

## Perceptions of wildlife parks by youth who live near them: A study in Samburu, Kenya

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## **Perceptions of wildlife parks by youth who live near them: A study in Samburu, Kenya**

**Abstract:** This study investigated the perceptions of 99 youth from two Samburu, Kenya primary schools about the benefits and impacts of nearby wildlife-based protected areas. Participants responded in writing to two questions which were then coded by the researchers to identify key themes. Building on prior work of youth in the Maasai region of Kenya and of adults in Samburu, the study revealed that most youth perceive parks as providing economic benefits related to tourism, showed limited understanding of the conservation benefits, and that protected areas create opportunities for undesirable behavior and impacts. The authors call for enhanced instruction in science and ecology in schools, and improved outreach to youth by protected area staff.

**Keywords:** youth, Kenya, wildlife, protected areas

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## Introduction

Throughout the world and with strong emphasis in recent decades, conservation leaders have encouraged community-based management and collaboration with local stakeholders as part of the management of protected areas. This was a major tenet that emerged at the World Parks Congress in South Africa in 2003, in which the summary document “The Durban Accord” noted that a new approach to protected area management is needed, one that “demands the maintenance and enhancement of our core conservation goals, equitably integrating them with the interests of all affected people” (p. 220; International Union for the Conservation of Nature 2005). This sentiment of placing greater value on local needs and engaging local people in developing management strategies for protected areas has been echoed by many others and is now arguably becoming the standard approach for protected areas. In the end, this input can help identify management practice that is acceptable and mutually beneficial to local communities (Ghimire & Pimbert 1997). Further, community-based conservation of protected areas can contribute to achieving the ambitious environmental sustainability goals set forth in the Millennium Development Goals of the United Nations which includes protection of species, ecosystems and livelihoods.

The call for more community involvement goes hand-in-hand with the emergence of ecosystem management as a prevailing management philosophy for protected areas, in which parks are managed holistically as a place of inter-connected parts rather than separately for its wildlife, water, vegetation and so on. This approach also means that protected areas look beyond their borders as its ecosystems are not isolated islands of habitat and biodiversity separate from the surrounding landscape, but areas that encompass adjacent lands including local land uses in those areas as well. This means protected area management planning includes community and private lands, making input from local community paramount, and elevating the importance to consider their needs and livelihoods in management strategies.

The consequences of protected area management – whether they be positive or negative – are often magnified in parts of the developing world with populations and livelihoods that are closely tied to the same land base as parks for subsistence such as gathering wood for fuel, grazing livestock and so on. This includes communities that are literally within or adjacent to park boundaries, which creates potential opportunities such as tourism-based economic revenue but also challenges such as human-wildlife conflict and restrictive land uses. Therefore, community representatives from local elders in African communities to farmers in Latin America have been engaged in protected area management in recent years. To date, however, community-based conservation efforts have not often engaged youth beyond a model of conservation clubs or other efforts that are often detached from actual decision-making or public input. This may prove to be a crucial missed opportunity: youth are the next generation of stewards and advocates for conservation and sustainability in their communities.

The purpose of this exploratory study is to identify youth's perceptions of the protected areas near a community in rural Samburu, Kenya. Revealing the youth's current thoughts will help protected area managers anticipate how to approach their community-based approaches now and in the future. Further, it will reveal the knowledge from which to build additional outreach and education efforts for protected area staff to local schools and other youth organizations.

### *Samburu, Kenya*

The Samburu region of central Kenya (see figure 1) is an example of a land-dependent culture and a community sharing an ecosystem with numerous protected areas and its wildlife. It is an arid, rural region of pastoral semi-nomadic people that rely directly on the land to sustain themselves. They gather tree branches for fuelwood and graze their livestock near (and sometimes in) the two adjacent protected areas of Samburu and Buffalo Springs National Reserves that are separated only by the Uaso

Nyero River. In addition, traditional Samburu homes are constructed from materials harvested from the environment such as acacia boughs and animal dung.

Figure 1 about here

Samburu people share the land with populations of wildlife that thousands of people from around the world annually come to view. Some of these species exist only in this region including the Grevy's zebra, reticulated giraffe, Somali ostrich and others. Other species in the area include lions and cheetahs, elephants and numerous other ungulates. The river from which the communities draw water is shared with the wildlife population, each meeting their respective needs from one of the only water sources in the region. Wildlife are also a central part of many Samburu stories and cultural ceremonies; elephant dung is traditionally burned at wedding ceremonies to bless the lives of the newlyweds.

