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Attitude, beliefs and perception of people towards amphibian conservation around chefa wetland, Oromo zone, Amhara National Regional State

Abeje Kassie
Ethiopian Biodiversity Institute, Addis Ababa, Ethiopia

Abstract
The current study was aimed to document public attitude, beliefs and perceptions towards amphibians in Oromo zone, Amhara regional state, Northeast Ethiopia. A total of 150 respondents, from four different kebeles (lowest administrative villages in Ethiopia) were interviewed. The majority (81.33%) of respondents were farmers. Gender had no significant association to the knowledge of traditional belief towards amphibians. However, the education level of respondent was significantly different in the study area and influenced people's attitudes towards amphibians ($n = 150$; $\chi 2 = 16.429$; $df = 6$; $p < 0.05$). There were an association between occupational status and the traditional beliefs about the amphibians ($n = 150$; $\chi 2 = 11.305$; $df = 6$; $p < 0.05$). The number of amphibians changed over time and 74 % of the respondents said that amphibians are declined due to drought, decrease rainfall, and the loss of habitat. Different superstitions are also linked with amphibians and this mindset lead to unnecessary killing of species and unwillingness to conserve amphibians. Conservation education and awareness campaigns are recommended to avoid unnecessary killing of the amphibians and negative attitudes of the people towards them in the study area.

Keywords: amphibians, attitude, beliefs, chefa wetland, conservation

Introduction

The terms "attitudes, and beliefs" have been used differently by different social scientists. (Fishbein, 1963) [5] defined attitude as a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object. While he defined beliefs as statements indicating a person's subjective probability, that an object has one or more attributes. Beliefs can be one reason for having a certain attitude. According to Fishbein (1963) [5], attitudes and beliefs are part of a system that also includes behavioral intent, defined as "a person's intentions to perform various behaviors."

Knight *et al*. (2004) [7] determined that when animals were perceived as more similar physically to humans (e.g., apes); this led to beliefs that they were more similar mentally to humans. Furthermore, people have more positive attitudes toward pets (Plous, 1993) [9] and toward animals that are believed to have "higher" mental abilities, and less positive attitudes toward animals with lower mental abilities (Knight *et al*., 2009) [8].

Amphibians are among the least appreciated vertebrates and are often negatively perceived by the public worldwide. Serpell (2004) [14] hypothesize that one reason for amphibians being unpopular is that amphibians do not influence human survival and are not phylogenetically close to humans.

Amphibians are not key sources of food for contemporary or ancestral humans, and physical and behavioral characteristics of amphibians may be responsible for a lack of interest in these species among children (Prokop & Fančovičova, 2010 [10]; Prokop & Tunnicliffe, 2008[11]; Prokop *et al*., 2010) [12].

Although amphibians are not responsible for major economic losses and most are harmless, they are feared and persecuted. In fact, many amphibian species are quite useful for human beings, not only as sources of medicines, and raw materials, but also in terms of ecological equilibrium. Human values, beliefs, perceptions and folklore of wildlife strongly influence the effective conservation managements of wild animal ecosystem (Ceríaco, 2012) [2]. These human beliefs may also vary with certain demographic characteristics such as sex, gender, age, or educational background (Ceríaco, 2012) [2]. Amphibians are among the least appreciated vertebrates, often as a result of attitudes influenced by the interpretation of commonly held cultural beliefs (Tarrant *et al*., 2016) [15]. Aves, large mammals, and most fish species may have been more privileged and protected because they are more socially and culturally accepted than amphibians (Czech & Krausman, 2001) [3]. However, mammals like bats are regarded as similar to herpetofauna or invertebrates (Ceríaco, 2012) [2]. In general, peoples negatively perceived amphibians worldwide.

In Ethiopia, there are negative attitudes and beliefs, where fear and superstitions associated with frogs and toads are pervasive in some cultures (Abebe, 2013) [1]. Amphibians are not used as sources of food for humans in Ethiopia, in particular in the highlands where most of the population lives. Age-old and conserved culture and beliefs as well as availability of easily-accessed alternative sources of protein (such as beef, lamb, fish, cereals and other crops) have made amphibians to be excluded from the dishes. In general, Ethiopian amphibians are the least focused of all other major groups of vertebrates in terms of economic and social contribution (Abebe, 2013) [1].

Amphibians are easy to be killed by people on purpose or by accident. Although some special kinds of species are valuable for people, and could be used as food or medicine, the animals are killed because they are disturbing people's

life (Yan, 2007) [16].

