



## ANALYSING THE CAUSES AND MITIGATION STRATEGIES OF TRAGIC TALE; THE HUMAN – TIGER CONFLICTS IN GARHWAL HIMALAYAN REGION OF UTTARAKHAND

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### ABSTRACT

Garhwal Himalayan region is a biodiversity hotspot with a rich wildlife and cultural heritage, including tigers, leopards and other wild animals. However, the increasing number of human-tiger conflicts in this region pose a significant threat to both human livelihoods and tiger conservation. This study assesses the causes of human-tiger conflicts in Garhwal Himalayan region and evaluates the effectiveness of existing mitigation strategies with a new look to better preventive measures. The underlying causes of these conflicts, emphasizing anthropogenic pressures and eventual interventions, habitat fragmentation and socio-economic factors have further been explored with greater degree of intensity. Through a comprehensive review of existing literature and case studies, this research communication endeavours to offer better explanation for this tragic/pathetic situation including devising better and effective strategies for mitigating this crisis. The existing gaps in current mitigation measures have also been underlined with a proposal of multi-stakeholder approach to address the issue. Our findings and recommendations will enable the policy makers and people involved in the conservation processes to reduce this painful two-edged sharp sword of human-tiger conflicts and promote the coexistence concept of togetherness for sustained survival.

### KEYWORDS

Human-tiger conflict, Garhwal Himalaya, conservation and mitigation strategies, habitat fragmentation, livestock depredation.

### INTRODUCTION

Wildlife resources are key components of a sustainable forest. Animals need food, water and space to survive and thrive. Carnivores, in particular, require large forest areas and corridors for their sustained survival in any region. To ensure human and wildlife coexistence, we must protect and assess wildlife habitats within and outside protected areas (Agarwal et al. 2016). Human-wildlife conflicts are of escalating concern in Himalayan region of Uttarakhand. Garhwal region of Uttarakhand, sprawling up to Himalayan foothills, is known for its prosperous biodiversity and dense forests. The 65% of total area of Uttarakhand state (53, 483 sq. km) is covered only by forests ([https://en.wikipedia.org/wiki/Geography\\_of\\_Uttarakhand](https://en.wikipedia.org/wiki/Geography_of_Uttarakhand)).

Therefore, it is very rightly known as the home of a large population of wildlife including leopards, tiger, elephants and bears along with the shared habitat for the endangered Bengal tiger with human beings (Ogra, 2008). Recently, for the last few years, Uttarakhand is facing severe crisis of human-wildlife conflict with an increasing trend. In winter season, human-animal conflicts increase, with more attacks of tiger and leopards on human beings. This state has a leopard population of over 2,000, according to the most recent estimates. The explainable reasons for increased fatal attacks can be labelled as shrinking of habitats, growing population

and adaptable behaviour. Despite its best efforts, the Uttarakhand Forest Department is frequently helpless in mitigating this conflict (Singh et al. 2022). There has been an increase in severity of human-wildlife conflicts especially in Pauri district of Uttarakhand in the last few decades with common leopard (*Panthera pardus*), tiger (*Panthera tigris*) and other wild animals (Naha et al. 2023). Apart from Uttarakhand, this problem in India is also escalating due to increasing human population, loss of natural habitats, scarcity of forage resources and increase in the number of local wildlife population (Agarwal et al. 2011). Rapid urbanization, deforestation, non-planned construction, frequent forest fires and the encroachment of human settlements into forest areas are some of the significant precipitating reasons for shrinking of the natural habitat mainly for leopards and tigers and result in the never-ending conflicts. Such situations compel these wild animals to go closer to human settlement areas in search of food and shelter. Such complex situations trigger more conflicts between human beings and leopards. These fatal fights, in turn, result in frequent encounters, often leading to livestock loss, human injuries and fatalities, as well as retaliatory killings of tiger by human beings (Bhattacharjee, 2006).