Within the Samburu region is one of many small communities, Archer's Post town that serves as a center of activity near the national reserves and where most local people are residents for life. Local opportunities for advancement in education and jobs are minimal. There are no cash crops and the climate is too harsh and the infrastructure too primitive to establish an economy based on agriculture or industry. Though it is not measured by any level of government, local unemployment is considerably high (based on years' of observation by the researchers). Primary and secondary schools are under-resourced; often the number of teachers is exceeded by the number of grades, leaving some classrooms of students without a teacher for at least a portion of the day. Few primary school students earn sufficient scores on an all-important national exam to be accepted to secondary school. Those that do make the mark must come up with secondary school fees that start around USD \$350 – a prohibitive amount for an area where a promising income is one that barely exceeds subsistence needs. As a result of all of these factors, most people remain in Archers Post for a lifetime.

Today's children are tomorrow's elders and heads of household in Samburu, and therefore, understanding how youth perceive the local protected areas is arguably as important as adults' views. They are the partners in community-based conservation in the future when park staff reconsider or seek to adapt management strategies such as those that affect livestock corridors and predator control. Currently, conservation activities are minimal. The national curriculum taught in schools is limited in its conservation content, and there are very few grassroots conservation activities that occur at a local level in which youth or others participate. Engaging this population now is important. In Kenya, this sentiment is emphasized by leaders such as Wangari Maathai, a conservation leader for the world, pioneering woman in Kenyan politics, and recipient of the Nobel Peace prize. Identifying how youth currently perceive protected areas and investing in building a partnership with that generation now would pay dividends in the future.

### **Literature Review**

Many authors have studied local community issues in regards to conservation and protected areas in the developing world, often in the context of ecotourism. Ecotourism entered the lexicon and was subsequently studied in depth beginning in the 1980s. In 1999, Honey articulated best practices and guiding principles of ecotourism, one of which was the need for communities to genuinely benefit from the ecotourism activity and to be provided a means of influencing protected area management. To do the latter, Phillips (2003) argued that protected area managers must be skilled in engaging local communities in dialogue, and identifying win-win management scenarios for protected areas and local people. Previous research has demonstrated the success of such community-based participation in numerous developing countries around the world, including Ecuador (Becker et al. 2005), Nepal (Bajracharya et al. 2005), Cameroon (Bauer 2003) and South Africa (Farrell & Marion 2002). These benefits ranged from economic opportunity to mutual appreciation for parks and local communities to

sustainable grasslands for grazing livestock. However, examples of the consequences of insufficient community input have been documented as well, including a study in which the homes and livelihoods of Maasai pastoralists in Kenya were adversely impacted (International Institute for Environment and Development 2002), and local people in a Tanzanian community lost trust in a wildlife conservancy and became indifferent about its conservation efforts (Kaswamila & Songorwa 1999).

In his study in Tanzania, Holmes (2003) conducted a study to assess local attitudes toward a national park. The researchers found that lack of outreach to community was related to stronger attitudes toward degazetting the park, and people recognizing the services of the park demonstrated more ecologically sustainable practices of natural resource use (e.g., removal of wood for fuel). This finding was consistent with his review of literature which suggested that sentiments by local people toward protected areas can differ from the very positive to the very negative, and is attributable in part to the variation in community outreach efforts by protected area staff.

In Samburu, Bruyere, Beh and Lelengula (2008) completed a study in which they interviewed 30 local community members and protected area rangers about a number of protected areas issues, including an assessment of the wildlife game park's outreach efforts. In the study all participants recognized the economic benefits of the protected area, but local community members and rangers differed greatly on whether these benefits included sufficient local employment opportunities. Locals generally felt the protected area did not create enough jobs for local communities. The researchers also found that most local people considered the protected areas as having insufficient communication with local people, which is of particular importance as the park makes management decisions about issues that directly affect local people such as livestock corridors for river access. No participants in the study, including rangers, commented about the conservation benefits of the protected areas.

