Trends and Patterns of Human– Leopard Conflict in Bijnor District, Uttar Pradesh

A Preliminary Report

Trends and Patterns of Human–Leopard Conflict in Bijnor District, Uttar Pradesh
A Preliminary Report

Supervisor: Dr. Kaleem Ahmed

Researcher: Shivam Chauhan

Citation: Chauhan S. & Ahmed K. 2025. Trends and Patterns of Human–Leopard Conflict in Bijnor District, Uttar Pradesh, A Preliminary Report. Department of Wildlife Sciences and Uttar Pradesh Forest Department.

Department of Wildlife Sciences,

Aligarh Muslim University, Aligarh

Uttar Pradesh, 202002

Acknowledgement

Contents

List of Tables

List of Figures

Glossary

➢ **Kernel Density Estimates (KDE) –** A statistical method used to estimate the probability distribution of data points over space or time. In wildlife studies, KDE is often applied to map the intensity of animal locations, conflict events, or sightings, producing smooth surfaces that highlight areas of higher or lower use (hotspots).

➢ **Leopard Adult –** A fully mature leopard, generally over 2 years of age, capable of independent survival, reproduction, and territorial behavior.

➢ **Leopard Capture –** The deliberate act of securing a leopard by the forest department in response to conflict situations, such as repeated livestock depredation, confirmed attacks on humans, or incidents involving human death or injury. Capture is carried out intentionally to mitigate threats to human safety and livestock.

➢ **Leopard Cub –** A young leopard, usually dependent on its mother for food and protection, typically up to 1 year of age.

➢ **Leopard Rescue –** The safe retrieval of a leopard from accidental or unintended situations such as falling into a well, entering human houses, getting trapped in a snare, or being injured in a road accident. Rescue operations are undertaken without prior intention of capturing the animal, with the objective of saving both human lives and the leopard.

➢ **Leopard Sub-adult –** A leopard that has grown beyond the cub stage but is not yet fully mature, usually between 1–2 years of age. Sub-adults are learning to hunt and may begin dispersing from their mother's territory.

1. Introduction

Human–carnivore conflict represents one of the most persistent challenges to biodiversity conservation and rural livelihoods across the globe (Treves & Karanth, 2003). Large carnivores, due to their extensive space requirements, opportunistic feeding behavior, and frequent overlap with human-dominated landscapes, are often at the forefront of such interactions (Srivatsha et al., 2019; Kshettry et al., 2020). Worldwide, species such as lions (*Panthera leo*) in Africa, tigers (*Panthera tigris*) and leopards (*Panthera pardus*) in Asia, pumas (*Puma concolor*) in the Americas, and wolves (*Canis lupus*) in Europe and North America, have been reported to depredate livestock, threaten human safety, and in turn face retaliatory persecution (Frank et al., 2008; Malviya & Ramesh, 2015; Guerisoli et al., 2021; Martin et al., 2025). These conflicts are not uniform; they vary with ecological conditions, prey base, land-use practices, and human population density.

In the Indian context, the leopard (*Panthera pardus fusca*) has emerged as the most adaptable and widely distributed large carnivore involved in conflict (Chauhan et al., 2021). Unlike the tiger, which is primarily restricted to core forests, leopards frequently occur in multi-use landscapes, including agricultural fields and village peripheries. States such as Maharashtra, Gujarat, West Bengal, Himachal Pradesh, Uttarakhand, Rajasthan, Karnataka, and Tamil Nadu have been recognized as major conflict hotspots, with increasing incidents of livestock depredation, human attacks, and leopard mortality reported in recent decades (Athreya et al., 2004; Athreya et al., 2015; Naha et al., 2018; Chauhan et al., 2021; Measria et al., 2023; Shivakumar et al., 2023). India harbours a population of approximately 13,874 ± 1,258 leopards, according to the 2022 Leopard Survey Report (Qureshi et al., 2024). However, these estimates were primarily derived from tiger-bearing major protected areas, with limited coverage of landscapes outside protected areas. Consequently, assessments of leopard populations and conflict dynamics in human-dominated habitats remain largely underexplored.

In Uttar Pradesh, the Terai Arc Landscape forms a critical stronghold for both tigers and leopards. Districts such as Pilibhit, Bahraich, Lakhimpur Kheri, and Maharajganj are known for frequent leopard encounters due to their mosaic of forests, agriculture, and high human density. Bijnor district, located adjacent to the Corbett landscape, represents a region of high ecological and conservation significance. The northern part of the district comprises Najibabad Forest Division, which maintains connectivity with the larger Corbett landscape, while the north-eastern part includes Amangarh Tiger Reserve, forming a continuous forested landscape linked to Corbett. These forest patches have historically supported populations of both tigers (*Panthera tigris*) and leopards (*Panthera pardus*), but in recent years, leopard spillover into agricultural fields has increasingly led to human–wildlife conflict.

The district is notable for being home to six wild cat species of India: tiger (*Panthera tigris*), leopard (*Panthera pardus*), fishing cat (*Prionailurus viverrinus*), rusty-spotted cat (*Prionailurus rubiginosus*), leopard cat (*Prionailurus bengalensis*), and jungle cat (*Felis chaus*). The district also

supports a unique assemblage of other carnivores including striped hyena (*Hyaena hyaena*), golden jackal (*Canis aureus*), and small civets (*Viverridae spp.*), as well as endangered herbivores such as hog deer (*Axis porcinus*), swamp deer (*Rucervus duvaucelii*), elephant (*Elephas maximus*), sambar (*Rusa unicolor*), and spotted deer (*Axis axis*).