Source @google (The Vibes file pic, January 10, 2022)

**Fig. a-** Showing the tiger ferocity due to interferences of visitors in the Zoo.

This conflict is known for serious casualties on both the sides i.e., civilians and leopards and tigers. A thorough understanding in unveiling its root causes, impacts and potential solutions appears meaningful for ensuring the safety of both the local communities and safety and conservation of such majestic predators. The protection of human lives is very significant but more challenging when it comes to the safety and conservation of leopards and tigers. Tigers have adapted successfully to survive in a variety of climates, prey bases and landforms, including

savannah, rain forests, mountain height, dense vegetation, low scrub, thickets and even areas that are quite close to human habitat (Edgaonkar and Chellam, 2002). They eat a wide variety of foods and coexist with other sympatric carnivores. (Sinha, 2003). Their populations have drastically decreased as compared to the previous records, resulting in continuous habitat destruction and fragmentation, despite their widespread distribution and strong capacity for adaptation (Daniel, 1996).



**Fig. b**  
(b,c & d - source@google)



**Fig. c**



**Fig. d**

(Fig. b) *Panthera tigris* and (Fig. c & d) *Panthera pardus* spotted in Jim Corbett National Park

#### LITERATURE SURVEY

History has witnessed various incidences of human wildlife conflicts since prehistoric times where number of predators

like tigers, crocodiles, leopards, eagles, elephants, etc. attacked on human beings (Ogra, 2008). Large mammals including elephants play important roles in the forest



ecosystems mostly by maintaining prey populations and seed dispersal. They are regarded as keystone species of ecosystems (Lacher et al. 2019). However, carnivore-human conflict is a worldwide problem for the wildlife management and human safety. Conservationists around the world are raising alarms over human-wildlife conflicts. • The Garhwal region of Uttarakhand, located in the western Himalayas, includes parts of key tiger habitats such as Rajaji Tiger Reserve, Corbett Tiger Reserve and Kalagarh Tiger Reserve. Tigers (*Panthera tigris*) are very secretive and hard to locate. Further, performing studies on their behaviour and capture strategies appear quite tough. Even in the areas of their common presence, sightings appear rare and unpredictable (Agarwal et al. 2011). Tigers are considered endangered animals because of pronounced decline in their population possibly due to shrinking of their natural habitat over the last 30 years in many countries. Though we have scanty data on this issue, yet the decline in their population is serious enough to group them little ahead of classifying as Vulnerable (Goodrich et al. 2022). The closer proximity of these large carnivore animals to human settlement areas automatically triggers inevitably some degree of conflicts between them primarily due to compelled sharing of common limited resource such as land, game, livestock or fish (Graham, et al., 2005; Schwerdtner & Gruber, 2007). Various reasons have been explained for the increasing trend in human tiger conflicts. The depleting natural prey base, degradation and fragmentation of tiger habitats are considered as the main causes of this fatal increase. Further, the inadvertent efforts of providing man-made modification to the landscape result in suitable habitat formation for these apex carnivores (e.g. sugarcane farming, tea plantations and long height crops) and increase in local populations of these predators. This conflict mounts lethality and fatality on both the sides including civilians and the wild animals. Uttarakhand forest department data unveiled the dreaded fact of about 1396 leopards killing in this Himalayan state during 2000–2020, however, during this period around 500 people lost their lives due to tiger attacks (Dhoundiyal, 2023). Irrespective of these observations, Uttarakhand forest department has reported an increase in leopard population during 2015. More satisfying news in the form of locating nearly 3,115 leopards was furnished in this region by forest department and thus approximately 29% growth over the past eight years was put on record (Trivedi and Mariya, 2023). An increase in leopard population strongly supported the consistent hard work and successful conservation efforts including the successful survival of wildlife within its forests. Wherever tiger (*Panthera tigris* and *Panthera pardus*) and people coexist, conflict between the two is likely to happen. Tigers and leopards frequently kill domestic animals and people, yet the opposite is also true; human beings often kill these wild animals because of

fear, retaliation, smuggling and illegal trade and trafficking etc. Quite often these carnivores kill the human beings out of sere fear of their safety. The leopards and tigers turn violent and ferocious to human beings because of two very prominent reasons given below.