In another human dimensions study in the same region, Kuryian (2002) conducted an ethnographic study about attitudes of community members toward elephants. Overall she concluded that Samburu held favorable perceptions of wildlife in part because of strong cultural traditions (e.g., stories, use of elephant dung), but that wildlife management presented challenges including communication with the national wildlife agency (i.e., Kenya Wildlife Service) to mitigate human-wildlife conflict. In addition, the men and women she interviewed expressed concern about a perceived deterioration of the wildlife-based aspects of Samburu culture, as childhood is spent more in the classroom and less in the bush and direct experience with wildlife is therefore minimal.

There is only minimal published research about youth attitudes toward and perceptions of protected areas. A study by Seddon and Khoja (2003) revealed that Saudi Arabian generally were disconnected from nature and had many fear-based perceptions of protected areas. Much of their sample lived in urban areas and therefore had little prior experience in nature. In the only study found that addressed youth perceptions of protected areas in Africa, Ali and Maskill (2004) surveyed Maasai youth in the southern part of Kenya. In asking primary and secondary students to share thoughts about wildlife parks, responses were categorized into one of three themes: parks are for tourism, parks are a source of benefits, and parks protect wildlife and people. Similar to the study with Samburu adults by Bruyere et al. (2008), many responses were based on the economics and job opportunities provided by parks through employment as rangers, tour operators and staff at tourist lodges. A smaller percent identified conservation-related benefits, leading the authors to one of their primary conclusions that youth recognized the social and economic value of parks but not their ecological and conservation value. The authors call for a more thorough education about the ecological roles of wildlife parks in schools.

An additional body of literature relevant to the current student involves environmental identity, or how we orient ourselves to the natural world and the implications of that orientation in our lives

(Clayton and Opatow, 2003). Environmental identity acknowledges that there are more than commodity-based benefits and values provided by nature that are rooted in morality and spirituality, and that nature can be a way for individuals to express their values and what is important to them. This identity is variably influenced by social factors that determine the *meaning* of our environmental identities. Similarly, Chawla's (1994) work in environmental psychology suggests that the natural world can facilitate and instigate creativity, inspiration and following one's curiosities, particularly in children who are developmentally more open to such inspiration. In her work, Chawla argues that a relationship with nature can provide benefits that are often intangible (e.g., spiritual well-being, creativity) but that can contribute to a fulfilling, holistic and rewarding life.

Overall, prior research about community perceptions of protected areas has revealed a variety of findings. That variety seems largely attributable to the protected area's efforts (or lack thereof) in engaging local communities. Few studies have focused on youth perceptions specifically in this regard.

## **Methods**

### *Sample*

Participants in this study were drawn from two of the three primary schools in the Samburu community of Archer's Post located adjacent to the eastern boundaries of Samburu and Buffalo Springs National Reserves. All participants in standards 7 and 8 (approximately the equivalent of seventh and eighth grade in the United States and still considered "primary level" in Kenya) were selected which represents an age range of roughly 13-18. The age at which children begin school often varies depending on family circumstances and additional factors affect if they are able to remain enrolled or at least remain steadily enrolled. These factors include expectations that children stay home to co-manage

homes, livestock, siblings and other domestic demands; lack of funds for some students to afford required supplies; disease outbreaks; and other factors.

Standards 7 and 8 were selected because children with this level of education would generally have the cognitive skills and prior experience needed to participate in the research study including the ability to make comparisons and draw conclusions based on their prior observations. In addition, by this time, Samburu youth have years of experience with most aspects of Samburu culture (e.g., raising livestock, gathering firewood) as well as exposure to tourism through meeting visitors in their community or observing vehicles of tourists pass through town on the way to the nearby wildlife parks.

Two schools were selected for this study that are situated near the town center of Archer's Post and located within a short distance (< 3km) of the two national reserves. The third primary school was omitted out of ethical considerations, as it was severely under-resourced and the researchers concluded that it would be inappropriate to ask the school headmaster for his assistance when there were other more pressing matters to which he needed to attend.

