

STUDY OF HUMAN-WILDLIFE CONFLICT IN THE BHINMAL AREA OF JALORE DISTRICT

Major Komal Katyal,

Associate Professor, Department of Zoology, G K Gowani Government College, Bhinmal

ABSTRACT

*Study on human-animal conflict is being conducted in the Bhinmal area of the Jalore district. The primary focus of this study is on the increasing conflicts that are occurring between humans and animals as a consequence of rapid urbanisation, deforestation, and agricultural development. Loss of crops, predation of cattle, and isolated attacks on humans by animals such as nilgai (*Boselaphus tragocamelus*), striped hyena (*Hyaena hyaena*), wild boars (*Sus scrofa*), and sloth bear (*Melursus ursinus*) have taken over this habitat, which was formerly considered to be in a state of equilibrium. As a consequence of these disagreements, residents have experienced significant economic losses, and conservation efforts are fighting an uphill struggle as a result of the increased hostility towards animals. The purpose of the study is to determine the factors that lead to these disputes, the extent to which they are detrimental to both humans and animals, and the community-based solutions that are available to mitigate the negative effects of these conflicts. Field surveys, interviews with local farmers and forest officials, and tracking of animal movement patterns are some of the methods that have been used in research to illustrate the vital need for sustainable land use practices, the restoration of habitat, and expanded compensation and awareness programs. The findings underline the need of striking a balance between human development and animal conservation in order to ensure cohabitation and long-term ecological stability in the Bhinmal region. This is necessary in order to keep the area ecologically stable.*

Keywords: Human-Wildlife Conflict, Bhinmal Region, Conservation Strategies, Wildlife Habitat Loss

INTRODUCTION

In environmentally sensitive locations, such as the Bhinmal area of the Jalore district in Rajasthan, the problem of human-wildlife conflict has emerged as a prominent concern in recent years. This conflict arises when the requirements and behaviours of human populations and those of animal populations coincide, ultimately resulting in unfavourable consequences for both groups. A growing human population, the expansion of agricultural land, and the construction of infrastructure have all contributed to the encroachment into animal habitats in Bhinmal, a region rich in natural greenery and biodiversity. Wild animals, such as nilgai (*Boselaphus tragocamelus*), wild boars (*Sus scrofa*), and sloth bear (*Melursus ursinus*) often wander into farmlands and communities in search of food. This may result in crop damage, livestock loss, and in some cases, even human fatalities. Natural food and water sources are diminishing. As a result of this situation, conflicts have intensified between local residents and wildlife, making it imperative to adopt a balanced approach that ensures both wildlife conservation and human safety.

Changes in land-use patterns and the destruction of forests in and around Bhinmal have contributed to the intensification of these disputes throughout the course of time. As a result of the reduction in forest

cover and the fragmentation of natural corridors, wildlife is increasingly being driven into landscapes that are dominated by agriculture and agriculture. The problem has only become more severe as a result of the low level of awareness, the delays in compensation, and the insufficient measures for conflict management. It is the purpose of this project to investigate the underlying reasons, frequency, and nature of human-wildlife interactions in the area, as well as to evaluate the socio-economic effect on communities that are impacted by these interactions. In addition, it emphasizes the critical need for coordinated conservation efforts, sustainable land-use planning, and community engagement in order to build long-term solutions that guarantee the coexistence of people and animals in the Bhinmal region. The "Impact of Wild Animals on Agriculture in the Bhinmal Area" table summarizes the effects of a variety of wild species, such as sloth bears, wild boars, and blue bull, on crops. It highlights the behaviors of these species and the specific damage they cause to crops, shedding light on the growing issue of human-wildlife conflict in the region.

Table 1: "Impact of Wild Animals on Agriculture in the Bhinmal Area"

Animal Name	Scientific Name	Common Behaviour	Impacts on Agriculture
Nilgai	<i>Boselaphus tragocamelus</i> Pallas, 1766	Herbivorous, often found in grasslands and forests	Damages crops, especially in fields of crops like wheat, bajra and pulses
Wild Boar	<i>Sus scrofa</i> Linnaeus, 1758	Omnivorous, known to forage in both forests and fields	Rooting in fields causes crop damage, especially in vegetables and root crops
Sloth Bear	<i>Melursus ursinus</i> Shaw, 1791	Omnivorous, often found in grasslands and forests, nocturnal	May prey on juveniles of livestock and human during dusk time when threatened during feeding in crop fields, causing economic loss to farmers
Hyena	<i>Hyaena hyaena</i> Linnaeus, 1758	Omnivorous, scavenger, active during the night	Can attack poultry or livestock and disrupt farm activities
Hanuman langoor	<i>Presbytis entellus</i> Desmarest, 1822	Herbivorous, mostly found in near fruiting trees and agriculture fields	They travel in groups often feeding on fruits and destroying the tender branches of the trees and other crops
Chinkara (Indian Gazelle)	<i>Gazella bennettii</i> Sykes, 1831	Herbivorous, often seen in open areas like grasslands	May graze on young crops, impacting agricultural fields
Jackal	<i>Canis aureus</i> Linnaeus, 1758	Omnivorous, scavenger, active during the night	Can attack poultry or livestock and disrupt farm activities

