



# Youth's Knowledge, Attitudes and Practices in Wildlife and Environmental Conservation in Maasailand, Kenya

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## *Abstract*

*The factors influencing formally and informally educated youth's knowledge, attitudes and practices pertaining to wildlife and environmental conservation were assessed in southern Kenya. Using a stratified population sample with evenly spread gender, students in lower primary, upper primary and secondary schools were interviewed. Maasai morans – informally educated Maasai – youth were interviewed as well. Youth whose parents were engaged in tourism-related activities were more positive towards wildlife and environmental conservation. Tourism and foreign exchange were seen as the most important benefits of conserving elephants and other wildlife. Generally male respondents had more positive attitudes towards elephant presence within their land. Schooling and participation in extra-curriculum activities through clubs positively influenced the youth's perceptions of wildlife and environmental conservation. The authors emphasise the role of formal education and environmental clubs in enhancing sustainable environmental and wildlife conservation. Several challenges limit student participation in environmental club activities among most schools. Increased support for education among the youth and improved support for environmental and wildlife clubs can be beneficial to wildlife and environmental conservation.*

## *Introduction*

One of the greatest challenges facing environmental conservation is to balance human needs and desires with the needs of the environment. Most protected areas in Africa are only a small proportion of the habitat for the associated wildlife (Douglas-Hamilton, Krink & Vollrath, 2005). Much of the wildlife is distributed within private land outside the protected areas. When Kenya Wildlife Service (KWS) was formed in 1990, a community wildlife department was set up to specifically enhance the role of local communities in wildlife conservation. One of the key targets was to increase the level of awareness of the importance of wildlife conservation amongst rural communities through a wildlife and environmental education program (KWS, 1990). Attitudes are related to a precursor to a particular behaviour (Ajzen & Fishbein, 1980). Selby (2001) as well as Ajiboye and Silo (2008) show the linkage between environmental education and support for environmental conservation. Environmental conservation programmes attempt to halt the disconnect between humans and nature by influencing level of knowledge and attitudes. Some authors argue that environmentally responsible choices that adults make are based on lessons learned in their youth (Eagles & Demare, 1999); while other authors argue that school programmes and clubs have a significant impact in improving children's environmental

consciousness (Eagles & Demare, 1999; Pashby & Weis, 2002; Ajiboye & Silo, 2008).

Currently there is minimal understanding of the attitudes and engagement of youth in environmental conservation issues across much of rural Africa. In Kenya, the community wildlife department of KWS has mostly focused on community benefit and conflict resolution mechanisms, with less emphasis on knowledge and awareness creation programs. Wildlife Clubs of Kenya (WCK), a nationwide youth organisation, was formed in order to educate the youth on wildlife and environmental conservation issues through programmes with member institutions (mostly schools and colleges). Many of the activities of WCK are concentrated within protected areas near urban areas – areas that are easily accessible. Kenya's primary and tertiary education system lack practical and innovative ways of involving the youth in environmental and wildlife conservation and there has been little emphasis on social critical, reflexive and participatory approaches to environmental education (Otieno, 2005).

This study investigates the role of environmental and wildlife clubs as well as formal education in environmental and wildlife conservation in Maasai-land in southern Kenya by comparing youth with different levels of schooling and by comparing formally and informally educated youth. The investigation is broadly based on the broadening base attitude hypothesis that people of a certain class behave similarly at a given time (Jones & Dunlap, 2001). A contrary hypothesis, the economic contingency hypothesis, suggests that concerns over environment are correlated with social class and economic conditions (Jones & Dunlap, 2001). As economic conditions worsen, individuals from the lower class will be less likely to place a high priority on environmental issues.

