

Beware of Dogs: An Unseen Threat for Human and Wildlife Populations

Zulfiya Sheikh^{1*}

¹Professor, Department of Zoology, Govt. Meera Girls College, Udaipur, Rajasthan (313001), India

DOI: <https://doi.org/10.36348/sjls.2025.v10i05.007>

| Received: 18.04.2025 | Accepted: 24.05.2025 | Published: 29.05.2025

*Corresponding author: Zulfiya Sheikh

Professor, Department of Zoology, Govt. Meera Girls College, Udaipur, Rajasthan (313001), India

Abstract

Stray dog populations have significant ecological, social and health impacts on both human and wildlife populations. In urban areas, these feral pose challenges such as the spread of zoonotic diseases, aggressive encounters, and competition for resources, affecting public safety and sanitation. In wildlife habitats, stray dogs disrupt the ecosystem by preying on native species, transmitting diseases, and competing with the indigenous predators. Additionally, human activities, including improper waste disposal and habitat encroachment aggravate the issue by providing the feral dogs with sustenance and shelter. Effective management strategies that include sterilization programs, community engagement, and policy interventions, are essential to mitigate the negative consequences while fostering sustainable coexistence. This paper explores the complex interactions between stray dogs, humans and wildlife and outlines effective strategies for balanced management.

Keywords: Feral dogs, Public health, Sustainable coexistence, Wildlife conservation, Zoonotic diseases.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Dogs are spread throughout the world, with an estimated global population of approximately 700 million, 75% of which are free-roaming or feral (Hughes & Macdonald, 2013). Their distribution is influenced by various factors, yet their ecology has rarely been studied. Increasing population densities correlate with the presence of garbage and vacant lands that provide shelter and breeding sites. Human influence plays a significant role in stray dog ecology, as regular availability of food and shelter leads to territorial behaviour (Dias *et al.*, 2013). In Maharashtra, India, a high density of 719 dogs/km² has been reported (Belsare & Gompper, 2013). Udaipur, Rajasthan, has an estimated stray dog population of about 20,000. On average, 10 people suffer injuries from these dogs daily, with 21,319 anti-rabies vaccines administered in 2021 (Dainik Bhaskar, 2022). As human settlements continue to expand, stray dog populations are likely to rise due to direct and indirect provisioning by humans. Proper disposal of food waste plays a crucial role in stray dog population control. Unregulated garbage dumps provide an abundant food source, sustaining high stray dog densities in urban and rural areas (Fig. 1).

Public Health Risks

The presence of such a large stray dog population poses both public health and environmental

risks, including bite injuries, predation, and zoonotic disease transmission (Rubin & Beck, 1982; Dalla Villa *et al.*, 2010). Dog-mediated rabies remains a significant public health threat, responsible for approximately 59,000 human deaths globally each year. Over 95% of infections occur due to bites from free-roaming dogs, making their management and vaccination critical in reducing transmission (Hampson, 2015). Rabies remains one of the deadliest zoonotic diseases, particularly in regions with limited access to post-exposure treatment. The adults are generally bitten by dogs on their extremities, while infants and young children are particularly vulnerable, often suffering injuries to the face and neck. Reports indicate that in 2024 in India, dogs attacked approximately 60 children every hour, and out of 22 lakh dog bite cases, over five lakh victims were under the age of 15. Tragically, 37 deaths due to dog attacks were reported. (The Indian Express, 2025).

One particularly alarming incident involved a retired doctor who was killed by a pack of stray dogs in a university campus in Aligarh, Uttar Pradesh (Hindustan Times, 2023). The dogs can be seen biting and nipping the old man (Fig. 2). A national survey on animal bites, conducted by the Indian Council of Medical Research (ICMR) from March 2022 to August 2023 across 60 districts in 15 states, revealed that three out of four animal bites were inflicted by dogs. The study estimated

an annual human rabies death toll of 5,726 in India (Thangaraj *et al.*, 2025). Despite global initiatives like the World Health Organization's "Zero by 30" plan to eliminate human deaths caused by dog-mediated rabies

by 2030, India's data underscores the urgent need for swift action, particularly through stray dog vaccination campaigns and enhanced monitoring of bite treatment protocols.