Conflicts often result in mortality or removal of these carnivores from the wild area and are probably second only to poaching as a source of human-caused tiger mortality.

The fatal attitude of these carnivores turns the local people to act negatively resulting in damaging the tiger/leopard conservation mechanism (Gorokhov 1983; Nikolaev & Yudin 1993; Karanth & Gopal 2005; Miquelle et al. 2005; Gurung et al. 2008; Nyhus & Tilson 2010; Tilson et al. 2010). Goodrich (2016) observed that decrease in the human-caused mortality is critical to successful tiger/leopard conservation because it is basically considered as the primary factor of mortality for these wild animals.

Human interactions with wildlife are the sole factor for human existence. These interactions can be positive or negative. People compete with wild animals for food procurement and sharing shelter. This conflict has led to the reduction and extinction of numerous species and uncountable human deaths and economic losses (Kartika, 2013). Human-wildlife conflicts become a common problem in Ramnagar tehsil of district Nainital in Uttarakhand state of India. The incidence of tiger attacks has suddenly increased in the villages adjoining Corbett National Park, Ramnagar forest division and foothill-west forest division during November 2023 to January 2024 (Qureshi, et al. 2024). Tiger hunger, unavailability of adequate food (herbivores), man-eaters tiger, increasing population density of the old aged tigers with wounded and broken claws, disturbance in their mental alertness and breeding efficiency, due to the human interventions in the form of safari noise, bike and public vehicles etc., large herds of Cheetal in villages near the forest, foreign tiger presence in the area, need for tiger territory in buffer zone (shrinking territory) etc. are main reasons for tiger attacks (Emami et al. 2012). Considering these foregoing deliberations on the subject under study, forest department started cutting small trees and bushes on both sides of the road from the buffer area (about 20-30 feet) for mitigating the fatal conflicts (Goodrich, 2010). Data collected by the forest department underlines that between January 2000 to June 2023, a total of 508 people were killed in tiger attacks and more than 1,800 were injured. However, a total of 1,658 tiger deaths were also reported from June 2001 to till date, many due to accidents or mutual fights, among other reasons. The data released by the forest department suggest that the tiger population estimates stand at 3,115 in Uttarakhand (Trivedi and Mariya, 2023).



Fig e. Tiger attacking the villagers.



Fig f. Tiger attacking a person in Indore.



Fig g.  
Tiger attacked on 3 people in Dwarahat, Almora, Uttarakhand.



Fig h.  
Tiger killed a five-year child in Pabau, Pauri, U.K.



Fig. i Villagers trying to rescue a man from the grip of tiger in Chaura village in Bageshwar.



Image: Tiger attack on woman in Pauri Garhwal (Source: Social Media)

Fig j Tiger attacked on woman in Pauri.

Badola (1998) reported that 85 people were killed by elephants in corridors of Rajaji and Corbett tiger Reserve during 1982–1993, however, the pathetic figure of 140 people killing only by tigers in Pauri and adjacent areas of Uttarakhand appeared during 1998–2000 (NBSAP, 2002). Based on foregoing deliberations, huge loss of human life in Uttarakhand can be seen due to fatal killing attacks of tigers and elephants. The gloomy and dark picture of this pathetic condition is reflected by the fact that the injury of 126 and death of 36 human beings by attack of these

carnivores occurred. Its severity is more evident in terms of 645 incidents with a total of 740 casualties of livestock recorded in carnivore attacks only in Narendra Nagar Forest division since 2000. Further, the other dark side of scene looks very painful where about 1396 tigers were killed in poaching, accidents, declared man eaters and burnt in the forest fires, food poisoning and mutual fights. Wildlife Institute of India, Dehradun reported that huge number of tigers (648) died due to natural death followed by 152 in road accidents, 65 man-eaters gunned down by forest



officials, 41 by poaching and 212 due to unassigned reasons (Meena, 2021).

