



Curiosity Killed the Kite: Case Study on a Black Kite, *Milvus migrans* Boddaert, 1783 (Aves: Accipitridae) Mortality from Vehicular Collision and its Mitigation Strategies

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ABSTRACT

Roads, including high-speed corridors (HSCs), national highways (NH), and state highways (SH), particularly where they intersect with or are close to natural habitats, can pose a significant threat to wild fauna in general and avifauna in particular. Vehicular collisions pose a significant threat to wildlife, including birds of prey. This case study documents the mortality of a Black Kite (*Milvus migrans* Boddaert, 1783) due to a vehicular collision, triggered by the Kite's attraction to chicken remnants discarded near a roadside chicken shop in Motihari, East Champaran, Bihar, India. Through field observations and ecological analysis, the study confirms the cause of death as traumatic injury from the vehicular impact and links the incident to anthropogenic discarded food sources. The findings highlight the ecological risks posed by improper waste disposal in roadside food establishments, especially meat shops, which attract wildlife and increase collision risks. This study emphasizes the importance of awareness, infrastructure planning and conservation efforts to mitigate bird-vehicle collisions and promote coexistence with wildlife. Documenting such behavior provides valuable insights into the natural history and effective management strategies of indigenous species in semi-urban and urban landscapes.

Keywords: Black Kite, Vehicular Collision, Mortality, Death Trap, Anthropogenic, Coexistence, Mitigation, Wildlife.

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1. Introduction

In the United States, an estimated 500 million to 1 billion birds are killed each year due to anthropogenic activities including collisions with human-made structures such as vehicles, buildings and windows, power lines, communication towers, and wind turbines; electrocutions; oil spills and other contaminants; pesticides; cat predation; and commercial fishing by-catch [1]. According to the annual report of MoRTH (Ministry of Road Transport and Highways), Government of India, New Delhi, National Highway (NH) network of India increased by 60% from 91,287 km in 2014 to 1,46,195 km at present and length of National High-Speed Corridors (HSCs) has expanded from 93 km in 2014 to 2,474 km at present while length of 4 lane and above NHs (excluding HSCs) increased by 2.5 times from 18,278 km in 2014 to 45,947 km at present [2]. Roads can have both direct and indirect impacts on wildlife during construction and operation, which can be categorized into four main effects: habitat degradation, limited or loss of resource accessibility, population isolation, and traffic-related mortality [3,4,5,6,7]. Additionally, roads can directly affect wildlife by limiting their access to vital resources like food, nesting sites, and potential mates, effectively creating a barrier to wildlife that cannot cross the road due to physical or biological barriers [3,5,8,9], or because attempts to cross result in frequent roadkill relative to the species' population size [10,11]. Birds are more likely to collide with vehicles if they forage, roost, or nest near roads [12,13].

Fast-moving vehicular and train traffic on a road or railway track passing through a wildlife habitat or corridor is like a death trap for unsuspecting animals [14]. Such mortality in wildlife corridors can result in the loss of healthy, fit individuals from a population. [15]. This can further erode the genetic pool of species that are already endangered, making their survival even more precarious [14].

Black Kite *Milvus migrans* Boddaert, 1783 (58-66 cm in size) is one of the commonest raptors under order Accipitriformes and family Accipitridae. It is dark rufous-brown coloured, with pale head [16], a whitish crescent shape variably appears at the base of the primaries on the underwing, and a pale band across the median coverts on the upperwing [17]. This bird is easily identified by its distinctive forked tail, especially when seen in overhead flight [18]. This species is listed as least concern (LC) on IUCN Red List Category while Schedule II under Wildlife (Protection) Act 1972. It is a widespread resident bird [17] and it can be found in a wide range of habitats, although it avoids dense woodland, and has been recorded foraging at altitudes of up to 4,000 m in the Himalayas [19,20]. With a highly varied diet, Black Kites feed on carrion, live prey (including birds, mammals, fish, and invertebrates), and even plant matter like palm fruits; they have also adapted to feed on human waste in many regions [19,20]. The species has become highly commensal with people and thrives in human-dominated environments, but modernisation of cities appears to reduce its breeding success [19,20,21].

Thus, as scavengers, Black Kites play a vital role in maintaining urban ecosystems and serve as indicators of environmental health [22]. The Black Kite has faced significant threats in the past, including poisoning, shooting, and pollution of water sources by pesticides and chemicals [23]. In Europe and parts of Asia, carcass poisoning and water pollution continue to contribute to declining populations [24]. Heavy metal accumulation in the food chain can cause subtle yet significant impacts [25]. The Black Kite's ability to coexist with humans, particularly through scavenging, has not shielded it from the negative impacts of urban modernization, which has led to habitat loss and population declines in cities like Delhi and Istanbul during the 20th century [21]. This species is particularly susceptible to the impacts of potential wind energy development [26,27]. Electrocutation from power lines is another threat to Black Kites in their habitats [28,29].

