Punjab Univ. J. Zool., Vol. 32 (2), pp. 173-178, 2017

ISSN 1016-1597(Print)
ISSN2313-8556 (online)

Original Article

Public attitude towards amphibian and reptiles in district Kasur, Punjab, Pakistan

Waqas Ali, Arshad Javid, Ali Hussain, Syed Mohsin Bukhari

Department of Wildlife and Ecology, University of Veterinary and Animal Sciences, Lahore

Article history
Received: April 03, 2017
Revised: November 09, 2017
Accepted: November 28, 2017

Authors' Contribution
WI: conducted the survey and writes the document, **AJ:** planned the entire work, **AH:** assisted in refining of the document, **SMB:** Assisted in surveys to different areas of kasur.

Key words
Conservation
Awareness campaigns
People's perception
Bad omen

Abstract
Present survey extending from October, 2015 through March, 2016 was planned to document public perceptions towards amphibians and reptiles in district Kasur, Pakistan. A total of 200 respondents, 50 from each tehsil were interviewed from all the four tehsils namely Pattoki, Chunnian, Kot Radha Kishan and Kasur. The people of the study area used to prepare traditional medicines from body parts of *Bungarus caeruleus, Naja naja, Ptyas mucosus, Eryx johnii, Varanus bengalensis* and *Uromastyx hardwickii*. Out of 200 respondents, more than 80% considered amphibians and reptiles as useless animals, 71% as symbol of bad omen, 73% believed that herpetiles are used in traditional medicine and 3% considered that they are also used as food. Different superstitions are also linked with amphibians and reptiles and this mindset lead to unnecessary killing of species. Among all the herpetiles, snakes are most disliked taxa and killed by the locales. Conservation education and awareness campaigns are recommended to avoid unnecessary killing of the amphibians and reptiles of the study area.

To cite this article: ALI, W., JAVID, A., HUSSIN, A., BUKHARI, S.M., 2017.Public attitude towards amphibian and reptiles in district Kasur, Punjab, Pakistan. *Punjab Univ. J. Zool.,* **32**(2): 173-178.

INTRODUCTION

Throughout the history humans had close connection with animals those were mostly hunted for food, clothing, medicine, magical and religious purposes. Humans mostly used fish, birds, mammals, reptiles and amphibians for food and medicinal purposes for at least 1500 years (Inskip and Zimmermann, 2009). Furthermore, many stories, myths and proverbs related to human-animals relationships existed and passed orally from generation to generation without any documentation. The knowledge related to use, manage and conserve these animal resources acquired during long course of interaction (Alves, 2009).

Hunters, fishermen, harvesters and collectors are the individuals who retain considerable local or traditional information about the regional fauna and directly use many animal species based on their ecological observations. Local knowledge is useful source of information on current status of resources, ecosystem dynamics and species diversity (Kimmerer, 2002). Over the last century, despite knowing about biodiversity importance, human pressure on biodiversity increased tremendously. Worldwide herptiles are among the endangered taxa among other groups of vertebrates like birds, mammals, cartilaginous and bony fishes and amphibians. Reptiles are important component of an ecosystem because they act as excellent biological indicator, control many insects populations, play vital role in food chain as predator-prey relationship (Heywood and Watson, 1995). Reptiles mostly used in traditional folk medicine throughout the world and play major role in practices related to the healing and prevention of illnesses (Alves *et al.,* 2008a). The domestication of animals let humans to enrich their foods with utilization of meat, milk and skins of different animals. With the passage of time some domesticated animals were used as transportations to plows and drive

175-PUJZ-71023040/17/0173-0178
*Corresponding author:waqasali@live.com

cart (Ribeiro, 1998). Amphibian and reptiles are mostly hunted for food, leather, teeth, fat, meat oil, shell and bones as they have nutritional, ornamental and medicinal values. Pakistan has the world's rarest animals and plants but these are now in danger due to habitat loss, over use and many other anthropogenic activities. Harmless red sand boa (*Eryx johnii*), spiny-tailed lizard (*Uromastyx hardwickii*) and marsh crocodile are used by local medicine-men for treating skin diseases and thus are highly priced and nearly extinct. In addition monitor species are heavily hunted for their skins. In Pakistan, The gharial is now few in numbers and found only between the Sukkur and Guddu barrages. Freshwater Turtle's population is threatened due to hunting for food, leather and mostly traded Southeast Asian countries. Many soft-shell turtle's species are used to purify blood and used in traditional Chinese medicine to cure many diseases (Beatty *et al.,* 2001). Pakistan has eight freshwater turtle's species including four hard shell species and four soft shell species namely *Kachuga smithi, Kachuga tectum, Geoclemy shamiltoni* (VU), *Hardella thurjii* (VU), *Aspideretes gangeticus, Lissemys punctate, Aspideretes hurum* (VU) and *Chitra indica* (EN). Out of these eight species 3 species are vulnerable and one is endangered (IUCN red list 2015-16). Birds, mammals and fishes are socially accepted and more fortunate and protected than herpetiles. Amphibians and reptiles are not primary cause for major economic losses and mostly they are harmless but consider as fearsome creatures and mostly killed by local peoples by considering them as their enemy (Czech and Krausman, 2001).