## *Methodology*

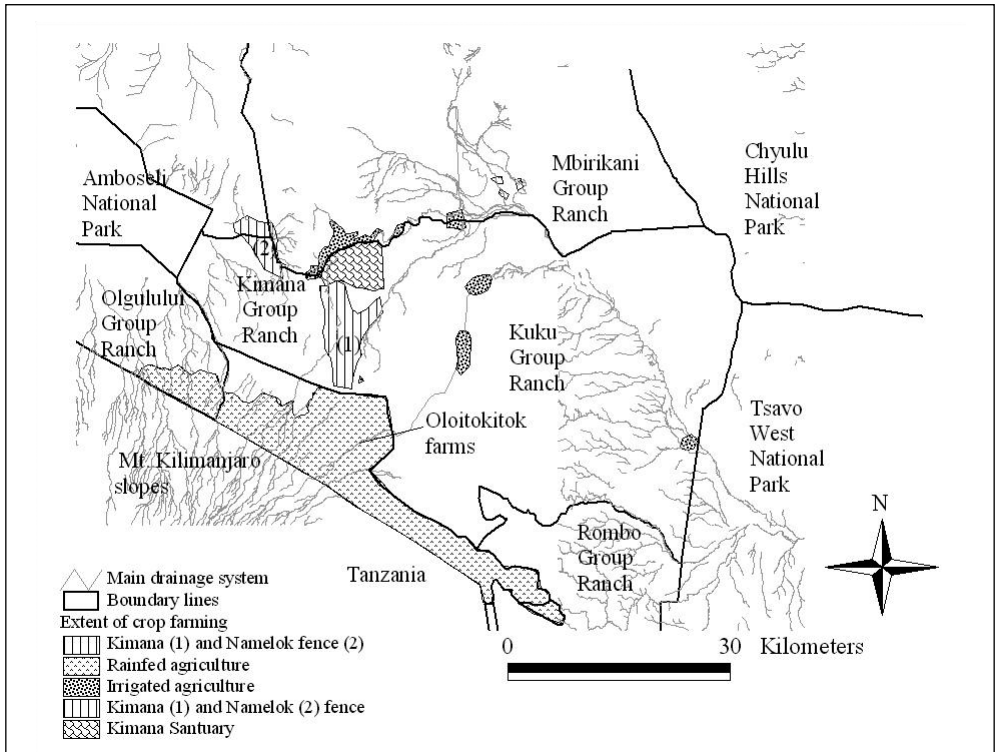
### **Study area**

The study took place within in the Loitokitok District of southern Kenya and focused on Kimana, Kuku, Mbirikani, Olgulului and Rombo group ranches (Figure 1 shows a map representing the study area). The area forms the dispersal area for Chyulu Hills, Tsavo West and Amboseli National Parks. It is semi-arid to arid savannah (Pratt & Gwynne, 1978) and most conducive to livestock grazing, wildlife conservation and tourism. The Maasai people use land for pastoralism, but in the last few decades agriculture has developed within the few wetlands in the area (Campbell *et al.*, 2000). The 2008/2009 drought rendered a large majority of the residents poor due to over 80% loss in livestock numbers per household (KWS & TAWIRI, 2010). The land is largely communally owned in the form of group ranches; large parcels of land that were demarcated under the Land Adjudication Act (Cap 284) of 1968 and legally registered to a Group duly constituted under the Land (Group Representatives) Act (Cap 287, Laws of Kenya) of 1968 (Gok, 1968). However since 1990s, the process of land individualisation has started in the area.

The youth in the area comprise those in the formal school education system and the *morans*. The *morans* are young Maasai men, most of whom do not have a formal education. The schools follow the official government public education system (8–4–4), with eight years of primary, four years in secondary and four years in the university. In the primary schools, most of the

students are from the Maasai tribe while the secondary schools have more diverse ethnic composition among the students.

**Figure 1.** Map showing location of the study area



**Sampling procedure**

The sample population comprised schoolgoing children from local primary and secondary schools. Primary schools are divided into lower levels (class one to three) and upper levels (class four to eight). In each school, 40 students (20 boys and 20 girls) were randomly selected for interviews from class three and eight and form four to represent each level. Randomisation was done by having the students count in a numerical sequence. Only students who had a number meeting the stated selection criteria were interviewed. All the students selected for interview were placed in one classroom, from which they were summoned one at a time. After the interview, students were then sent to a separate classroom so that they could not exchange information that could influence the responses. The Maasai *morans* were purposively interviewed in different sections of the study area. All the interviews were conducted in either English or Kiswahili, or in the respondent’s local dialect through a translator. Four hundred and fifty (450) students were interviewed – 160 in secondary schools, 290 in primary school students, and 120 *morans*.