The landscape is intersected by several rivers, including Malin, Khoh, Ramganga, Ganga, Choeyya, Padhoi, Baneli, and Pheeka, alongside an extensive network of canals supporting agricultural production, particularly sugarcane cultivation. With approximately 2,400 villages, an average human density of 801 persons/km² and a livestock density of around 207 livestock/km² (https://upforest.gov.in), the district provides ample cover and prey opportunities for leopards, highlighting the severity of human–leopard interactions.

In this report, we present the trends and preliminary findings of our ongoing surveys on leopard conflict in Bijnor district, highlighting the temporal and spatial pattern of this issue.
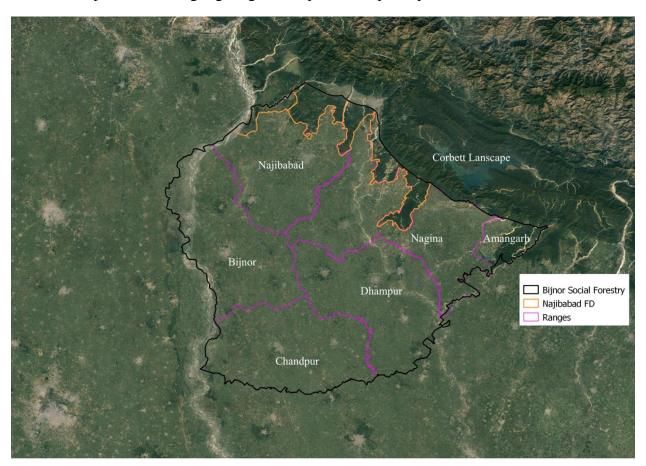

Fig. 1: Study area map with key areas

2. Methods

Past records of human–leopard conflict were collected from the Bijnor Forest Division office as well as from all the ranges in June 2025. The division maintains data from 2023 onward, while range offices had records dating back to 2021. To extend the temporal coverage, we compiled additional data from 2015 through media reviews of prominent Hindi and English newspapers. The entire dataset was divided into three time periods: 2015–2019, 2020–2022, and 2023 to 15 August 2025. For each conflict event, we extracted the following information: date, incident type (human fatality, leopard death, human injury (both minor and majors), leopard rescue, capture), village, season, victim details (age and gender), and livestock or animal predated. Seasons were categorized as follows: Summer (February–June), Monsoon (July–September), and Winter (October–January).

Descriptive statistics and graphs were generated using Microsoft Excel. The geographical location of affected villages was represented by centroids in QGIS, and frequency-based kernel density estimation (KDE) was performed to create heatmaps for different conflict categories (low, medium, high). A radius of 2.8 km was used around each point, corresponding to the average home range size of leopards (~25 km²) in agricultural landscapes (Kshettry et al., 2017).

3. Results

Human Fatalities

A total of 41 human fatalities due to leopard attacks were reported in Bijnor district from 2019 to 15 August 2025 (Fig. 2). Most incidents occurred in 2023 (n=19), and since then, 31 human deaths have been recorded. Among the administrative ranges, Nagina range reported the highest number of fatalities (n = 19), followed by Dhampur and Chandpur ranges, each with n = 5 fatalities. Bijnor range recorded 4 fatalities, while Najibabad Forest Division reported 5 fatalities during this period (Fig. 3).

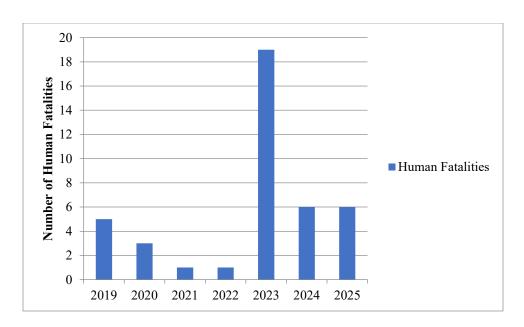Fig. 2: Annual human fatalities from leopard attacks in Bijnor district (2019–15 Aug 2025)
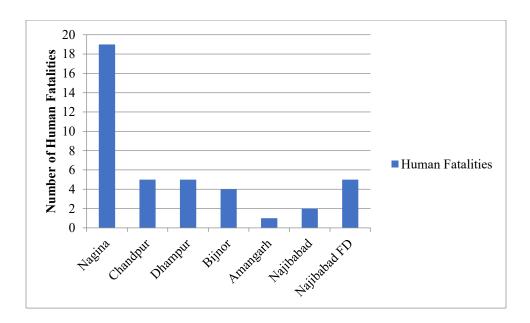

Fig. 3: Human fatalities by administrative ranges in Bijnor district (2019–15 Aug 2025)

