Journal of Wildlife and Ecology (2024). 8(2):96-108

Research Paper **Open Access**

Perceptions and Folklores about Mammalian species among the People of Azad Jammu and Kashmir, Pakistan

Asifa Ejaz[1] and Zahid Rasheed[2*]

1. Department of Zoology, Women University of Azad Jammu and Kashmir, Bagh, Pakistan
2. School of Mathematics and Statistics, Xi'an Jiaotong University Xi'an, Shaanxi, China

***Corresponding author e-mail:** zahidrasheed99@gmail.com

Citation: Ejaz, A., and Z. Rasheed. 2024. Perceptions and Folklores about Mammalian species among the People of Azad Jammu and Kashmir, Pakistan. Journal of WIldlife and Ecology. 8: 96-108.

SUMMARY

Conservation of wildlife is strongly affected by folklore and human activities. These folklore and values may differ within certain demographic features such as age, education or gender. These animals suffer through different negative persecutions, directly affected by folklore. We try to explain how these folklore and negative values directly effect on conservation and preservation of these animals. A questionnaire survey had been distributed to 1000 persons in all districts in Pakistan's state of Azad Jammu and Kashmir. The primary goal was to collect evidence on the concept that the presence of incorrect ideas and negative values directly influences human-related persecution. A principal component analysis approach was utilized to support the hypothesis concerning the likely association between negative values and observations, as well as anti-conservation and persecution attitudes toward mammals. Sciodemographic characteristics were also included. The findings clearly demonstrate that folklore and negative values significantly influence an anti-conservation and persecuting attitude toward mammals. Also, negative values are commonly spread in population while presence of folklore varies socio-demographically. With the utilize of Principal component analysis, this work is contribution to research that how values and ideas can affect human attitude towards mammals and can cause serious issues of conservation.

Keywords: Mammals, Human Behavior, PCA, Conservation

Received: 03-12-2023	**Revised**: 11-05-2024	**Accepted**: 08-06-2024

INTRODUCTION

Many of the species are not included in the threatened category, because these are conserved by the human (Gibbons, 1988; Szaro, 1988), while other species are conserved on the basis of the aesthetic and commercial values (Kassar and Lasserre, 2004), e.g. species like giant panda and dolphin (S.E.L.S., 2001), while many species are ignored (Szaro, 1988). Human prefers different groups of animals; which are more socially accepted, and that group largely consist of vertebrates (Czech et al., 1998). This is the reason that mammals, birds and fishes are much more valued than other animals (Czech et al., 1998). It is important to understand the value of misperception, folklore, tales as well as negative values and their contribution to the discrimination and conservation of herpetological fauna (Ceríaco, 2012).

Six biogeographic regions are present in world, while out of total three are also present in Pakistan i.e. oriental region, Ethiopian and Palearctic region, total area is 796,095km^2. It spread between the latitude 24 to37 N and longitude 61^{o}to 75^{o}E. On southwest of Pakistan, Arabian Sea is present while on northern side it is covered with Pamir in large Himalayas. Three large mountain ranges are present on

Northwestern side on Pakistan i.e. the Himalayas, the Karakorum, and the Hindu Kush. Mountains are responsible for change in geology, hydrology, physiology and climate. Mountain play important role in the composition and diversity of flora and fauna of Pakistan (Khan, 2006).

Fauna are main bio-indicators of environmental change. Deforestation, fragmentation, urbanization, habitat loss, and pollution are threats to the survival of animals (Petrov, 2004). World's mammalian species are 4763 (IUCN, 2002). Out of 4763 mammalian species of the world, 1137 are threatened. Pakistan's mammalian fauna is represented by 195 species (Roberts, 2005a, b). Out of these 195 mammal species, 12 are critically Endangered, 5 are endemic to Pakistan, 20 Vulnerable, 71 Least Concern, 32 Near Threatened, 8 Regionally Extinct, 38 Data Deficient and 2 are Not Evaluated (Molur, 2003).

Pakistan covers three zoogeographical regions named Oriental, Ethiopian and Palearctic which are located in Pakistan so that Pakistan shows a decent mixture of faunal and floral diversity. Pakistan has range of land ecosystems within 18 greater geographical areas for example, Alpine meadows, Permanent snowfield and Cold desert, Sub-alpine scrub and Birch forest, Himalayan moist temperate forest, Dry temperate coniferous forest, Tropical deciduous forest, Sub-tropical pine forest, Steppic forest in the Northern latitude and Steppic forest in the Southern latitude. Less pronounced Monsoon influenced, monsoon affected arid subtropical, Indus plains, Balochistan desert scrub, Sand dunes, Riverine tract and Littoral (inter-tidal) zone and inundation (seepage and swamp) zones (Roberts, 1997).

Even though species are mostly harmless and not responsible for major economic loss, but unfortunately, they are mistreated and feared (Ferrand et al., 2001). In fact, many of them are beneficial for human and environment, but unfortunately, these species are mistreated as dangerous. The main reason of disliking the animals are the folklores and misconceptions rather than their ecological characteristics (Ferrand et al., 2001; Ceríaco, 2012).