OBJECTIVES

1. To identify the major causes and patterns of human-wildlife conflict in the Bhinmal and Jaswantpura region.
2. To assess the socio-economic impact of such conflicts on the local communities and suggest possible mitigation strategies.

Major Causes of Human-Wildlife Conflicts

1. Conversion of forest land - There is an annual increase of around 75 million individuals to the total population of the planet. Because of this rise in population, human settlements have started to break into the domain of animals. This is a consequence of the population growth. As a consequence of the conversion of forest land to allow alternative land uses such as agriculture, cattle grazing, mining, and other activities of a similar kind, wild animals are compelled to relocate into human populations. The Forest Conservation Act of 1980 in India governs the conversion of forests for uses other than forestation, while the compensating Afforestation Fund Act of 2016 provides regulations for monies for compensating afforestation. Both of these acts were passed in India. On the other hand, the provisions of these two acts only marginally compensate for the loss of biodiversity that is brought about by deforestation. Furthermore, they encourage monoculture, which ironically leads to the loss of biodiversity.

2. Monoculture - There is a wide variety of plant species that contribute to the formation of natural ecosystems. These ecosystems serve as a habitat for a wide variety of animal groupings. Because of the planting of a variety of species, herbivores are able to get the food they need, while predators are able to establish enough refuge for themselves. On the other hand, the monoculture of species such as teak or timber not only results in the creation of "green deserts" for the animals themselves, but it also causes disruptions to the activities of the ecosystem, such as pollination and biological control.

3. Urbanization- India has adopted a number of laws with the purpose of protecting the natural environment and the forests that are located across the nation. Article 48 (A) and Article 51(A)(g) are two examples of clauses that are included in the Constitution that shed light on the duty that both individuals and the state have in the protection of biodiversity and the environment. On the other hand, the expanding unplanned urbanisation continues to occur since there is no regulating body that is self-governing. Because of this, animals are put in a position where they are vulnerable to the stress that is brought on by people via the process of habitat fragmentation. This happens when bigger habitat webs are divided into smaller patches that are never connected to one another.

4. Less prey base - Interactions between humans and wild animals are often influenced by the availability of natural prey. There is a shortage of natural food sources for herbivores as a result of natural catastrophes such as droughts and floods, which in turn results in the carnivores being negatively impacted. There are a number of factors that contribute to the decrease in the availability of prey, including seasonal movement of animals and wildlife crimes. As a result of the scarcity of food sources, wild herbivores are drawn to human crops, and predators are drawn to cattle, which leads to confrontation and conflict.

5. Biological factors - A number of characteristics of an animal, including its age, state of health, and gender, are sometimes taken into consideration when assessing where the animal fits on the spectrum of problematic behaviour. For instance, young male animals are more inclined to participate in high-risk conduct owing to the fact that they have less experience or because their hormones are all over the place. This is because of the fact that they have less experience. Additionally, animals that are injured, ill, or old have a higher probability of engaging in criminal actions such as stealing livestock, stealing crops, or killing humans. This is because these animals are more likely to inflict harm on others. This may be because they are no longer able to compete for wild food or because they have been relocated to habitats that are less than optimum by young competitors. Both of these factors have contributed to this situation.

Precedence of rights: the humans v. Wildlife predicament

When the subject of conflicts between humans and wildlife is brought up, it often leaves people in a difficult situation. This is due to the fact that the rights of people and animals are in direct opposition to one another in circumstances such as these. According to the statement made by the Honourable Supreme Court of India in the case of T.N. Godavaram Thirumulpad v. Union of India, "Laws are man-made, therefore there is a likelihood of anthropocentric bias towards man, and rights of wild animals often tend to be of secondary importance." The statement reflects the high degree of concern that the Supreme Court has expressed on the rules that regulate disputes between people and animals. This worry has been articulated in this statement. Furthermore, the human rights approach to environmental protection is sometimes built on anthropocentrism, despite the reality that animals and humans share an equal place in the universe.

