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Review Article

Human Wild Life Conflict in Chenab Region of Jammu and Kashmir, Its Consequences and Mitigation Strategies

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Abstract

The term Human-Wildlife conflict (HWC) refers to the interaction between Human and Wild animals, which as a result causes a negative impact on the Human population, wild animals, their habitats and resources. This conflict takes place when the rapidly thriving human population get their hands in the well-established territory, which ultimately creates the competition for habitat as well as resources. HWC now becoming a very serious global issue and for resolving this conflict the global concern is required for the conservation of wildlife and development of humans alike. Taking into consideration, that expanding demands for access to land and resources by the exponential growth of the human population and urbanization, it is clear that this growing conflict between human and wildlife will not be abolished in the coming future. So the reason is very obvious and clear for the better understanding of this continuously increasing conflict and hence management options are very crucial for the good survival of both human as well as wildlife. The study reveals that human wildlife conflict is a growing problem throughout the study area and a number of causes have been identified in this regard. The issues need to be solved sincerely in order to avoid Man-animal conflict. This research articles reveals the damaged caused by wild animals to human being from 2014 to 2024 in Chenab region of Jammu and Kashmir along with the impact and mitigation strategies.

Keywords: Wildlife Conflict, Chenab Region, Mitigation, Jammu and Kashmir.

INTRODUCTION

Due to the increase in human population fragmentation of forest is taking place because of rapid expansion of agriculture fields all around the earth. Increasing human population also leads to Developmental activities Ike hydroelectric projects, irrigation canals, road and railway network and other construction due to urbanisation. This loss of tropical forest coupled with fragmentation has led to decrease in quality of ecosystem which is great value for survival. When natural food is not available to wild animals they look for alternative sources towards human settlement areas and finally end up in human wildlife conflicts .According to World Wide Fund for Nature (WWF) " Any interaction between humans and wildlife that result in negative impact on human social, economic or cultural life on the conservation of wildlife population or on the environment" The major Conflicts between Wild animals and humans are with elephants, ungulates, leopards, bears etc [1].The presence of humans and wild animals in same landscape affects both even in normal conditions and they can never live in harmony until their interests' conflict. Here animals mean wild animals which are gigantic and powerful enough to harm human-beings or their livestock, crops and other property. Increasing resource used by humans at human-wildlife interface has resulted in intensification of the human-wildlife conflicts [2, 3]. They identified three major reasons for which animals attack humans and these are predatory, territorial or defensive instincts. The conflict imposes a wide range of costs upon the locals such as destruction of crops, man-eating, cattle lifting and even transmission of diseases. Besides the damage caused to humans, the conflict also has an impact on the wild-animals, as the angry mobs often lynch the animal to death or leave the animals injured.

As of 2020, conflict mitigation strategies utilized lethal control, translocation, population size regulation and endangered species preservation. Recent management now uses an interdisciplinary set of approaches to solving conflicts. These include applying scientific research, sociological studies and the arts to

reducing conflicts. As human-wildlife conflict inflicts direct and indirect consequences on people and animals, its mitigation is an important priority for the management of biodiversity and protected areas. Resolving human-wildlife conflicts and fostering coexistence requires well-informed, holistic and collaborative processes that take into account underlying social, cultural and economic contexts [4]. The National Wildlife Action Plan of India (2017–2035) stresses that it is important to understand that HWC is largely a human-induced phenomenon and therefore, all the HWC mitigation measures must be developed in a truly participatory manner, engaging all key stakeholders. The welfare of wild animals involved in conflicts should be given equal importance when planning and implementing any HWC mitigation measures. HWC can be perceived or real. For example, attacks by carnivores such as the Tiger, Leopard, Black bear and Lion are relatively less frequent, but the attacks are sometimes lethal and lead to a strong community reaction. On the other hand, human–snake conflicts and garden pests are more common; yet they provoke less concern [5].

Origin of Human–Wildlife Conflict (HWC)

Human wildlife conflict (HWC) has always existed since humans and wildlife have shared the same resources (habitat, food, water, etc.) and landscapes. The first recorded incidence of HWC dates back to 2.0 million years ago. A fossilised skull of a young hominid from Taung was found with distinct signs of having been killed by an eagle [6]. Likewise, large carnivores and humans initially would have started with a predator–prey relationship until humans developed weapons to hunt the animals. Later the conflict extended to livestock loss and crop damage. The first recorded instance was about 10,000 years ago [7]. Earlier HWC was mainly of concern to the rural populations staying in and around forest areas, but with an increasing human population and related developmental activities, the incidences of HWC became common in both urban and suburban areas [8]. Today, HWC occurs in diverse contexts and spans a range of animal groups and countries. Though HWC existed since prehistoric times, its increasing complexity and severity have made it a global concern now. However, with the increase in human population and the conversion of natural habitats for human use, biodiversity conservation has become an important issue as numerous species face extinction threats due to human actions. In the changed situation, there is a need for coexistence, and wildlife cannot be simply eliminated whenever it comes into conflict with people. HWC management, therefore, needs to strike a balance between conservation and human needs. HWC is an increasing global issue that is not restricted to specific locations or landscapes but is common to all the areas where human and wildlife populations exist together and compete for limited resources or share the same resources. The dense human population in and around forest areas seems to pose a major challenge in the developing countries like India with HWC.

