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Human impacts and interaction with mammalian species-A review

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ABSTRACT

Humans being have utilized fauna and their products from ancient times. Since the stone-age animals are of great concern. They used the animals for different purposes including food, medicines and culture, hunting, commercial as well as magical and religious practices and use of animals increased with the passage of time. In this way they are affecting the current biodiversity by consuming animals directly or indirectly. The most used among animals are mammals, due to their physiological and ecological characteristics because they show close affiliation with human beings therefore, they are of great interest. Although it is less common in Pakistan but globally these factors are the main reason for species extinction every year. The current review is to study the diversity of mammalian fauna and factors which contribute to their decline in diversity with special reference to their medicinal importance that is the major threat that all mammals are facing now a days. Ethnozoology has its focus on the relation between human and animal species for getting food, art and medicine so on. Significant work on ethnozoology in various parts of the world has done and various articles have been published online every year, but in Pakistan ethnozoology is not fully explored.

Key words: Ethnozoology, Mammals, Ethnomedicine, Traditional uses, Food.

INTRODUCTION

Ethnozoology: Ethnozoology has its focus on the relation between human and animal species for getting food, art and medicine so on. Significant work on ethnozoology in various parts of the world has done and various articles have been published online every year, but in Pakistan ethnozoology is not fully explored (Lohani et al., 2008). Ethno-mammalogy is knowledge about mammalian species. It is study of traditional use of mammals for betterment of humans (Alves and Rosa, 2007). Nobody can deny the important role of mammalian species in human's life (Alves *et al.,* 2009). These species have environmental, social, religious, practical, therapeutic and food values; and increasing values of mammalian species in the world results in increase of mammalian trade. Increase in trading is major driver of mammalian extinction Mammals are sold in markets and it provides important information about local fauna (Alves *et al.,* 2012).

History of mammals: Mammals evolved from earliest amniotes as the fossils record expose that the therapsids had same structures for both reptiles and mammals. The early amniotes had divided into two main fork lines; synapsids and sauraposids. Synapsids were the ancestors of all mammals comprising of extinct mammals. Therapsids mammals like reptiles, belong to synapsids. Sauropsids that comprises anapsids and diapsids are changed then synapsids, the first mammals arose before the extinction of synapsids in the Jurassic period (Pough *et al.,* 2009).

Major threats to mammals: The mammals have threat from negative effects of urbanization, fragmentation, agricultural intensification, pollution and changed natural climate patters (Davidson *et al.,* 2009).

Effects of over population: Rapid increase in human population has unfavorably influenced decent variety around the world. The evil impacts of this expansion incorporate contamination, environmental change, deforestation, natural surroundings misfortune and intrusion of fascinating species (Bierwagen, 2007). In this manner, the regular biological systems have been adjusted and changed in urbanized, peri-urban and forested scenes. Up somewhat, moderate urbanization upgrades assorted variety of a portion of the animal categories by giving settling and rummaging destinations (Hansen, 2004). Be that as it may, in thickly populated territories the normal vegetations have been expelled prompting decline in assorted variety and thickness of the biodiversity (Blair, 2001)

***Habitat preferences of mammals*:** Land vertebrates show striking changes in species lavishness crosswise over topographic angles. For well evolved creatures, about twice the same number of species per unit region happens in geographically complex locales as in adjoining marshes (Badgle, 2010). To comprehend decent variety designs, the territory inclinations of species must be considered (Riem *et*

al., 2012). A few types of mammalian species want to live in nearness of people while other favor marginally or totally exasperates living spaces (Bateman and Fleming, 2012; Riem *et al.,* 2012). The mammalian species are enormously affected by the anthropogenic impacts and a few animal groups can changed in accordance with condition while others declined or potentially become uncommon (Munguia *et al.,* 2016). There are different methodologies connected verifiably to gauge natural decent variety. This methodology ranges from specie extravagance fundamental tallying to complex estimation of developmental decent variety (Calba *et al.,* 2014; Monnet *et al.,* 2014; González-Maya *et al.,* 2016). Each part of the environment is gotten to by utilizing comlex estimation strategy and it give data about working biological system (Monnet et al, 2014; Spasojevic *et al.,* 2014), and furthermore give better planning's to protection (Díaz *et al.,* 2013).