Table 1. Summary of causes of reported Black Kite mortality

SN	Cause of Mortality	References
1	Poisoning	David et al. 2021
2	Shooting	David et al. 2021
3	Pesticides (including other chemicals)	David et al. 2021
4	Habitat loss due to modernization	Ferguson-Lees and Christie 2001
5	Carcass poisoning	BirdLife International 2021
6	Toxic heavy metals accumulation in food chain	Carneiro et al. 2018
7	Wind energy development & wind turbines	STRIX 2012; Santos et al. 2021
8	Electrocutation from power lines	Dixon et al. 2013; Barbazyuk et al. 2021

2. Materials and Methods

The collision site was inspected immediately after the incident to document the location, proximity to the chicken shop, and road characteristics including width and speed limit. A 10-meter radius around the shop and collision site was surveyed, revealing chicken remnants such as blood, bones, meat scraps, and feathers. Photographic evidence (Nikon D5300 & Mobile phone Camera) and geocoordinates were recorded (Garmin etrex), capturing images of the bird, chicken shops and food waste. The bird's body was collected, examined, and identified as a Black Kite (*Milvus migrans*) using standard literature and field guides [16,17,18]. A thorough examination revealed external injuries, including fractures and feather damage, as well as internal damage, confirming trauma from the vehicle's windscreen impact. Additionally, existing data on avian road mortality were reviewed to contextualize the incident.

3. Result and Discussion

The urban birds, against all odds, are not always welcome [30]. There is a scarcity of studies on roadkill mortality outside protected areas in India, although a few instances have been documented [31,32,33,34,35,36,37,38]. The ever-growing trend of urbanization globally has significant ecological effects, influencing species distribution, population dynamics, and behavior [39]. One of the most significant impacts is the death of wildlife due to vehicle collisions [12]. Collisions with vehicles and human-made structures are a major and rising threat to wildlife, especially volant species such as birds and bats, as urbanization expands [40]. On March 29, 2025, at 1746 h, a Black Kite (*Milvus migrans* Boddart, 1783) died from a vehicular collision near M.S. College Road, Motihari (Geocoordinates: 26.65643° N, 84.90456° E; elevation: 45 m ASL), the headquarter of East Champaran district located in North-West region of Bihar, India (Fig. 1, 2 & 3).

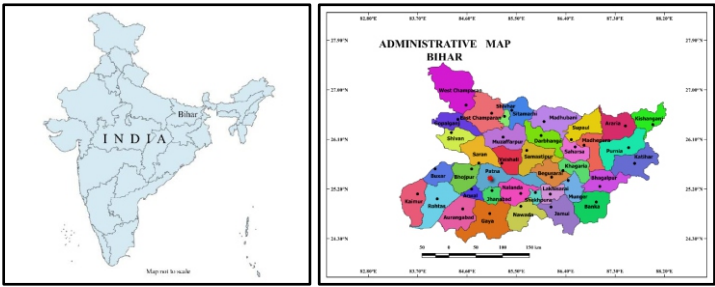


Fig. 1. Map of India Fig. 2. Map of Bihar

The incident occurred when the kite, attracted by discarded chicken remnants from a roadside chicken shop, collided with the front windscreen of a speeding four-wheeler on a 12-meter-wide road (Fig. 4). The impact resulted in severe trauma and instant death of the Black Kite (Fig. 5). Notably, four chicken shops were observed on one side of the road, with scattered bones, blood, meat scraps, and feathers surrounding the area, which likely drew the attention of Black Kite for foraging (Fig. 6). Some other avian species such as Shikra (*Accipiter badius*), and House Crow (*Corvus splendens*) were also spotted perching on a tree near the chicken shop waiting to forage on the discarded chicken remnants. A thorough examination of the bird's body revealed extensive injuries, both external and internal. The findings revealed severe head trauma, skeletal fractures, wing damage, internal injuries, bleeding and rupture of lower abdomen suggests high-impact vehicular collision. The impact was particularly severe in the lower abdomen, where a deep rupture occurred just above the cloaca, causing the intestine to protrude outside (Fig. 7). Additionally, both wings sustained significant damage (Fig. 8). The black kite, a common scavenging species, was attracted to chicken remnants discarded near the roadside chicken shop, as evidenced by food scraps in its stomach and the proximity of waste to the collision site. The incident occurred during a period of high bird activity (dusk), when foraging is common and visibility for drivers is reduced.