Consider, for example, the case of crop raiding; in such a situation, the fundamental right of the field owner to pursue chosen profession or to perform any employment stated in Article 19 (1) (g) is given priority over the animal's right to feed him. This is because crop raiding is seen to be a violation of the basic rights of the field owner. This is something that has been decided time and time again in instances such as Animal Welfare Board of India v. A. Nagaraja and Others. It is something that has been firmly established. It has been shown beyond a reasonable doubt that the safeguarding of human liberty and the preservation of when it comes to circumstances in which people and wild animals come into conflict with one another, there is no issue with safeguarding human rights. It is difficult to avoid the use of lethal intervention in the management of wild animals when the safety of the general population is in threat. In reality, it is impossible to avoid using dangerous action. The concept of proportionality, on the other hand, must be adhered to before any acts are made that have the potential to end in death. This notion is used as a criterion for determining whether or not a statute is fair and just throughout the process of statutory interpretation. In addition to this, it is applied as a reasonable strategy to assist in identifying the appropriate equilibrium between the objectives of a policy or regulation and the many approaches that are utilised to achieve those objectives. As a result, according to this concept, the employment of tactics that include the use of fatal force for the management of wild animals should be kept for instances in which there is no other option that is less damaging or intrusive that can be applied to the issue.

The Hanuman langoor armies have emerged as a severe danger to agricultural activity in a number of places, notably with regard to fruit crops. Orchards are often invaded by these swarms, which are notorious for their vast numbers and effective foraging behaviour. As a result, they do a significant

amount of damage. Langoors (*Presbytis entellus* Desmarest, 1822) not only eat the fruits of fruit-bearing trees including karonda (crane berries), chikoo, mosambi, and pomegranate, but they also cause damage to the branches and young shoots of these trees. This makes these plants particularly susceptible to harm. This devastation results in decreased crop yields, which in turn has a severe effect on the lives of farmers who depend on these fruits for their revenue.

Due to the frequent visits of Hanuman langoor army to orchards, there has been a rise in the amount of confrontation between humans and animals. As a consequence, farmers have resorted to using a variety of deterrents, such as scarecrows and noise-making devices, in order to preserve their products. On the other hand, when it comes to the long run, these strategies often prove to be futile since langoors swiftly adapt to such strategies. These invasions are occurring increasingly often, which underscores the need for more sustainable solutions. These options include improved management of animal populations and the adoption of protective measures that can preserve crops while also encouraging peaceful coexistence between people and wildlife.

Ways to Mitigate Wildlife Conflicts

1. Use of barriers - It is common knowledge that barriers and other exclusionary measures may be used to reduce the chances of animal confrontations. Barriers that are created, such as fences, or barriers that are natural, such as vegetation that has been grown, are examples of such exclusionary devices. Through the use of bio fence, the government of Uttarakhand is attempting to prevent elephants from entering the state, wild boars (*Sus scrofa*) from entering the state, rams from entering the state, and some types of chilly for other wild animals. The use of fencing not only serves to divide the area of animals from that of humans, but it also helps to prevent the spread of invasive species, control the transfer of disease, preserve keystone species, and safeguard species that are in danger of extinction.

2. Monitoring - In the Bhinmal area of Jalore district, Rajasthan, human-wildlife conflict has become a serious concern due to increasing human encroachment into natural habitats. Wild animals like *Boselaphus tragocamelus* Pallas, 1766 (nilgai), *Sus scrofa* Linnaeus, 1758 (wild boar), and *Melursus ursinus* Shaw, 1791 (sloth bear) frequently enter agricultural fields and villages in search of food and water, leading to crop damage, livestock loss, and occasional human casualties. To monitor their movement, methods like impression pads near waterholes, radio collaring, camera traps, and GIS mapping can be employed. A community-based early warning system, similar to the one used in Valparai, Tamil Nadu—where locals alert authorities and residents via SMS about elephant movements—can be adapted in Bhinmal. This approach can help minimize conflicts and promote peaceful coexistence between humans and wildlife.

3. Sensitization - When it comes to communities that are located in areas that are considered to be vital habitats for wildlife, the government and the NTCA usually design relocation plans and recommendations. The transfer of communities, on the other hand, is a slow process since it needs careful planning and significant financial investment. Therefore, in order to avoid wild predators like as panthers and bears from eventually becoming inhabitants of the region, it is necessary to convey information to the local people that are located in core forest areas about the proper disposal of livestock corpses and other types of rubbish. In addition, the locals need to be educated on the fundamentals of animal

behaviour and the appropriate actions to take in the event of a conflict. For instance, in the Sundarbans, residents often wear masks that face backwards on their heads. This is done to dissuade assaults by tigers, which are trained to avoid attacking humans from the front.

