwartzman et al. 2000).

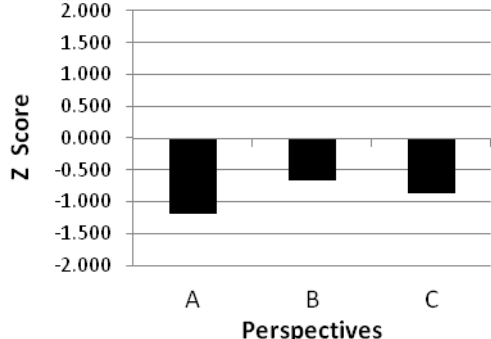
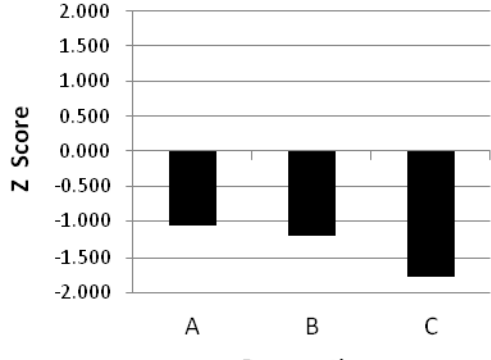
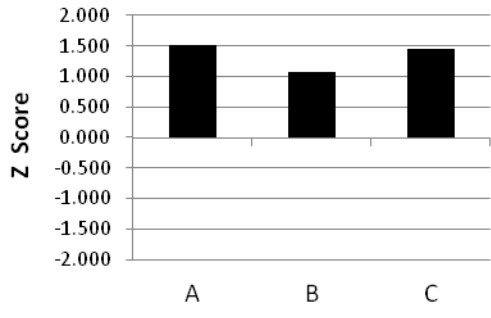
A second point of disagreement, when it comes to decision prescriptions and expectations for parks and conservation, is the expected role of parks to provide economic benefits. This is a source of disagreement in how the biodiversity problem is formulated and, not surprisingly, is a source of disagreement in the desired policy outcomes. The *Social Justice* perspective agrees that economic benefits and the economic quality of communities should be a policy prescription of conservation (IUCN/UNEP/WWF 1991). Both the other perspectives disagree with this outcome. An even stronger disagreement is about the role of parks in alleviating poverty. The *Concern for Biodiversity* perspective and the *Biodiversity Across the Landscape* perspective both prefer a relatively narrow role for biodiversity conservation policy in poverty alleviation. In their view “parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems” (Brandon et al. 1998: 457). In defense of this position, interviewees explained that parks and conservation organizations are bound by mission statements focused on biodiversity conservation. The added burden of solving social problems would make it impossible to meet the already difficult strategic objectives of

conserving biodiversity. Proponents of both these perspectives also pointed out that it would be unfair to expect conservation organizations to rise to the challenge of poverty alleviation without imposing the same expectation on all other organizations. This fundamental disagreement about the policy prescription and expected decision outcomes is likely to produce some degree of difficulty in finding collaborative solutions.

Fortunately, there are a number of aspects where the three perspectives share the same prescriptions for decision outcomes (Figure 4.8). All three perspectives agree with the statement that “biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape”. This is an important point for departure. If this statement is set as a desired outcome at the outset of a negotiation then, despite the differences in approaches, the parties have a strong basis for collaboration. If all conservation projects meet this outcome, it would be a major achievement.

Figure 4.8. Points of agreement in the Decision Process dimension of the policy process framework

(statements where the different perspectives have a similar standpoint on the decision process dimension in the policy process framework)

Statement	Z-Scores of Perspectives								
2. The best approach to biodiversity conservation lies in the internationalization of protected areas.	 <p>A bar chart with a vertical axis labeled 'Z Score' ranging from -2.000 to 2.000 in increments of 0.500. The horizontal axis is labeled 'Perspectives' with categories A, B, and C. Three black bars represent the Z-scores for each perspective: A is approximately -1.2, B is approximately -0.7, and C is approximately -0.9.</p> <table border="1"> <thead> <tr> <th>Perspective</th> <th>Z Score</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>-1.2</td> </tr> <tr> <td>B</td> <td>-0.7</td> </tr> <tr> <td>C</td> <td>-0.9</td> </tr> </tbody> </table>	Perspective	Z Score	A	-1.2	B	-0.7	C	-0.9
Perspective	Z Score								
A	-1.2								
B	-0.7								
C	-0.9								
36. A free market economy (capitalism) is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant.	 <p>A bar chart with a vertical axis labeled 'Z Score' ranging from -2.000 to 2.000 in increments of 0.500. The horizontal axis is labeled 'Perspectives' with categories A, B, and C. Three black bars represent the Z-scores for each perspective: A is approximately -1.1, B is approximately -1.2, and C is approximately -1.8.</p> <table border="1"> <thead> <tr> <th>Perspective</th> <th>Z Score</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>-1.1</td> </tr> <tr> <td>B</td> <td>-1.2</td> </tr> <tr> <td>C</td> <td>-1.8</td> </tr> </tbody> </table>	Perspective	Z Score	A	-1.1	B	-1.2	C	-1.8
Perspective	Z Score								
A	-1.1								
B	-1.2								
C	-1.8								
39. Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape.	 <p>A bar chart with a vertical axis labeled 'Z Score' ranging from -2.000 to 2.000 in increments of 0.500. The horizontal axis is labeled 'Perspectives' with categories A, B, and C. Three black bars represent the Z-scores for each perspective: A is approximately 1.5, B is approximately 1.0, and C is approximately 1.4.</p> <table border="1"> <thead> <tr> <th>Perspective</th> <th>Z Score</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1.5</td> </tr> <tr> <td>B</td> <td>1.0</td> </tr> <tr> <td>C</td> <td>1.4</td> </tr> </tbody> </table>	Perspective	Z Score	A	1.5	B	1.0	C	1.4
Perspective	Z Score								
A	1.5								
B	1.0								
C	1.4								

