Pupils' Awareness and Attitudes towards Wildlife Conservation in Two Districts in Tanzania

Sayuni B. Mariki

Department of Wildlife Management,
Sokoine University of Agriculture,
Morogoro, Tanzania.
Email: zion2000tz [AT] yahoo.com

ABSTRACT— ***With increasing pressure on natural resources, biodiversity conservation will increasingly depend on public awareness and participation. Environmental education is an important tool for improving people's understanding and motivation to cooperate and take initiatives for conservation and sustainable resource use. Although environmental education is included in the primary school curriculum in Tanzania, it places little emphasis on wildlife conservation, a situation that hinders orientation of future generation towards wildlife conservation. This study was conducted in Morogoro urban and Morogoro rural districts in Tanzania to explore pupils' awareness and attitudes towards wildlife conservation. Combinations of questionnaires, formal and informal discussions were used to collect data. A total of 96 pupils participated in the study. The findings show that pupils from Morogoro Rural District (61%) had more knowledge of wildlife than Morogoro Urban District (39%). Many pupils (65 %) wanted wild animals to be conserved although some (28 %) did not consider conservation of the environment as essential, since animals were seen as threat to their lives and properties. Many pupils (82%) showed an increased interest in wildlife conservation and wanted to visit the protected areas but were restricted with resources like funds and transport. More boys were aware on wildlife conservation than girls, and older pupils were aware on wildlife conservation than younger ones. Some factors observed to affect pupils' awareness on wildlife conservation were age and sex. The study concludes that for conservation to be successful raising and creating conservation awareness among pupils is highly needed, as they are future conservationists.***

Keywords— awareness, pupils, wildlife, conservation, protected areas

1. INTRODUCTION

Although Tanzania is endowed with expansive wildlife habitats, this resource is on decline both in size and quality while wildlife populations are being threatened by commercial poaching (Kideghesho et al. 2013). This suggests the need to invest more efforts in conservation education at all levels with emphasis on grassroots.

Apparently, the long-term success of wildlife conservation in Tanzania depends largely on the way people are involved in conservation (Mariki 2013, Hulme & Murphree 2001, Newmark & Hough 2000). One among ways of involving the general public in conservation is through environmental education (MNRT 1998). Environmental awareness at all levels enables people to understand the interrelationships between people and the environment as well as to undertake appropriate actions towards environmental protection (Hungerford & Volk 1990). A proper action requires right information accrued through formal or informal education (Jacobson1995). However, conservation education alone is insufficient to solve environmental problems even though it may be a pre-requisite for better environmental management.

Studies show that environmental education based on life experiences "plays a critical role in shaping life-long attitudes, values, and patterns of behavior toward the natural environment" (Wilson 1994 cited in Wilson 1996, p.2). Thus, school children are one of the key targets for conservation education since conservation attitude is built in people right from earliest years of life (Tilbury 1994, Wilson 1994, Jacobson 1995, Kushosha 2001). Some scholars argue that lack of contact with the natural world negatively impacts the children acquisition of environmental knowledge and can recruit generation that is destructive of nature (e.g. White 2004).

Since 1990s, environmental education has been one of the main interests of conservationists, government, NGOs and the private sector, and has been integrated in the primary school curricula in Tanzania (Rajabu et al. 1991, Rajabu 1992). Several programs and projects started for the purpose of giving environmental education to community including primary school pupils so as to create their awareness (Lindhe et al. 1993, Allen 2000). Despite of these efforts, environmental education is often regarded as something extra in the curriculum instead of being viewed as a basic

requirement. In most cases, environmental education has been conducted in form of environmental projects such as tree planting, making terraces and growing grasses (see e.g. WWF 1997).

Although the majority of primary school pupils have heard about environmental conservation, few understand all components of the environment (Bakobi 1992). For example, most programs and activities related to wildlife conservation largely focus on wildlife-oriented professionals, in many cases excluding young people including primary school pupils. Besides, most wildlife conservation programs including Malihai Clubs of Tanzania, focuses on a few primary schools leaving many behind. As result, majority of pupils are not aware of issues pertaining to wildlife conservation (Kushosha 2001, Msilanga 2001).