Ethnomammalogy is the studies of human' relationship with mammals; this research can enhance conservation, because it would enhance facts about native diversity (Alves and Souto, 2015). Awareness of the people and the diversity of the slightly or completely disturbed landscapes must be noted for conservation of mammalian fauna. However, this study is neglected by many researchers and scientists and (Roberts, 1991; 1992; Grimmett et al., 1998, Mirza and Wasiq, 2007), while only very few many researchers and scientists focused this issue during studied in Pakistan (Arshad et al., 2014; Altaf, 2016).

It is essential to understand the prevalence of these tales, folklore, misperceptions, and negative values in societies, as well as their impact on the persecution of mammals and their conservation. While this theme has been addressed as anecdotal information in the literature on herpetology, conservation biology, and ethnozoology (Ferrand et al., 2001), there have been few dedicated studies exploring how these topics influence people's attitudes towards mammals. This study aims to contribute to clarifying this situation early on. Therefore, the main goals of this research are to analyze human values and folklore surrounding mammalian fauna and examine their potential connection to the persecution faced by this fauna. Specifically, the study aims to investigate human attitudes and folklore regarding mammals.

MATERIAL AND METHODS

STUDY AREA AND PARTICIPANTS

Azad Kashmir spans an area of 13,297,000 square kilometers (Figure 1). It is located between latitude 33° to 36° and longitude 73° to 75° (Figure 1). The climate is largely subtropical, with an annual rainfall of roughly 130000mm. The bulk of rural people rely on forests, cattle, and agriculture for their survival (Dar, 2014). Pakistan has high diversity of mammalian species (Table 1).

Figure 1: Map of the Study Azad Jammu and Kashmir.

METHEDOLOGY

It was quantified traditional ecological knowledge (TEK) and folklore by using semi directed interviews, of 1000 inhabitants of state of Azad Kashmir Pakistan. Participants were randomly from different places such as public place like waiting rooms, Public Square, schools, cafes, shops, and homes in various locations and educational institution such as schools, colleges, universities. Participants were informed about the objectives and methodology of study, and after collection of data from participants, it was guaranteed that their identities will remain confidential. Pamphlet having similar clauses was distributed to respondents to collect data. Survey time was between 8 to 14 hours. Pamphlet consist of 22 questions in close form i.e. consist on ranking from 1 to 10. The whole process of data collection and environmental information, take between 20 to 30 minutes. Interviews duration was 15 to 45 minutes and were conducted from January, 2020 to October, 2020.

QUESTIONNAIRE CONSTRUCTION AND MEASURES

Three different scales were constructed to represent the different underlying variables. These underlying variables are hypothetical constructs that are not directly measured, but are estimated from a set of indicator items (Marocoo, 2001) that can be directly observed and measured. To develop the three different constructs, data were collected on beliefs and general ideas about mammalian species in the entire State of Azad Jammu and Kashmir. The scale for measuring the construct "folklore" was created based on the general ideas and features that local people associate with wildlife. It initially consisted of 19 items, with 9 formulated in a folklore-worded manner, 7 related to negative values, and these items containing statements regarding persecution or anti-conservation. Participants were asked to express their views on a scale of 0 to 10, with 0 meaning "I totally disagree" and 10 meaning "I totally agree".

STATISTICAL ANALYSIS

The data is analysis with the help of Past statistical Analysis, PCA value is analyzed.

Table 1: Species of mammals in Azad Jammu and Kashmir, Pakistan (Roberts, 1997; Roberts, 2005b; Roberts, 2005a).

Scientific-Common name	Species authority	Order	Family
Alticola roylei – Royle's High Mountain Vole	Gray, 1842	Rodentia	Cricetidae
Apodemus rusiges– Himalayan Wood Mouse or Field Mouse	Miller, 1913	Rodentia	Muridae
Axis porcinus – Hog Deer or Para	Zimmermann, 1780	Cetartiodactyla	Cervidae
Bandicota bengalensis– Lesser Bandicoot Rat or Sindh Rice Rat	Gray, 1835	Rodentia	Muridae
Boselaphus tragocamelus – Nilgai or Blue Bull	Pallas, 1766	Cetartiodactyla	Bovidae
Canis aureus – Asiatic Jackal	Linnaeus, 1758	Carnivora	Canidae
Canis lupus – Wolf	Linnaeus, 1758	Carnivora	Canidae
Capra aegagrus chialtanensis – Chiltan Wild Goat	Lydekker 1913	Cetartiodactyla	Bovidae
Capra Ibex sibirica – Himalayan Ibex	Pallas, 1776	Cetartiodactyla	Bovidae
Cervus elaphus – Red Deer or Kashmir	Linnaeus, 1758	Cetartiodactyla	Cervidae