A second area of agreement dispels the contention of a “global versus local” disagreement in biodiversity conservation. All three perspectives disagree that the “best approach to biodiversity

conservation lies in the internationalization of protected areas” (Terborgh 1999: 198). In interviews participants acknowledged that, in certain circumstances, internationalization has benefits, but disagreed that it was the *best* approach. This agreement leaves the door open for more outcomes based on local situations and allows for a greater degree of contextualization in the decision process.

A third area of agreement about policy prescription is the requirement that protected areas need to be financially viable. All three perspectives rather strongly disagreed with the statement that “a free market economy is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant.” Proponents of the *Social Justice* perspective would reject this policy outcome because they may point to evidence of elitism and exploitation in some cases where there was a strong profit motive behind conservation (Murombedzi 2003; Sindiga 1999). Proponents of the *Concern for Biodiversity* perspective may point to the ecological reasons for maintaining the size of protected areas and for conserving certain areas. Insisting on economically self-reliant parks will mean attracting greater numbers of tourists, increased exploitation of natural resources, and the type of disturbances that they were trying to prevent in the first place. Proponents of the *Biodiversity Across the Landscape* perspective will also be concerned about the impact of unsustainable practices to meet short term financial objectives. The agreement of all three perspectives on this aspect does present an overall dilemma. If the dominant global economic ideology (a free market economy) can not provide the conditions necessary for biodiversity conservation, what are the alternatives? Within my analysis I did not uncover or solicit suggestions from any of the perspectives regarding alternatives to the free market and this may indeed be one of the challenges for the future.

Conclusion

In this chapter I set out to explore and describe the underlying values and assumptions in biodiversity conservation and then apply a policy sciences framework to illustrate some practical implications of these different perspectives. The perspectives and assumptions of biodiversity conservation in protected areas represent different observational standpoints. People disagree because they view the policy process from different standpoints. My contention is that a deeper awareness and appreciation of the range of perspectives underlying policy choices will lead to a richer dialog, greater potential for collaboration, and enduring agreements. In other words, acknowledging one's own standpoint and the position of others, will lead to a better understanding of the causal factors of conflict. The policy process outlined by Clark (2002) provided a very useful framework for exploring the potential approaches to biodiversity conservation. However, I also argue that the research methodology for exploring the underlying perspectives is part of the policy process solution in resolving conflict.

I used Q-methodology in an exploratory sense. I collected statements from the literature and I engaged a number of participants in the Q-sort process. The outcome of my analysis was the emergence of three different perspectives about biodiversity conservation. I labeled these perspectives *Social Justice* perspective, *Concern for Biodiversity* perspective and *Biodiversity Across the Landscape* perspective. Each of these perspectives held a set of different values and beliefs about biodiversity conservation in protected areas. Q-methodology is also a way to address the practical aspect of policy formulation and conflict resolution. Different observational standpoints of individuals, have the potential for conflict in policy outcomes because the problem is defined differently and the social and decision processes are approached differently. The

underlying assumptions of these observational standpoints are seldom articulated. Clark (2002) considers Q-methodology as a valid method for collecting information to improve the policy process. In a later publication applying policy sciences to the specific issue of large carnivores Clark et al. (2005: 265) suggest that Q-methodology can be useful to explore subjective worldviews. I suggest that this methodology is ideally suited to uncover the latent positions inherent in complex environmental issues. In the complex, uncertain and value-laden field of biodiversity conservation, Q-methodology offers a practical approach to conflict resolution and policy formation (Mattson et al. 2006; Tuler et al. 2005; Webler et al. 2001). I suggest that more conservation practitioners use the method in the policy process.

The use of a methodology like Q-method presupposes that the underlying perspectives of the wide range of participants be articulated. I find it very encouraging that all three perspectives agree strongly with the statement that “biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy” (Brechin et al. 2003: 261). Autocratic solutions handed down will not have lasting conservation results. The best approaches, despite the longer time and more effort they demand, are those that engage the widest range of participants, explore and respect their perspectives, and find the areas of commonality that will lead to collaborative solutions. Several participants, from all three perspectives, agreed that the context of each biodiversity conservation project is important. The observational standpoints of the range of stakeholders need to be taken into account if the policy of biodiversity conservation is to succeed.