The term environment refers to the surroundings where living organisms live. It's from the environment that living organisms get their daily basic needs such as food and shelter. Conservation is defined as "management of human use of biosphere that may yield greatest sustainable benefits to present generation while maintaining its potential to meet the needs and aspirations of future generation" (IUCN/UNEP/WWF 1980, p.18). Thus, environmental conservation means protecting animals and plants while adopting sustainable natural resources utilization which provides room for their survival and at the same time benefit the present and future generations (Rahim & Hussein 2001). Environmental education can be defined as a process aimed at "developing human population that is aware of, and concerned about the total environment and its associated problems, and which has knowledge, skills, motivation and commitment to work individually and collectively towards finding solutions of the current problems and prevention of new ones" (UNESCO-UNEP 1976 in Athman & Monroe 2000, p. 38).

Thus, the broader objectives of environmental education include awareness, knowledge, attitude, and participation (Allen 2000). Awareness can be defined as concern about and well-informed interest in a particular situation or development or knowledge or perception of a situation or fact or sensitivity towards the environment and its problems (Oxford dictionaries). Some studies have indicated a positive correlation between greater knowledge and positive attitudes toward conservation (e.g. Prokop et al. 2009). For instance, Prokop et al. (2008) found that accurate knowledge about birds was related to students' positive attitudes toward them. Other studies, for example, Majić (2007) and Røskaft et al. (2003) show that less educated respondents fear large carnivores than educated ones. However, it is not clear whether increased knowledge leads to positive attitudes or vice versa (Zimmermann 1996). Eagly and Chaiken (1993) and Petty (1995) define an attitude as a tendency to think, feel, or act negatively or positively toward objects in the environment. Thus, it is important to develop positive attitudes and values concerning the environment from early childhood, since behaviour later in life only strengthen and develop further (Torkar et al. 2010). The positive environmental behaviour can lead to a sense of responsibility and care for the environment. Thus, well-trained people develop behavioural patterns that are transmitted to subsequent generations (Torkar et al. 2010). Mobley et al. (2010) stressed that an educated individual tends to develop concerns about environment and behaves more responsibly towards it (Hines et al. 1986).

Attitudes toward environmental conservation vary between groups and can be explained by demographic and socioeconomic factors such as age, gender, occupation and education (Kellert 1996, WCST 2001). Studies have demonstrated that women are generally more supportive to animal conservation than men (Taylor & Signal 2005). However, a study by Bath and Farmer (2000) found men to have more positive attitudes toward some large carnivores than women. But, Herzog (2007) showed that gender differences in relation to attitudes towards wild animals/conservation are often overestimated. Therefore, environmental awareness, knowledge, and commitment, are essential in order to achieve protection and restoration of the environment (Madsen 1996).

To date, there are few studies conducted in Tanzania to examine attitude and perceptions of people towards conservation. Besides, the main focus of these studies has been on adults (e.g. Bitanyi 2012, Kideghesho et al. 2007, Gillingham and Lee, 1999). There are very few (if any) systematic studies conducted focusing on pupils/children's awareness and attitude toward wildlife conservation. Therefore, the present study examines: (1) the degree of awareness on wildlife conservation among primary school pupils in rural and urban areas, (2) factors affecting their awareness and, (3) attitudes towards wildlife conservation.

2. STUDY AREA AND METHODS

2.1 Study Area

Morogoro Region lies between latitude 5º58' and 10º00' to the south of equator and between longitude 35º25' and 35º30' to the East. It occupies a total area of 70,624km^2, which is approximately 8% of total area of Tanzania mainland. This region has seven districts that are Gairo, Morogoro Urban, Morogoro Rural, Kilosa, Kilombero, Mvomero, and Ulanga. This study was conducted in two districts in Morogoro Region namely Morogoro Urban and Morogoro Rural. The former occupies 288km^2 while the later occupies a total of 12,457km^2 (NBST 2013). The annual rainfall ranges from 600mm in lowland to 1200mm in the highland plateau. There are areas that experience exceptional droughts with less than 600mm of rainfall. The average annual temperature varies between 18ºC on the mountain to 30ºC in the river valley. The land use activities are mainly agriculture, livestock keeping, forestry, fisheries, beekeeping, wildlife and industries.