According to data gathered by the forest department, between January 2000 to December 2023, a total of 551 people lost their lives in attacks by these carnivores, with over 1,833 individuals sustaining injuries. Trivedi and Mariya (2023) found that 1,663 tigers died since 2001, the majority being attributed to accidents or interspecies conflicts including other reasons. Uttarakhand has seen a

heartbreaking 22 tiger and 21 leopard attacks assaults this year, which is 13% more than the previous year. Attacks by elephants have decreased, resulting in five fatalities as opposed to twelve. There were 204 tiger and tiger fatalities this year, according to the Wildlife Protection Society of India (Sethi, 2023). These numbers are a stark reminder of the challenges faced by communities living alongside these majestic creatures

Uttarakhand (1998 – 2012)	No of attacks
PAURI GARHWAL DIVISION	183
LANSDOWNE DIVISION	54
DEHRADUN DIVISION	18
UPPER YAMUNA BARKOT DIVISION	17
HARIDWAR DIVISION	11
RAJAJI NATIONAL PARK	3

Data source @google

Table showing number of frequent attacks of tigers on human beings in Uttarakhand

### HUMAN TIGER CONFLICT; A TWO-EDGED SWORD

Human-tiger conflict is a complex issue that affects both human beings and tigers and causes serious losses on both the sides. Due to this fatal conflict, human lives, livelihoods and property etc. are lost and damaged while tigers also suffer from retaliatory killings, habitat loss and population decline. According to the records from the forest department, there were 159 incidents of tiger attacks on human beings reported from Pauri Garhwal from during 2006 to 2016 whereas between 1990 and 2005, local communities killed a total of 121 tigers in Pauri Garhwal, either in retaliation or because they were designated as man-eaters, with annual killings ranging from 2 to 16 (Naha et al. 2018). This conflict highlights the urgency for a balanced approach that addresses the needs of both human beings and the tigers, promoting coexistence and reducing conflict through habitat protection, effective mitigation strategies, education and sustainable livelihoods. By working together, we can find better solutions to benefit both human beings and tigers for ensuring a future where both can thrive and grow.

#### CAUSES OF HUMAN- TIGER CONFLICT

There are numerous reasons why human- tiger conflict occurs. Many multidimensional factors influence the occurrence and scale of this conflict. Some of these are mentioned below -

**Habitat Fragmentation and Loss:** Tiger has large range requirements to survive, including high-quality habitat composed of core forest (Kinnaird et al. 2003). Competition between tiger/tiger, tiger/leopard and human for sharing the space is the main factor of conflicts. In most of the places worldwide, human population is continuously increasing. Thus, it has continued to dominate the landscape and moves far beyond the edges of cities into the wild habitats. This incursion of people into wild habitats and habituation of some wild species, has resulted in the increased potential for human-wildlife encounters, including wildlife attacks on human beings (Quigley and Herrero, 2005). The western part of Rajaji Tiger Reserve has experienced fragmentation due to developmental activities such as roads and settlements, leading to more tiger dispersals into human-dominated landscapes (Johnsingh et al. 2004).

Several studies have pointed out that increasing human encroachment into forest areas, largely due to agricultural

expansion, road construction and tourism development, has led to habitat fragmentation. This compels these carnivores to venture for reaching in closure proximity of human settlements in search of prey/food and thereby increasing the chances of encounters (Dertien et al. 2023). Rapid urbanization, infrastructure development and agricultural expansion have led to the fragmentation of the habitats of these top carnivore animals. As forests are cleared for roads, railways and hydropower projects, tigers are forced into closer proximity with human settlements, increasing the likelihood of conflict. Deforestation for agriculture, development and infrastructure projects reduce the natural habitat of these wild animals (Bhattacharjee, 2006).