The final lesson is the value of the policy sciences process. I used the framework in an analytical way to demonstrate the potential conflict that originates from different observational standpoints. I believe that the policy framework developed by Clark (2002) represents a practical way to address the complexity of biodiversity conservation. The framework takes into account the multiple perspectives and viewpoints that may exist in an environmental issue (like biodiversity conservation in protected areas), but it encourages policy-oriented professionals to explore and acknowledge the biases of their own perspectives and to also respect the viewpoints of others. The characteristics of Clark's (2002) "policy-oriented professional" are ideally suited to the process of seeking solutions in biodiversity conservation. It requires an open and adaptive approach, a mix of natural and social sciences, an appreciation of the context, constant dialog, and pragmatic solutions.

CHAPTER 5

CONCLUSION

In this dissertation study I set out to explore the underlying values and assumptions of biodiversity conservation in protected areas. My research question originated from personal experiences with the complexity of establishing and managing protected areas. What may have seemed to some participants and observers as an easy straightforward way to protect and conserve biodiversity was often met with resistance and objection by others. This same observation is supported by the literature on biodiversity conservation. The dialog and debate over the best ways to conserve biodiversity in the pages of books and academic journals can be characterized by conflict and disagreement (Wilshusen et al. 2002). Some publications are strident in their criticism and rejection of certain biodiversity conservation approaches (Chapin 2004; Dowie 2005; Guha 1997). In a recent paper, it was suggested that there is no real dialog because the different parties are not listening to one another – a “dialog of the deaf” (Agrawal & Ostrom 2006).

My thesis was that these disagreements were the manifestation of some deep, underlying assumptions. In economics, for example, we find disagreements about means of production based on some deeper economic ideology. A person with values and beliefs that include individual choice, private ownership and competition, will have a very different view of a proposed shoe factory than someone with assumptions that include central planning, equality, and wealth distribution. Their differences may be manifested in conflict and disagreement about all aspects of the factory – the way workers are paid, the price of shoes, the number of shoes

produced etc. If we did not understand their underlying assumptions, their disagreement may indeed appear like a “dialog of the deaf” without any potential for a productive outcome. If, however, the parties were aware of their own and the other’s basic underlying assumptions, they would be in a better position to recognize the basis of the disagreement and to move beyond a superficial conflict to a deeper dialog. We know today that, after centuries of writing, exploration, research and dialog, we have identified the underlying assumptions of economic ideologies like market capitalism, socialism or communism. The two people in this hypothetical example may never convince each other to change their underlying beliefs and assumptions, but a recognition of those positions may enable them to move beyond the debate, to explore points of commonality and to find ways of collaboration.

Collaboration does not mean that two people (or groups of actors) have to change their assumptions or that one group is “right” while the other “wrong.” Collaboration also does not mean that we should remove the conflict and disagreement from the dialog (Peterson et al. 2005). Collaboration is a function of both an insistence on productive outcomes and a maintenance of relationships (Clegg & Hardy 1996). The higher the degree of interdependence, the more important the long term relationship. To return to my hypothetical example above, if the two economists with different sets of assumptions about economic ideology rely on each other for the success of the shoe factory, they need to not only understand the other’s perspective, but they need to find ways to cooperate to make the project and future projects possible. The process may involve negotiation, disagreement, and conflict, but a collaborative approach will result in arrangements with a much higher chance of long term success.

My assumption was that we could apply the same principles of collaboration to biodiversity conservation. However, what seemed to be lacking in the debate was an articulation of the underlying assumptions and values about biodiversity conservation. Some of the existing attempts at characterizing the underlying assumptions about biodiversity conservation in protected areas seemed to focus on dichotomous opposites (Callicott et al. 1999), or some stereotypical caricatures (Guha 1997). I was more interested in the way the participants to the debate would identify their own assumptions and values. In this study I used multiple methods to achieve that goal.

Since policy formation is often influenced by the published works of working groups, scientists or observers, a good starting point was a discourse analysis of the literature. This was a good place to start and it certainly supported the initial impression regarding the content the debate and disagreement about the best ways to conserve biodiversity in protected areas. This discourse analysis also helped to identify some of the dimensions of the conflict which I could use in the exploration of underlying assumptions. The weakness of this discourse analysis was that it was based on written works. The actors did not have the opportunity to add their own explanation or voice to the characterization of conflict or the importance of certain aspects. I needed a methodology that could support the findings of a discourse analysis.

In the second part of my dissertation I explored the underlying assumptions by using Q-methodology. Though this method has been used in several settings to explore and address conflict and disagreement in environmental issues (Byrd 2002; Dayton 2000; Hooker Clarke 2002; Webler et al. 2003), my study represents the first time it has been applied to biodiversity

conservation in protected areas. This method allowed me to both quantify the results with statistical data analysis, and to qualify my observations and findings based on the voices of the participants to the debate. I will not repeat those findings here, but I will address some of the future directions of research in this area.

My comments on future areas of research could be summarized by two aspects: practical application and conceptual areas.

Practical application

This dissertation, by design, was theoretical in nature. One of the compromises (and potential limitation) of a theoretical study is that it does not take all aspects of practical application into account. Most of the participants in the study operate at the policy formation level. Though they certainly have experience in the debate and disagreements about protected areas in practical situations, this study did not fully capture that part of the dialog. Every day park managers, government official, community leaders, conservation officers and other actors are engaged in talks, discussions and disagreements. Those crucial voices are not reflected in this study. One of the suggestions for future work is the practical application of underlying assumptions.