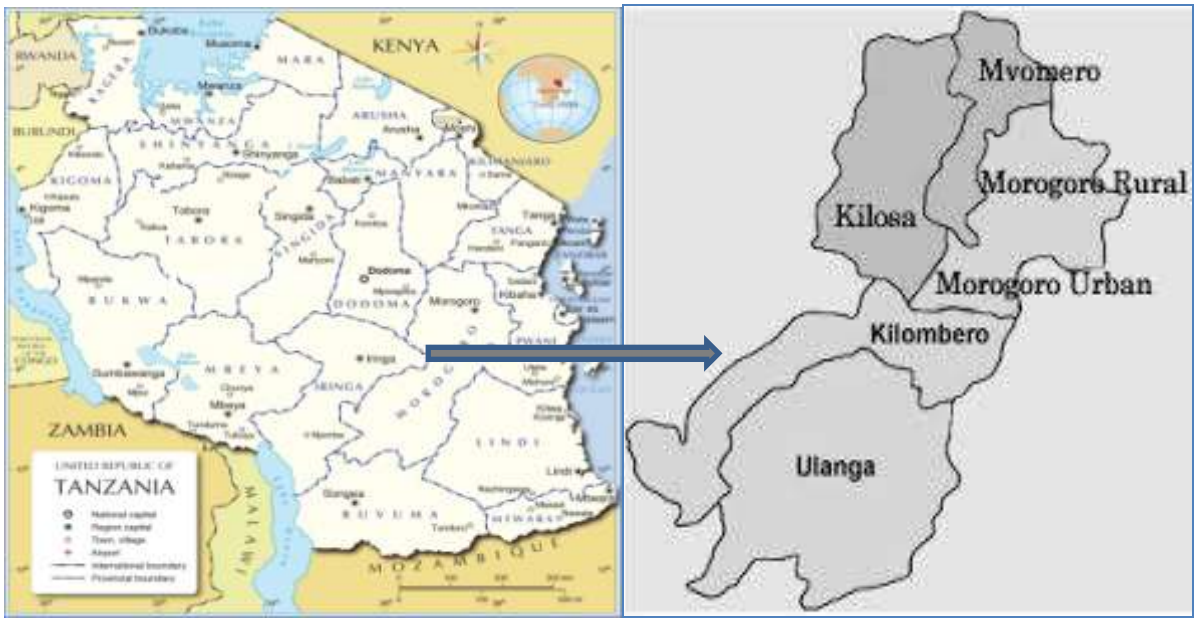

Figure 1: A map locating the study districts in Morogoro Region, Tanzania

2.2 Methodology

The two districts were purposively selected. From each district, four primary schools were randomly selected. In each school, grade two to seven pupils were purposively selected; and in each grade, a male and a female pupil were randomly selected. A total of twelve pupils per school were interviewed summing up to ninety-six respondents from eight primary schools in both districts. A semi-structured questionnaire was used to interview the respondents. Furthermore, a checklist was employed to guide discussion with primary school teachers as key informants on various issues. In addition, the researcher reviewed secondary information.

A semi-structured questionnaire was designed to reflect pupils' awareness on wildlife conservation, factors affecting their awareness, and attitudes towards wildlife conservation. Various aspects assessed on pupils' awareness on wildlife conservation include: presence and awareness of environmental clubs, interest of having a wildlife club, pupils knowledge of wild animals, pupils knowledge of wildlife protected areas, pupils desire to visit protected areas, attitudes of parents/guardians towards wild animals, ability of pupils to talk to others about wild animals, if pupils keep pets, and ability of pupils to ask a question(s) related to wildlife conservation. The questions were structured to give pupils' freedom to express their views, experiences and opinions. The questions were administered in Swahili language.