Mammals in hunting: Chasing is one of most established known human exercises, and creatures have been chased for utilitarian reasons just as for guard against enormous predators (Alves 2012). Chasing is a noteworthy preservation issue since (1) of far reaching chasing of ensured species, (2) trackers work illicitly inside national parks, and (3) the misuse of certain game species might be unsustainable (Randrianandrianina, 2010). Right up 'til the present time, across the board chasing of untamed life keeps on undermining preservation endeavors around the world (Robinson and Bennett, 2000). Organic attributes of huge warm blooded creatures—their innately low densities, huge dietary prerequisites and home extents, slow paces of development and development, little litter sizes, long life expectancies and age times—likewise render them powerless against eradication from stochastic components identified with demography, condition, and hereditary qualities (Madhusudan, 2000).

Many feathered creature and creature species are encountering populace decreases due to illicit chasing for game, meat, and exchange. There is a long and solid custom of chasing in Pakistan, and the effect of trackers has expanded with the spread of current weapons and more prominent versatility (Baig, *et al.,* 2011). For all intents and purposes every single huge warm blooded creature has declined in number and in dispersion. As of now, exactly 37 species and 14 subspecies of warm blooded animals, 25 types of fowls and 10 types of reptiles in Pakistan are globally compromised (IUCN, 1996).Humans in numerous poor regions of the world depend to a consistently expanding degree on chasing and poaching of vertebrates for nourishment or exchange. For instance, the multibillion-dollar exchange meat, i.e. the meat of earthbound wild creatures (counting primates), chased and murdered for subsistence (nourishment) or for business objects, is a significant commitment to the economy of the creating scene, and chasing for bushmeat is viewed as one of the most significant dangers

to the survival of tropical vertebrates, including warm blooded animals (Brashares *et al.,* 2004).

Development of agricultural lands: The possibility of untamed life the board is getting wide all through the world. The extension on the planet's human people has been joined by a fast advancement of provincial and urban regions and structures, especially road and railroad frameworks. Around the globe, characteristic life living spaces are being changed and separated by human activities, and the conduct of a couple of creature types has changed as a result of human activities (Rosell, and Limona, 2012). Collect attacking is a purpose behind much conflict among ranchers and natural life all through the world (Hill *et al.,* 2002). Trademark conditions have been corrupted and changed over into the provincial grounds during the latest 10,000 years (Chakaravarty *et al.,* 2012). In any case, the green increase started toward the piece of the deal century (Pimentel et al., 2004) and the circumstance realized a contention between the trademark biodiversity and the individuals (Henle *et al.,* 2008). Notwithstanding the way that, the extended yields of farming terrains and increment of agribusiness are the requirement of the date, at the similar occasion the safeguarding of species is in like manner correspondingly huge. Individuals have attacked just about a wide scope of situations and their activity in assurance can never be denied (Henle *et al.,* 2008).

***Effect of climate change*:** Anthropogenic environmental change is perceived as a noteworthy risk to worldwide biodiversity, one that may prompt termination of thousands of species throughout the following 100 years (Thomas *et al.,* 2004). Ruegg *et al.* (2006) recorded that creature dissemination is influenced by environmental change and this change particularly impact transitory creatures' progressions their limits. Numerous transitory variety 26% to 72% come back to reproducing grounds 15 days sooner (Sparks and Menzel, 2002) in the course of recent decades just because of increment in temperature (Inouye *et al.,* 2000; Barrett, 2002) while if there is decline in temperature it upgrades propensity for late come back. Alteration in timing conversely connected with the separation, if the separation is more noteworthy with timing of landing will diminish and the other way around (Sparks and Menzel, 2002; Saino *et al.,* 2010). Human exercises like urbanization or construction of houses, agribusiness heightening and industrialization or industrial wastes are the primary driver of an Earth-wide temperature boost or environmental change (Saino *et al.,* 2010). Concentrates on smoke and its effects in biosphere began during seventeenth century and the term corrosive downpour was first begat with this wonder during 1950s.