Gender-wise, fatalities were nearly evenly distributed (male: 19, female: 22). Age-class analysis indicates that over 50% of deaths occurred in individuals below 20 years (Fig. 4). Notably, of the 41 total fatalities, 34 involved women and children
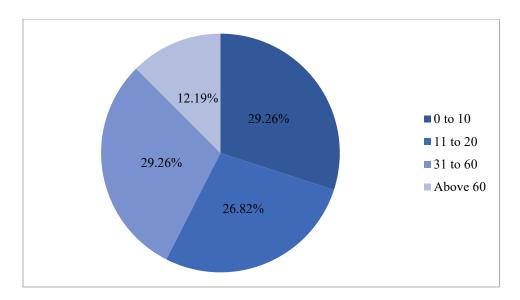
Fig. 4: Age-class distribution of human fatalities from leopard attacks in Bijnor district (2019–15 Aug 2025)

Fodder collection, open defecation, and children accompanying elders were the most vulnerable activities, collectively accounting for ~60% of human fatalities due to leopard attacks (Fig. 5). Only 6 of the 41 cases occurred inside houses and deaths while sleeping accounted for just 3 cases. Seasonal analysis shows that the monsoon months (July–September) and winter months (October–February) recorded the highest fatalities (n = 15 each), while summer (March–June) accounted for 11 deaths. Temporal distribution indicates that most attacks occurred in the evening hours (16:00–19:00; n = 17), followed by morning (05:00–12:00; n = 9), night (after 19:00; n = 8), and afternoon (12:00–16:00; n = 7).
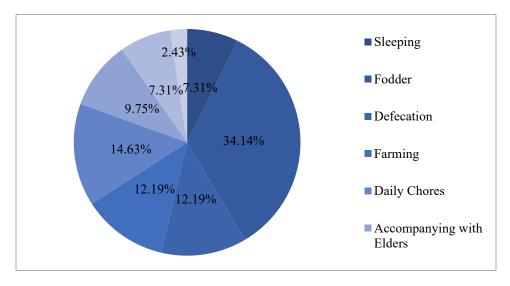
Fig. 5: Activities with human fatalities due to leopard attacks in Bijnor District, Uttar Pradesh.
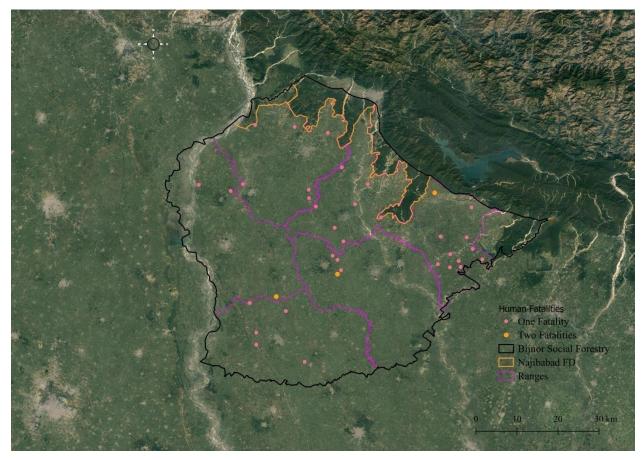
Fig. 6: Spatial spread of human fatalities in Bijnor District, Uttar Pradesh.

Human Injuries

We recorded 142 cases of leopard attacks on humans, resulting in injuries (both major and minor). Cases alleged to have occurred during bike rides were excluded, as most of these were attributed to loss of balance or collisions during leopard sightings or crossings, with injuries largely due to accidents rather than direct leopard attacks. In total, 161 individuals were injured in 142 cases since 2015 across the district. A sharp increase was recorded after 2023, with 85 cases involving 102 individuals reported during this period (Fig. 7). Range-wise distribution shows that the maximum number of cases occurred in Nagina (n=55), Chandpur (n=24), and Dhampur (n=17), while villages under the jurisdiction of Najibabad Forest Division reported 17 cases of leopard attacks resulting in human injuries (Fig. 8).
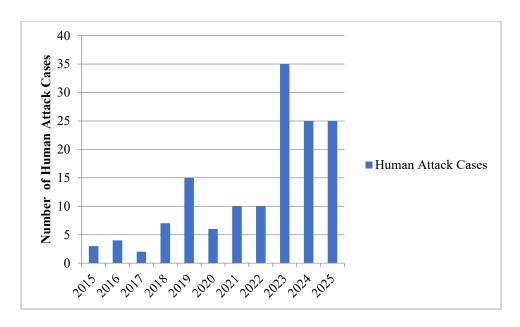
Fig. 7: Annual human attack from leopard attacks in Bijnor district (2015–15 Aug 2025)
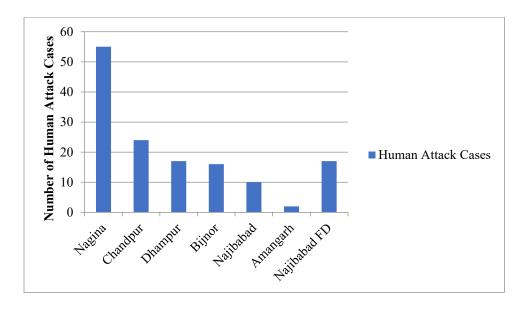
Fig. 8: Human attack cases by administrative ranges in Bijnor district (2015–15 Aug 2025)

