



## Analysis of diversity and human folklore about Herpetofauna in Pakistan-a review

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### SUMMARY

Reptiles and amphibians are victims of many negative values. In the world 10,450 species of reptiles are reported. There are 195 species of reptilian fauna belonging to 23 families. 13 reptilian and 9 amphibian species are common to Pakistan. Many species of amphibians and reptiles have extinct due to direct (medicinal) or indirect (agricultural intensification, urbanization, industrialization and desertification) anthropogenic impact. Herpetofauna and human have interacted for centuries. As a result, interactions between these animals and human are quite varied, symbolic, encompassing utilitarian and conflicting aspects. Such interactions may be studied through ethnoherpetology, a subdivision of ethnozoology, which examines the relationships between herpetofauna and human cultures. Ethnozoological studies can help in the assessment of the effects of human populations on endemic animal species and in the advancement of maintainable management plans; as a result, they are vital to conservation efforts.

**Keywords:** Herptile, ethnozoology, Snake, Lizard, Pakistan

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### INTRODUCTION

Pakistan occur a main geographic place. Pakistan consists of an area of 796,096Km<sup>2</sup>, connected between three major zoogeographical regions (i.e. Ethiopian, Palearctic and Oriental). It extends between longitude 60° to 75°E and latitude 24° to 37°N. Its southwestern boarder connected seashore of Arabian Sea; as its northernmost tip lies in stable snow landscape of Pamir in large Himalayas. The Mountain and plateaus in west, north, and northwest symbolize a union of 3 large mountains ranges i.e. the Hindukush, the Himalayas and the Karakorum. These mountainous landscape has greatly affected the climate, geology, hydrology and physiographic; and played a vital role in current era for distribution and composition of fauna and flora of an Indo-Pakistan (Roberts, 1991; Roberts, 1997; Khan, 2006).

### ANTHROPOGENIC IMPACTS ON DIVERSITY

The reptiles received fewer attention of scientific community therefore remained unknown in many parts of Pakistan. Maximum of the studies carried out up to now

are limited to Baluchistan and Sindh provinces (Daniel and Society, 2002) are the only accurate source of information on amphibians and reptiles of Pakistan. It is believed that change of natural territories for cultivation, human settlements and more developments such as highways and roads are main contributors to land use variation, resulting in the decline variety of reptiles and amphibians at some sites (Lajmanovich *et al.*, 2003; Gardner *et al.*, 2007). The herpetofauna is also affected by barriers to dispersal such as highways and roads (Cushman, 2006). Road traffic results in herpetofauna death, threaten the survival of endemic, internationally, and locally threatened species (Amarakoon *et al.*, 2010). Increased human establishment in protected areas (Katwate *et al.*, 2013) followed by action such as wide grazing and deforestation for wood (Wittemyer *et al.*, 2008) have been reported to effect conservation measures in the areas. Over the last several centuries most of the habitat loss that has happened around the world has resulted from the expansion and increase of agricultural land uses. However, now half of the earth's human inhabitant lives in urban areas and the rapid development of cities are driving a new trend of modern habitat loss (McKinney, 2006).

Due to anthropogenic impact many species have extinct (Umair, 2018). In present time human activities are restricted and present as a patches. Human pressure (i.e. agricultural intensification, industrialization and desertification, urbanization) is increasing day by day. Agricultural area increased day by day and intensification also increased. Population of reptiles is being seriously decreased throughout the world. Factors responsible for these declines include the destruction, alteration, or fragmentation of habitat, climate change, impacts from non-indigenous species disease, xenobiotic chemicals and ultraviolet radiations. Furthermore, populations of reptiles are heavily taken for human use. The observed population reduces because of human harvesting. May be due to collection techniques that destroy the habitats used by these reptiles or due to the direct physical removal of these animals. Due to anthropogenic impact many species have extinct (Gibbons *et al.*, 2000; Khan, 2006) or adopted new habitats (JABLONSKI *et al.*, 2019; Lal *et al.*, 2019; Haider and Faiz, 2020; Faiz and Farooq, 2021).

Herpetofauna feed on the insects. High land ploughed has damage water burrows, while the cultivate water has increase water level in hideouts and burrows. These species, once eliminated, and are killed by human; few years before, many species abounded. Further, due to anthropogenic impact populations of herpetofauna have been noted in metapopulation, which carry on to live against high chances in small patches where the natural habitat remains on, but they much showing and are under steady threat of killed. The riverine forests, about one century ago were natural habitat of *Gavialis gangeticus*, *Crocodylus*, *Palustris* and rhinos have been vanished, cause complex extinction of many of the species (Khan, 2006).