4. Compensation - People who live in close proximity to national parks or woods regularly experience the loss of crops, the loss of valuables, and the loss of life as a result of assaults being carried out by wild animals. Despite the fact that there are compensating systems in India that are especially designed to address disputes between humans and animals, the process by which these claims are confirmed is often plagued by obstacles such as corruption and inappropriate delay. It is important to keep in mind that the cost-benefit ratio plays a significant part in human-wildlife conflicts. The term "cost" refers to the amount of harm that is caused by wild animals, while "benefit" refers to the utilization of resources that are provided by wildlife. When the cost of this advantage is greater than the cost of this benefit, conflicts manifest themselves. Therefore, reducing the cost of damage and so reducing the number of retaliatory murders would be accomplished by providing victims with compensation that is both adequate and timely. In addition, the creation of alternative job options in forest and buffer-zone settlements would lessen the traditional reliance on animal habitats. This would be accomplished by reducing the benefits that are derived from the forest, hence increasing the benefit-cost connection.

Strategies for Mitigation and Suggestions for Action Plan

Safeguarding methods are used by policymakers in situations when there is a potential for conflict or when the conflict has already taken place. The reduction of the issue and the lessening of its impact on society is the ultimate goal of the preventative steps that are being taken. In addition, we proposed a number of different methods that make use of geospatial technologies in order to reduce the human-wildlife conflict (HWC) that was occurring in the research region that was referred to. This action plan was developed on the basis of information gathered via field visits, the use of GPS technology, the Survey of India Toposheet, and talks with a wide variety of organizations, such as cowherds, communities, and forest agencies.

The numerous action plans that have been developed to lower the human – wildlife conflicts in the research region because of the identification of the corridor's geographic location, the availability of accessible animals, thick vegetation, and terrain were all taken into consideration. The natural habitat of wild animals is protected to the greatest extent possible by wildlife corridors, which are situated at a distance from human activity. Water is another one of the fundamental requirements that wild animals have. The people who lived in the villages were of the notion that wild animals regularly entered human settlements in search of food and water. The KT Weir (Kolhapur Type Bandhara) and Panavath are two examples of man-made water tanks that should be constructed. It is essential to choose a location that is ideal for water sources and to create these tanks.

The Bhinmal region of the Jalore district is distinguished by its semi arid topography and its erratic rainfall. These two factors, when combined, lead to the widespread occurrence of seasonal natural water falls that serve as essential sources of water. The installation of observation towers in strategic positions in order to monitor the movement of wild animals is one of the most important recommendations that have been advocated that should be implemented in this region. It is anticipated that this program will

contribute to the sustainable development of the local communities, assist in the preservation of natural resources, and assist in the reduction of conflicts between humans and animals in the areas in which it operates.

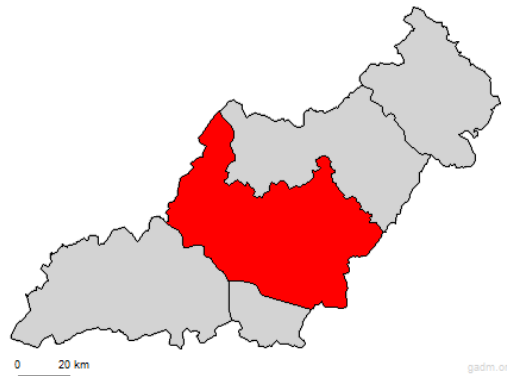


Figure 1: Bhinmal area of Jalore district

Human injury and death

In Phulwari, the recorded incidence was 0.3%, while in Kumbhalgarh, it was found to be 0.6%. It was revealed that human injuries caused by encounters with animals were quite infrequent in the areas that were researched. Nevertheless, the winter months, and particularly the months of December, January, and February, were the seasons of the year when these occurrences were documented a great deal more often than other times of the year. Changing patterns of animal movement, which may be influenced by the restricted availability of water and food sources, may be connected to this seasonal propensity. This tendency may be tied to those patterns. This may drive animals to go closer to human settlements in search of food, which might have negative consequences. Despite the fact that there is a relatively stable coexistence between humans and animals in these areas, as seen by the decreased number of human injuries, the risk still remains and calls for consistent monitoring.