I applied a policy sciences approach to the dialog in biodiversity conservation using the three perspectives or standpoints I identified in my Q-methodology. This is a step toward practical application. Future research directions should be based on applying the underlying discourses in practical settings. In particular, it is my suggestion that a policy sciences approach combined with a Q-study of the discourses in a particular setting be applied to address conflicts in protected

area management. There are examples of the application of Q-methodology to solve specific environmental issues and conflicts in areas like watershed planning (Webler et al. 2003), wildfire mitigation (Burns & Cheng 2007), conflicts with large carnivores (Mattson et al. 2006), and reactions to wind farms (Ellis et al. 2007). However, there are no examples of the application of Q-methodology to address conflict of biodiversity conservation in protected areas.

One of the limitations of this study was the fact that it lacked specific context. My research question, by design, explored assumptions and discourses at a broader conceptual level.

Applying Q-methodology to resolve conflict about specific protected areas is one way to address this limitation of this study. The challenge will be to find settings that lend themselves to an application of this methodology and to gain the confidence of participants to allow an intervention that may help them resolve the conflict through collaboration.

The second suggestion for future research and practical application is related to the actual process of collaboration. Collaboration requires expertise and capacity in the process of negotiation and dialog. One of the challenges to biodiversity conservation that was raised in the interviews with participants is the lack of capacity. Quite often the people involved in the application of conservation policy do not have the expertise and training in management techniques, including negotiation skills. An area for future research and practical application is in studying negotiation practices in different settings and finding ways to increase the skills of all those involved in the dialog about protected areas and biodiversity conservation. My suggestion is that more management scholars (who have the benefit of a long history of research in negotiation and conflict resolution) turn their attention to biodiversity conservation as a research

priority. The inclusion of biodiversity conservation in college and university curricula will also go a long way to built capacity.

These two areas of practical application (application of Q-methodology and negotiation skills training) are bound to improve the potential for collaborative solutions in biodiversity conservation.

Conceptual Research Areas

Several publications have suggested research agendas in conservation biology (Brechtin et al. 2002; Salafsky et al. 2002; Soulé & Orians 2001). Soulé and Orians (2001) concluded that there is a need for a special workshop and a book devoted to the “human dimension” of the biodiversity research agenda. The findings of my dissertation research support this conclusion that there is a need to set research priorities in conservation biology that cut across multiple disciplines and include social, economic and cultural dimensions.

The comments from participants in this study suggested a number of areas that require further research. Two areas that seem to occupy the attention of a number of people in conservation biology are: poverty alleviation and commercial approaches.

Poverty has long been a focus of political and global attention. The latest initiative is the broad global support for the United Nations’ Millennium Development Goals which calls for the eradication of extreme poverty (MEA 2005). The focus on poverty is global in nature, as illustrated by the United Nations summits in Rio de Janeiro in 1992 and Johannesburg in 2002.

The recent focus on focus on poverty is also coming into much closer conflict with biodiversity conservation efforts than before as is evidenced by what Wilkie et al. (2006) describe as an “acrimonious debate.”

Several recent articles have been critical of conservation efforts and suggested that protected area initiatives and biodiversity conservation neglect the economic welfare of people in or near parks (Adams et al. 2004; Brockington & Schmidt-Soltau 2004; Dowie 2005; Igoe & Brockington 2008). The response to these accusations could best be summarized by the comments of Kent Redford in a recent interview in the Nature Conservancy magazine (Leatherman 2008). Redford dismissed the accusation that conservation organizations do not care about poverty, but explained that conservation organizations are “primarily involved in our mission – preservation of biodiversity – and we should only be engaged in poverty alleviation when it works to advance that mission” (Redford cited in Leatherman 2008: 47). In my interviews with participants about poverty, I heard the same explanation, but I also detected different underlying assumptions that determine the view on poverty. At the core of the disagreement was an assumption about the central mission of protected areas. In fact, the topic of poverty was one of the areas where there was strong disagreement among the participants.

Clearly, poverty alleviation should be a high priority for future research in biodiversity conservation. The differences about the role of protected areas in poverty alleviation are not supported by strong empirical evidence (Wilkie et al. 2006) and more cases will increase our understanding. Wilkie et al. (2006) offer the example of a 5-year research effort in Gabon as a step in the right direction. More long term research efforts by multidisciplinary teams are needed

to address the connection between poverty alleviation and protected areas are needed. One particular aspect that needs to be addressed in the research on poverty alleviation is an exploration of the underlying assumptions about poverty. I suspect that, just as in the case of this study about biodiversity conservation, there are several strongly held underlying assumptions and values that give rise to the debate and disagreement about the role of protected areas in poverty alleviation.

Though I agree with the conclusions of Wilkie et al. (2006) that rigorous and controlled long-term quantitative studies are required, I would suggest that the qualitative aspects of poverty should not be neglected. There are different perceptions about what is meant by “poverty” that stretch beyond a measure of material values. Poverty, in many cases, have an historical and systemic origin that could not be ignored and, quite often, attempts to address poverty have had unintended social and cultural consequences. My dissertation study supported the contention that the current disagreement about poverty alleviation is based on some deeper underlying assumptions. The scope of this study was too limited to fully explore the reasons for the differences, but I would suggest that poverty alleviation and protected areas is a priority for future research.