Unlike human fatalities, cases of leopard attacks resulting in injuries occurred predominantly during summer (~50%). Males were disproportionately affected (71%) compared to females (29%). Most attacks took place during morning and evening hours, together accounting for 71% of cases. The vast majority (~90%) of incidents occurred outside houses. Age-class analysis shows that approximately 50% of injured individuals were between 30–60 years (Fig. 9)
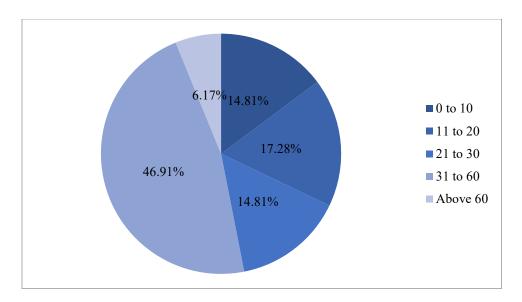
Fig. 9: Activities with human injuries due to leopard attacks in Bijnor District, Uttar Pradesh (note: only *records with human activity information of victims were included)*

Leopard Deaths

A total of 129 leopards died in Bijnor district over the past 10 years. Of these, 62 deaths were attributed to anthropogenic causes, 41 to natural causes, while the cause remained unknown for 26 individuals. Notably, 90 leopard deaths were recorded after 2022 (Fig. 10). Range-wise, Dhampur reported the highest number of leopard deaths (n = 33), followed by Nagina (n = 27), Bijnor (n = 20), Chandpur (n = 18), and Najibabad Forest Division (n = 15) (Fig. 11).
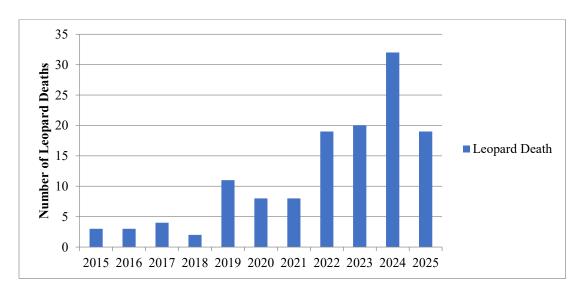
Fig. 10: Annual leopard deaths in Bijnor district (2015–15 Aug 2025)
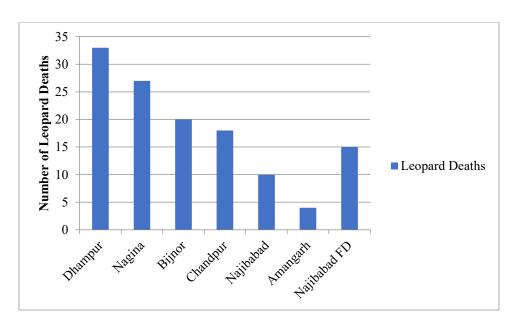
Fig. 11: Leopard Deaths by administrative ranges in Bijnor district (2015–15 Aug 2025)

Seasonal analysis of leopard mortality shows that 46.5% of deaths occurred during winter, 39.5% during summer, and only 14% during the monsoon. Among individuals for which sex and age data were available, adult females were the most affected (n = 59), followed by adult males (n = 29) (Table 1). Anthropogenic and natural causes of death varied: roadkill and railway accidents were the leading causes, resulting in 43 leopard deaths, followed by territorial fights (n = 25) and illness (n = 11). Other causes included electrocution, snares, and open wells (n = 9), while retaliatory killings accounted for 8 deaths (Table 2).

Table 1: *Sex and age-class distribution of leopard deaths in Bijnor district over the past 10 years (note: only records with age-class information of leopards were included)*

Adult Male	Adult Female	Sub-Adult	Cub
29	59	13	10

Table 2*: Causes of leopard deaths in Bijnor district over the past 10 years, including anthropogenic and natural factors.*

Natural Causes	Territorial	25
	Illness	11
	Death due to tiger and other animal attacks	03
	Starvation	02
Anthropogenic Causes	Roadkill	37
	Railkill	06
	Well	03

	Retaliatory Killings	08
	Snare	01
	Electrocution	05
	After Rescue	02
Unknown Causes	26	
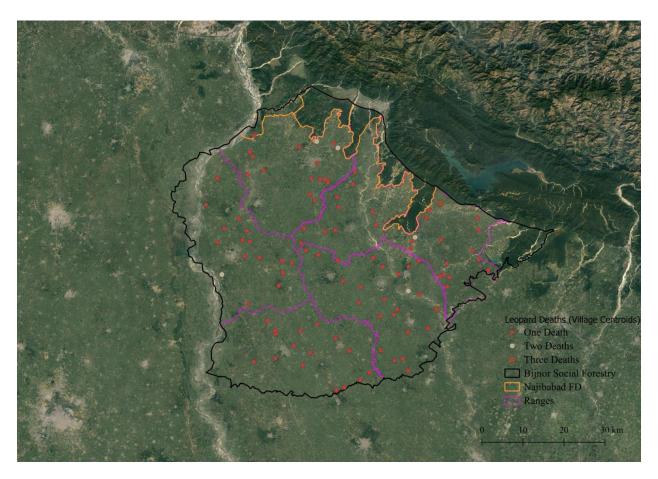
Fig. 12: Spatial spread of leopard deaths in Bijnor district over the past 10 years

Leopard Rescues and Captures

Since 2015, a total of 44 leopards were rescued in Bijnor district, while 61 leopards were intentionally captured by the Forest Department following incidents of livestock depredation, human attack, or repeated sightings. During the same period, 124 leopard cubs were also rescued, mostly from agricultural fields (Fig. 13).