Hangul			
Crocidura pullata- Asiatic White-toothed Shrew	Miller, 1911	Eulipotyphla	Soricidae
Eptesicus bottae – Botta's Serotine	Peters, 1869	Chiroptera	Vespertilionidae
Felis chaus – Jungle Cat	Schreber, 1777	Carnivora	Felidae
Hemiechinus auritus - Long-eared Steppe or Afghan hedgehog	Gmelin, 1770	Eulipotyphla	Erinaceidae
Hemiechinus collaris- Long-eared Desert Hedgehog	Gray, 1830	Eulipotyphla	Erinaceidae
Herpestes javanicus – Small Indian Mongoose	É. Geoffroy Saint-Hilaire, 1818	Carnivora	Herpestidae
Hipposideros fulvus– Fulvous Leaf-nosed Bat	Gray, 1838	Chiroptera	Hipposideridae
Hyaena hyaena – Striped Hyaena	Linnaeus, 1758	Carnivora	Hyaenidae
Hylopetes fimbriatus – Small Kashmir Flying Squirrel	Gray, 1837	Rodentia	Sciuridae
Hyperacrius fertilis– True's Vole or Burrowing Vole	True, 1894	Rodentia	cricetidae
Hyperacrius wynnei– Miurree Vole	Blanford, 1881	Rodentia	Cricetidae
Hystrix indica – Indian Crested Porcupine	Kerr, 1792	Rodentia	Hystricidae
Lepus capensis – Cape Hare	Linnaeus, 1758	Lagomorpha	Leporidae
Lutra lutra – Common Otter	Linnaeus, 1758	Carnivora	Mustelidae
Lutrogale perspicillata – Smooth-coated Otter	I. Geoffroy Saint-Hilaire, 1826	Carnivora	Mustelidae
Lynx lynx isabellina– Himalayan Lynx	Blyth, 1847	Carnivora	Felidae
Macaca mulatta mulatta – Rhesus Macque	Zimmermann, 1780	Primates	Cercopithecidae
Manis crassicaudata – Indian Pangolin or Scaly Anteater	É. Geoffroy, 1803	Pholidota	Manidae
Marmota caudata – Long-tailed Marmot or Kashmir Marmot	Geoffroy, 1844	Rodentia	Sciuridae
Martes flavigula - Yellow throated Marten	Boddaert, 1785	Carnivora	Mustelidae
Martes foina – Stone Marten	Erxleben, 1777	Carnivora	Mustelidae
Megaderma lyra – Indian False Vampire	É. Geoffroy, 1810	Chiroptera	Megadermatidae
Miniopterus schreibersii – Bent-winged Bat	Kuhl, 1817	Chiroptera	Miniopteridae
Moschus chrysogaster – Himalayan Musk Deer	Hodgson, 1839	Cetartiodactyla	Moschidae
Muntiacus muntjak – Indian Muntjac or Barking Deer	Zimmermann, 1780	Cetartiodactyla	cervidae
Murina tubinaris – Gilgit Tube-nosed Bat	Scully, 1881	Chiroptera	Vespertilionidae
Mustela altaica – Alpine Weasel or Pale Weasel	Pallas, 1811	Carnivora	Mustelidae
Mustela erminea – Stoat or Ermine	Linnaeus, 1758	Carnivora	Mustelidae

Myotis muricola- Dark Whiskered Bat	Gray, 1864	Chiroptera	Vespertilionidae
Naemorhedus goral – Himalayan Goral or Grey Goral	Hardwicke, 1825	Cetartiodactyla	Bovidae
Nesokia indica– Short-tailed Mole Rat	Gray, 1830	Rodentia	Muridae
Nyctalus leisleri – Leisler's Noctule Bat	Kuhl, 1817	Chiroptera	Vespertilionidae
Ochotona roylei – Royle's Pika	Ogilby, 1839	Lagomorpha	Ochotonidae
Otonycteris hemprichii – Desert Long-eared Bat	Peters, 1859	Chiroptera	Vespertilionidae
Paguma larvata– Masked Palm Civet	C.E.H. Smith, 1827	Carnivora	Viverridae
Panthera pardus – Panther or Leopard	Linnaeus, 1758	Carnivora	Felidae
Panthera uncia – Snow Leopard	Schreber, 1775	Carnivora	Felidae
Paradoxurus hermaphroditus –Toddy Cat or Common Palm Civet	Pallas, 1777	Carnivora	Viverridae
Petaurista petaurista – Giant Red Flying Squirrel Or Indian Giant Flying Squirrel	Pallas, 1766	Rodentia	Sciuridae
Pipistrellus javanicus babu – Himalayan Pipistrelle	Thomas, 1915	Chiroptera	Vespertilionidae
Pipistrellus tenuis mimus – Least Pipistrelle	Temminck, 1840	Chiroptera	Vespertilionidae
Plecotus auritus– Brown Long-eared Bat	Linnaeus, 1758	Chiroptera	Vespertilionidae
Prionailurus bengalensis – Leopard Cat	Kerr, 1792	Carnivora	Felidae
Pteropus giganteus – Indian Flying Fox	Brünnich, 1782	Chiroptera	Pteropodidae
Rattus rattus– Roof Rat or House Rat	Linnaeus, 1758	Rodentia	Muridae
Rattus turkestanicus– Turkestan Rat	Hodgson, 1845	Rodentia	Muridae
Rhinolophus ferrumequinum – Greater Horseshoe Bat	Schreber, 1774	Chiroptera	Rhinolophidae
Rhinolophus hipposideros – Lesser Horseshoe Bat	Bechstein, 1800	Chiroptera	Rhinolophidae
Rhinopoma microphyllum – Larger Rat-railed Bat or Mouse-tailed Bat	Brünnich, 1792	Chiroptera	Rhinolophidae
Rousettus leschenaultii– Fulvous Fruit Bat	Desmarest, 1820	Chiroptera	Pteropodidae
Scotoecus pallidus – Yellow Desert Bat	Dobson, 1876	Chiroptera	Vespertilionidae
Semnopithecus entellus– Grey Langur or Hanuman Langur	Dufresne, 1797	Primates	Cercopithecidae
Sorex thibetanus - Asiatic Pygmy Shrew	Kastschenko, 1905	Eulipotyphla	Soricidae
Suncus etruscus - Savi's Pygmy Shrew	Savi, 1822	Eulipotyphla	Soricidae
Suncus murinus - House Shrew or Musk Shrew	Linnaeus, 1766	Eulipotyphla	Soricidae
Ursus arctos – Brown Bear	Linnaeus, 1758	Carnivora	Ursidae
Ursus thibetanus – Asiatic Black Bear	Cuvier, 1823	Carnivora	Ursidae
Viverricula indica – Small Indian Civet	Geoffroy Saint-Hilaire, 1803	Carnivora	Viverridae
Vulpes vulpes – Common Red Fox	Linnaeus, 1758	Carnivora	Canidae