Study Area

Chenab region of Jammu.mu and Kashmir comprises of district Doda, kishtwar and Ramban, which now known as erstwhile district of Jammu and Kashmir is mountaneous region. It is located in Pir Panchal Range of Middle Himaltan chain of North West Himalayas. The study area is located between 32o-53' and 34o-21' North latitude and 75o-47'east longitude spreaded over an area of 11691 sq.km. The elevation of study area ranges between 700m to 5600m above sea level. Chenab region experiences variable temperature at different positions due to Wide variation in altitude e.g 700m at Ramban to 5600m at Padder.The forest is of temperate type and predominant evergreen tree species comprises of *Pinus roxburgii*, *Cedrus deodara*, and *Quecus species* where as predominant deciduous tree species comprises of *Alnus nitida*, *Ficus species* etc.

OBSERVATION

The Human Wildlife conflict has a variety of consequences which include human casualties (fig 1), cattle lifting, sheep/ goat killing damage to property and injury or death of animals. The conflict was seen to cause damage to the farmers in particular. The crop damage and cattle lifting are among the major damages that haunt the farmers. The data pertaining to human casualties was collected from the year 2015 to 2024 from wildlife Department of Jammu and Kashmir. The data regarding human casualties does not show any particular trend of increase or decrease in the number of casualties. As verified by interviewing the locals and the injured people, Black Bear (*Ursus thibetanus*) and Common leopard (*Panthera pardus*) are mostly involved in the conflict in the study area. Very few cases of injuries from other animals were reported from the area. The black Bear is the major animal that is involved in crop damage incidents. Besides monkey menace is also reported from the study area. According to the respondents, the bear comes to the villages during the months of May - December which co-incides with fruit ripening season and growth of different crops particularly maiz whereas, the incidents of leopard attacks occur throughout the year. As verified by the inured people and other victims of the conflict, the wild animal attacks occur mostly during the night or in the wee hours of the morning or late afternoon. The maize fields and the other agricultural land were seen to be majorly damaged by Bear attacks in the study area.

The data collected also reveals that he effected families were not satisfied with the ex-gratia policy and it was also found that no ex-gratia is given to the people for crop damage or livestock damage. But compensation for deaths were given as per the policy of wildlife dept. of Jammu and Kashmir.

Data of Human Death & Injury of Chenab region

Year	Deaths	Injured
2015-16	16	52
2016-17	5	21
2017-18	1	31
2018-19	0	35
2019-20	0	28
2020-21	2	17
2021-22	1	38
2022-23	1	22
2023-24	4	43
2024-25	5	44

Source: J&K Wildlife Protection Department

Deaths over the Years

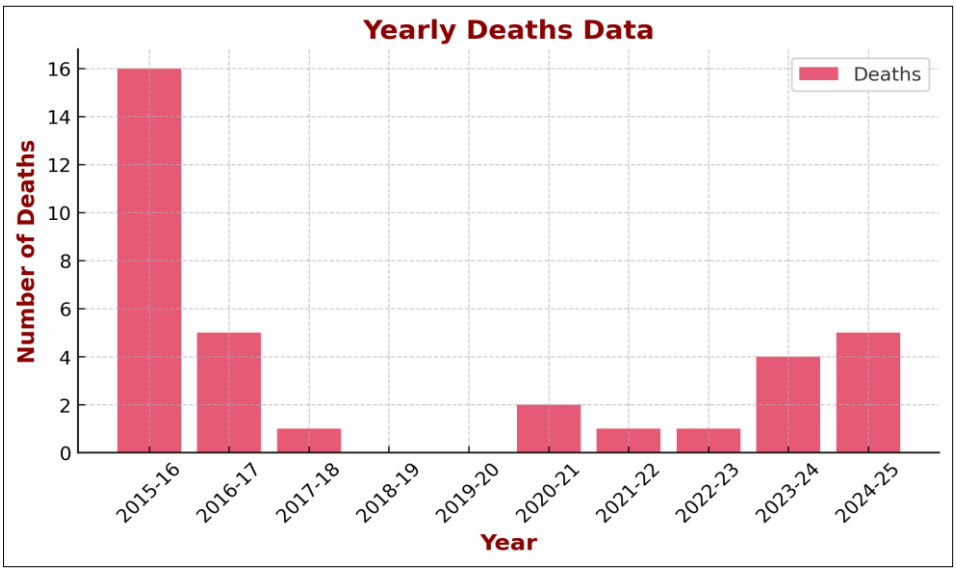

Figure 1: Graph showing deaths due to human animal conflict from 2015-16 to 2024-25 in Chenab Region in J&K