### Data analysis

Statistical analyses were undertaken in SPSS 9.0 for windows (SPSS, 1999). Chi-square goodness of fit test and Chi-square cross-tabulation were used to test for differences in responses and relationships among the responses. One-way ANOVA and the post-hoc Tukey test was used to test the differences in the mean quiz scores marks attained among the different groups of youth.

### Results

The Maasai were the dominant (71.1%) ethnic group among the youth in these schools. Those interviewed identified livestock keeping (57.9%), crop farming (37.8%) and tourism (2.1%) as their family's primary land use activity.

#### Factors influencing youths' views on whether elephants (*Loxodonta africana*) should continue using areas outside protected areas

The majority (57%) of the youth felt that elephants should continue using the areas outside protected areas ( $\chi^2 = 11.165$ ,  $p = 0.001$ ). Their views were positively influenced by gender, location of the school, membership to a wildlife club\environmental club and level of education (see Table 1).

The reason for supporting elephants' continued use of the areas outside the protected areas was said to be due to the role elephants play in tourism and people's social-economic welfare. Those who were against elephants' continued use of the dispersal area cited destruction of crops and other property, human death and injury as the main reasons.

**Table 1.** Views of the youth on whether elephants should continue using non-protected areas

Variable	Statistical result	Responses
Gender	$\chi^2 = 11.162$ , $p = 0.001$	More males (62.7%) supportive
Membership to a wildlife/ environmental club	$\chi^2 = 21.141$ , $p = 0.001$	62.5 % of club members were supportive
Level of education	$\chi^2 = 30.201$ , $p = 0.001$	65.1% of secondary school students and 59.6% of upper primary students were supportive, 64.7% of lower primary students were not supportive
Ethnicity	$\chi^2 = 8.69$ , $p = 0.122$	No statistical difference
Home district	$\chi^2 = 11.56$ , $p = 0.172$	No statistical difference
Main form of family livelihood	$\chi^2 = 2.594$ , $p = 0.458$	No statistical difference

#### Perceived importance of protected areas

The value of the protected areas was reported to be tourism (38.7%), species conservation (12.2%), enjoyment (10.0%) and employment (9.2%). More students (51.22%) than *morans* (24.32%) felt

that protected areas were important for tourism ( $\chi^2 = 9.46$ ,  $p = 0.002$ ) (see Table 2). On the contrary, more *morans* (18.02%) than students (3.12%) felt that employment was a key function of protected areas ( $\chi^2 = 10.71$ ,  $p = 0.001$ ). Children whose main family livelihood was tourism related cited tourism to be a main role of protected areas ( $\chi^2 = 10.81$ ,  $df = 3$ ,  $p = 0.013$ ).

**Table 2.** Youths' perceptions of the value of protected areas

Perceived value of protected areas	Percentage of respondents
Tourism/foreign exchange	35.0
Wildlife containment	12.6
Recreation/aesthetics	11.8
Species preservation/conservation	11.8
Employment	7.7
School fees/bursaries	3.6
Animal/wildlife products	3.1
Education	2.5
Helps in infrastructural development	1.5
Religious importance	1.2
Cultural value	0.6

### Attitudes of the youth towards wildlife conservation

Most of the youth (87.5%) felt that wildlife should be conserved ( $\chi^2 = 315.938$ ,  $p = 0.001$ ). The perceptions were influenced by gender ( $\chi^2 = 5.260$ ,  $p = 0.022$ ), location of the school ( $\chi^2 = 27.464$ ,  $df = 7$ ;  $p = 0.001$ ) and the main form of family livelihood ( $\chi^2 = 27.50$ ;  $df = 3$ ,  $p = 0.001$ ). More males (90.2%) than females (83.7%) felt that wildlife should be conserved. Contrary to the expectations, the opinion was not dependent on whether the respondent belonged to a wildlife/environmental club or not ( $\chi^2 = 2.440$ ,  $n = 341$ ,  $p = 118$ ). The reasons given by the youth for supporting conservation of wildlife were that: wildlife earns Kenya tourism/foreign exchange (34%), is important for recreation/aesthetics (12%), assists in wildlife containment in parks (13%), and in species preservation/conservation (12%) among other reasons (see Table 2).