Figure 1: Stray Dogs Feeding on Garbage



Figure 2: An Elderly Man Attacked and Killed by the Feral
(Source: Hindustan Times, 2023)

Ecological and Wildlife Impacts

Rabies transmission through stray dogs can also threaten wildlife populations. It is estimated that dogs have contributed to the extinction of eleven vertebrate species and threaten at least 188 more (Doherty, 2017). While direct predation is the most obvious impact, stray dogs also harass endemic species, creating hostile habitats. For example, research has shown that breeding success among ungulates has been negatively affected, with *Gazella gazella* fawns failing to survive beyond six

months in enclosures where stray dogs were present (Gingold *et al.*, 2009).

The population of the chausinga (four-horned antelope, *Tetracerus quadricornis*) in Hadauti, Rajasthan has nearly vanished, with the last recorded sighting of a single individual occurring in 2020 (Dainik Bhaskar, 2022). This decline is likely attributed to dog predation. As an endemic species to India and Nepal, the loss of chausinga populations underscores the ecological consequences of unchecked stray dog populations.

Reports from Rajasthan further document stray dog attacks on blackbuck, nilgai, otters in the Chambal River, migratory birds, chital, wolves, and other native wildlife (www.conservationindia.org). A study published in *Animal Conservation* (Home, 2018) identified dog attacks on approximately 80 species in India, including critically endangered ones such as the golden langur, the great Indian bustard, and the green sea turtle. Among these, 31 species are listed as threatened under the IUCN Red List, reinforcing the urgent need for intervention.

Stray Dog Management Approaches

To address the growing challenges posed by stray and free-roaming dogs, a combination of humane and effective management strategies is needed. Some successful approaches include: mass sterilization programs, vaccination campaigns, responsible waste management, community education and involvement, legislative actions etc. Many countries have developed unique solutions to stray dog management. Wink (2018) has discussed Romania's sterilization laws and their effectiveness in controlling stray dog populations. A study in Turkey (Demirbas *et al.*, 2019) reviewed Turkey's approach to stray dog management and its long-term effectiveness. Similarly, Ghimire *et al.*, (2025) reported various dog population management strategies, including those implemented in the Netherlands. India can potentially adapt and implement elements from these international models while considering cultural and ecological contexts.

While stray dog populations pose serious risks, ethical considerations must be taken into account when implementing control measures. Non-lethal solutions should be prioritized over extermination-based approaches, which raise concerns about cruelty and ecological balance. Animal welfare groups advocate for a coexistence model, where sterilization, vaccination, and community management are integrated into long-term solutions. This approach aligns with principles of compassionate conservation, ensuring both human and animal well-being.

CONCLUSION

Studies suggest that stray and free-roaming dogs have broad-scale negative impacts on both human and wildlife populations. However, there are notable gaps in understanding their population-level effects, economic costs, and whether their impact on ecosystems is additive or compensatory. In regions where apex predators have been eliminated, stray dogs can assume the role of top predators, exacerbating threats to native species. Some endangered species face the possibility of extinction not due to poaching, but because these dogs have turned into formidable predators in the absence of natural checks on their numbers. Immediate action is required to mitigate the risks posed by stray dogs, as their unchecked presence threatens both human safety and biodiversity. Efforts like the WHO's "Zero by 30" initiative are crucial, more targeted local interventions—

such as vaccination campaigns, sterilization programs, and proper waste disposal—could help mitigate the problem. Stray dog management policies need to balance humane treatment with ecological preservation.