RESULTS

Profile of respondents of study area includes, out of 1000 respondents 541 were female and 459 were male. 116 respondents were Shepherds, 123 teachers, 234 students, 221 Laborers, 126 farmers, 55 shopkeepers, 4 traditional healers and 121 Government Employees, 32. On the base of age groups, 248 respondents were between 18-40, 275 respondents were between 41-50 years, 219 were 51-60 age, and 258 respondents were between above 60 years. From educational point of view 13 respondents had done their M. Phil degree, 16 having Master degree, 217 having Bachelor degree, 284 having intermediate degree, 137 having middle degree, 162 having primary education and remaining has no education (Figure 2).

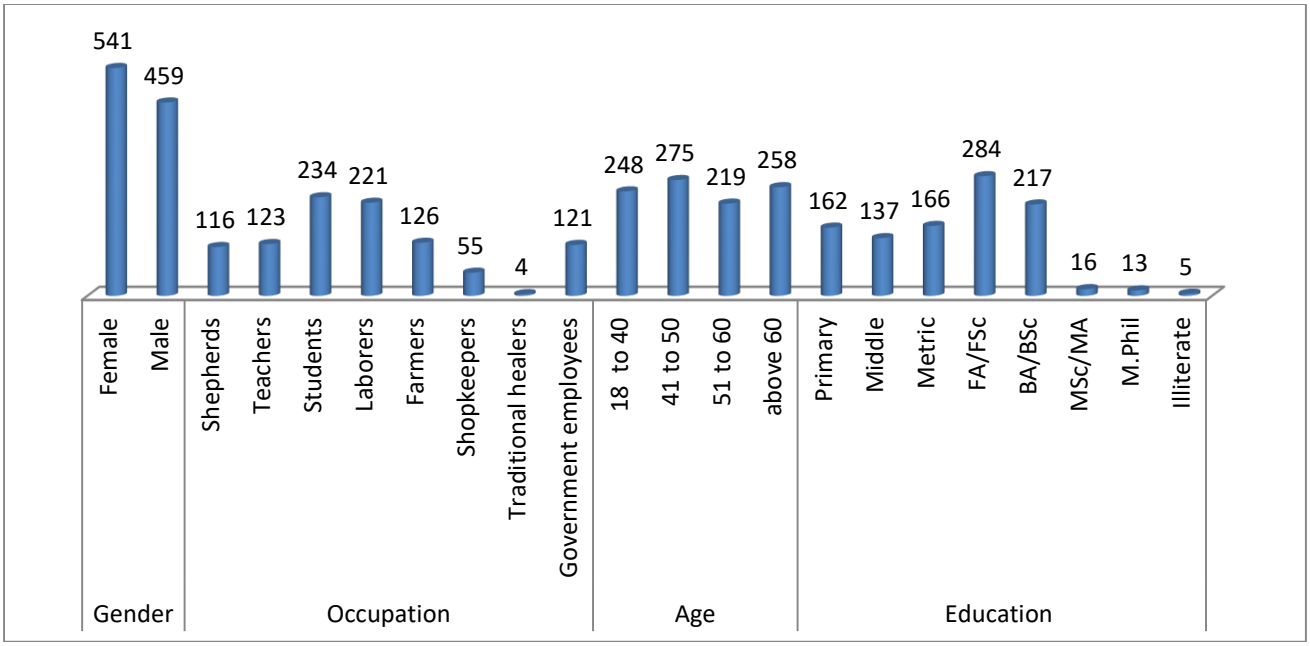

Figure 2: The profile of the respondent of the study area.

According to data collected by questionnaire, folklore such as "These mammals are dangerous" leopards and bears are the most dangerous (mean=10) among species of mammals. Negative values such as "These mammals are ugly" is highest recorded for Mouse, rat, shrew and vole (mean=9.05). Anti-conservation "When I find one of these mammals, I usually kill it or ask someone to kill it" is also higher in leopard (mean=8.52), as shown in table 2.

The statistics demonstrate that influence of folklore is higher for bear and leopard. And on the other way negative values, i.e. are higher for Mouse, rat, shrew & vole. Persecution /anti-conservation is higher for leopard. Variation within groups and minimum and maximum values are shown in table 3, as it explains variation in groups from mean value of group, and largest and smallest value.