Many folklore tales, myths, misconceptions and superstitions about amphibians and reptiles are present in Pakistan and mostly peoples consider them as evil or dangerous animals. It is therefore important to know that how these common fictitious, traditional beliefs and misperceptions are present in communities that lead to unwanted killing of amphibians and reptiles. Keeping in view about lack of awareness and public attitude towards herptiles in Pakistan, the present study was designed to assess the response of following questions:

i. What is the human attitude towards herpetiles in District Kasur?
ii. Does this human attitude change with education and location?
iii. What are different uses of herpetiles in District Kasur?
iv. What are superstitions about herpetiles in District Kasur?

MATERIALS AND METHODS

Study area

This six month study extending from October, 2015 to March, 2016was conducted in district Kasur which is administratively divided into four tehsils Pattoki, Chunia, Kot Radha Kishan and Kasur. The district covers an area of 3995 $Km^2$and bounded by River Ravi and Satluj. District Kasur is 150 to 200 meters above the sea level and experiences extreme weather conditions as significant difference exists between day and night temperatures. Average annual rainfall is 500 mm (Anwar *et al.,* 2012).

Survey procedure

A survey proforma was developed and survey was done during the day between 10am to 5pm. The proforma accompanied by a pamphlet with colored photographs of amphibians and reptiles representative of the study area. All the respondents were requested to complete the proforma and fill the appropriate box. The proforma was prepared in English, however it was also translated into Urdu or Punjabi for illiterate peoples and their response was noted by the interviewer. After the data collection, all the issues related the herpeto fauna were clarified to those respondents who showed some doubts and misconceptions.

Statistical Analysis

The data thus obtained from the proforma was encoded and analyzed using SPSS 17.0.

RESULTS

A total of 200 individuals were interviewed from October, 2015 to March, 2016 by three male and one female interviewer. The minimum age of survey respondents was 18 years and the maximum was 61 years.

The education level of respondent was significantly different in the study area ($n = 200$; $\chi 2 = 22.577$; $df = 9$; $p < 0.05$). Most of the respondents were under-graduate or graduate (43.5%) as compared to postgraduate (3.5%) in study area (Table I).

Awareness level of the respondents

According to respondents, amphibian species include *Bufo stomaticus* (common toad), *Hoplobatrachus tigerinus* (bull frog), *Euphlyctis cyanophlyctis* (skittering frog) whereas reptile's species were *Bungarus caeruleus* (common krait), *Naja naja* (brown cobra), *Amphiesma stolatum* (striped keel back), *Lycodon aulicus* (indian wolf snake), *Ptyas mucosus* (rat snake), *Typhlops ductuliformes* (blind snake), *Eryx johnii* (sand boa), *Xenochrophis piscator* (checkerd keel back), *Echis carinatus* (saw scale viper), *Calotes versicolor* (girgit), *Varanus bengalensis* (Bengali goh), *Hemidactylus flaviviridis* (common wall lizard), *Ablepharus* grayanus (snake eyed skink), *Eutropis macularia* (bronze grass skink), *Uromastyx hardwickii* (spiny tailed lizard), *Kachuga smithii* (brown river turtle) and *Lissemys puntata andersoni* (indian flap shell turtle) inhabiting in the study area.

Table I: Respondents of different educational levels in the study area (n= number of respondents).