### *Data Collection*

Given the lack of prior research about youth perceptions of protected areas in a developing world setting, and also cultural considerations (e.g., importance of relationship-building and trust) that pointed to in-person, open-ended methods as more viable, students were asked to provide written open-ended responses to two statements that were presented by the researchers in-person: 1) identify any benefits or opportunities related to the national reserves, and 2) identify any problems or challenges associated with the reserves. Students were provided as much time as they needed to write their responses on a piece of paper; most students completed the task within 15-20 minutes. The

researchers were on-site to provide clarification. Some students chose to list their responses to each question while others used an essay format. Students were given this liberty to format their replies by their preference in order to minimize any uncertainty or confusion that can arise with cross-cultural research. The questions were posed in English by the researchers as students by this level have had seven or eight years of English instruction in school, and it is the language used in all instruction in the school by this point (e.g., all text books are in English and most instruction is provided in English) in the education system. Verbal Swahili translation was offered on-site (by the teacher) to clarify instruction and to answer questions.

Further, the researchers had made dozens of prior visits to the school to conduct outreach and to simply volunteer in the schools during discretionary time they had during other unrelated projects in the region. Consequently, they were familiar to many of the participants. The head teachers of the participating schools provided introduction of the researchers and their aims.

### *Analysis*

The responses were reviewed separately by two researchers using a content analysis approach with no a priori themes. The first step included reading through all responses thoroughly to gain a general understanding of the concepts and themes of the responses. In the second step, each researcher reviewed the responses a second and third time to generate a list of themes. Their respective lists of themes were then compared and inconsistencies were resolved through discussion between the two individuals. The next step included assigning themes to larger categories. For example, themes of “employment” and “foreign exchange” were both included in a category of “economic benefits.” In the final step, each researcher coded the actual student responses by assigning responses to specific themes. These codes were then compared between the researchers, and again any differences were

discussed and resolved. In most instances the discrepancies were about whether a specific part (e.g., a sentence) of a student's response was coded to one or two themes

After coding all responses, the data was entered in a quantitative analysis software program (i.e., SPSS). Each theme was treated as a yes/no dichotomous variable. For example, if an individual response included comments about employment, regardless of whether it was one sentence or multiple sentences -- that individual was assigned a "yes" for employment. If they did not include any comments related to human-wildlife conflict, they were assigned a "no" for that theme, and so on. Descriptive statistics were then calculated and reported to determine the most mentioned and salient themes.

## **Findings**

### *Respondents*

A total of 99 valid responses were collected from two schools. Twenty-two were from one primary school, and 77 responses were from students at a second and much larger primary school. Participants were almost evenly split by gender (51% female, 49% male). A majority of the sample was 14-15 years old, though the sample also included respondents as young as 12 and as old as 17. Note that gender information was not reported for 10 participants and age was not reported for one (see Table 1).

Table 1 about here

### *Benefits of Protected Areas*

The 99 students identified a total of 131 benefits. The two researchers had an agreement rate of 90+% on coding the "benefits" responses to the themes. All students listed at least one response, and in 29 cases more than one benefit was identified. Students responses revealed comments that were assigned to one of 15 themes, and themes were placed into one of three categories: economic,

conservation and cultural. In instances in which a comment linked to more than one theme (e.g., “protecting wildlife brings tourism”) it was coded for both. Table 2 lists the themes of each category.

Table 2 about here

Economic benefits included comments such as “jobs at lodges,” “revenue for government” and “tourists spend money here.” A total of five themes emerged in this category: employment, foreign exchange (i.e., tourists spending money), revenue to government (i.e., via collection of park fees), income-general (unspecified in responses), and economic-other (e.g., “it makes us money”). In nearly all instances, the responses assigned to an economic theme were stated in a context of tourism, and 60.4 percent of all students mentioned economic benefits in their response (see Table 3).

Conservation benefits included remarks that were placed in one of five themes: protecting plants, conserving wildlife, reductions in poaching, providing opportunities for science and conservation-other (e.g., “protects the environment”). Approximately one-half of participants made comments about protected areas as providing some level of conservation benefit (see Table 3). Specific comments in this category included “conserve the forests and the animals,” and “(the protected areas) are catchments for rivers.” A total of 45.5% students expressed comments that were assigned to themes in this category.