The gender of the youth highly influenced their views on why wildlife should be conserved ( $\chi^2 = 34.960$ ,  $p = 0.001$ ). More females (21.3%) than males (10.8%) felt that a major reason for conserving wildlife was to contain them. More females (10.6%) than males (9.3%) felt that conserving wildlife was important for species survival. More males (44.7%) than females (34.7%) associated wildlife conservation with tourism and foreign exchange; in addition, more males (9.6%) than females (7.4%) associated wildlife conservation with recreation/aesthetic values.

Support for wildlife conservation was dependent on the respondent's level of schooling ( $\chi^2 = 244$ ,  $p = 0.001$ ). More students in secondary school (61.5%) felt that wildlife should be conserved for tourism/foreign exchange (see Table 3).

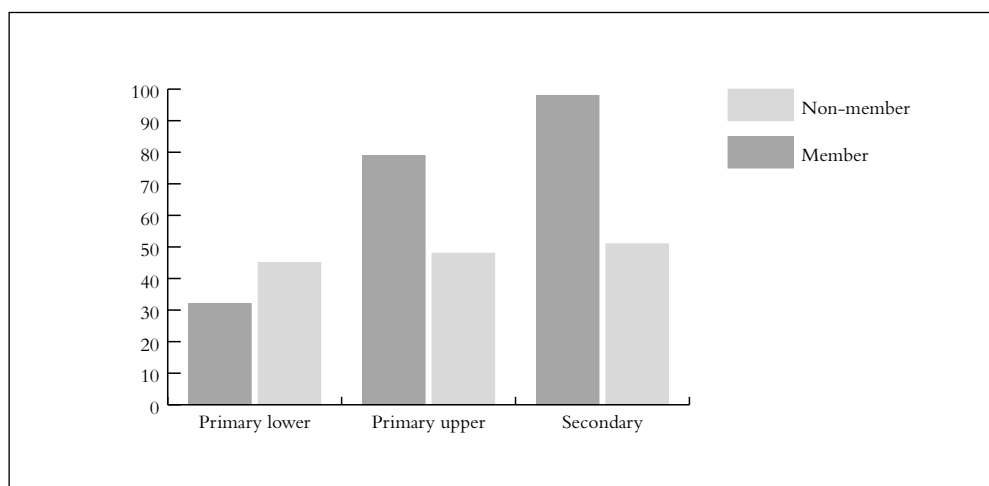
**Table 3.** Relationship between level of schooling and stated reasons for conserving wildlife

Level of schooling	Tourism/ foreign exchange	Recreation/ aesthetics	Species preservation/ conservation	Wildlife containment
Primary lower	11.8%	4.9%	16.0%	37.5%
Primary upper	48.0%	16.7%	9.3%	4.7%
Secondary	61.5%	8.1%	10.1%	2.7%
P-value	0.0001	0.0001	0.0001	0.0001
Chi-value	244.00	60.00	70.00	92.00

### Impact of youth-based conservation education programmes

The majority of students (62%) had not visited the nearby Amboseli National Park ( $\chi^2 = 32.064, p < 0.001$ ) and visits to the park depended on club membership ( $\chi^2 = 5.851, p = 0.016$ ) and their level of education ( $\chi^2 = 11.615, p = 0.003$ ). More club members (44.2%) visited Amboseli National Park compared to (31.2%) non-club members. The proportions of the students who had visited Amboseli National Park in relation to level of schooling were as follows: upper primary (45.7%), secondary (30.4%), and lower primary (28.7%).

The majority of the students interviewed (59.2%) were members of wildlife/environmental clubs. There was a relationship between level of education and membership to wildlife/environmental clubs ( $\chi^2 = 12.758, p = 0.002$ ). Secondary school students had high levels of enrolment in wildlife/environmental clubs, while primary schools had the lowest level of enrollment (see Figure 2).