Range-wise, the maximum number of leopards rescued were reported from Dhampur (n = 15), followed by Chandpur (n = 8), and Nagina and Bijnor (n = 7 each). Most intentional captures occurred in Nagina (n = 30), followed by Bijnor (n = 10) and Chandpur (n = 7). Leopard cub

rescues were highest in Chandpur (n = 34), followed by Dhampur (n = 23), Bijnor (n = 22), and Nagina (n = 19) (Fig. 14).
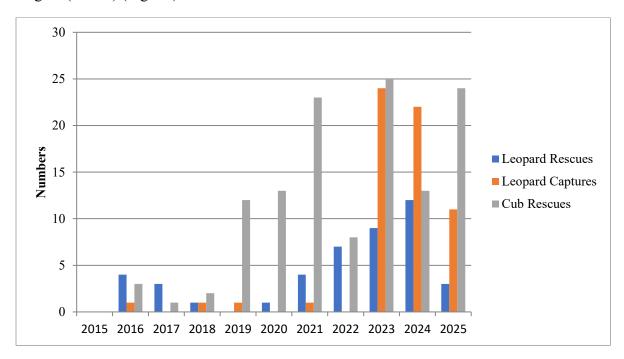
Fig. 13: Annual leopard rescues, captures and cub rescues in Bijnor district (2015–15 Aug 2025)
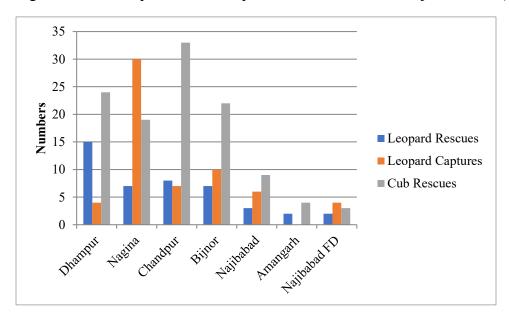
Fig. 14: Leopard captures, rescues, and cub rescues by administrative ranges in Bijnor district (2015–15 Aug 2025)

Among the rescued individuals, 40% were recovered from open wells, while 13.33% were rescued after being trapped in snares or nets (Fig. 15). Male leopards (n = 34) were rescued and captured more frequently than adult females (n = 25) (Table 3). Rescue events were more common during

the summer (n = 23), whereas capture events were reported more often in the monsoon season (n = 29) (Table 4). Most of the rescued and captured leopards were released into the Shivalik forests (n = 20), Amangarh Tiger Reserve (n = 18), and sent to state zoos (n = 30), with others relocated to different zoos and forest patches (Table 5). Most of the rescued cubs were released at the site and successfully reunited with their mothers (n = 73). Notably, 90% of cub rescues occurred during the first six months of the year.
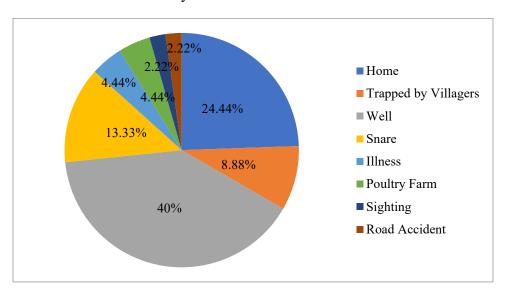
Fig. 15: Various reasons of leopard rescues in Bijnor District, Uttar Pradesh.

Table 3: *Sex-wise distribution of rescued and captured leopards in Bijnor district (note: only records with gender information of leopards were included)*

| Events	Adult Male	Adult Female	Sub-Adult	Cub
Rescues	06	07	07	13
Captures	19	26	05	00

Table 4: *Seasonal variation in leopard rescues and capture events*

Events	Winter	Summer	Monsoon
Rescues	23	13	08
Captures	16	15	29

Table 5: *Release locations of rescued and captured leopards in Bijnor district*

Sites	Number of Individuals
Shivalik Forest	26
Amangrah Tiger Reserve	18
Pilibhit Tiger Reserve	01
Najibabad Forest Division	05

Ramnagar Forest Division	01
On-Site Release	05
State Zoos	30
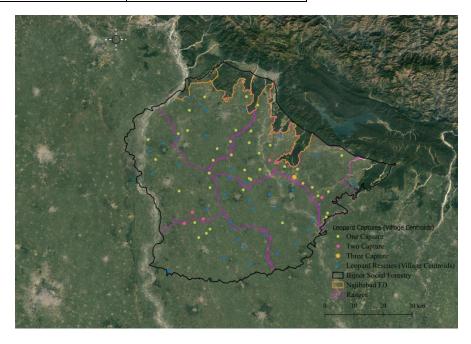
Fig. 16: Spatial spread of leopard captures and rescues in Bijnor district over the past 10 years
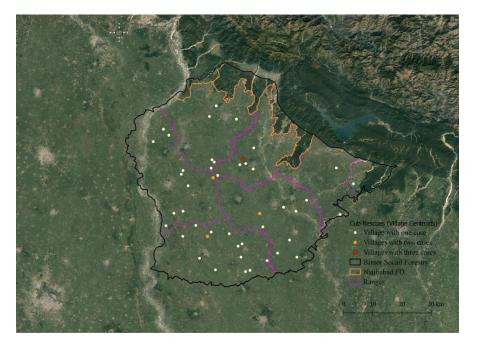
Fig. 17: Spatial spread of cub rescues in Bijnor district over the past 10 years

Livestock and Stray Animal Depredation

A total of 352 livestock depredation incidents were reported since 2015, involving 456 livestock and stray animals. The peak was observed in 2023, with more than 106 cases reported (Fig. 18). Range-wise, Nagina reported the highest number of cases (n = 134), followed by Bijnor (n = 56) and Dhampur (n = 54), while Najibabad Forest Division accounted for 31 cases (Fig. 19).