Despite a number of research studies examining human attitudes and preferences for wild animals, there are few empirical studies that examine human attitudes and behaviors toward amphibians.

This study aimed to know people's attitudes, perceptions and beliefs towards amphibians in Chefa wereda, Amhara regional state, Ethiopia across age, sex, educational background and other socio demographic variables.

Materials and Methods

Study area

This study was carried out in Oromo zone, Amhara regional state, Northeast Ethiopia. The research was conducted in four Kebeles (the lowest administrative places) such as Chefa dere, Cherti dabeso, Edomdene, and Kemise akababi (Fig.1). Participants were randomly selected in public places such as public squares, schools, shops, cafes, and homes in the various locations of the study. The aim was to obtain a representative sample of the population.

A structured questionnaire was prepared for 150 peoples who are living around the Chefa wetland to obtain the cultural attitudes, beliefs, perceptions and conservation status of amphibians. Sociodemographic variables also added to the questionnaire to know the difference and association among the variables on the amphibian's belief and conservations status in the study area.

The minimum age of survey respondents was 10 years and the maximum was 85 years. A total of 150 persons participated in this study, consisting 80 males and 70 females with different age group and educational back ground. Informed consent was given by those interviewed.

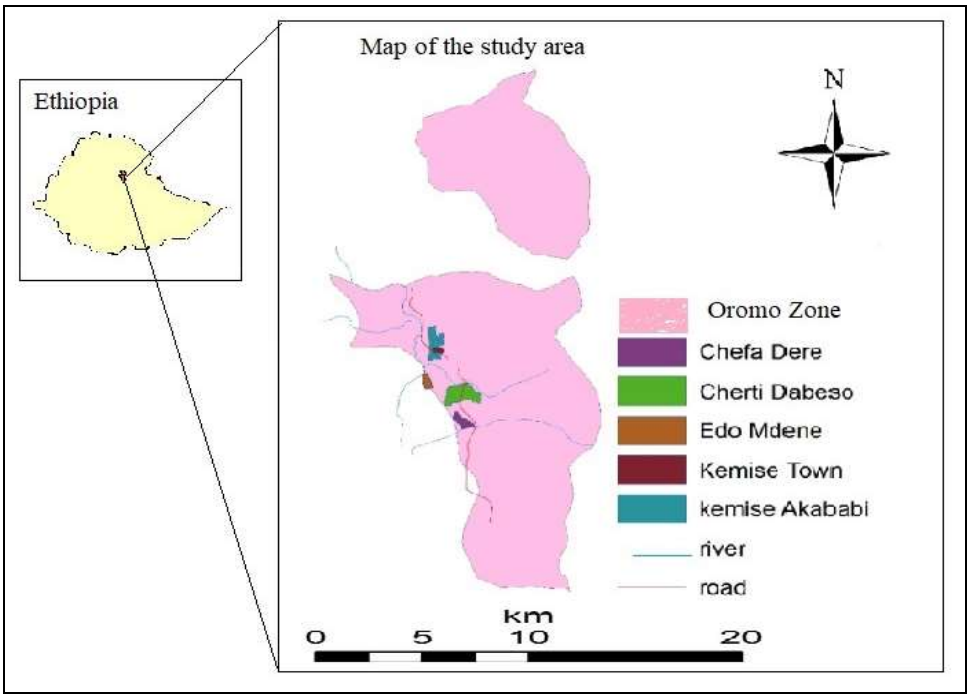

Fig 1: Map of the study area

Data analysis

The data collected from the study areas through questionnaires were analyzed using excel and SPSS version 20.

Results and Discussion

The majority (81.33%) of respondents were farmers, although respondents included students and merchants. Gender had no significant association to the knowledge of traditional belief towards amphibians. However, the education level of respondent was significantly different in the study area ($n = 150$; $\chi2 = 16.429$; $df = 6$; $p < 0.05$). Most of the respondents were illiterate and only two who were secondary school (Table 1). There were an association between occupational status and the traditional beliefs about the amphibians ($n = 150$; $\chi2 = 11.305$; $df = 6$; $p < 0.05$) (Table 1).