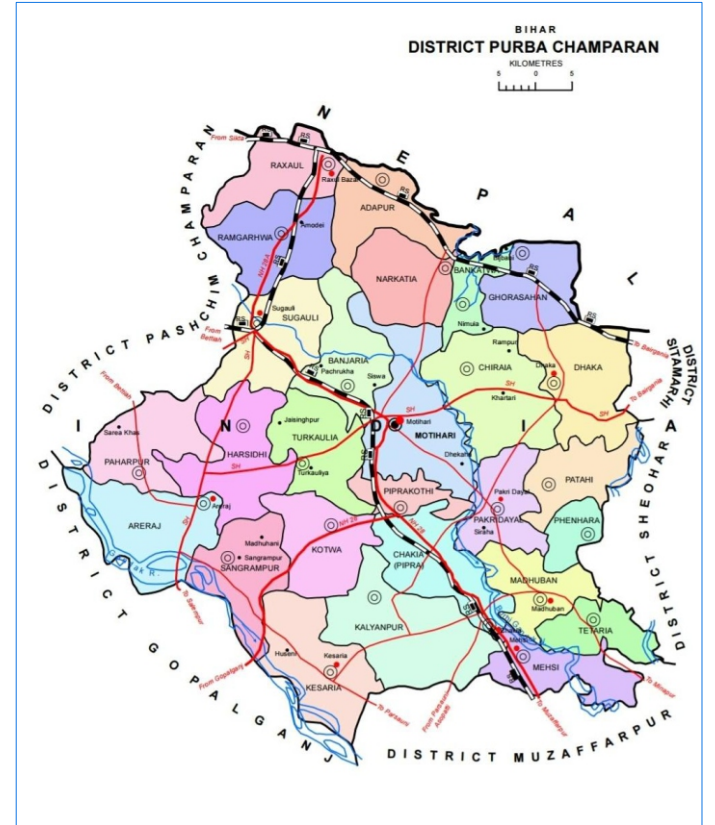


Fig. 3 Map of East (Purba) Champaran district

The findings underscore broader conservation challenges, including: (1) the impact of poor waste management on wildlife behavior, (2) the lack of wildlife-friendly infrastructure in peri-urban areas, and (3) limited awareness among shop owners and drivers about their role in human-wildlife conflicts. Mitigation strategies should include enforcing proper waste disposal at roadside meat shops (e.g., sealed bins, regular cleanup), installing speed bumps or warning signs near high-risk zones, and educating communities about the ecological consequences of littering. Wildlife corridors or barriers could also reduce bird access to roads. This case highlights the importance of a multi-faceted approach to managing human-wildlife conflicts, combining ecological research, policy enforcement, and community involvement to safeguard avian species in human-dominated settlements.



Fig. 4. Site of Black Kite Death, M. S. College Road (© Google Earth)



Fig. 5. Black Kite: died by the collision of windscreen of a vehicle (© Niraj Kumar)

Studies have identified factors influencing bird road mortality, including traffic volume, vehicle speed, scavenging behavior, road layout, road density, and foraging opportunities [12,41,42,43]. Studies suggested that mortality rates rise with the widening of road corridors [44,45] and high traffic volume. Animal-vehicle collisions claim the lives of hundreds of millions of birds and other animals annually [12,46,47,48], can negatively impact populations [43,49] and pose substantial safety risks to humans [50, 51]. However, it remains unclear how effectively birds avoid these danger zones and whether barriers are truly effective in preventing collisions [52]. Thus, identifying the causes of wildlife-vehicle collisions is essential for developing targeted measures to prevent them [13,53,54].



Fig. 6. Chicken shops along the road where black kite died by vehicular collision (© Niraj Kumar)



Fig. 7. Ruptured abdomen (© Niraj Kumar) Fig. 8. Damaged wing (© Niraj Kumar)

4. Conclusion

The present study reveals a direct link between a Black Kite's death from a vehicle collision and its attraction to improperly discarded chicken waste near a roadside chicken shop in an urban area. The incident highlights the risks of ecological traps induced by poor waste management, luring birds into hazardous busy traffic areas, increasing the risk of vehicle-collision. To mitigate such fatalities, conservation efforts should focus on improving waste disposal practices, such as secure waste systems at roadside shops and especially meat shops, and infrastructure modifications like speed limits and wildlife barriers. Additionally, public awareness campaigns targeting shop owners and drivers can help reduce risks to bird populations. The study emphasizes the need for collaborative action to address road-related mortality and promote safer coexistence between humans and wildlife.

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