Approximately half of the cases occurred during the monsoon months, and 76% of the incidents were reported during night-time. Among the affected animals, stray cattle were most frequently attacked (25%), followed by goats (23%) and cow calves (19%) (Fig. 20).
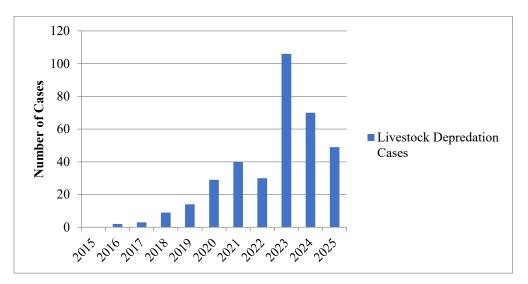
Fig. 18: Annual livestock and stray animal depredation cases in Bijnor district (2015–15 Aug 2025)
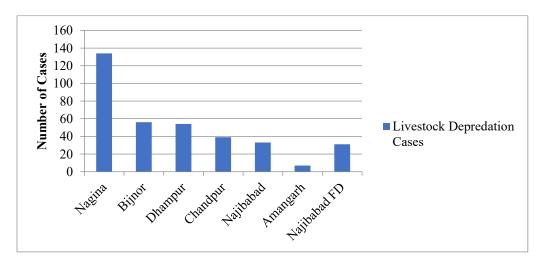
Fig. 19: Livestock and stray animal depredation cases by administrative ranges in Bijnor district (2015–15 Aug 2025)

Fig. 20: Proportion of livestock and stray animals depredated by leopards

Spatial Distribution and Hotspots of Leopard Conflict

A total of 448 villages reported at least one leopard-related case since 2015. Among these, Nagina had the highest number of affected villages (n = 111), followed by Dhamp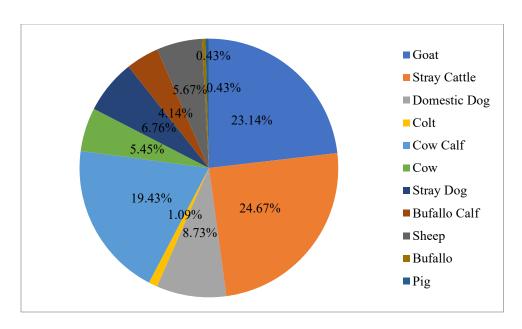ur (n = 87), Chandpur (n = 84), Bijnor (n = 71), Najibabad (n = 55), Najibabad Forest Division (n = 30), and Amangarh (n = 10), where at least one incident was recorded.

The spread of leopard-related conflict has shown a sharp escalation over the past decade. Between 2015 and 2019, incidents were recorded in 72 villages, which increased more than twofold to 155 villages during 2020–2022. Since 2023, the number of affected villages has risen dramatically, with 322 villages reporting at least one leopard-related case (Table 6).

Table 6: *Spread of leopard-human conflict in different time periods*

Time Period	2015-2019s	2020-2022s	2023-Aug 15, 2025
Villages	72	155	322

Initially, leopard-related conflict was concentrated around the Ramganga river plains near the Dhampur–Nagina Range boundary, in the vicinity of Amangarh Tiger Reserve, and in villages located near Sahuwala, Barhapur, Rajgarh, and the Sahanpur Range of the Najibabad Forest Division (Fig. 21). However, after 2023 the conflict has expanded further north and into new areas, including the Khoh river plains, the Ramganga–Baneli plains, villages along the Gangan river, as

well as Heempur Deepa in Bijnor and Chandpur Ranges, and further north into the Mandawar region of the Bijnor Range (Fig. 22).
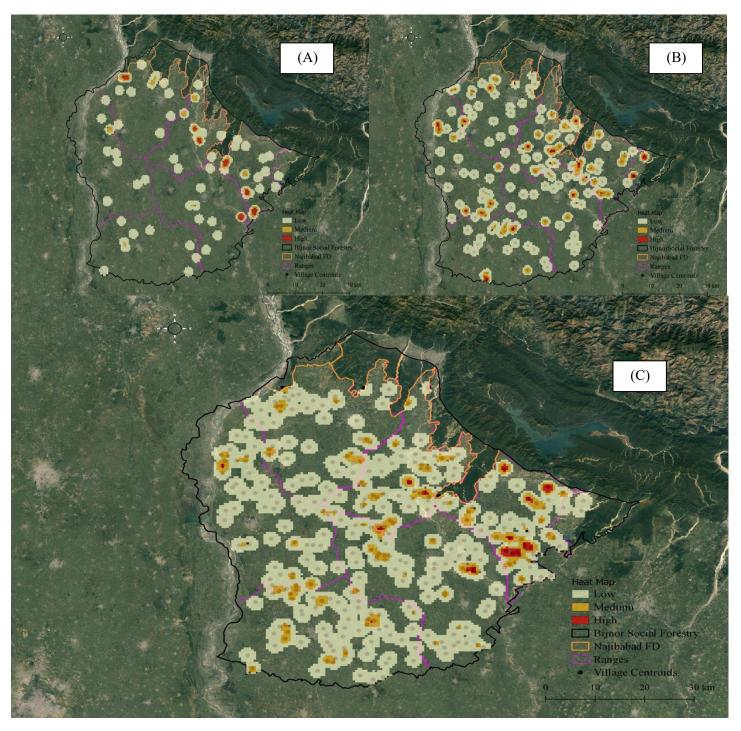