In Principal component analysis (PCA), first two axes are explained 66.366% of variation sample folklore values (Component 1: 54.395% and Component 2: 11.971%). Variables of component 1 includes "These mammals are dangerous/harmful" (r =-0.4828), "These mammals are useful" (r =-0.03323), "These mammals are fatal to human being" (r =0.45099), "These mammals are offensive" (r =-0.35155), "These mammals are usually attack humans" (r =0.42463), "These mammals are usually damage livestock" (r=0.41855), "These mammals are usually damage agriculture" (r =-0.24011), "These mammals are usually ignore humans" (r =-0.1587), and "These mammals are usually flee from humans" (r =0.022108).

Folklore values of component 2 “These mammals are dangerous/harmful” (*r* =-0.0137), “These mammals are useful” (*r* =0.048109), “These mammals are fatal to human being” (*r* =-0.03133), “These mammals are offensive” (*r*=0.46163), “These mammals are usually attack humans” (*r* =0.12129), “These mammals are usually damage livestock” (*r*=0.015541), “These mammals are usually damage agriculture” (*r* =0.864), “These mammals are usually ignore humans” (*r* =-0.04001), and “These mammals are usually flee from humans” (*r* =0.14274). Each principal component is not correlated with component 1; similarly, folklore patterns extracted by component 1 are not related to those explained by component 2 (Figure 3).

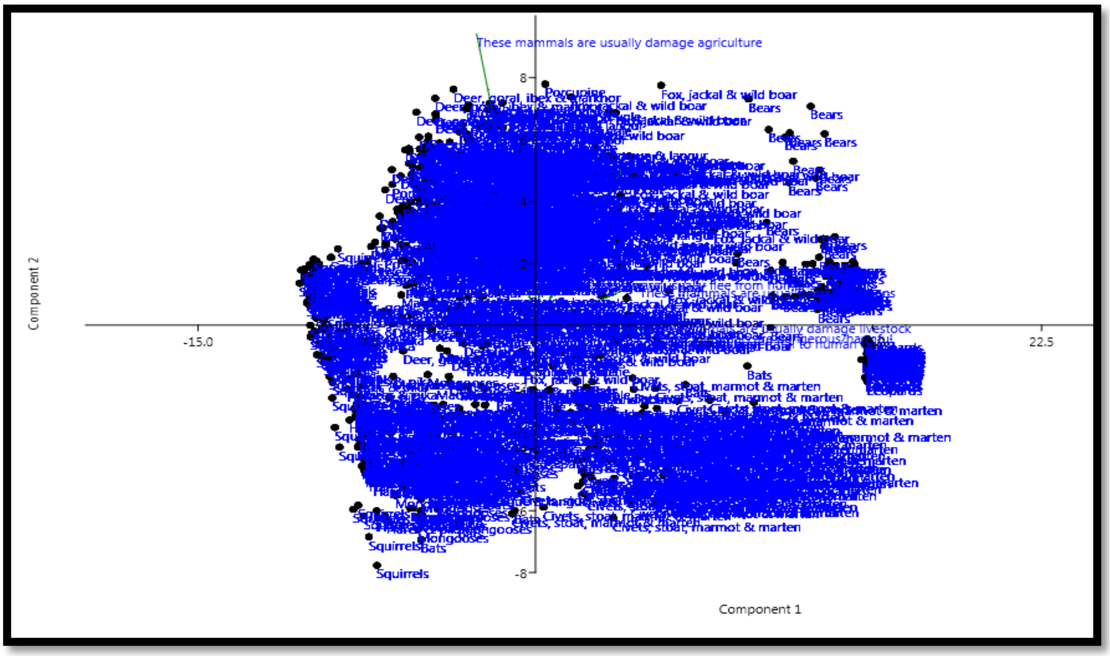

Figure 3: Folklore analysis with Principal Component Analysis.

In Principal component analysis (PCA), first two axes are explained 70.978% of variation sample folklore values (Component 1: 51.839% and Component 2: 19.139%). Variables of component 1 includes “These mammals are ugly” (*r* =0.41533), “I avoid these mammals” (*r*=0.42226), “The way the animal moves gives me the creeps” (*r* =0.26486), “I hate the noises of these mammals” (*r* =0.42036), “I fear these mammals” (*r* =0.43081), “I am sick of these mammals” (*r*=0.45089), and “These mammals gives me nightmares” (*r* =0.11594). Folklore values of component 2 These mammals are ugly” (*r* =0.67654), “I avoid these mammals” (*r*=-0.2958), “The way the animal moves gives me the creeps” (*r* =0.29737), “I hate the noises of these mammals” (*r* =0.21986), “I fear these mammals” (*r* -0.51506), “I am sick of these mammals” (*r*-0.22889), and “These mammals gives me nightmares” (*r* =-0.01867). Each principal component is not correlated with component 1; similarly, folklore patterns extracted by component 1 are not related to those explained by component 2 (Figure 4).

In Principal component analysis (PCA), first two axes are explained 93.03% of variation sample folklore values (Component 1: 82.528% and Component 2: 10.502%). Variables of component 1 includes “When I find one of these mammals, I usually kill it or ask someone to kill it” (*r* =-0.49578), “If there was a population of these mammals in my property I would take measures to eliminate it” (*r*=0.60161), and “I think that these mammals should be exterminated” (*r* =0.62631). Folklore

values of component 2 When I find one of these mammals, I usually kill it or ask someone to kill it" (r =0.5648), "If there was a population of these mammals in my property I would take measures to eliminate it" (r=0.32447), and "I think that these mammals should be exterminated" (r =-0.75876). Each principal component is not correlated with component 1; similarly, folklore patterns extracted by component 1 are not related to those explained by component 2 (Figure 5).