**Figure 2.** Percentage of students enrolled in wildlife and environmental clubs

The majority of students (61.7%) reported that they were involved in conservation activities at home ( $\chi^2 = 30.591$ ,  $df = 1$ ,  $p < 0.001$ ). Their participation in conservation activities at home was influenced by whether the student was a club member or not ( $\chi^2 = 9.106$ ,  $p = 0.003$ ), with more club members (65%) being involved in conservation activities in their home than non-club members. The activities the club members reported undertaking at their respective homes were: tree planting and gardening (56%), garbage collection/ground maintenance (30%), promoting environmental awareness (6%), hygiene/health education (4%), report to KWS about wildlife issues (2%) and erosion control (2%).

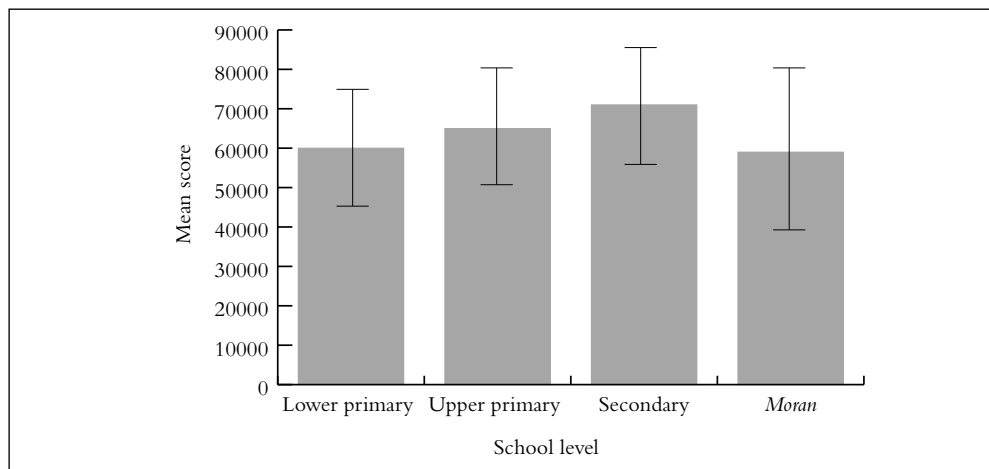
The level of youth's understanding of wildlife and environmental conservation issues, as determined by a set of questions (Table 4) was influenced by whether or not they were a member of an environmental/wildlife club ( $F = 5.207$ ,  $df = 1$ ,  $N = 340$ ,  $p = 0.023$ ). Based on quiz test scores, club members had a higher understanding of wildlife and environmental conservation issues than non-members (see Figure 3).

The level of youths' understanding of wildlife and environmental issues was influenced by level of schooling (ANOVA  $F = 186.317$ ,  $df = 3$ ,  $N = 3312$ ,  $p < 0.001$ ). Secondary school students were more knowledgeable on wildlife and environmental conservation issues compared to lower primary, upper primary and *morans*.

**Table 4.** Questions administered to *morans*, primary and secondary school students

Give the English or Maasai names of any four wild animals found in this area.
Which statement is false? A. Elephants eat tree leaves B. Elephants eat grass C. Elephants play with each other D. An elephant is the tallest animal
Where do you think the springs in Amboseli region get their water from?
True or false? Elephant habitat is threatened by humans.
Which statement is false? A. Elephants eat tree leaves B. Elephants eat grass C. Elephants play with each other D. An elephant is the tallest animal
Where do you think the water springs within this area get their water from?
True or false? Elephant habitat is threatened by humans.
Which of the following is not a way of taking care of the environment? A. Planting trees B. Garbage collection C. Clearing areas to plant crops D. Preventing soil erosion

**Figure 3.** Mean score results for a quiz on different wildlife and environmental conservation issues among school-going children and morans