The second conceptual area for future research is the link between biodiversity conservation and economic development. The publication of the Brundlandt report in 1987 (World Commission on Environment and Development 1987) and the promotion of a global “sustainable economic development” agenda was met with a great deal resistance by some conservation biologists who believe that sustainable economic development is incompatible with the existence of biodiversity

and that economic development should be discouraged near the boundaries of protected areas (Oates 1999; Terborgh 1999). Yet, biodiversity conservation efforts require financial resources for their success. This tenuous balance between the need for economic development and the need to conserve biodiversity has been and should continue to be an area for research.

In this study the participants in the Q-study demonstrated strong agreement about an ideal future where both biodiversity and economic development goals can be achieved. However, there is also strong consensus that a free market economy is not the most effective way to achieve biodiversity objectives. This perspective could be troublesome. The world is dominated by a free market economic ideology and conservation organizations are faced with the constant need to attract investors and funding. If the free market is not an effective mechanism to achieve biodiversity conservation, then it would be important to research alternatives.

The agreement about the problems associated with a free market economy and biodiversity conservation does not necessarily imply a strong overlap in the underlying assumptions. A market economy and materialism is seen by some (Oates 1999) as the cause of the biodiversity problem. In this view nature is used as a resource that can be converted into profits that give rise to the need to set areas aside for conservation and to limit human extraction and development (Terborgh & Van Schaik 2002). At the same time, from a different perspective, a free market is seen as an undemocratic ideology with a history of exploitation, colonialism and imperial expansion. This perspective sees protected areas as a part of that legacy of imperial expansion (Adams & Mulligan 2003; Nelson 2003). Conservation organizations are faced with the challenge of finding a delicate balance between different economic perspectives. Large scale

economic activities, like timber and mining, are clearly to the detriment of biodiversity. At the same time, conservation organizations require capital resources to manage and maintain protected areas. When they attract money from corporations, they are criticized for “hitching their wagons to the development agenda, going after the money” (Leatherman 2008), or of ignoring the plight of indigenous peoples in favor of money from industrial companies (Chapin 2004).

If there is little confidence in the free market economy as an approach to biodiversity conservation, then it is important to develop a research agenda that will seek alternatives. One such alternative is developing a greater understanding of the economic value of biodiversity. Ecological economists have calculated the value of global ecosystem services (Balmford & Whitten 2003; Costanza et al. 2001) and the IUCN published a report on the potential benefits of an ecosystem services approach to biodiversity conservation (Mainka et al. 2008), but the term has not reached mainstream economic and financial literature. In fact, a brief search of an electronic database of peer reviewed business and economic journals revealed fewer than 10 articles that dealt with the topic. Most of the research and discussion on ecosystem services are published in journals that are focused on the environment or ecological economics. There is an urgent need for a research agenda that will link biodiversity conservation to economic benefits.

This research uncovered some underlying values and assumptions that give rise to disagreement and conflict about biodiversity conservation in protected areas as well as some areas of agreement. Understanding those perspectives is an important step toward a deeper dialog and toward collaboration. However, the results from this dissertation research did indicate that there

are several areas that require more research and attention. In summary, my suggestions for future research are as follows:

- Apply Q-Methodology in specific contextual settings as a way to understand and resolve conflict over protected area issues.
- Increase capacity building in areas such as conflict management, negotiation and collaboration.
- Expand research on the role of protected areas in poverty alleviation including an exploration of the underlying values and assumptions surrounding the views on poverty.
- Develop research projects aimed at identifying the economic value of biodiversity conservation, and communicate this information to broader “mainstream” economists and management practitioners.

The threat to biodiversity on the Earth is real. Finding effective ways to protect biodiversity is an important objective. The debate and disagreement over the best approaches to biodiversity conservation goes far beyond academic circles. Every day park managers and rangers deal with the loss of animals to hunting, loss of habitat through logging and other practices, and the overall threat to the biodiversity of the region. Every day there are people in or near protected areas that suffer from lack of adequate medical attention or malnutrition. This study will not solve the problems or put an end to disagreement. The contribution of this study is to provide some explanation for the differences and disagreements. The consequence of this contribution would be a dialog based on common understanding of underlying assumptions and the possibility of innovative and creative solutions to what may appear to be an intractable conflict. This study, albeit theoretical, has implications for the practice of conservation and for the effectiveness of biodiversity conservation.

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APPENDIX A: The 48 Q statements used in the study

No.	Category
	A. POLICY PRESCRIPTIONS
	I. SOCIAL JUSTICE, HUMAN RIGHTS, POLITICAL PROCESS
4	Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy.
45	It is more important to achieve social justices and fairness in the process of biodiversity conservation, than to protect specific species.
	II. LOCAL COMMUNITIES
42	Protected area initiatives need to pay more attention to empowering local communities and strengthening local institutions.
39	Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape.
	III. INDIGENOUS RIGHTS
3	Indigenous communities should be able to refuse the designation of their lands as protected areas.
29	Indigenous peoples should be allowed to continue to harvest plants and hunt animals and in protected areas.
35	Indigenous people should be relocated from inside protected areas to save the wilderness.