REFERENCES

- Hughes, J., Macdonald, D.W. (2013). A review of the interactions between free-roaming domestic dogs and wildlife. *Biol. Conserv.*, 157, 341–351.
- Dias R.A., Guilloux G.A.G., Borba M.R., Guarnieri M.C.L., Prist R., Ferreira F., Amaku M., Ferreira Neto J.S. & Stevenson M. (2013). Size and spatial distribution of stray dog population in the University of São Paulo campus, Brazil. *Prev. Vet. Med.*, 110(2):263-273.
- Belsare, A. and Gompper, M. (2013). Assessing demographic and epidemiologic parameters of rural dog populations in India during mass vaccination campaigns. *Prev. Vet. Med.*, 111, 139–146.
- Dogs se sawdhan. Dainik Bhaskar, Udaipur edition, 16 February 2022.
- Rubin, H. D. and Beck, A. M. (1982) Ecological behavior of free-ranging urban pet dogs. *Appl. Anim. Ethol.*, 8:161-168.
- Dalla Villa, P., Kahn, S., Stuardo, L., Iannetti, L., Di Nardo, A., Serpell, J.A. (2010). Free- roaming dog control among OIE-member countries. *Prev. Vet. Med.*, 97:58-63.
- Hampson, K, Coudeville, L, Lembo, T, Sambo, M, Kieffer, A, Attlan, M, *et al.* (2015) Estimating the global burden of endemic canine rabies. *PLoS Negl Trop Dis.* 9: e0003709. doi: 10.1371/journal.pntd.0003709
- India's dog bite crisis: 60 children attacked every hour in 2024, shows govt data. The Indian Express, 5 February 2025.
- Man on morning walk, mauled to death by stray dogs in Aligarh. Hindustan Times, 16 April, 2023.
- Thangaraj J. W. V., Krishna N.S., Devika, S. *et al* (2025). Estimates of the burden of human rabies deaths and animal bites in India, 2022-23: a community based cross-sectional survey and probability decision-tree modelling study. *The Lancet Infect. Dis.*, 25(1), 126-134.
- Doherty, T.S., Dickman, C.R., Glen, A.S., Newsome, T.M., Nimmo, D.G., Ritchie, E.G., Vanak, A.T., Wirsing, A.J. (2017). The global impacts of domestic dogs on threatened vertebrates. *Biol. Conserv.*, 210, 56–59.
- Gingold, G., Yom-Tov, Y., Kronfeld-Schor, N., Geffen, E. (2009). Effect of guard dogs on behavior and reproduction of gazelles in cattle enclosures on the Golan Heights. *Anim. Conserv.*, 12: 155–162.
- Chinta: Kewal Nepal aur Bharat mein milne wala chuasinga hadauti kshetra se gayab. Dainik Bhaskar, Udaipur edition, 1 June 2022.
- <https://www.conservationindia.org>
- Home, C., Bhatnagar, Y.V., Vanak, A.T. (2018). Canine Conundrum: domestic dogs as an invasive

- species and their impacts on wildlife in India. *Animal Conservation*, 21(4): 275-282.
- Wink E. (2018). *The Global Stray Dog Population Crisis: A Comparative Analysis of Romanian and Indian Stray Dog Legislation in Light of the OIE Standards on Stray Dog Population Control*. [Master's thesis, Autonomous University of Barcelona, Law Faculty]. Barcelona. <https://uab.academia.edu/EstherWink>
 - Demirbas Salgirli, Yasemin & Saral, Begum & Şafak, Etkin & Pereira, Gonçalo. (2019). Population Control of Free-Ranging Dogs in Turkey: Never Kill Strategy. *J. App. Anim. Eth. Res.* (1)1-7. 10.1163/25889567-12340016.
 - Ghimire R, Mohanty P, Hiby E, Larkins A, Dürr S, Hartnack S. (2025) Socio-economic assessment of dog population management systems: a scoping review. *Front Vet Sci.*; 12:1519913. doi: 10.3389/fvets.2025.1519913.