Education level	% Respondents					X^2	Df
	Pattoki (n)	KotRadha Kishan (n)	Chunian (n)	Kasur (n)	Combined (n)		
Illiterate	12 (6)	30 (15)	18 (9)	10 (5)	17.5 (35)	22.577[a]	9
Under matric or Matric	30 (15)	44 (22)	40 (20)	28(14)	35.5 (71)		
Undergraduate or Graduate	50 (25)	26 (13)	42 (21)	56 (28)	43.5 (87)		
Post Graduate	8 (4)	0(0)	0 (0)	6 (3)	3.5 (7)		

Table II: A comparison of public perceptions about herpetiles in the study area. (n= number of respondents)

Response	% Respondents					X^2	Df
	Pattoki (n=50)	KotRadha Kishan (n=50)	Chunian (n=50)	Kasur (n=50)	Combined (n=200)		
Use as medicine							
Yes	66 (33)	64 (32)	78 (39)	82(41)	72.5 (145)	177.429[a]	3
No	34 (17)	36 (18)	22 (11)	18 (09)	27.5 (55)		
Uses as food							
Yes	10 (5)	0 (0)	0 (0)	0 (0)	2.5 (5)	15.385[a]	3
No	90 (45)	100 (50)	100 (50)	100 (50)	97.5 (195)		
Use as magic religious purpose							
Yes	26 (13)	46 (23)	32 (16)	34 (17)	34.5 (69)	4.669[a]	3
No	74 (37)	54 (27)	68 (34)	66 (33)	65.5 (131)		
Superstitions about species							
Yes	64 (32)	68 (34)	74 (37)	58 (29)	66 (132)	3.030[a]	3
No	36 (18)	32 (16)	26 (13)	42 (21)	34 (68)		
Symbol of bad omen							
Yes	78 (39)	56 (28)	88 (44)	62 (31)	71 (142)	15.639[a]	3
No	22 (11)	44 (22)	12 (06)	38 (19)	29 (58)		
Usefulness							
Yes	6 (03)	12 (06)	16 (08)	18 (09)	13 (26)	2.526[a]	3
No	94 (47)	88 (44)	84 (42)	82 (41)	87 (174)		

Public Perceptions about Amphibian and Reptiles

Use as medicine

The response was significantly different in the study area ($\chi 2 = 177.429$; df = 3; $p < 0.05$). More than 70% of the respondents (n = 145) claimed that reptiles are used in medicines as compared 27.5% of the respondents who had no idea (Table II).

Uses as food

It was found that more than 90% of respondents (n=195) were believed that herpetiles are not used as food and approx. 3%

believed that they are used as food (Table II). This response was significantly different in the study area (χ^2 =15.385; df = 3; p < 0.05).

Use as magic religious purpose

The response was significantly different in the study area (χ^2 =4.669; df = 3; p < 0.05). The majority of the respondents (66%) were in view that herptiles are not used as magic religious purpose as compare to 34% who agreed with this question (Table II).

Superstitions about species

A majority of respondents 66% (n=132) had misconceptions about amphibian and reptiles as compare to 34% respondents who were unaware or had no idea (Table II). The response was significantly different in the study area (χ^2 =3.030; df = 3; p < 0.05). Some of the superstitions or misconceptions shown by respondents are; cobra (*Naja naja*) turns into human being after attaining 100 years of age, person who touch snaked eye sink's (*Ablepharus grayanus*) tail will found money, if you open your mouth in front of moniter lizard (*Varanus bengalensis*) it will count your teeth that ultimately reduce your age, girl's hand will be tasteless if she kill a lizard, common wall lizard (*Hemidactylus flaviviridis*) is poisonous and if you kill a cobra either female or male, his/her partner will get revenge afterwards.

Symbol of bad omen

The answer was significantly different in the study area (χ^2 =15.639; df = 3; p < 0.05). 70% respondents agreed with the question that amphibian and reptiles are symbol of bad omen and mostly killed by peoples considering them as their enemies (Table II).

Usefulness

87% of respondents (n=174) considered amphibian and reptiles as useless animals whereas only 13% believed that herpetiles have some uses other than medicinal use (Table II). The response of the respondents related to usefulness was significantly different (χ^2 =2.526; df = 3; p < 0.05).

Table III: Education level of respondent × how many herpetiles you have killed so far? Cross-tabulation

Education level	% Respondents						
	None	1-00	100-200	<200	Total	X^2	Df
Illiterate	2.5(5)	15 (30)	00	00	17.5 (35)	89.492[a]	3
Under matric or Matric	35 (70)	0.5 (1)	00	00	35.5 (71)		
Undergraduate or Graduate	34.5 (69)	9 (18)	00	00	43.5 (87)		
Post Graduate	2 (4)	1.5 (3)	00	00	3.5 (7)		

Table IV: List of reptiles species used in traditional medicine in the study area.