- **Human Population and Encroachment:** The increasing human population in Garhwal region has led to encroach in forest areas, further reducing the available habitat for these carnivores. As human settlements expand, the interface between human beings and tigers becomes more pronounced, escalating the potential for conflict. Increasing human population in fringe areas of forests leads to more frequent interactions. Expansion of villages and agriculture into buffer zones disrupts territory of these animals.
- **Climate Change and Environmental Stressors:** Climate change has introduced unpredictable weather patterns, leading to droughts, floods and forest fires. These environmental stressors not only affect the health and population of these animals but also disrupt their habitats,



(source@google) fig. k & l

**Fig k.** Tiger Project launched in Corbett National Park

#### PATROLLING WITH HIGH-TECH GADGETS

It is another important anti-poaching effort taken up by the government to control the decreasing number of tigers. The government has set up a control room in Corbett Tiger Reserve (CTR) and the patrolling team has been equipped with the GPS gadgets. The activities of patrolling teams are monitored regularly on computer screens from the control room. Further, the forest staff has also been provided with the latest weapons for protection. The level of attention for ensuring safety is evident from the fact that Rs 2-crore has been kept aside for the purchase of weapons.

forcing them to move into human-inhabited areas for search of food and stable environment.

**Cultural and Socio-Economic Factors:** In many parts of the Garhwal region, communities rely heavily on livestock for their livelihood. Free-range grazing practices, often without adequate supervision, increase the vulnerability of livestock to tiger attacks. Additionally, economic constraints may limit the ability of communities to implement preventive measures, exacerbating the conflict

**Grazing Pressure:** Local communities often graze livestock in forest areas, increasing the chances of attacks by these carnivores on cattles and the people. Herdsmen often encounter these wild animals while protecting livestock.

### TIGER CONSERVATION

**Project Tiger:** The ‘Project Tiger’ was first time launched in Corbett National Park for protection and conservation of tigers from extinction. Since the beginning of its commencement job so far and is well assisted and funded by the government. The project was rolled out in the year 1973. Besides, safeguarding the big cats from poaching in Jim Corbett National Park, the project also aims to increase the tiger count by way of breeding.



**Fig l.** Special tiger protection force

#### FORMATION OF SPECIAL TIGER PROTECTION FORCE

Soon, a Special Tiger Protection Force (STPF) will be set up in the CTR to keep a tab on poaching activities. The task force will be supervised by the additional chief conservator of forests. The forest officials will now be given ‘immunity’ whereby if they kill any poacher, then they will not be arrested immediately. Instead, they will be first required to face a magisterial enquiry and if it is proved that the officials are not guilty, they will be let off. A budget of Rs 1-crore has been earmarked for the STPF on an annual basis.



## TIGER CONSERVATION IN UTTARAKHAND

Amongst the several points of attraction for the tourists and wildlife lovers in Uttarakhand including the verdant landscapes, salubrious climate, pristine lakes, enchanting beauty etc., the majestic tiger trampling on the grass of the forests attract the most. Corbett National Park is a heaven for these top carnivores, however, the future of tiger on earth is very precarious as today they are on the verge of extinction because of illegal poaching.

### MITIGATION STRATEGIES

- **Habitat Restoration and Connectivity**

Efforts should be made to restore degraded and fragmented habitats using eco-engineering technology and establish wildlife corridors to facilitate safe movement for these wild animals. This would help in reducing human-tiger encounters, fatalities and promoting the biodiversity conservation.

- **Community Engagement and Awareness**

Educating local communities about tiger behaviour, the importance of wildlife conservation and safe livestock management practices can play a pivotal role in reducing conflicts. Community-based monitoring and reporting systems can also aid in early detection and mitigation of potential threats.