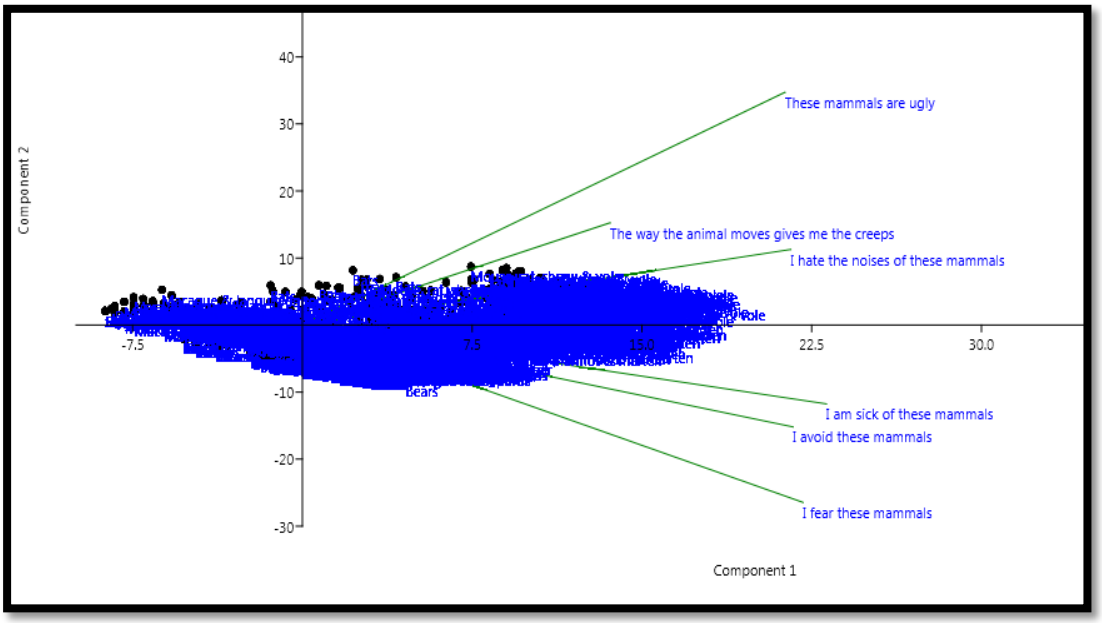

Figure 4: Negative values analysis with Principal Component Analysis.

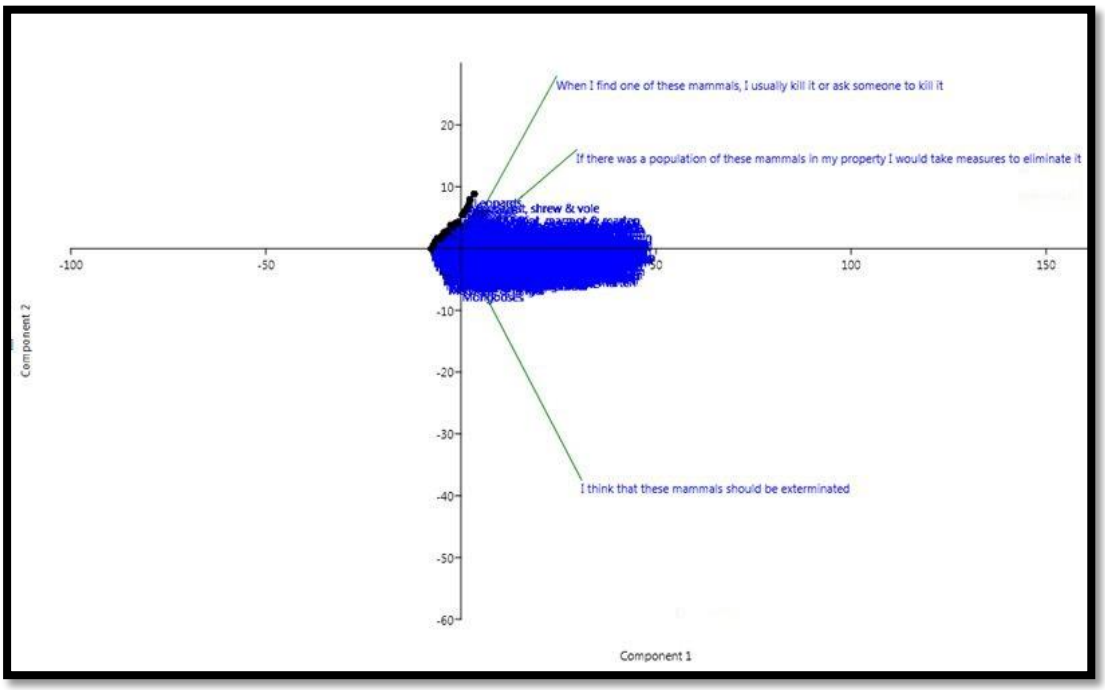

Figure 5: Persecution/anti-conservation analysis with Principal Component Analysis.