Fig. 21: Spatial distribution of leopard-related conflict hotspots across Bijnor district during three different time periods: (A) 2015–2019, (B) 2020–2022, and (C) January 2023–15 August 2025
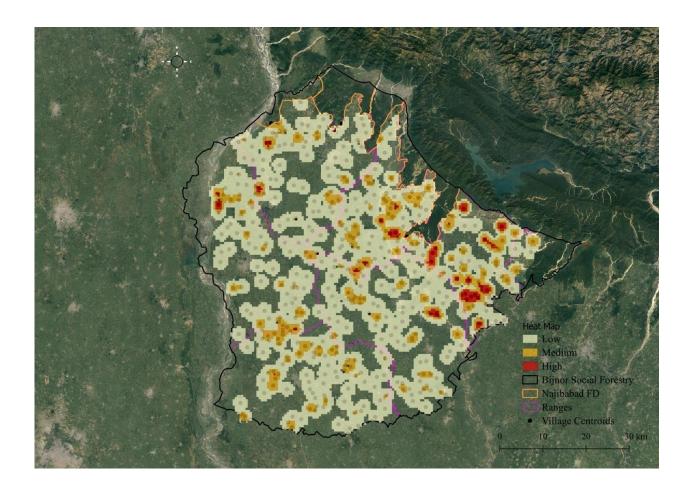
Fig. 22: Cumulative distribution of leopard-related conflict hotspots in Bijnor district from 2015 to 15 August 2025, depicting the overall spread and concentration of conflict across the study area

4. Discussions

Leopard-related conflict in Bijnor district increased markedly after 2023, expanding from initial hotspots in the Nagina Range adjacent to Sahuwala and Amangarh Tiger Reserve into agricultural areas of Chandpur, Bijnor, and Dhampur Ranges. This expansion highlights the growing interface between leopards and human-dominated landscapes.

Human fatalities were predominantly reported among women and children, who were mostly engaged in fodder collection, accompanying adults to open fields, or during open defecation. Most deaths occurred in open areas near agricultural lands, particularly sugarcane fields, with only a few incidents inside houses or villages. In contrast, human injuries were primarily reported among adult males, usually during farming activities in summer, whereas fatalities peaked in the monsoon season. This indicates distinct temporal and demographic patterns between fatalities and injuries.

Leopard mortality was highest in Dhampur and Nagina Ranges, followed by Chandpur and Bijnor. Roadkills emerged as the major cause of leopard deaths, followed by electrocution and retaliatory killings. Interestingly, leopard deaths involved a higher proportion of adult females, suggesting that females may use agricultural areas more frequently than males, potentially seeking safer territories or prey availability.

Livestock and stray animal depredation occurred predominantly in the Nagina Range, mostly during the monsoon season, with stray cattle and dogs forming the major proportion of prey.

Following 19 human fatalities in 2019, the Forest Department intensified leopard management operations, capturing a total of 61 leopards, nearly half from the Nagina Range, and rescuing 44 individuals from houses, open wells, and snares. Rescue events peaked in summer, likely reflecting leopard movements for water and prey, whereas capture events were more frequent in the monsoon, coinciding with increased depredation and human fatalities.

Leopard cubs were mostly rescued from agricultural areas of Bijnor, Chandpur, and Dhampur during the first six months of the year, indicating active breeding in human-dominated landscapes. This observation, along with the expansion of conflict from forested ranges, suggests that leopards are successfully breeding and predating livestock across multiple ranges, not just in the forested areas.

Conflict mapping, categorized into three intensity levels over the last 10 years, shows that Nagina, Chandpur, Dhampur, and Bijnor Ranges remain the most affected, confirming the persistent and spatially expanding nature of human–leopard interactions in the district.