- **Policy and Institutional Support**

Strengthening policies that regulate land use, promote sustainable agriculture and ensure the protection of wildlife habitats is essential. Collaboration between forest departments, local governments and conservation organizations can lead to more effective conflict management strategies.

### Securing Corbett

Expressing concern over the dwindling numbers of tiger in Corbett National Park, the government has taken up many important steps to defend the tiger from poachers.

### OBSERVATIONAL FINDINGS

A rise in conflicts between people and wild animals including tigers and leopards has been observed mainly in nearby forest edges of Pauri, Rudra Prayag, Chamoli, Nainital, Bageshwar and Pithoragarh districts of Himalayan region of Uttarakhand. Besides, these carnivores are frequently seen roaming around villages and quite often attack the livestock and even people also. The reasons for such fatal conflicts could be attributed to shrinking of the natural habitat due to farming, building construction and village expansion. Another reason of such happenings can be assigned to reduction in their water and natural food sources like deer and wild boar due to illegal smuggling, poaching and forest damage. Killing of these carnivores by villagers, due to retaliatory response, is quite common and it turns the situation worse. Many communities also lack

proper knowledge, safety measures, or support systems like fencing or fair compensation, which adds to the problem. This report gives an overview of human-tiger/ leopard conflicts throughout their range and the types of measures used to mitigate these conflicts. It is clear that there are factors associated with the conflicts between human and wild animals. They require large home ranges and get in trouble when these overlap with human presence. Livestock draws tigers to villages in search of prey, especially when natural prey has been depleted.

There are, however, also factors which differentiate between locations and situations. Human activities may differ livestock husbandry practices are not uniform and local belief systems and tolerance level of people may differ area wise. Recent findings indicate that elevations between 900 m to 1500 m are highly prone to human-tiger conflict, primarily due to the higher proportion of scrubland in comparison to forest cover and human settlements or agricultural areas. In contrast, elevations ranging from 400 m to 800 m and 1600 m to 2300 m show significantly lower levels of such conflicts. Twenty-three percent of the tiger attack victims (both injury and deaths) were reported from Pauri Garhwal from 11–20 years of age followed by 21% between 1–10 years and 18% in the middle age group of 31–40 years. Most of the victims, who died due to tiger attacks, were 41% children (1–10 years of age) and 24% young people (11–20 years of age). During field visits and informal interactions, family members, friends responded that the victims were either walking back from school, market, collecting firewood or working alone in agriculture lands. The 52% of these victims were males and rest females. When attacked most of the victims were solitary or in groups comprising of less than 3 people. Majority (76%) of the tiger attack sites in Pauri Garhwal were from medium to dense shrub cover.

**Conclusion:** Wildlife plays a vital role in balancing the environment and provides stability to different natural processes, but due to increasing incidents of human-wildlife conflicts, the stable ecosystem becomes unstable and thus the whole system is destabilized. In particular, the human-tiger conflicts in Garhwal region highlights the complex challenge of balancing wildlife conservation with human safety and livelihoods. Increased human encroachment into the forest areas, habitat degradation and the shrinking prey base have driven the tiger/ leopard to go closer to human settlements. It thus results in frequent confrontations. These conflicts not only threaten human lives and property but also put the survival of these carnivores at high risk due to several factors including retaliatory killings. To mitigate these conflicts, several actions may be taken including protecting and restoring tiger habitats. Further, by educating local communities and villagers about tiger behaviour. Thus, the conservation can effectively promote the

coexistence. Monthly monitoring of conflict levels should be carried out by the Divisional Office. GIS and Remote Sensing can be effectively utilized to predict potential zones of human–tiger conflict by analysing landscape features, vegetation cover and patterns of human activity. A database of animals in areas with a high conflict potential must be maintained by collecting scat, hair samples and pugmark images/casts. Similar samples should be collected at sites of livestock and human attacks. Programmes including educating the local people about consequences of hunting of tiger prey and habitat degradation must be conducted. In high conflict areas, tigers should be trapped and removed until conflict levels subside. Scientifically managed tiger conservation centres in the vicinity of wildlife sanctuaries should be established.