The statistical package for social Science (SPSS) was used to analyse quantitative data collected. The first step prior to the analysis involved coding, and where necessary an opportunity was taken to change the order of categories or even re-group some variables. Thereafter, each question was analysed to show the range of distribution of responses, the existence of any concentration or central tendency in those responses and the shape of distribution or the extent to which the replies were clustered around the central point. For the purpose of this study, descriptive statistics and the Chi Square (χ^2) test were of interest in the analysis. Content analysis technique was used to analyse qualitative data collected through discussions.

3. RESULTS AND DISCUSSION

3.1 General Characteristics of Pupils

A total of 96 pupils were interviewed – 48 from each district. The age ranged from eight (8) to nineteen (19) years with the average age being 12 years. About 45 % of pupils' parents/guardians were employed or were businessmen/women while 55% were farmers or not employed.

3.2 Degree of Awareness of Wildlife Conservation

The results indicated that pupils from three primary schools in the urban district (75%) were aware of the existence of environmental clubs while in rural district none was aware. These results are due to the fact that most wildlife clubs are situated in easily accessible areas particularly areas accessible through road transport (Msilanga 2001). Besides, pupils in urban areas can access information on environmental clubs through media such as TV compared to their counterparts. The primary schools in Morogoro Rural District are situated in remote areas that are not easily accessible by road transport especially during rainy season, and media coverage is poor; thus it is difficult to access information on environmental clubs. Furthermore, many environmental programs are largely externally supported; thus, no activity was conducted in rural schools to raise pupils' awareness on environmental conservation (Maganga 1999).

The study further investigated whether pupils were interested to have a wildlife club. It was observed that all pupils in the Morogoro Rural District desired to have a wildlife club. About 87.5% pupils in urban district desired to have wildlife club and 12.5% showed no interest of having one.

The findings further show that most pupils (91%) from Morogoro Rural District have already seen wild animals especially those that are found in their vicinities while in Morogoro Urban District only 70% have seen wild animals. Also, more pupils in rural district (61%) had knowledge of wild animals, as they were able to mention four wild animals they knew than those from urban district (39%). This is due to the fact that being in the rural area pupils have a higher chance to encounter wild animals since many schools and villages rub shoulders with wilderness. Thus, pupils can easily see locally available animals such as bush pig, monkeys, dik-dik, hare, tortoise etc. That was contrary to urban schools where only two out of four schools (Mindu and Towero Primary Schools) are surrounded by bushes. Therefore, many pupils in urban areas tend to have indoor recreation (e.g. watching TV) while in rural areas pupils mostly get oriented with the natural environment in the course of walking around, particularly to and from school (See also Wilson 1996).

Pupils were asked to mention four protected areas that they know. It was found that 30% of pupils failed to mention a single protected area, 41% managed to mention up to three protected areas, and 29% managed to mention four protected areas. This was due to the fact that some schools have not adopted wildlife conservation education curricula at the time of this study. Moreover, some schools did not have a teacher(s) responsible for wildlife conservation education. Among the pupils who managed to mention protected areas, 42% seemed to know protected areas through parents, relatives, schoolmates and other people; 52% knew protected areas through media and only few pupils (6%) knew wildlife and protected areas through visits.

Results revealed that only 8% of pupils in urban district have visited protected areas while in rural district, 23% of pupils have visited protected areas. This might be due to the fact some primary schools in rural district are located near protected areas –Mtamba Primary School is located near Selous Game Reserve and Masanze Primary School is located near Mikumi National Park. This has enhanced pupils in these areas to visit these protected areas. Also, some parents/guardians are working in protected areas so it is easy to take their children/relatives to the protected areas. Of all the pupils who visited the protected areas, 15.5% liked the visit very much, and wanted to visit protected areas again. Visits to protected areas can help to foster more favourable attitude towards conservation, promote sustainable natural resource management and increase knowledge on wildlife resources to the public by protected areas serving as educational resource (Jacobson and Padua 1992:290). Results also showed that most pupils (82%) who have never visited protected areas were interested to visit protected areas while few of them (18%) showed no interest. Pupils with the interest to visit protected areas expressed the interest during interview process by desiring to know when it would be possible for them to visit protected areas. Lack of exposure to wildlife conservation knowledge and insufficient income was the main hindrance to visit protected areas (cf. Mariki et al. 2011).