Pollution: Abnormal amounts of contamination in air, water, and soil and plenitude of synthetic substances, residue, and trash. These components influence creatures straightforwardly by harming or in a roundabout way by changes in

vegetation, interspecific challenge, or decreased survivorship. These conditions impact especially soil and oceanic fauna (Adams *et al.,* 2014). Presentation to anthropogenic contamination, for example, sulfur-dioxide, natural poisons, ozone, particulate issue, and overwhelming metals, is a genuine medical issue in people and untamed life (Brown *et al.,* 2009; Doherty *et al.,* 2009). In people, there are clear relationship between current contamination levels and diminished lung working, malignant growth, medical clinic confirmations, and death rates (Kelly, 2003).

Oxidative pressure has been featured as the bringing together component hidden the lethal activities of most poisons (Ercal *et al.,* 2001; Halliwell and Gutteridge, 2007). The impact of poisons on the redox awkwardness is entrenched and has been misused by ecotoxicologists for a considerable length of time utilizing distinctive measures (comprehensively classified as enzymatic and non-enzymatic cancer prevention agents and oxidative harms) as biomarkers for contamination or weakness (Issaksson, 2010).

Habitat fragmentation: Living space fracture can be portrayed as the parting of characteristic living spaces and biological systems into littler, increasingly separated patches. It is the way toward subdividing a consistent territory into little pieces (Mullu, 2016). Scenes everywhere throughout the world are being divided at an uncommon rate because of discontinuity of the common living spaces of untamed life. These impacted the procedure of species annihilation in a few populaces. Living space misfortune and fracture are the essential drivers of species elimination around the world (Weidong *et al.,* 2002)

Mammalian diversity in different climatic zones: Mammalian recent variety changes along timberland to urban slope and these varieties are additionally seen in various climatic zones (Uraguchi *et al.,* 2009; Sacks, *et al.,* 2010).

Harmful effects of wild mammals: The croplands in peri-urban zones are influenced by the herbivores well evolved creatures possessing woodland scenes (Studsrød and Wegge, 1995; Madhusudan, 2002; Din *et al.,* 2013; Ramesh *et al.,* 2015).

Species extinction: There are currently many species of mammals have threats (McKee *et al.,* 2003; Primack 2006; International Union for Conservation of Nature 2011; Imre and Derbowka, 2011).

Human-animal conflict: Human–herbivore clashes are commonly increasingly serious in creating nations (Else, 1991; Hill *et al.,* 2002; Treves *et al.,* 2006; Dalerum *et al.,* 2008; Eniang *et al.,* 2011; Ripple *et al.,* 2015). Expanding human populace in Ethiopia has brought about overexploitation of regular assets, which thusly prompted an assortment of human untamed life strife. Notwithstanding creepy crawlies and little well evolved creatures, elephants, primates, monkeys, warthogs, and various impalas cause real yield harm when these creatures

adventure out of the ensured regions searching for nourishment (Petersen, 2003). These creatures can likewise make noteworthy harm human lives. These misfortunes can trigger clash between provincial individuals and untamed life (Begg *et al.,* 2007; Bonham *et al.,* 2007). Ranchers focused on that some nearby assortments are never again being developed in light of the fact that they are moderately sweet and, therefore, appealing to hungry natural life (Kebede *et al.,* 2016).