Five themes emerged that were categorized as a cultural benefit. This included sharing culture (with tourists), general interaction with tourists, protecting local heritage, providing for future generations and cultural-other (e.g., “visitors show us new things”). Approximately one-quarter of responses were comments that the researchers considered a cultural benefit (see Table 3). Responses in this category included items such as “tourists come to see our cultural heritage,” “people learn and respect each other’s culture,” “national reserve wildlife is our national and cultural heritage” and “we

must protect (wildlife) so that our future generations can benefit from it.” Approximately one-quarter (23.8%) of students included comments in this category.

Table 3 about here

### *Challenges of Protected Areas*

The two researchers had an agreement rate of 90+% on coding “impact” responses to one of 12 themes. All students listed at least one response, and in 68 cases more than one benefit was identified. Overall, the number of “impacts” listed (161) exceeded the number of “benefits” (131) reported (see Discussion). In further analysis of number of benefits versus number of benefits, we conducted a one-sample non-parametric chi-square test. In each of four independent variables (e.g., age, school, gender, grade level) we rejected the hypothesis that students had equal number of responses to “benefits” as they did to “challenges” ( $p < .05$ ).

The 12 themes were placed into one of four categories: livelihood, tourism impacts, land and climate, and illicit behavior (see Table 4).

Table 4 about here

Impacts to livelihood included comments in which the protected area created difficulties for people to go about their daily lives. Themes in this category included displacement of communities, wildlife conflict and loss of grazing lands. For “displacement of communities,” this is not so much a current or recent issue, but was an issue when the national reserves were initially created and villages which now found themselves inside the park boundary were forced to leave. Though this occurrence pre-dates any youth in the area now, the stories have been passed down. “Wildlife conflict” most often

included instances in which predators ventured outside the park and killed livestock. “Loss of grazing lands” refers to the regulation that park acreage is off-limits for grazing livestock, and sanctions can include fines and impoundments of animals. A total of 63.4% of students included comments that were in this category.

The second category of “tourism impacts” included themes that refer to adverse impacts of the thousands of visitors who visit this region annually. Themes included in this category included “negative tourist behavior” such as drinking alcohol or taking photographs of local people without permission. A second theme of “pollution” most often referred to impacts of safari vehicles and the pollution generated by tourist lodges (e.g., incineration of waste, dumping into the river). Finally, while hunting is not legal in national reserves, many students acknowledged this as a negative impact indicating either misinformation or an understanding that hunting is legal on some private reserves. Only 14.9% of students made remarks that were later placed in this category.

Impacts in the “land and climate” category were coded into three themes, and indicated a potential lack of knowledge by students about basic ecology. “Deforestation” comments were sometimes defined as impacts caused by large animals such “elephants take down trees”, and the “over-grazing” theme was comprised of some comments of herbivores being negative because they are “bad for the plants.” The final theme of “drought” was mentioned often but difficult to interpret. At the time of the study the region was in midst of a long drought, and its possible this comment was a simple reference to the reality that the current drought was taking its toll on park resources. More than one-third (38.6%) of participants included comments here.

Themes in the illicit behaviors category were overwhelmingly related to poaching, though other themes included “crime” and “corruption.” While poaching occurs rarely in the reserves compared to the 1970s and 80s when the Kenya Wildlife Service was at war with poachers in the parks, it still occasionally occurs. Since some wildlife can recognize the park as a safe haven with sufficient water and

food resources, some students argued that this makes poaching easier (see Table 5). This was the category in which most students made comments (63.4%).

Comments related to “crime” included crimes against tourists (e.g., robbery) as well as crime that can be indirectly linked to tourism. For example, growth in tourism led to the emergence of small communities of local people working in the tourist industry, some of which have become known areas of drug use, prostitution and similar behaviors. The final theme of “corruption” in the illicit behavior category was consistent with Kenya’s long battle with nepotism in government employment, unaccounted for revenue (e.g., lack of receipts for park entry fees collected) and similar occurrences.

Overall, students most often listed illicit behaviors as a negative impact of protected areas (63.4%). Impacts on livelihood (42.6%) and impacts on land/climate (38.6%) were mentioned with similar frequency, while tourism impacts were expressed less often (14.9%).