In order to assess whether pupils' parents/guardians contribute to pupils awareness in wildlife conservation, pupils were asked to answer whether one or both of parents/guardians is interested in wild animals and reasons why they thought so. Results were almost the same between pupils whose parents like wild animals and those who don't – 46% and 49% respectively. Reasons behind parents' disliking wild animals were: 'they are dangerous, destroy crops, can't be eaten and parents do not talk about them'. About 52% of pupils interviewed didn't respond to the question. Parents can act as an immediate source of wildlife conservation knowledge to pupils. Their attitudes towards environment [wildlife] can affect pupil's attitude either positively or negatively (Villacorta et al. 2003).

This study also investigated if pupils talk to others about wild animals either positively or negatively. The results showed that 54% of pupils talk to others about wild animals while 44% do not. Through sharing of wildlife knowledge, pupils can encourage their families and community to participate in conservation initiatives. Also, they may be able to understand economic, social, scientific, aesthetic and educational benefits of wildlife. Additionally, it will encourage them to conserve land and environment so that all living things will get enough space to live for the benefit of present and future generations (cf. IUCN/UNEP/WWF 1980).

Pupils were given two cities and one conservation area that were selected randomly in order to investigate if pupils like to visit protected areas or cities. The areas given to pupils were Zanzibar, Ngorongoro Conservation Area and Dar es Salaam. Most pupils (53 %) choose Ngorongoro Conservation Area showing their higher interest to animals, 22% choose Zanzibar while 25% choose Dar es Salaam. This might be due to the fact that most pupils have heard that protected areas are good places where they can see different animals that they have never seen.

The study tried to investigate whether pupils have an interest and habit of keeping wildlife and domestic pets. Most of pupils interviewed (71%) don't keep pets. About 17%of pupils mentioned two or more pets they keep, while 12 % mentioned one pet. Some names of pets mentioned were hare, monkey, tortoise, hyrax, dove and pigeon. Those who did not have pets, most of them (94 %) wanted to keep pets while 6 % didn't want to keep pets.

Pupils interviewed were given a chance to ask any question on wildlife conservation in order to investigate on how much they were aware on wildlife conservation. The results showed that only 25% managed to ask a question(s) while 75% of respondents failed to ask a single question. This might be due to the little knowledge they had on wildlife that made them unable to ask question(s). Also, it could be due to lack of wildlife clubs which would have made them know about wildlife and be able to ask questions. Another reason may relate to a researcher being a person they were not used to.

3.3 *Pupils' Attitude towards Wildlife Conservation*

Pupils were interviewed to learn their attitudes towards wild animals. Their responses were as follows: "wild animals are good"(43 %), "some are good" (20%), and "wild animals are bad" (33%). About 23% stated "wild animals are good because they are eaten". More than 21% of pupils recognized the aesthetic value of wild animals by stating "wild animals are beautiful because they have good colours". Other reasons that were given by pupils were: "God created them" (16%), "generate foreign currency" (13%), "they are the source of medicine" (12%) and "some are not dangerous" (11%). Reasons given for wild animals being bad were: "they kill people" (47%), "they kill other animals"(2%), "destroy crops"(3) and "some cannot be eaten e.g. cheetah, leopard, lion, and monkey"(4%). Probably this might be due to the fact that pupils have seen people being killed by wild animals or heard stories of people being killed/injured by wild animals.

Most pupils (65%) wanted wild animals to be conserved while 28 % were against conservation of wild animals. This might be due to the fact that most pupils know the importance of these wild animals apart from their negative impacts. Few pupils (7%) wanted some animals which are not dangerous and those which can be eaten to be conserved example impala, giraffe, and bush pig while those potentially dangerous and cannot be eaten not to be conserved.