DISCUSSION

How people believe about surrounding decide their attitude towards it (Pooley and o'Connor, 2000). The results are explained on the basis of negative values, folklore and socio-demographic variable, that influence human anti-conservation and persecution attitude towards mammals. Negative values about mammals show significant relationship with folklore. As spiders and bats shows significant relationship with negative values (Prokop and Tunnicliffe, 2008). It was indicated earlier that animals i.e., reptiles and amphibians which are going to loss are less preserved than that of the other animals (Czech and Krausman, 2001).

Interdisciplinary method is required for the protection of those animals which play important role in cultural legacy and about which large number of folklore exist. Such method should include study of folklore, because it is necessary to understand existence of negative values and effect on the survival of these animals. If the animal is related to folklore they must have important socio-cultural heritage, so they should not be ignored, because sometime I can cause conservation problem. In south Portugal, thousands of geckos are directly killed every year due to misconceptions of folklore, and must be controlled and banned through educational campaigns and direct information. Study is needed for better understanding of human-animal relations, so this study present stranded point evidence that presence of some wrong folklore can clearing effect persecution and anti-conservationist attitude towards animals.

Table 2: Mean values of Questionnaire.

(Mark 0 to 10 number)

Observations	Mouse, rat, shrew & vole	Civets, stoat, marmot & marten	Hares & pika	Squirrels	Mongooses	Macaque & langur	Fox, jackal & wild boar	Porcupine	Deer, goral, ibex & markhor	Bats	Leopard	Bears
					Folklore							
These mammals are dangerous	1.94	6.27	0.00	0.00	2.96	4.68	5.50	3.50	0.75	4.32	10.00	10.00
These mammals are useful	1.16	0.41	5.47	0.56	1.47	2.18	1.54	2.05	4.49	1.50	2.04	2.48
These mammals are fatal to human being	2.06	6.38	0.00	0.00	0.98	2.69	3.47	0.92	0.05	2.08	10.00	10.00
These mammals are offensive	5.79	4.15	0.00	0.00	1.25	5.80	6.25	6.05	6.67	6.00	10.00	10.00
These mammals are usually attack humans	1.03	3.35	0.00	0.00	1.12	2.82	3.88	3.40	1.50	3.80	10.00	10.00
These mammals are usually damage livestock	1.67	6.54	0.00	0.00	0.00	0.59	6.59	0.00	0.00	0.01	10.00	6.94
These mammals are usually damage agriculture	8.12	0.56	3.02	8.01	2.20	7.16	7.01	7.19	7.59	0.01	0.00	2.92
These mammals are usually ignore humans	4.31	1.67	2.01	7.27	3.09	0.51	1.29	0.96	0.15	0.38	0.00	0.42

These mammals are usually flee from humans	8.00	5.91	8.50	7.38	7.17	6.47	7.15	7.15	7.83	7.12	7.75	9.37
Negative values												
These mammals are ugly	9.05	4.35	0.00	0.00	2.00	2.57	1.52	4.83	0.05	5.46	0.00	0.00
I avoid these mammals	7.88	6.36	0.00	1.07	5.90	6.42	6.86	8.09	0.00	7.12	7.08	6.92
The way the animal moves gives me the creeps	7.48	1.46	0.00	0.00	0.35	0.10	1.88	1.24	0.00	6.32	0.57	0.00
I hate the noises of these mammals	8.82	8.13	0.00	0.44	0.00	0.21	0.26	1.14	0.00	6.69	6.76	0.00
I fear these mammals	5.95	7.68	0.00	0.00	1.66	4.62	5.89	5.73	0.00	5.25	10.00	8.70
I am sick of these mammals	7.45	7.48	0.00	0.00	1.63	4.89	7.06	5.14	0.00	4.68	3.72	5.20
These mammals gives me nightmares	1.75	1.41	0.00	0.00	0.91	0.01	0.09	1.03	0.00	2.12	2.60	1.05
Persecution/anti-conservation												
When I find one of these mammals, I usually kill it or ask someone to kill it	5.49	6.70	0.00	0.15	1.29	2.69	2.67	6.22	0.00	3.47	8.52	3.22
If there was a population of these mammals in my property I would take measures to eliminate it	7.26	6.52	0.00	0.15	1.22	3.84	7.46	6.29	0.00	7.36	10.00	10.00
I think that these mammals should be exterminated	6.81	6.60	0.00	0.15	1.02	5.94	7.47	6.18	0.00	4.93	9.18	6.92

Table 3: The summary of the human-herpetofauna interaction

Description	Mean	SD	Min	Max
Mouse, rat, shrew & vole				
Folklore	3.78	1.60	0.67	8.44
Negative values	6.91	2.75	1.29	21.71
Anti-conservation	6.52	1.80	1.33	9.67
Civets, stoat, marmot & marten				
Folklore	3.92	1.55	0.89	7.56
Negative values	5.27	1.57	0.71	7.71
Anti-conservation	6.61	2.11	1.67	10.00
Hares & pika				
Folklore	2.11	0.67	0.33	3.33
Negative values	0.00	0.00	0.00	0.00
Anti-conservation	0.00	0.00	0.00	0.00
Porcupine				
Folklore	3.47	1.72	0.00	7.33