Injured Over the Years

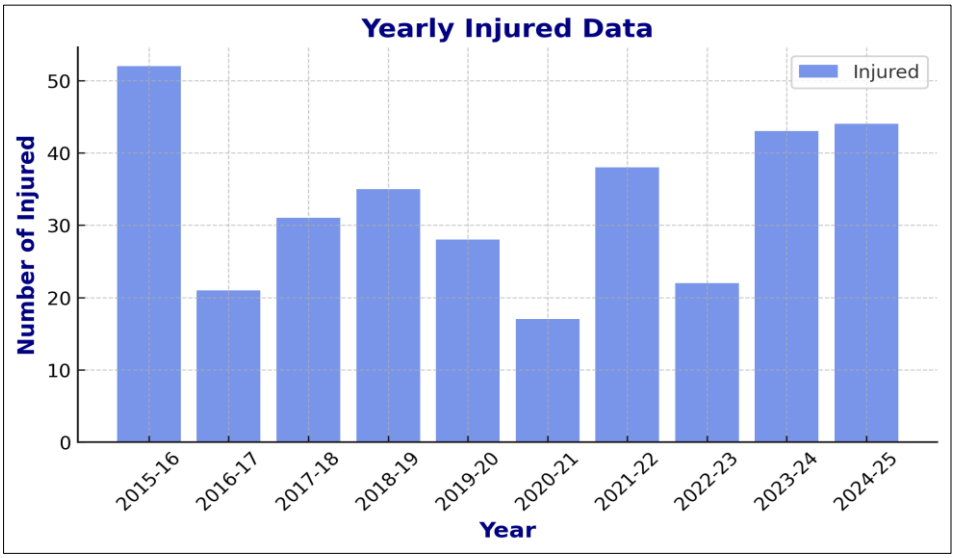

Figure 2: Graph showing injuries due to wildlife from 2015-16 to 2024-25 in Chenab Region in J&K

Bear Attack Victims

Consequences of Human Wildlife Conflict

Impacts on Humans

HWC has multi-faceted impacts on local communities, viz., physical (death and injury), economic and psychological impacts. The economic burden on state forest departments and threats to wild species from retaliatory killings by people are major concerns.

The direct impacts of HWC on humans include the following:

1. **Loss of Human Life and Injury to People:** Loss of a human life generates negative sentiments towards the species, often resulting in pressure from local communities for removal of problem animals from the vicinity of their villages. The death of an earning member in rural areas with limited livelihood opportunities puts a substantial burden on the household, forcing young kids to drop out from school or start earning at an early age. Fear of a large cats and bear in the vicinity and the associated perceived conflict often limit people's movement, particularly after sunset. This affects the social relations of locals within a community. The threat to human life arises from accidental encounters that occur when wildlife enters human habitation or when people enter forests. In extremely rare cases, human casualties occur when a particular wild animal becomes predisposed to treating humans as prey, in the case of carnivores, or as a threat, in the case of others.
2. **Crop Losses:** In terms of crop losses, damage can take the form of consumption of standing crops, trampling of crops or consumption of stored grain and fodder.Across the country, various herbivore and omnivore species forage in crop fields resulting in huge losses to an agricultural economy. The impact of HWC on the agricultural economy is so grave that the Union Ministry of Agriculture and Farmers Welfare has recognised HWC as one of the factors to be covered under the Pradhan Mantri Fasal Bima Yojana. As the quantum loss of crops damaged by wild animals is a States/Union Territories subject, States have been given the liberty to consider providing add-on coverage for the same wherever the risk is perceived to be substantial and identifiable from Rabi 2018-19 onward. The DARE program on pest control also deliberates on the issues like crop damage by wildlife, particularly blue bull and wild pig.
3. **Loss in Quality of Life:** The quality of life deteriorates due to adverse impacts on health because of psychological stress, sleep deprivation due to night guarding and financial stress brought about by crop or livestock losses. A less understood but important dimension of human-wildlife interaction is the spread of zoonotic diseases, which can be transmitted from wildlife to people. Disease transmission in both directions is a problem that cannot be underestimated. Approximately 60 percent of diseases causing pathogenic illnesses in humans originate in animals. The emergence or re-emergence of zoonotic and vectorborne diseases poses considerable risks to public health, the environment and the economy across the globe.
4. **Loss or Reduction of Livelihoods and Economic Opportunities:** Due to abandoning or reduced inputs in agriculture [9], inability to collect NTFP, physical disabilities due to animal attacks, costs of mitigation efforts and increased labour costs due to HWC, the livelihoods and economic opportunities can take a major set-back in some HWC hotspots.