Table 5 about here

## **Discussion**

Youth in Samburu are raised in an increasingly sensitive area for biodiversity and conservation, particularly given the impacts of climate change (the region experienced record drought and record flooding within one 18-month period) and tourism (until 2009, the area had experienced consecutive years’ of growth in visitor numbers). Students here live closely to the land, often taking time off from school to herd livestock or fetch water. They live in a situation well-suited to learn how protected areas and land-dependent local communities (e.g., pastoralists) can work collaboratively to achieve mutual benefits. However, the results of this study suggest that personnel of the protected areas in Samburu have work to do to insure a favorable partnership with Samburu’s future adult population. This research shows potential for such a partnership, but vulnerabilities as well.

The youth participants in this study collectively listed 23% more negative consequences of the protected areas (161) than their positive benefits (131). While we did not measure the strength of how they felt in regards to the benefits and challenges, the fact that this study elicited so many more responses related to challenges and problems is perhaps indicative that students feel more negatively about parks, or that they might also be using this research process as a way to request assistance to help mitigate them.

The findings in this study in which the most often mentioned benefit of protected areas by youth were related to economics and income is consistent with our previous work with adults in the same area (see Bruyere *et al.*, 2008) While the methodology was different – the study with adults involved interviews whereas this study used written responses – the similarity of outcomes is worth noting. This finding is also similar to Ali and Maskill's (2004) main findings that youth feel “wildlife parks are for tourism” and “wildlife parks provide benefits.” The economic benefits comprised nearly two-thirds of all responses about benefits of the protected area. This has implications for those who teach about and do outreach to youth regarding conservation: we must highlight the positive impacts of protected areas, and we especially must highlight the non-economic impacts.

Ironically given how often the youth cited economic benefits, the communities in which Samburu youth live, such as Archer's Post, literally just outside the gates of the protected areas, receive minimal economic benefit relative to the millions of dollars (USD) spent via tourism in the region each year. In terms of jobs, most tourist lodges and guiding companies employ non-local staff who are formally trained in post-secondary courses in hospitality and tourism (difficult trainings for Samburu people to access) and send most of their wages home to families in other parts of Kenya. In terms of the rangers and other staff of the protected areas, in 2005 only 13% of rangers from one protected area

were from a community near the reserves. Finally, most tourist vehicles drive through the communities on their way to enter the reserves but few stop and spend their money for local curios or refreshments.

All of these economic limitations place the youth's belief of parks having economic benefits in a potentially tenuous position with their community: the pieces are present to draw a conclusion of parks being good for *other* communities and *other* families, but not one's own. Consequently, in challenging times such as the recent drought when the community is urged to follow regulations about not grazing their livestock in the parks, their compliance with such rules could waver.

Many youth in this study mentioned conservation benefits of the protected areas, especially related to protecting plants and wildlife. This is a different outcome than when we conducted our interview-based study with adults. In the latter study few adults identified conservation benefits of protected areas.

This is a promising point from which to build future education and outreach to youth about the natural resource benefits of protected areas. While most of the conservation responses showed a basic understanding of the *parts* of an ecosystem - plants, wildlife, soil, trees – and there were few responses that demonstrated the more complex ideas about inter-relatedness of the various parts or ecological systems and cycles. While a student needs the former to understand the latter, it is the latter which can arguably be made into a compelling lesson about ecological systems and how those systems assist human well-being, and that is another major implication of this study. Protected area staff might consider this an element of their future outreach, and further, could make the connection that such systems and cycles are important to human livelihoods: trees mitigating erosion or predators keeping ungulate populations in-check that might compete with livestock for grazing. In fact some students identified predation as a negative impact because it kills other animals.

Students in the primary schools of the Samburu region, along with the rest of Kenya follow a nationalized curriculum administered by the Ministry of Education based in the capital of Nairobi. While science and social studies are two of the national subject areas, a review of that curriculum shows that large cyclical relationships such as nutrient cycling ecological systems that tie together many basic ecological concepts are minimally addressed. There appears to be preference for a more separate approach such as soil type and parts of plant, but little inclusion of content that unites such topics.