Species	Medicinal use	Parts
Bungarus caeruleus	Eyesight, wounds treatment and insect bite	Venom, skin and fat
Naja naja	Eyesight, wounds treatment and insect bite	Venom, skin and fat
Ptyas mucosus	Joints pain and wounds treatment	Skin and fat
Eryx johnii	Joints pain, wounds treatment, Stings of insects and dogs bite	Skin and fat
Varanus bengalensis	Insect bite, Improves vigour and wounds	Fat, tongue and skin
Urimastyx hardwekii	Improves vigour and wounds	Skin, fat and tail

Herpetiles Killing

More than 70% of the respondents in the study area had never killed any amphibian and reptile. Educated persons (11%) were less likely to kill herptiles than illiterate persons (15%). This response was significantly different in the study area (χ2 = 89.492; df = 3; p < 0.05) (Table III).

Amphibian and reptiles used for medicinal purposes

A total of 20 local Hakeem (Muslim doctor who uses traditional medications) within age group of 40 to 50 years were selected based on their specialized knowledge about ethno-herpetology and their experience of traditional medicinal practices. They were asked

about herpetiles species they use in traditional medicines, mode of preparation and treatment. Table IV showing various reptiles species used in traditional medicine in the study area.

DISSCUSSION

Not all animal species are lucky enough to get intension and appreciation from human being whether they are endangered or not. In fact, throughout the world, humans like ornamental birds, charismatic wild animals and pet's *viz.,* cats, dogs and mostly dislike invertebrates, bats, rats, reptiles and owls (Bjerke and Ostdahl, 2004). Human attitudes toward most of the animals are different related to different species. The education level and ecological knowledge of local peoples also plays a significant role in negative or positive attitudes towards animals (Kellert, 1984). Such attitudes represent the behavior of a person as well as the whole community and mostly can be checked through questionnaires (Eagly and Chaiken, 1993). The presence of many superstitions and misconceptions related to herpetiles reflect them as dangerous and harmful animals (Ceríaco, 2010).The results of current survey are in line with Nolan *et al.* (2006) reported that reptiles were mostly disliked animals as compared to mammals, birds and fishes. During present survey, educated respondents (11%) were less willing to kill herptiles than illiterate respondents (15%). These results are similar to Ceríaco (2012) who said that the presence of myths and misconceptions varied significantly with locality, age and level of education. Older people had fewer of these misconceptions than younger people based on their experience and knowledge. Aesthetics values and local community support for species protection is very important in species conservation (Stokes, 2006; Knight 2008). In our survey, we did not find any aesthetics factor about amphibian and reptiles but only negative views. Kellert (1996) states that negative values related to animals' are reflected that peoples have fear and dislike some species of animals.

Whitaker and Shine (2000) conducted a survey in Australia through questionnaire and reported that snakes are hated by 38% of the respondents due to fear factor. Another study conducted by Ashley *et al.* (2007) in Canada, they place fake snakes and turtles on road and reported that motorist intentionally change their normal route to run over these animal.

The study area was dominated by Muslim Community and majority of the respondents (66%) were in view that herptiles are not used as magic religious purpose as compare to 34% who agreed with this question. Several publications support the idea that wild animals including different reptile's species are used as magic-religious rituals (Cascudo, 1988; Adeola, 1992; Biedermann, 1996; Alves, 2008). In spite of negative views of related to herpeto fauna in the study area, there are many species that are used by local peoples. In addition, the meats of soft shell turtle's species are used by local Non-Muslim communities. These observations are similar with Marques (1995), who reported that regardless of human-wildlife conflict with native animals, they can be source of different products for local communities.

Conclusions and Recommendation

Amphibians and reptiles have complex relationship with humans and direct killing are serious threats to their population and survival. Results based on current survey suggested that;

- Lizards are exploited for their skin and fat for various purposes.
- Regardless of medicinal use snakes are also used for recreational purposes (charmer).
- Snake are most hated and killed by local peoples than frogs, toads, turtles and lizards because of fear.
- Conservation education and awareness campaigns are recommended to avoid unnecessary killing of the amphibians and reptiles of the study area.

REFERENCES

ADEOLA, M.O.,1992.Importance of wild animals and their parts in the culture, religious festivals andtraditional medicine, of Nigeria. *Environ. Conserv.,* **19:** 125-134.

ALVES, R.R.N., 2009. Fauna used in popular medicine in Northeast Brazil. *J. Ethnobiol. Ethnomed.,* **5:** 1-30.