	IV. PRIMORDIAL WILDERNESS
37	A national park must remain a primordial wilderness to be effective. No people, not even native ones, should live inside its borders.
23	Parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems.
	V. MARKET MECHANISMS
36	A free market economy (capitalism) is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant.
14	Protected areas should be governed by an explicit policy that maintains a sustainable economic return from protected areas.
33	Biodiversity conservation will succeed when wild animals become a valuable enough commodity that local communities will gain tangible economic benefit from having them around.
	B. NOTIONS OF BIODIVERSITY
	I. HUMAN IMPACT
16	Maintaining top predators, or restoring them to ecosystems from which they have been eliminated by human persecution, is an important approach to protect biodiversity.
32	Anthropogenic (people) disturbances of ecosystems is essential for the generation and conservation of biological diversity

	II. SCIENTIFIC FOUNDATION: WHO'S KNOWLEDGE?
43	Biological science should be the guiding principle for biodiversity conservation in protected areas.
46	The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort.
	III. BIODIVERSITY AND HUMAN WELFARE
40	Conservation must provide people with economic benefits and should add to the economic quality of communities.
12	There are serious flaws in the theory that wildlife can best be conserved through promoting human economic development.
1	Biodiversity conservation will fail if it does not successfully address global poverty elimination.
	C. BLAME, CAUSES, NEGATIVE IMPACT
	I. RURAL PEOPLE, HUNTING, EXPLOITATION
41	People and wildlife don't go together. If there are people in a park, they will be eating the animals.
18	The enemy of biodiversity is the hunter and farmer living in or adjacent to protected areas.
	II. IMPACT ON PEOPLE
47	The activities of national parks are now the single largest threat to the integrity of indigenous peoples' lands.

22	Imposing national parks on rural communities will have a number of negative consequences, including the restriction of access to traditionally used resources.
	III. ECONOMIC FACTORS
20	Poverty leads directly to environmental degradation and loss of biodiversity.
10	Tourism, while increasing the foreign exchange to a country, is a threat to biodiversity. It is responsible for garbage, uncontrolled settlements, and disturbance of a fragile ecology.
48	Large scale economic activities (e.g. timber, mining) have a much greater impact on conservation than local people.
	IV. POLITICAL IDEOLOGY
11	Nature protection and parks emerged out of colonial and authoritarian rule as instruments of natural resource control.
13	National parks and areas set aside for conservation are a 'western idea' imposed on developing countries because most industrialized nations have little biodiversity remaining.
	V. INSTITUTIONS
30	The failure of parks to protect biodiversity is partly the failure of institutional support (e.g. lack of enforcement, inadequate staffing etc.).
38	Protected areas are pressured by more and more poor people who depend on subsistence farming and hunting.

	D. ACTORS, INVOLVEMENT, METHODS
	I. GLOBAL AND NATIONAL ACTORS
2	The best approach to biodiversity conservation lies in the internationalization of protected areas.
19	National parks need to be protected from degradation by strong national government agencies
7	There is a role for the national military in protecting animals. This is not as farfetched as it sounds, since the role of the military is to protect the nation's interest, usually against outsiders but in case of emergency against rebellious insiders
	II. LOCAL COMMUNITIES
15	Self-reliant local communities with strong decision-making and organizational capabilities will be better able to manage and protect natural resources.
17	Local communities should participate in all aspects of the design and operation of protected areas
	III. LEVEL OF PARTICIPATION
26	Global biodiversity conservation efforts should essentially be a top-down function if it is to succeed.
27	Almost all top-down conservation projects that exclude community involvement are bound to fail.

	E. FUNDAMENTAL BELIEFS
	I. AESTHETIC RIGHT OF NATURE
24	Given the urgent need to protect biodiversity loss, the intrinsic rights of nature should supersede those of people.
31	Ethical and aesthetic considerations, not economic motivations, should be the chief reasons for conserving wildlife.
	II. HUMAN PERSPECTIVE
9	All human beings have the fundamental right to an environment adequate for their health and well being.
44	An ethical concern for animals that leads to setting aside protected areas is a disguised form of imperialism.
28	Sustainable economic development is incompatible with the existence of biodiversity or wild nature.
	III. RATIONALE FOR PARKS AND PROTECTED AREAS
21	Until people learn how to dwell in the land without fragmenting, overhunting, and simplifying it, we will need to set aside large areas with few people to maintain diverse wildlife communities.
34	Protected areas are especially important when they protect species and populations that are highly sensitive to human disturbance
5	Under the banner of saving the environment, conservationists have subjected local populations to a new form of environmental colonialism in the last half century

F. FUTURE CHALLENGES AND SUCCESS	
8	The gradual species loss now being documented in formally protected areas all over the world represents one of the greatest threats to biodiversity and an enormous challenge to everyone.
25	The challenge for the future is to combine conservation that respect human needs with economic development that respects the environment
6	We could really improve the outlook for biodiversity if everyone had more contact with life on Earth.

APPENDIX B. Conditions of Instruction for Participants in the Q-Study

There are different opinions about biodiversity projects and protected area initiatives.

(“Protected Areas” and “Parks” in the statements refer to conservation areas in *developing countries* that fall in any of the IUCN categories Ia, Ib, or II described below).