A limitation of this approach is the lack of a place-based strategy for learning key concepts. With the curriculum provided including lesson plans and student workbooks, teachers have less incentive to examine these topics through a local lens and in fact are generally trained in implementing the curriculum as-is rather than adapting it. Students might generically learn that trees can help prevent erosion, but there is no opportunity in the nationalized curricula for teachers to discuss why erosion prevention is important in a student's own community, or which trees in their community fulfill such a function. With the expectations of teachers being that they adhere to the curriculum, integrating local examples and teaching about the inter-relatedness of parts of an ecosystem could fall to conservation clubs and similar extracurricular outlets such as Wildlife Clubs of Kenya and the Jane Goodall Roots and Shoots program. This study provides some indication of where such efforts might be focused: on ecological principles and using a place-approach for teaching. Such clubs are less common in the less-resourced parts of the country (e.g., Samburu) where capacity to deliver conservation clubs is limited, however. So, while this study has implications for environment clubs that already exist, the utility of these implications to places like Samburu is limited.

Another promising finding in this study is youth acknowledgement that protected areas provide a potential means to protect aspects of the Samburu culture, such as providing an opportunity to engage in songs and dances that might otherwise be endangered. For example there is a song and dance

in Samburu to celebrate when young warriors returned home (after months away) from successfully hunting a predator. However, that tradition waned when education became more highly valued (and wildlife hunting became illegal) and young warriors are now encouraged to conquer their studies instead. Performing the songs and dances for tourists can help maintain those important traditions. Consequently, another implication of this study is the recommendation of using tourism-based opportunities to keep local traditions alive.

An interesting omission from the youth responses in this study are concepts related to environmental identity and ecological psychology introduced earlier in this paper. This raises a potentially intriguing opportunity for future research to see how nature and environment contributes to the psychological well-being and condition of youth who live so closely to and in nature. Intuitively the spiritual and peaceful benefits of nature are easy to see when spending time in nature is something that occurs as novelty in one's regular life, such as a family in the United States getting away from their busy lives and camping in a national park. However, for youth for whom the built environment is extremely limited and their direct experience in nature is plentiful – many literally see elephants, zebra and giraffe from their huts or as they walk to school -- a future study could investigate how their experiences contribute to *their* environmental identity. Though we did not investigate such concepts in this study, our anecdotal experience after many years interacting with youth and teaching in the primary schools leads us to believe that daily experience does become part of their identity at some level, as reflected in their spirituality for example. Further, in our experiences of taking youth into protected areas for field trips we also notice that their first-time up-close observations of wildlife are similar to the youth in the United States with whom we have had a similar experience. They become curious and marveled at what they see, and it leaves them wanting more.

The findings from this study show similarities to the Maasai youth in the study by Ali and Maskill (2004), namely that youth see economic benefits of wildlife parks but their ecological value is less recognized and understood. Taken together with results from our study, we see at least two courses of action to recommend. One, instruction to youth about the ecological value of wildlife game parks could be a wise investment of resources, including content that emphasizes the inter-relatedness of an ecosystem's various parts and how it benefits human well-being. The youth's responses as well as our review of Kenya's classroom science curriculum are indicative of this need. This would give youth a broader understanding of the role of protected areas in conserving ecosystems and the services those ecosystems provide to communities. Youth already see some benefits to protected areas – primarily economic – and this additional outreach could give them potentially more reasons to be supportive of protected areas.

Second, wildlife parks and their concessionaires might consider a commitment to employment opportunities being extended to local communities. While jobs alone are arguably not a sustainable means to maintain community support for protected areas, there is no question about the potential for that employment to have a substantial effect.

### **Conclusion**

The children of Samburu will be tomorrow's teachers, herders and firewood gatherers, all living closely to the land, and transferring their knowledge to the next generation. Protected areas can help sustain these livelihoods. This study revealed that youth recognize some basic conservation and economic benefits of the local wildlife parks, but that comprehension appears not to include the more complex ideas of ecological services of inter-relatedness among organisms. The reasons for this are many, perhaps either because the protected areas here are not actually helping sustain livelihoods, the

youth are not taught about such connections, or the most likely, some combination of both. As discussed earlier, teachers in this region feel tied to the national curriculum and tests, and are given little freedom to adapt content to make it more locally relevant.

There is also a role here for the protected areas to enhance its education and outreach to local schools. In the previous Bruyere *et al.* (2008) study, no interviewee rated the communication of park staff with the community as sufficient or positive (a similar question was not asked in the current study of youth). By going into the schools with messages about the role of the park in protecting ecological services, the park would enhance the students' learning, make a stronger case for why parks are important to communities, and begin enhancing their relationship with the community and its next generation of adults.

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