Biodiversity is good bioindicators (Sidra *et al.*, 2019; Khan *et al.*, 2021); as well as indirectly or directly benefits mankind. Its conservation is of vital importance as this diversity is endangered by the danger of extinction. Serious steps must be taken, ensuring its protection and conservation. Different anuran species settle in different localities of Pakistan, as not all species have the entire geographic range. Threats faced by amphibian fauna changes from species to species. One of the dominant threats that are faced by the toad and frogs in Pakistan includes rapid

industrialization and urbanization. Acceptable breeding habitats of amphibians have exterminated by the rapid establishment of extensive housing schemes and industrial zones. The major cities of Pakistan including Wazirabad, Gujranwala, Rawalpindi, Sheikhpura, Karachi, Faisalabad and many others have expanded their boundaries, resulting in serious decrease in amphibian population. Not only cities but in villages eradication of water ponds to eliminate mosquitoes for controlling dengue and Malaria also negatively affect the amphibian population. Drainage discharge containing toxic chemicals into stream water bodies have been reported as a serious threat to population decrease near industrial states in different regions of Pakistan. Anuran species including *E. cyanophlycti*, *M. ornata*, *F. syhadrensis*, *H. tigerinus* are seriously affected organisms (Khan, 2006, 2010).

Some roaming snake attracter tribes are energetically participating in damage and of reptilian species. They contract in the deal of wild animals, reptiles and other. Generally recognized as “sanyasies” and “Tapri-was,” they have endangered the natural reptiles population all over Pakistan. The harshly and continually hound numerous reptiles species like *Varanus bengalensis*, *Varanus griseus*, *Uromastyx hardwickii*, *Uromastyx asmusii*, *Trapelus agilis*, *Python molurus*, *Ptyas muscocus*, *Spalerosophis diadema*, etc, used with high cost which skin of these population bring back. Additionally, the remains of these reptiles are in large requirement in common markets, as national physicians utilize them in research of recipes for treatment of numerous general ailments (Khan, 2006; Adil *et al.*, 2020; Altaf *et al.*, 2020).

Scientists reported that unchecked human population development and a small term policy to natural resource use have impacted on worldwide biodiversity in upsetting fashion. This is mainly apparent in developing countries where unemployment is high and humans are dependent on environment for basic survival. Moreover, unsustainable utilize of resources not only declines species variety, but eventually cause of degraded environment with reduced return of key ecosystem services. Understanding the ecosystem constancy and resilience, mostly in relation to variations in species diversity and density, is a main challenge in ecology. Human development can convert and destroy natural habitats, on behalf of a reason of worldwide biodiversity destroy and a major cause for protecting wildlife. Although irregularly leading to whole habitat destruction, human development can also turn adjacent natural areas into parts or fragmented patches. This habitat division can guide to countless harmful effects, including reduce in overall habitat area increases in edge effects. Decreasing species richness, great quantity, and changing in population community composition threatens environment honesty with the changing in abiotic processes, biotic communications, and resiliency to additional ecosystem alter (Adil *et al.*, 2020; Altaf *et al.*, 2021).

The amphibian and reptiles diversity is under constant threat from ill effects of urbanization that caused destruction of larger ecosystems, pollution, agricultural intensification and changed natural weather patterns. In the same way, use of body parts of herpetofauna species in medicine, illegal hunting led several species to extermination. Reptiles and Amphibians are main bio-indicators of global temperature change and are establish in a range of habitats during the world excluding some separated islands. Their diversity and abundance is also connected by various mammalian and avian species yet, like several other species survival of

herpetofauna is under continuous warning due to division, urbanization and pollution and deforestation and habitat loss. A wide analysis of the herpetofauna of Pakistan has been given by Baig and Rafaqat (2008) and Khan (2006).

#### TRADITIONAL CULTURAL USES

Herpetofauna (amphibians and reptiles) and human have interacted for centuries; basically somewhere they have been in link. As a result, interactions between these animals and human are quite varied, symbolic, encompassing utilitarian and conflicting aspects. Such interactions may be studied through ethnoherpetology, a subdivision of ethnozoology, which examines the relationships between herpetofauna and human cultures. Human used these fauna in traditional medicine. Ethnozoological studies can help in the assessment of the effects of human populations on endemic animal species and in the advancement of maintainable management plans; as a result, they are vital to conservation efforts (Alves *et al.*, 2012; Alves *et al.*, 2013; Altaf *et al.*, 2020; Ijaz and Faiz, 2021; Saleem *et al.*, 2021).

Scincid population belonging to genera *Ophiomorus*, *Novoeumeces* and *Mabuya*, *Eurylepis*, are in mostly demand in limited markets since they are required following by a high cost by “hakims”. To set up a hold for market, the animals are eviscerated living, dehydrated in the sun, and sold at high cost as “reg mahi,” an essential component of recipes which are called strong sex promoters. The body fat of different reptiles is thought to have healing characteristic for numerous diseases and is extensively used in research of balms, while wiki oil and *Uromastyx* rigid thought to be a particular aphrodisiac characteristics. *Hoplobatrachus tigerinus* and *Uromastyx hardwickii* are mostly used in the research laboratories and educational departments in Pakistan. Mostly reptiles are used to express anatomy, and physiological experiments; *Uromastyx hardwickii* collected from burrow (Khan, 2006; Altaf *et al.*, 2020).

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