The set of cards in the envelope contains 48 statements by several authors drawn from the literature. You are asked to indicate your feeling about each of these statements (The extent to which you believe the statement reflects your personal point of view). There are no right or wrong answers – I am interested in your personal views and perspective. Though there may be different perspectives on the topic, this study does *not* intend to find a “best” approach. All perspectives have equal value in this study.

APPENDIX D. Example of an individual scoring in Q-Methodology
 (cell entries relate to statement number – see Appendix K)

MOST UNLIKE

MOST LIKE

My Point of View

My Point of View

- 5	- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4	+ 5
7	36	26	37	14	32	34	3	45	8	9
46	35	43	47	1	38	15	5	25	42	4
	18	41	12	28	11	31	19	30	17	
		23	24	10	6	22	20	48		
			2	33	16	29	27			
				44	13	40				
					21					
					39					

APPENDIX E. Ideal sort for Factor A
 (cell entries relate to statement number – see Appendix K)

MOST UNLIKE

MOST LIKE

My Point of View

My Point of View

- 5	- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4	+ 5
26**	28	2	23**	10	11*	3	1**	9	15	4
46	37	7**	24	12**	13	6**	5	17**	25	42*
	41	18	31**	21**	14*	8**	20**	27**	39	
		35	36	32**	16**	19	22	40**		
			47	43	29	30	48			
				44	33	45**				
					34**					
					38**					

Distinguishing Factors

* P < .05

** P < .01

APPENDIX F. Ideal sort for Factor B
 (cell entries relate to statement number – see Appendix K)

MOST UNLIKE

MOST LIKE

My Point of View

My Point of View

- 5	- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4	+ 5
46	32**	11**	5**	1**	17*	15	6	4	8**	23
13**	45**	28	18*	2	20	19	7*	9	30	34**
	47	36	26	3**	24**	22	12	16	25	
		44**	35	10	27**	38**	21**	39		
			37**	14	29*	43**	42			
				33	31	48				
					40					
					41*					

Distinguishing Factors

* P < .05

** P < .01

APPENDIX G. Ideal sort for Factor C

(cell entries relate to statement number – see Appendix K)

MOST UNLIKE**MOST LIKE****My Point of View****My Point of View**

- 5	- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4	+ 5
36*	18	1**	2	8**	7*	3	5	6	4	23
37	27**	26	14	10	13	12	11*	22	9	48*
	46	35	24	17*	19	29	15	25	39	
		47	38**	20	21	32**	16	42		
			41	28*	31	33	30			
				45**	40	43**				
					43					
					44					

Distinguishing Factors:

* P < .05

** P < .01

APPENDIX H. Factor A: Highest and Lowest Scores (+5, +4, -4, -5)

Statement	Score
Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy. 4 [#]	+5
Protected area initiatives need to pay more attention to empowering local communities and strengthening local institutions. 42 [*]	+5
Self-reliant local communities with strong decision-making and organizational capabilities will be better able to manage and protect natural resources. 15	+4
The challenge for the future is to combine conservation that respects human needs with economic development that respects the environment. 25 [#]	+4
Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape. 39 [#]	+4
Global biodiversity conservation efforts should essentially be a top-down function if it is to succeed. 26 ^{**}	-5
The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort. 46 [#]	-5
Sustainable economic development is incompatible with the existence of biodiversity or wild nature. 28	-4
A national park must remain a primordial wilderness to be effective. No people, not even native ones, should live inside its borders. 37	-4
People and wildlife don't go together. If there are people in a park, they will be eating the animals. 41	-4

Distinguishing Statements: * $p < .05$, ** $p < .01$

Consensus Statement: [#]

APPENDIX I. Factor B. Highest and Lowest statements (+5, +4, -4, -5)

Statement	Score
Parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems. 23	+5
Protected areas are especially important when they protect species and populations that are highly sensitive to human disturbance. 34**	+5
The gradual species loss now being documented in formally protected areas all over the world represents one of the greatest threats to biodiversity and an enormous challenge to everyone. 8**	+4
The failure of parks to protect biodiversity is partly the failure of institutional support (e.g. lack of enforcement, inadequate staffing etc.). 30	+4
The challenge for the future is to combine conservation that respects human needs with economic development that respects the environment. 25 [#]	+4
The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort. 46 [#]	-5
National parks and areas set aside for conservation are a 'western idea' imposed on developing countries because most industrialized nations have little biodiversity remaining. 13**	-5
Anthropogenic (people) disturbances of ecosystems are essential for the generation and conservation of biological diversity. 32**	-4
It is more important to achieve social justices and fairness in the process of biodiversity conservation, than to protect specific species. 45**	-4
The activities of national parks are now the single largest threat to the integrity of indigenous peoples' lands. 47	-4

Distinguishing Statements: * $p < .05$, ** $p < .01$

Consensus Statements: [#]

APPENDIX J. Factor C: Highest and Lowest statements (+5, +4, -4, -5)

Statement	Score
Parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems. 23	+5
Large scale economic activities (e.g. timber, mining) have a much greater impact on conservation than local people. 48*	+5
Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy. 4	+4
All human beings have the fundamental right to an environment adequate for their health and well being. 9 [#]	+4
Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape. 39 [#]	+4
A free market economy (capitalism) is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant. 36*	-5
A national park must remain a primordial wilderness to be effective. No people, not even native ones, should live inside its borders. 37	-5
The enemy of biodiversity is the hunter and farmer living in or adjacent to protected areas. 18 [#]	-4
Almost all top-down conservation projects that exclude community involvement are bound to fail. 27**	-4
The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort. 46 [#]	-4