It was discovered that the reported instances of harm were dispersed in an equal manner among a variety of different sorts of animals. Wild boars, hyenas, blue bull and sloth bears were responsible for twenty-five percent of the incidents that were documented. It was also accepted that wild boars, nilgai (blue bull), and the sloth bears were also responsible for injuries, with each of these species contributing to 12.5% of the total cases. In addition, it was said that hyena were responsible for injuries. These figures provide insight on the vast range of animals that are involved in conflicts between people and nature, and they demonstrate the need of adopting personalized strategies for the settlement of disputes. Implementing early warning systems, raising community awareness, and managing buffer zones can all help reduce such incidents and support a safer mixture of human and animal populations.

CONCLUSION

The fact that these incidents happen seasonally and involve a variety of animals, such as sloth bears, wild boars, hyenas, nilgai, and hanuman langoons, indicates the growing risk of conflict between humans and wildlife in these areas, although the number of human injuries caused by wildlife in places like Bhinmal

and Jaswantpura remains relatively low. These encounters are often the result of natural factors, such as a scarcity of water and food, which compel wild animals to move into human areas. These situations are generally the driving force behind these interactions. Consequently, it is of the highest necessity to undertake a multi-pronged approach that involves the use of geospatial technology, the construction of artificial water sources, the development of community awareness initiatives, and the improvement of wildlife corridors that are secure. These types of efforts not only help to reduce the number of disagreements that occur and the severity of those disagreements, but they also contribute to the conservation of biodiversity and the development of local communities in a manner that is environmentally responsible. It is feasible to ensure a peaceful coexistence between human life and wildlife in regions that are ecologically sensitive using a method that takes a holistic approach to resolving these problems.

REFERENCES

1. Bradley, E.H. & Pletscher, D.H. (2005) Assessing factors related to wolf depredation of cattle in fenced pastures in Montana and Idaho. *Wildlife Society Bulletin*, 33, 1256–1265.
2. Chhangani, A.K., Robbins, P. & Mohnot, S.M. (2008) Crop raiding and livestock predation at Kumbhalgarh Wildlife Sanctuary, Rajasthan India. *Human Dimensions of Wildlife*, 13, 305–316.
3. Dickman, A.J. (2010) Complexities of conflict: the importance of considering social factors for effectively resolving human–wildlife conflict. *Animal Conservation*, 13, 458–466.
4. Fisher, M. (2016) Whose conflict is it anyway? Mobilizing research to save lives. *Oryx*, 50, 377–378.
5. Ladan, S. I. (2014). Examining Human Wild Life Conflict in Africa. International Conference on Biological, Civil and Environmental Engineering, (pp. 1-4). Dubai (UAE).
6. Bijosh M. G., J. A. (2022). Human Wildlife Conflicts: Causes And Mitigation Measures In Wayanad Wildlife Sanctuary of Kerala. *Global Scientific Journals*, 621-631
7. Eva M. Gross, B. P. (2018). Seasonality, crop type and crop phenology influence crop damage by wildlife herbivores in Africa and Asia. *Biodiversity and Conservation*, 1-21
8. Yogesh P. Badhe, R. G. (2021). Habitat Suitability Area Analysis for Leopard to Mitigate Human-Wildlife Conflict in Junnar Forest Division of Pune Forest Circle. *Applied Ecology and Environmental Sciences*, 524-532
9. The Forest Conservation Act, 1980, No.69, Acts of Parliament, (India).
10. The Compensatory Afforestation Fund Act, 2016, No. 38, Acts of Parliament, (India).
11. S. Vijayan, B.Pati, Impact of Changing Cropping Patterns on Man-Animal Conflicts Around Gir Protected Area, 23 POL AND ENV 1, 2-3 (2002).
<https://www.semanticscholar.org/paper/Impact-of-Changing-CroppingPatterns-on-Man-Animal-Vijayan-Pati/0f6074fc9990b75d3a75a6fef25e51e3f79628b9>
12. INDIA CONST. art. 48 A.

13. INDIA CONST. art. 51 A, cl. g.
14. Supra note 2, at 146.
15. D.S Meena, B.P Baluni, M. Bisht, Human-Wildlife conflict in Uttarakhand, 11 Proc. Int. Acad. Ecol. , 100- 102 (2021),

[http://www.iaees.org/publications/journals/piaees/articles/2021-11\(3\)/human-wildlife-conflict-inUttarakhand.pdf](http://www.iaees.org/publications/journals/piaees/articles/2021-11(3)/human-wildlife-conflict-inUttarakhand.pdf)
16. ANANDAKUMAR MAVATHUR, HUMAN-WILDLIFE CONFLICT IN THE MOUNTAINS OF SAARC REGION 46 (SAARC forestry centre 2014)