Negative values	3.89	1.48	1.57	6.43
Anti-conservation	6.23	8.57	1.00	10.00
Squirrels				
Folklore	2.58	0.73	0.00	3.44
Negative values	0.22	0.13	0.00	0.43
Anti-conservation	0.15	0.36	0.00	1.00
Mongooses				
Folklore	2.25	1.26	0.33	6.44
Negative values	1.78	1.24	0.00	6.14
Anti-conservation	1.18	1.44	0.00	9.67
Macaque & langur				
Folklore	3.66	2.66	0.22	8.00
Negative values	2.69	1.88	0.00	6.14
Anti-conservation	4.16	2.83	0.00	10.00
Fox, jackal & wild boar				
Folklore	4.74	2.13	0.22	8.78
Negative values	3.37	1.67	0.29	8.57
Anti-conservation	5.87	2.16	0.67	10.00
Deer, goral, ibex & markhor				
Folklore	3.23	1.22	0.44	5.22
Negative values	0.01	0.03	0.00	0.14
Anti-conservation	0.00	0.00	0.00	0.00
Bats				
Folklore	2.80	1.74	0.00	8.11
Negative values	5.38	2.74	0.43	9.71
Anti-conservation	5.25	1.80	0.67	10.00
Leopard				
Folklore	6.64	0.42	5.78	7.67
Negative values	4.39	1.75	1.43	7.00
Anti-conservation	9.24	3.30	4.67	10.00
Bears				
Folklore	6.90	0.98	5.33	10.00
Negative values	3.12	1.06	1.00	4.57
Anti-conservation	6.71	1.73	3.33	9.33

REFERENCES

Altaf, M. 2016. Assessment of Avian and Mammalian Diversity at Selected Sites along river Chenab University of Veterinary and Animal Sciences, Lahore-Pakistan.

Alves, R., and W. M. S. Souto. 2015. Ethnozoology: A Brief Introduction. Ethnobiology and Conservation. 4.

Arshad, M., M. Ahmad, E. Ahmed, A. Saboor, A. Abbas, and S. Sadiq. 2014. An ethnobiological study in Kala Chitta hills of Pothwar region, Pakistan: multinomial logit specification. J Ethnobiol Ethnomed. 10: 13.

Ceríaco, L. M. 2012. Human attitudes towards herpetofauna: The influence of folklore and negative values on the conservation of amphibians and reptiles in Portugal. Journal of ethnobiology and ethnomedicine. 8: 8.

Czech, B., and P. R. Krausman. 2001. The endangered species act: history, conservation biology, and public policy. JHU Press.

Czech, B., P. R. Krausman, and R. Borkhataria. 1998. Social construction, political power, and the allocation of benefits to endangered species. Conservation Biology. 12: 1103-1112.

Dar, M. Q. 2014. Azad Jammu and Kashmir, at a glance, Plamming and development department, Muzaffarabad, Muzaffarabad, AJ&K.

Ferrand, N., P. Ferrand de Almeida, H. Gonçalves, F. Sequeira, J. Teixeira, and F. Ferrand de Almeida. 2001. Guia dos Anfíbios e Répteis de Portugal. Porto, Portugal: Guias Fapas/Câmara Municipal do Porto.

Gibbons, J. W. 1988. The management of amphibians, reptiles, and small mammals in North America: the need for an environmental attitude. In: Management of Amphibians, Reptiles, and Small Mammals in North America: Proceedings of the Symposium. Arizona, USDA Forest Service, General Technical Report RM-166, 458p.[Links]. p 4-10.

IUCN. 2002. Red Lists of IUCN.

Kassar, I., and P. Lasserre. 2004. Species preservation and biodiversity value: a real options approach. Journal of Environmental Economics and Management. 48: 857-879.

Khan, M. S. 2006. Amphibians and reptiles of Pakistan. Krieger Publishing Company.

Marocoo, J. 2001. Análise Estatística com utilização do SPSS. Lisboa: Edições Sílabo, 2003. Malhotra, NK Pesquisa em Marketing. Uma orientação aplicada. Porto Alegre: Bookman.

Molur, S. 2003. Status and Red List of Pakistan's Mammals, IUCN.

Petrov, B. 2004. The herpetofauna (Amphibia and Reptilia) of the eastern Rhodopes (Bulgaria and Greece). Biodiversity of Bulgaria. 2: 863-879.

Pooley, J. A., and M. o'Connor. 2000. Environmental education and attitudes: Emotions and beliefs are what is needed. Environment and behavior. 32: 711-723.

Prokop, P., and S. D. Tunnicliffe. 2008. " Disgusting" Animals: Primary School Children's Attitudes and Myths of Bats and Spiders. Eurasia Journal of Mathematics, Science & Technology Education. 4.

Roberts, T. J. 1997. The Mammals of Pakistan. Oxford University Press, New Yark.

Roberts, T. J. 2005a. Field guide to the large and medium-sized mammals of Pakistan.

Roberts, T. J. 2005b. Field guide to the small mammals of Pakistan.

S.E.L.S. 2001. The Endangered Species Act, Stanford University Press, Stanford, USA.

Szaro, R. C. 1988. The management of amphibians, reptiles and small mammals in North America: historical perspective and objectives. General technical report RM-Rocky Mountain Forest and Range Experiment Station, US Department of Agriculture, Forest Service (USA).

Competing interests: Authors have declared that no competing interests exist.
Funding: Authors have no source of funding for this work.
Authors' contributions: Ejaz has designed this project, collected data and written this article; while Rasheed has critically analyzed this article and approved as final.