Distinguishing Statements: * $p < .05$, ** $p < .01$

Consensus Statements: [#]

APPENDIX K. 48 Q statements in numerical order

Number	Statement
1	Biodiversity conservation will fail if it does not successfully address global poverty elimination.
2	The best approach to biodiversity conservation lies in the internationalization of protected areas.
3	Indigenous communities should be able to refuse the designation of their lands as protected areas.
4	Biodiversity conservation is a problem of human organization and must account for aspects of social and political processes like dignity and legitimacy.
5	Under the banner of saving the environment, conservationists have subjected local populations to a new form of environmental colonialism in the last half century.
6	We could really improve the outlook for biodiversity if everyone had more contact with life on Earth.
7	There is a role for the national military in protecting animals. This is not as farfetched as it sounds, since the role of the military is to protect the nation's interest, usually against outsiders but in case of emergency against rebellious insiders.
8	The gradual species loss now being documented in formally protected areas all over the world represents one of the greatest threats to biodiversity and an enormous challenge to everyone.
9	All human beings have the fundamental right to an environment adequate for their health and well being.
10	Tourism, while increasing the foreign exchange to a country, is a threat to biodiversity. It is responsible for garbage, uncontrolled settlements, and disturbance of a fragile ecology.
11	Nature protection and parks emerged out of colonial and authoritarian rule as instruments of natural resource control.
12	There are serious flaws in the theory that wildlife can best be conserved through promoting human economic development.

Number	Statement
13	National parks and areas set aside for conservation are a ‘western idea’ imposed on developing countries because most industrialized nations have little biodiversity remaining.
14	Protected areas should be governed by an explicit policy that maintains a sustainable economic return from protected areas.
15	Self-reliant local communities with strong decision-making and organizational capabilities will be better able to manage and protect natural resources.
16	Maintaining top predators, or restoring them to ecosystems from which they have been eliminated by human persecution, is an important approach to protect biodiversity.
17	Local communities should participate in all aspects of the design and operation of protected areas.
18	The enemy of biodiversity is the hunter and farmer living in or adjacent to protected areas.
19	National parks need to be protected from degradation by strong national government agencies.
20	Poverty leads directly to environmental degradation and loss of biodiversity.
21	Until people learn how to dwell in the land without fragmenting, overhunting, and simplifying it, we will need to set aside large areas with few people to maintain diverse wildlife communities.
22	Imposing national parks on rural communities will have a number of negative consequences, including the restriction of access to traditionally used resources.
23	Parks are designed to preserve nature, not to cure structural problems such as poverty, unequal land distribution or other social and economic problems.
24	Given the urgent need to protect biodiversity loss, the intrinsic rights of nature should supersede those of people.
25	The challenge for the future is to combine conservation that respect human needs with economic development that respects the environment.
26	Global biodiversity conservation efforts should essentially be a top-down function if it is to succeed.

Number	Statement
27	Almost all top-down conservation projects that exclude community involvement are bound to fail.
28	Sustainable economic development is incompatible with the existence of biodiversity or wild nature.
29	Indigenous peoples should be allowed to continue to harvest plants and hunt animals and in protected areas.
30	The failure of parks to protect biodiversity is partly the failure of institutional support (e.g. lack of enforcement, inadequate staffing etc.).
31	Ethical and aesthetic considerations, not economic motivations, should be the chief reasons for conserving wildlife.
32	Anthropogenic (people) disturbances of ecosystems are essential for the generation and conservation of biological diversity.
33	Biodiversity conservation will succeed when wild animals become a valuable enough commodity that local communities will gain tangible economic benefit from having them around.
34	Protected areas are especially important when they protect species and populations that are highly sensitive to human disturbance.
35	Indigenous people should be relocated from inside protected areas to save the wilderness.
36	A free market economy (capitalism) is the most effective way to protect biodiversity by making the maintenance of parks protected areas economically self-reliant.
37	A national park must remain a primordial wilderness to be effective. No people, not even native ones, should live inside its borders.
38	Protected areas are pressured by more and more poor people who depend on subsistence farming and hunting.
39	Biodiversity conservation projects need to respect the needs of local communities to live productively and sustainably on the landscape.
40	Conservation must provide people with economic benefits and should add to the economic quality of communities.

Number	Statement
41	People and wildlife don't go together. If there are people in a park, they will be eating the animals.
42	Protected area initiatives need to pay more attention to empowering local communities and strengthening local institutions.
43	Biological science should be the guiding principle for biodiversity conservation in protected areas.
44	An ethical concern for animals that leads to setting aside protected areas is a disguised form of imperialism.
45	It is more important to achieve social justices and fairness in the process of biodiversity conservation, than to protect specific species.
46	The involvement of other disciplines, like social sciences, in biodiversity conservation has lead to a dilution of the conservation effort.
47	The activities of national parks are now the single largest threat to the integrity of indigenous peoples' lands.
48	Large scale economic activities (e.g. timber, mining) have a much greater impact on conservation than local people.