Regarding reasons for wildlife to be protected/conserved, 27% said, "wild animals are a source of medicine, money and food". Only 5% responded "God created them". Other reasons given by pupils were: "they are living things" (18%), "they have good colours" (11.5%) and "some are not dangerous" (9%). Reasons for not being in favour of protecting/conserving wild animals were: "wild animals harm human beings and are dangerous" (59%), "destroy crops" (32%), and "can't be eaten" (3%).

3.4 Factors Affecting Pupils Awareness on Wildlife Conservation

In this study, several factors namely 'location', 'age of pupils', 'sex of pupils', 'occupation of parents', and 'presence of wildlife clubs in schools' were thought to have an effect on pupils awareness on wildlife conservation and were tested with respect to four indicators namely 'knowledge of protected areas', 'whether pupils have visited wildlife protected areas', 'attitudes of pupils towards wild animals', and 'attitudes of pupils towards protecting and conserving wild animals'. Results of chi-square tests showed no significant effects of location of primary school (rural or urban) on pupils' knowledge of protected areas, pupils visit to wildlife-protected areas, attitudes of pupils towards wild animals, and attitudes towards protecting and conserving wild animals.

The pupils' age category was tested with three indicators namely knowledge of wildlife protected areas, attitude towards wild animals, and pupils' attitude towards protecting/conserving wild animals. Chi-square test showed that age category of pupils significantly affects pupils' knowledge of protected areas (Table 1). All younger pupils (8-10 years) failed to mention four protected areas while older pupils – age above 12 years (82 %) managed to mention four protected areas. This indicated that age of pupils is a factor in wildlife conservation awareness. This might be due to the fact that older pupils have more experience as they have lived longer. School syllabus is another factor that affects pupils' awareness. Pupils in higher classes learn about protected areas, so their level of knowledge on wildlife is broader when compared to lower classes.

Table 1: Chi-square test on age category and knowledge of wildlife-protected areas

	Value	**df**	**Asymp. sig[1]. 2sided**
Chi-square	32.693	8	.000.
Likelihood ratio	34.770	8	.000
N of valid cases	96		

However, results of cross tabulation and chi-square test on age of pupils and attitudes towards wild animals showed that age of pupils significantly affects attitude of pupils on wild animals (Table 2). Many (53%) older pupils (age above 12 years) answered that wild animals are good compared to younger ones (33 %) – age between 8–10 years. This might be due to that as a pupil becomes older the more she/he becomes aware of wildlife and its importance. Similar findings have been reported by Jacobson (1995) where more advanced grades knew more about wild animals than the lower grades.

Table 2: Chi-square test for age of pupils and attitude of pupils to wild animals

	Value	**df**	**Asymp. sig. 2 sided**
Chi-square	12.101	4	.017
Likelihood ratio	14.648	4	.005
N of valid cases	96		

[1] *Asymptotic significance*

Similarly, results of cross tabulation and chi-square test on age of pupils and whether wild animals should be protected/conserved indicated that age of pupils significantly affects pupils' attitude towards conserving/protecting wild animals (Table 3). Pupils above 12 years (64.5%) wanted wild animals to be conserved as compared to young ones (9.6%) – age between 8-10 years. As child grows up, the level of understanding increases along with the level of realizing the importance of conservation through wildlife benefits such as beauty, source of income, source of food and support provided by protected areas through outreach programs.

Table 3: Chi-square test on age of pupils and whether wild animals should be protected

	Value	**df**	**Asymp. sig. 2 sided**
Chi-square	14.754	4	.005
Likelihood ratio	14.902	4	.005
N of valid cases	96		

In this study, sex was thought to have an effect on awareness of pupils in wildlife conservation and was tested with the three indicators namely attitudes towards wild animals, wild animals should be conserved/protected, and knowledge of protected areas. Results on sex of pupils and attitudes towards wild animals from cross tabulation and chi-square test showed that sex of pupils significantly affects attitude of pupils towards wild animals (Table 4). Many boys (59.5%) responded that wild animals are good as compared to girls (40.5%).