The hidden economic costs associated with HWC include transaction costs for ex gratia claim applications, treatments, buying rations after crop loss or loss of income from surplus harvest etc. The cost of HWC escalates if people have to invest in putting barriers or engage more human resources to monitor the wildlife movement or guard against them. Besides livestock, cattle, goats and sheep are the main animals preyed upon, but domestic dogs and cats are also hunted at times and cats are also hunted at times. There is also

damage to property takes the form of damage to agricultural infrastructure, to houses and storage buildings, to vehicles, etc.

Mitigation Strategies

Mitigation strategies for managing human-wildlife conflict vary significantly depending on location and type of conflict. The preference is always for passive, non-intrusive prevention measures but often active intervention is required to be carried out in conjunction. Regardless of approach, the most successful solutions are those that include local communities in the planning, implementation, and maintenance [10].

Building the Capacity of Wildlife Staff and Providing the Staff Proper Equipment's

The first and foremost thing is to strengthen the staff and increase their numbers. At present according to the wildlife warden, only 50 employs are working in the Department in Chenab region the staff of the Wildlife Department has to be given specific training to handle Human Wildlife Conflict, protecting both humans and the wildlife. The department should also be given ample number of vehicles so that they can reach the conflict spot quickly.

Erection of Fences or Other Barriers

Building barriers around cattle bomas [15], creating distinct wildlife corridors [52], and erecting beehive fences around farms to deter elephants [53], have all demonstrated the ability to be successful and cost-effective strategies for mitigating human-wildlife conflict [11].

Improving Community Education and Perception of Animals

Various cultures have myriad views and values associated with the natural world, and how wildlife is perceived can play a role in exacerbating or alleviating human-wildlife conflict. In one Masaai community where young men once obtained status by killing lions, conservationists worked with community leaders to shift perceptions and allow those young men to achieve the same social status by protecting lions instead [10].

Effective Land use Planning:

This altering land use practices can help mitigate conflict between humans and crop-raiding animals. For example, in Mozambique, communities started to grow more chili pepper plants after making the discovery that elephants dislike and avoid plants containing capsaicin. This creative and effective method discourages elephants from trampling community farmers' fields as well as protects the species [12].

Increase in Number of Control Rooms Established to Tackle Human Wildlife Conflict

An increase in the number of control rooms will allow an apt action from the department and will also help to reduce the incidents. Moreover active participation of locals can prove very beneficial in curbing the human wildlife conflict. Training the local youth to handle conflict situations quickly can help to stop killing of animals at the hands of angry mobs. These small local bodies should be trained to handle the animal and mob till the concerned staff reaches the spot.

Compensation

In some cases, governmental systems have been established to offer monetary compensation for losses sustained due to human-wildlife conflict. These systems hope to deter the need for retaliatory killings of animals, and to financially incentivize the co-existing of humans and wildlife. Compensation strategies have been employed. The success of compensation in managing human-wildlife conflict has varied greatly due to under-compensation, a lack of local participation, or a failure by the government to provide timely payments.

Use of Technology

Rapid technology development (especially Information Technology) can play a vital role in the prevention of Human–wildlife conflict. Drones and mobile applications can be used to detect the movements of animals and warn people particulaly in prone areas. SMS or WhatsApp messaging systems have also been used to alert people about the presence of animals in nearby areas. e.g early warning wireless systems have been successfully used in undulating and flat terrain to mitigate human-elephant conflict in Tamil Nadu, India [13].

CONCLUSION

The intensity of the consequences of Human Wildlife Conflict varied from village to village, with maximum damage caused in villages near the forests, at a distance of 1km the damage intensity was seen to get lesser as the distance from the forest increased. It was also observed, that there was a co-relation between cultivation season and the intensity of crop-raiding incidents.

The fragile coexistence between humans bear and leopard reached its peak in early December 2024 when a series of attacks took place on unsuspecting villagers.

The rising number of such attacks is now shattering the sense of safety among people in the rural areas. Each encounter left scars not only on the victims and their families, but also on the psyche of the entire community. Fear spread like wildfire, and with the leopards and bears presence looming large, the spaces once-familiar to humans have now transformed into terrifying territories. However, the growing frequency of these encounters highlights a deeper, systemic issue. Wildlife corridors, essential for the seasonal movement of animals, have been increasingly disrupted by human-made infrastructure like roads, hydroelectric projects tracks, and expansion of agricultural on forest land.

These interruptions, coupled with habitat destruction, a dwindling food supply, and reduced shelter in natural habitats, force wild animals like bear and leopard to venture closer to human settlements.

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