Table 1: Knowledge of traditional belief towards amphibians

		Is there any traditional belief about amphibians?			Value	df	Pearson Chi-Square
		Yes	No	Don't know			
Sex of respondent	Male	45	20	15	1.372	2	0.504
	Female	44	12	14			
Educational status	Illiterate	58	10	12	16.429	6	0.012
	Read & write	29	5	2			
	Primary school	10	10	12			
	Secondary school	2	0	0			
Occupational status	Farmers	84	18	20	11.305	4	0.023
	Merchant	10	2	6			
	Student	4	6	0			

Most (82%) of the respondents said that the number of amphibians changed over time.74 % of the respondents said that amphibians are declined. Their main reasons were drought, decrease rainfall, and the loss of habitat (the marsh and wetland areas became dry and changed in to grazing land). 96% of the respondents agreed that amphibians are abundant during the rainy season in the study area. Peoples living around the study areas have no awareness about whether amphibians should conserve or not, because most (63.33%) of interviewed people answered "I do not know". 63.33% of them also have no willingness to conserve amphibians (Table 2).

Table 2: Trend`s and conservation attitudes of peoples about amphibians

		Respondents (%)
Do the number of amphibians changed over time?	Yes	123 (82)
	No	9 (6)
	Don't know	18 (12)
What ways of change do you observed?	Declined	111 (74)
	Increased	21 (14)
	I don't have answer	18 (12)
In what season do amphibians more abundant?	Wet season	144 (96)
	Dry season	0 (0)
	No difference in season	6 (4)
Do you think amphibians should be conserved?	Yes	23 (15.33)
	No	32 (21.33)
	I don't know	95 (63.33)
Have you willingness to conserve amphibians?	Yes	55 (36.66)
	No	95 (63.33)

Traditional beliefs regarding amphibians

Respondents had different traditional beliefs about amphibians. Folklore and superstition played the major role in shaping attitudes towards amphibians – for instance, interviewees said that we would get out the frogs while entered to the house. There are several reasons why they removed the frogs from their house; Most people living around the Chefa wetland eats injera (like flat bread), bread or porridge owing to this they have maize/sorghum or teff flour in their house. They believed that "the flour would be expired"; "the flour would not be fermented", "the food would be empty in short period of time from our home", if the frog entered in the house. Besides, with this, the people would die if the frog came and touched the injera. Most of the respondents (60%) answered and believed that the source of the snake's venom is the frog. When the snake eats the frog, it will produce its venom. Their justification is the frog urine is allergic to the human skin and it is the cause of human illness, and it could die. Some (30 %) of them responded that the frog and the snake are the sign of evil (Satan). When the frog comes to the house, the snake will come and we afraid of it.

People's attitudes toward most of the animals are different related to different species. The educational and geographical background of local peoples also plays a significant role in negative or positive attitudes towards animals (Kellert, 1993) [6]. The influence of cultural beliefs and lack of knowledge directly influenced negative attitudes towards frogs. In our open questions, more of respondents expressed an interest in learning more about frogs, indicating an opportunity for improving attitudes through educational outreach.

In the current study, peoples have negative attitudes, beliefs and perception towards amphibians (frogs and toads). They saw as the sign of evil; look how much they feared them. In line with this study, Schlegel and Rupf (2010) [13] carried out the survey in Swiss schoolchildren and the result of the study pointed out that amphibians were more disliked than butterflies, birds, and mammals.

Davey *et al*. (1994) [4] put the probable reason may be due to the slimy bodies of some amphibians are resembled to disgust-evoking stimuli such as mucus or feces. Schlegel and Rupf (2010) [13] showed that smaller animals seem to provoke a disgust reaction greater than bigger animals. This emotion of disgust significantly influences human–animal interaction. Peoples living around the study areas have no awareness about whether amphibians should conserve or not, because most of interviewed people answered "I do not know" and 63.33% of them have no willingness to conserve amphibians. These attitudes and beliefs are particularly relevant and found in the current study area where negative superstitions and fear associated with frogs and toads are often pervasive in some cultures. These attitudes, beliefs and people's perception could have harmful consequences both for the animals concerned and conservation efforts (Tarrant *et al*., 2016) [15].

Conclusions

Although amphibians are not responsible for major economic development, many amphibian species are quite useful for human beings, not only as sources of medicines, and model laboratory animals, but also in terms of ecological equilibrium (food web). This study shows that people have negative attitudes towards amphibians. There are strong negative superstitions, perception and fear associated with amphibians (frogs and toads) in the study areas. This might be a challenge to conserve amphibians in Ethiopia. The findings of this study can be used to inform current efforts to conserve amphibians in Ethiopia through social interventions, awareness creation and educational outreach.

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