High and Medium Conflict Areas in Bijnor District

Ranges	Areas
Nagina	Ramganga-Baneli River Plains (Islamnagar, Bhikkawala, Kadrabad, Hidayatpur, Mohsinpur, Afzalgarh, Shahpur Jamal, Suawala, Harevali, Shahzadpur, Prempuri, Arazi Kandrla) Khoh River Plain (Shah Alipur Kotra, Jamalpur Dhikli, Islamabad, Raipur Sadat, Alauddinpur, Mohiuddinpur, Rasulpur Muzaffar, Kishanpur Kunda, Khairullapur) Villages along side Gangan River (Kiratpur, Mothepur, Roshanpur Pratap, Sulatnpur Sabha Chand, Akbarabad)
Chandpur	Villges alongside Ganga Canal (Jalilpur, Sabdalpur Teli, Chaundheri, Haizarpur Kasba, Akondha, Bundara Kalan) Villages along the Bijnor Range border (Sabdalpur Rehra, Heempur Deepa, Sisauna, Pilana, Sallahpur, Biral, Paijaniya)
Dhampur	Villages of Ramganga River Plains (Bhanauti, Umarpur Asha, Tiperjot, Mirzapur) Ramganga Feeder Canal (Sherkot, Sarkathal, Budhanpur, Kundipur) Gangan River (Sherpur Balla, Phulsanada, Mandauri, Mukarrabpur, Nehtuar)
Bijnor	Manadawar Region (Dayalwlala, Koharpur, Badshahpur, Mohammadpur Deomal, Shekhoopura, Kajiwala, Shahzadpur, Akbarpur Devidaswala) Villages along the Chandpur Border (Jalalpur Hasna, Nasirpur Nainsingh, Haldaur Rural, Baldiya, Jhalu)
Najibabad	Malin River Plains anad Eastern Ganga Canal (Mandawali, Sikruada, Pundri, Shadipur, Chandak, Barkatpur, Laalpur Maan, Saufatpur)
Amangarh	Whole range is important for leopard and tiger monitoring
Najibabad Forest Division	Villages adjacent to Rajgarh, Sahanpur, Kauria and Sahuwala ranges

References

- Treves, A., & Karanth, K. U. (2003). Human-carnivore conflict and perspectives on carnivore management worldwide. Conservation biology, 17(6), 1491-1499.
- Srivathsa, A., Puri, M., Karanth, K. K., Patel, I., & Kumar, N. S. (2019). Examining human–carnivore interactions using a socio-ecological framework: sympatric wild canids in India as a case study. Royal Society open science, 6(5), 182008.
- Kshettry, A., Vaidyanathan, S., Sukumar, R., & Athreya, V. (2020). Looking beyond protected areas: Identifying conservation compatible landscapes in agro-forest mosaics in north-eastern India. Global ecology and conservation, 22, e00905.
- Frank, L., Hemson, G., Kushnir, H., Packer, C., & Maclennan, S. D. (2008). Lions, conflict and conservation. Management and conservation of large carnivores in west and central Africa, 81-98.
- Malviya, M., & Ramesh, K. (2015). Human–felid conflict in corridor habitats: implications for tiger and leopard conservation in Terai Arc Landscape, India. Human-Wildlife Interactions, 9(1), 48-57.
- Guerisoli, M. D. L. M., Luengos Vidal, E., Caruso, N., Giordano, A. J., & Lucherini, M. (2021). Puma–livestock conflicts in the Americas: A review of the evidence. Mammal Review, 51(2), 228-246.
- Guerisoli, M. D. L. M., Luengos Vidal, E., Caruso, N., Giordano, A. J., & Lucherini, M. (2021). Puma–livestock conflicts in the Americas: A review of the evidence. Mammal Review, 51(2), 228-246.
- Martin, J. V., Anderson, R. M., Epstein, K., & Charnley, S. (2025). Managing wolf-livestock conflict on National Forests in the Western United States. Gen. Tech. Rep. PNW-GTR-1029. Portland, OR: US Department of Agriculture, Forest Service, Pacific Northwest Research Station. 153 p., 1029.
- Chauhan, K., Srivathsa, A., & Athreya, V. (2021). Assessing spatio-temporal patterns of human-leopard interactions based on media reports in northwestern India. Journal of Threatened Taxa, 13(6), 18453-18478.
- Athreya, V. R., Thakur, S. S., Chaudhuri, S. U. J. O. Y., & Belsare, A. V. (2004). A Study of the Man-Leopard Conflict. Junnar Forest Division: Junnar, India.
- Mesaria, S., Desai, P., Patel, S., Gadhavi, D., Giordano, A. J., & Dharaiya, N. (2023). Livestock depredation by leopards, associated economic losses, and financial compensation to communities in Chhota Udepur district of central Gujarat, India. Human-Wildlife Interactions, 17(1), 61-70.
- Naha, D., Sathyakumar, S., & Rawat, G. S. (2018). Understanding drivers of human-leopard 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.
- Shivakumar, S., Carricondo-Sánchez, D., Athreya, V., Odden, M., Dhiman, S. P., Vaidyanathan, S., & Karanth, K. K. (2023). Examining leopard attacks: spatio-temporal

clustering of human injuries and deaths in Western Himalayas, India. Frontiers in Conservation Science, 4, 1157067.

➤ Athreya, V., Srivathsa, A., Puri, M., Karanth, K. K., Kumar, N. S., & Karanth, K. U. (2015). Spotted in the news: using media reports to examine leopard distribution, depredation, and management practices outside protected areas in Southern India. PLoS One, 10(11), e0142647.

➤ Qureshi, Q., Jhala, Y. V., Yadav, S. P., Tiwari, V. R., Garawad, R., & Mallick, A. (2024). Status of leopards in India, 2022. National Tiger Conservation Authority, Government of India, New Delhi, and Wildlife Institute of India, Dehradun.

➤ Kshettry, A., Vaidyanathan, S., & Athreya, V. (2017). Leopard in a tea-cup: A study of leopard habitat-use and human-leopard interactions in north-eastern India. PLoS One, 12(5), e0177013.

Photographs: Victim-specific surveys and socio-economic surveys