Addressing this issue requires a multi-pronged approach that includes habitat restoration, better compensation mechanisms for affected communities, public awareness campaigns and the implementation of modern tracking and early warning systems. Community involvement and sustainable development practices are key to fostering coexistence between human beings and tiger/leopard in Himalayan state of Uttarakhand.

#### REFERENCES

- Agarwal, M., Chauhan, D. S., Goyal, S. P., & Qureshi, Q. (2011). Managing human–tiger conflicts in Pauri Garhwal, Uttaranchal, India using Geographical Information System and remote sensing. *International Journal of Scientific & Engineering Research*, 2(9), 1-7.
- Agarwal, M., Sain, K., Singh, D., & Goyal, S. P. (2016). Monitoring human–tiger conflict in altitudinal variations with landscape characteristics using GIS and remote sensing in Pauri Garhwal, India. *International Journal of Science, Engineering and Technology*, 4(2), 402-408.
- Badola, R. (1998). Attitudes of local people towards conservation and alternatives to forest resources: A case study from the lower Himalayas. *Biodiversity & Conservation*, 7(10), 1245-1259.
- Bhattacharjee, S. (2006). Monitoring tiger (*Panthera pardus*) and its prey in different human–tiger conflict zones (high, medium and low), Pauri Garhwal, Uttaranchal. *Forest Research Institute. Wildlife Institute of India, Dehradun, India*, 1-84.
- Daniel, J.C. (1996). The Tiger in India, A Natural History. Natraj Publishers, Dehradun. Data using Capture Recapture models. *Biological Conservation*, 71: 333-338.
- Dertien, J. S., Negi, H., Dinerstein, E., Krishnamurthy, R., Negi, H. S., Gopal, R., ... & Baldwin, R. F. (2023). Mitigating human–wildlife conflict and monitoring endangered tigers using a real-time camera-based alert system. *BioScience*, 73(10), 748-757.
- Dhoundiyal, A. (2023). Human-Wildlife Conflict on the rise in Uttarakhand. *Think wildlife foundation*. <https://thinkwildlife.foundation.com/human-wildlife-conflict-on-the-rise-inuttarakhand>.
- ecological correlates, prey losses and patterns of management. *Biological Conservation*, 122: 159-171.
- Edgaonkar, A and Chellam, R (2002). Food habit of the tiger (*Panthera pardus*) in Sanjay Gandhi National Park, Maharashtra, India. *Mammalia*, t.66 n03, 2002: 353-360.
- Goodrich, J. M. (2010). Human–tiger/tiger/tiger conflict: a review and call for comprehensive plans. *Integrative Zoology*, 5(4), 300-312.
- Goodrich, J., Wibisono, H., Miquelle, D., Lynam, A. J., Sanderson, E., Chapman, S., ... & Harihar, A. (2022). *Panthera tigris*. *The IUCN red list of threatened species 2022: E. T15955A214862019*.
- Gorokhov GG (1983). The causes of illegal shooting of the Amur tiger. Redkie Vidy Mlekopitaiuschikh ikh Okhrana. Material 3 Vsesoiuznogo Soveschania. Moscow: IEMEZH RAN I VTO AN SSSR 3, 88–9 (In Russian).
- Graham, K., Beckerman, A. P. & Thirgood, S. 2005. Human–predator–prey conflicts:
- Gurung B, Smith JLD, McDougal C, Karki JB, Barlow A Human–tiger conflict review 310 © 2010 ISZS, Blackwell Publishing and IOZ/CAS(2008). Factors associated with human-killing tigers in Chitwan National Park, Nepal. *Biological Conservation* 141, 3069–78.
- Karanth KU, Gopal R (2005). An ecology-based policy framework for human–tiger coexistence in India. In: Woodruffe R, Thirgood S, Rabinowitz A, eds. *People and Wildlife: Conflict or Co-Existence?* Cambridge University Press, Cambridge, UK, pp. 373–87.
- Kartika, E. C., & Koopmans, F. (2013, February). Human–tiger/tiger/tiger conflict.
- Kinnaird, M. F., Sanderson, E. W., O'Brien, T. G., Wibisono, H. T., & Woolmer, G. (2003). Deforestation trends in a tropical landscape and implications for endangered large mammals. *Conservation Biology*, 17(1), 245-257.
- Lacher Jr, T. E., Davidson, A. D., Fleming, T. H., Gómez-Ruiz, E. P., McCracken, G. F., Owen-Smith, N., ... & Vander Wall, S. B. (2019). The functional roles of mammals in ecosystems. *Journal of Mammalogy*, 100(3), 942-964.
- Meena, D. S. (2021). Human–wildlife conflict in Uttarakhand: Impact, opportunities and ground level perspectives with mitigating strategies. *Proceedings of the International Academy of Ecology and Environmental Sciences*, 11(3), 84.
- Miquelle D, Nikolaev I, Goodrich J et al. (2005). Search-ing for the coexistence recipe: A case study of con-flicts between people and tigers in the Russian Far East. In: Woodruffe R, Thirgood S, Rabinowitz A, eds. *People and Wildlife: Conflict or Coexistence?* Cambridge Uni-versity Press, Cambridge, UK, pp. 305–22.
- Naha D., Sathyakumar S., and Rawat G. S. (2018). Understanding drivers of human–tiger conflicts in the Indian Himalayan region: spatio-temporal patterns of conflicts and perception of local communities towards conserving large carnivores. *Plos one*, 13(10), e0204528.
- Naha, D., Sathyakumar, S., & Rawat, G. S. (2018). Understanding drivers of human–tiger conflicts in the Indian Himalayan region: spatio-temporal patterns of conflicts and perception of local communities towards conserving large carnivores. *Plos one*, 13(10), e0204528.
- Nikolaev IG, Yudin VG (1993). Tiger and man in conflict situation. Bulletin Moskovsky Obschestva Ispytateley Prirody, Otdyel Biologica 98, 23–6 (In Russian).
- Ogra, M. V. (2008). Human–wildlife conflict and gender in protected area borderlands: A case study of costs, perceptions and vulnerabilities from Uttarakhand (Uttaranchal), India. *Geoforum*, 39(3), 1408-1422.
- Quigley, H. (2005). 3 Characterization and prevention of attacks on humans *howard quigley and stephen herrero. People and Wildlife, Conflict or Co-existence?*, 9, 27.