### *Discussion and Conclusions*

Generally the youth were had positive perceptions about wildlife and were relatively knowledgeable on topical issues in environmental conservation. Favorable attitudes toward wildlife conservation were higher among the youth in the upper school classes. This supports earlier findings that showed that with education comes a compassion for wildlife (Bradley, Waliczek & Zajicek, 1999). Comparison of mean quiz scores revealed an association between knowledge on wildlife issues and level of schooling. The high school students attained the highest test scores, with the informally educated *morans* having the lowest. Increased schooling increases the probability of joining an environmental club and visits to protected areas, furthermore there is increased coverage of wildlife topics as the level of schooling increases. The lower primary schoolchildren are at a stage of their learning where they do not fully comprehend the socio-economic values of environmental conservation (Pashby & Weis, 2002), which may explain their minimal support for the existence of elephants outside the protected areas. The youth in the schools, who were mostly Maasai, regarded tourism and foreign exchange as the main reason why elephants should be conserved. This can be explained by the fact that they are a primary beneficiary of wildlife through education bursaries (Okello, Seno & Wishitemi, 2004). Each of the group ranches receives USD20 000 annually from KWS to be used towards education bursaries.

The main concerns of the youth regarding elephants were related to the possible benefits and threats they pose to humans. Maasai *morans* had more direct perspective on the benefits of conserving elephants. At this stage of their life, they viewed conservation as an option to fulfill their basic needs through employment opportunities in the wildlife conservation and tourism sector. Norton-Griffiths and Southey (1995) are of the view that traditional lifestyle once compatible with environmental conservation may not persist for long, as it puts the community in a poverty trap due to foregoing 'development'.



Schoolgoing children, on the other hand, linked conservation to tourism and foreign exchange. The school curriculum at both primary and secondary school level in Kenya gives students a good theoretical background on environmental and development issues. The lower primary schoolchildren were more negative towards wildlife and associated wildlife conservation with containment of wildlife in protected areas. To them, wildlife should be separated from humans to avoid harmful effects. Children under the age of seven manifest exploitative attitudes, for instance, prefer pets as opposed to wild animals, and are fearful of predators; it is only after the age of 14 that children begin to understand basic ecosystem concepts and links between humans and the natural environment (Pomerantz, 1987).

The minimal support for conservation of wildlife among female students can be attributed to the fact that views of women towards wildlife are likely to relate to perceived danger caused by wildlife. Borden and Francis (1978) and Van Liere and Dunlap (1980) reveal that females exhibit higher perceptions of risk concerning the environment than males. On the contrary, in the USA it was observed that females show a higher degree of environmental concern through their daily activities than men, though men had a greater degree of knowledge (Tikka, Kuitenen & Tynys, 2000). Among the Maasai, who formed the bulk of the study student population, women are less likely to receive or be aware of financial benefits as men tend to dominate financial matters (Ntiati, 2002). After primary and secondary school, the Maasai girls will most likely get married and thus may not anticipate directly benefiting from wildlife conservation. Most male students, on the contrary, expect to get employment from the numerous tourism and wildlife conservation establishments in the Amboseli ecosystem.

Based on the results of this study, the most prevalent method of practically engaging the youth in environmental education appears to be participation in wildlife club activities. While all the schools had clubs, lack of funds limited club activities to gardening and tree planting within the school. Nevertheless, the clubs played an important role in environmental education. Membership increased the likelihood of students visiting protected areas such as Amboseli National Park. Such visits offer students opportunity to learn more about wildlife conservation (Dale & Carlisle, 2007).

The youth of the Amboseli ecosystem are supportive of wildlife conservation. While younger schoolchildren are especially concerned with the destruction and harmful effects of elephants, older youth are more aware of the financial benefits derived from wildlife-based tourism. Club membership positively affects general attitude and knowledge of conservation-related topics; however, club activities were largely local and severely limited by lack of funding. As environmental conservation becomes an issue of urgent concern across much of rural Africa, the role of environmental education becomes imperative. While environmental clubs can play a significant role in awareness creation and education, their success is hampered by financial and management deficiencies, which limits the scope of their operations. Government and other stakeholder support of environmental clubs in schools is crucial if they are to be an effective tool for environmental education and awareness. It is crucial that government and stakeholder support towards primary and secondary school education is enhanced the depressed economies in many parts of Maasai-land.

### *Notes on the Contributors*

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### *Endnotes*

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