Table 4: Chi-square test on sex of pupils and attitudes of pupils to wild animals

	Value	**df**	**Asymp. sig. 2 sided**
Chi-square	7.668	2	.022
Likelihood ratio	7.811	2	.020
N of valid cases	96		

In emphasizing this difference, one respondent stressed that:

> *Very often, boys contribute more than girls to wildlife clubs. Also, boys can investigate many things about wildlife than girls. Through art competition (e.g. drawing, carving) boys score higher than girls. Many boys participate in some activities with adult men like bush visit e.g. for hunting, honey harvesting, collecting poles etc. This enables them to know more about wildlife. But, girls stay at home doing domestic chores like baby caring, washing, cooking, fetching water etc.* (The interview with Wildlife Conservation Society of Tanzania representative).

Results of cross tabulation and Chi-square test for influence of sex of pupils on pupils' desire to conserve/protect wild animals showed that sex significantly affects pupils' attitude towards conserving/protecting wild animals (Table 5). More male pupils (60%) answered that animals should be protected as compared to female pupils (40%) of the same age. Male pupils know many things about wild animals especially wildlife benefits, mitigation measures against crop raiding animals. Besides, many boys are engaged in activities conducted in forest areas compared to girls. Thus, they know the importance of conserving wildlife. Nevertheless, results from chi-square test on influence of sex of pupils on knowledge of wildlife protected areas show that sex did not significantly influence pupils' knowledge about protected areas.

Table 5: Chi-square test on sex of pupils and whether wild animals should be protected or conserved

	Value	**df**	**Asymp. sig. 2 sided**
Chi-square	6.945	2	.031
Likelihood ratio	7.095	2	.029
N of valid cases	96		

This study tried to find out if occupation of parents affects pupils' awareness on wildlife conservation and was tested with respect to one indicator namely whether pupils have visited wildlife-protected areas. Results of Chi-square test did not show significant influence of parents' occupation on pupils' awareness of wildlife conservation matters hence their visits to wildlife-protected areas.

Presence of wildlife clubs in primary schools was thought to have an effect on awareness of pupils in wildlife conservation, therefore was tested against knowledge of wildlife-protected areas. Results of cross tabulation and Chi-square test revealed no significant effect of presence of wildlife clubs in primary on pupils' awareness on wildlife conservation issues.

4. CONCLUSION

The long-term success of wildlife conservation depends largely on the way the general public is involved in conservation (Hulme and Murphree 2001, Newmark and Hough 2000). One of the ways to involve people in conservation is to raise their conservation awareness. Conservation awareness and attitude is built in people mostly right

from their childhood. Positive environmental behaviour can lead to a sense of responsibility and care for the environment. Attitudes toward conservation can vary between groups and can be explained by different factors such as demographic and socioeconomic factors (Kellert, 1996).

In this study, I have investigated pupils' awareness and attitudes towards wildlife conservation and factors affecting their awareness. The findings revealed that the majority of pupils in rural and urban districts are aware of wild animals that are found in their localities. More pupils in rural district had more knowledge on wild animals than urban district. Most pupils were aware of positive aspects of wildlife such as natural beauty, source of income, bush meat, and support provided by park through park outreach program. Many pupils in urban area desired animals to be conserved than those from rural district. This is because, pupils from rural district are affected by wildlife through crop raiding (e.g. by baboons, monkeys, bush pig, elephants, etc.), threat to human lives, livestock depredation, and other wildlife conservation related costs – results into negative attitude towards wildlife conservation. Some of factors that were found to affect pupils' wildlife awareness were age and sex (cf. WCST 2001). More boys were aware on wildlife conservation than girls and older pupils were aware on wildlife conservation than younger ones.

In order to create a future generation that is sensitive and concerned about the environmental conservation, this study recommend educating pupils about their environment through direct experience with nature by paying visits to wildlife protected areas. Moreover, establishment of wildlife clubs would give more opportunity to learn more about wildlife and the environment. Finally, it is important to increase the number of teachers with environmental education who can teach environmental conservation.

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