Wildlife management: The idea of wildlife management is emerging all through the world. The expansion on the planet's human populace has been joined by a fast extension of farming and urban zones and frameworks, particularly street and railroad systems. Around the world, wild life living spaces are being changed and divided by human exercises, and the conduct of a few animal categories has changed because of human exercises. A few animal types have adjusted effectively to urban or peri–urban territories and exploit the new assets accessible (Rossell, 2012).

Ethnozoology: It is defined as the investigation of the various times interrelationships among societies and the creatures in their condition. It incorporates terminology and classification of zoological structures, convictions about them, and the utilization of wild and household creatures. A worldwide segment began early in light of the fact that British ministers and pioneer officers were birders (Sibree, 1891).

Origin and history of ethnozoology: Ethnozoology rose up out of the field of ethno sciences, and looks to see how the world's various individuals have seen and interfaced with faunal assets since the beginning (Stearns, 1889; Mason 1899; Santos-Fita and Costa-Neto, 2007; Henderson and Harrington, 1914; Alves *et al.,* 2015).

Man and ethnozoology: Human cooperation's with wildlife are characterizing knowledge of human presence. These associations can be certain or negative. Homo sapiens have contended with different species for environment and different assets and have improved and adjusted to turn into the predominant biological power on the planet (Waters, 2016). Dynamic and close connections have been set up among human, and creatures. Individual has been constantly propelled about the employments of different species. Subsequently, they utilized various creatures and creature removes for complex purposes like sustenance, medication, fiber and so on. By and large, ethnozoology is a discipline of account learning of indigenous individuals about employments of creatures inherited through ages (Timilsina and Singh, 2014).

Zoo-therapy in Brazil: The zootherapeutic practices utilized in Brazil (Costa-Neto, 2004; Andrade, 2005; Alves and Rosa 2006; Alves, 2007; Alves and Rosa

2007a; Alves and Rosa 2007b Alves, 2008; Alves, 2009; Alves *et al.,* 2010; Alves, 2011; Costa-Neto *et al.,* 2000; Costa-Neto, 2011; Costa-Neto *et al.,* 2002).

Zoo-therapy in America: America is one of the world's chief culture region and utilized animals for different diseases (Hockings 2007; Alves, 2011; El-deir et al., 2012)

Zoo-therapy in China: Many cultures still utilized animal and plant based medicine. Perhaps the majority famous of these are Chinese medicines, who use fauna and flora for a variety of diseases (Li *et al.,* 2006; Tang, 2008; Alves, 2011).

The treatments of diseases by using traditional medicines are called Zoo-therapy (Marques, 1997; Costa-Neto, 2005; Solanki, 2009).

Zoo-therapy in Pakistan: Pakistan has a rich variety of creatures are available (Altaf *et al.,* 2012; Altaf *et al.,* 2014), including 195 mammalian species (Roberts, 2005a, 2005b). In Pakistan, Altaf et al. revealed just because the ethno medicinal benefits and social worth of mammals and birds in Punjab. Altaf documented that the aggregate of 30 well evolved creatures and 28 types of winged creatures are utilized to treat different disorders, for example, rheumatic sicknesses, skin diseases, sexual scatters and a few other ailments. The most generally utilized body parts are fat, meat, blood, milk and eggs (Altaf 2016; Altaf *et al.,* 2017; Altaf, 2017; Altaf *et al.,* 2018). Omega-3 unsaturated fats in animals fat minerals have been accounted for to diminish irritation (Wilson, 2015). Altaf detailed in ongoing investigations that inhabitants of the Jhehlum and Lahore study zones utilized fat and oil to treat spinal pain, bosom swelling, colds, cerebral pains, consumes, rheumatic torment, snake chomps, skin contaminations and sexual stimulants (Altaf et al., 2017). These utilizations are like past reports that creature fats or oils can be utilized for neurological issue, thrombosis, atherosclerosis, thrombosis and maturing impacts (Breteler, 2000; Haag, 2003).

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