- Qureshi, Q., Jhala, Y. V., Yadav, S. P., Tiwari, V. R., Garawad, R., & Mallick, A. (2024). Status of tigers in India, 2022. *National Tiger Conservation Authority, Government of India, New Delhi and Wildlife Institute of India, Dehradun*.
- Schwerdtner, K. and Bernd, G. 2007. A conceptual framework for damage compensation scheme. *Biological Conservation* 134: 354-360.
- Sethi, N. (2023). Record 43 deaths from tiger and tiger attacks in Uttarakhand this year. *The new Indian express*.
- Singh, S., Meena, A. K., & Negi, A. (2022). A comparative study of human-wildlife conflict in bhilangana forest range in Tehri forest divisions of Tehri Garhwal district. *journal of education: rabindra bharti university* : XXV, No. :4(II),
- Sinha, V.R., (2003). Vanishing tiger – Wild tiger, copredators and prey-species; Salamander.
- Tilson R, Nyhus P, Sriyanto, Rubianto A (2010). Poach-ing and poisoning of tigers in Sumatra for the domes-tic market. In: Tilson R., Nyhus PJ, eds. *Tigers of theWorld: The Science, Politics and Conservation of Panthera tigris*, 2nd edn. Academic Press, Burlington, MA, USA, pp. 101–12.