ALVES, R.R.N., 2008. Commercialization of *Uranoscodon superciliosus* (Linnaeus 1758) (Tropiduridae) for magical-religious purposes in North and Northeastern of Brazil. *Sitientibus.,* **8:** 257-258

ALVES, R.R.N. AND ROSA, I.L., 2008a.Use of Tucuxidolphin (*Sotalia fluviatilis)* for medicinal and magic religious purposes in North of Brazil. *Hum. Ecol.,* **37:** 443-447.

ANWAR, W., KHA, S.N., TAHIRA, J.J. AND SULIMAN, R., 2012. Parthenium hysterophorus: an emerging threat for curcuma long a fields of Kasur district, Punjab, Pakistan. *Pak., J. Weed Sci. Res.,* **18**(1): 91-97.

ASHLEY, P.E., KOSLOSKI, A. AND PETRIE, S.A., 2007.Incidence of intentional vehicle-reptile collisions. *Hum. Dimens. Wildl.,* **12:** 137-143.

BEATTY, R., BRIGHT, D., GREEN, J., KINCHEN, J., MACDONALD, R.A., ROHR, S., SIESWERDA, P., STEFFANI, S., STEWART, R., STICKNEY, R., RIDDLE, L.G. AND WARD, B., 2001. Aquatic Life of the World. Marshal Cavendish Corporation, 99 White Plains Road, Tarrytown, New York.594-597.

BIEDERMANN, H., 1996. *Diccionario de Simbolos. Ediciones PaidósIbérica*, S.A. Barcelona & Buenos Aire.

BJERKE, T. AND ØSTDAHL, T., 2004. Animal-related attitude and activities in an urban population. *Anthrozoös.,* **17:** 109-129.

CASCUDO, L.C., 1988. Dicionário do folclorebrasileiro. Ed. Universidade de São Paulo, São Paulo.

CERÍACO, L.M.P., 2010. Gecko's folklore in Portuguese oral tradition. *Proceedings of International Conference of Oral Tradition,* **2:** 211-217.

CERÍACO, L.M.P., 2012. Human attitudes towards herpetofauna: The influence of folklore and negative values on the conservation of amphibians and reptiles in Portugal. *J Ethnobiol. Ethnomed.,* **8:** 1-8.

CZECH, B. AND KRAUSMAN, P.R., 2001. The endangered species act. History, Conservation Biology, and Public Policy. Johns Hopkins University Press.Baltimore, USA.

EAGLY, A.H. AND CHAIKEN., 1993. The Psychology of Attitudes. Fort Worth, TX: Harcourt Brace.

HEYWOOD, V.H. AND WATSON, C., 1995. Global Biodiversity Assessment. UNEP, *Cambridge University Press.,* 11-35.

INSKIP, C. AND ZIMMERMANN, A., 2009. Human-felid conflict: a review of patterns and priorities worldwide. *Oryx.,* **43:** 18-34.

KELLERT, S.R., 1996. The value of life. Biological Diversity and Human Society. Island Press, Washington DC, USA.

KELLERT, S.R., 1984. Attitudes toward animals: Age-related development among children. In: *Advances in animal welfare science* (Eds. M.W. Fox and L.D. Mickley), Washington, DC: The Humane Society of the United States.43-60.

KIMMERER, R.W., 2002. Weaving traditional ecological knowledge into biological education: a call to action. *BioScience.,* **52:** 432- 438.

KNIGHT, A.J., 2008. Bats, snakes and spiders, Oh my!" How aesthetic and negativistic attitudes, and other concepts predict support for species protection. *J. Environ. Psychol.,* **28:** 94-103.

MARQUES, J.G.W., 1995. *Pescando pescadores:* etnoecologiaabrangente no baixo São Francisco alagoano. NUPAUB-USP, São Paulo, Brazil.

NOLAN, J.M., JONES, K.E., MCDOUGAL, K.W. AND MCFARLIN, M.J., 2006. The lovable, the loathsome, and the liminal: Emotionality in Ethnozoological cognition". *J. Ethnobio.,* **26:** 126-138.

RIBEIRO, D., 1998. O processocivilizatório: etapas da evolução sociocultural. EditoraCompanhia das Letras.

STOKES, D.L., 2006. Things we like: human preferences among similar organisms and implications for conservation. *Hum. Ecol.,* **35:** 361-369.

WHITAKER, P.B. AND SHINE, R., 2000.Sources of mortality of large elapid snakes in an agricultural landscape.*J. Herpetol.,* **34:** 121-128.