VOLUME 11 ISSUE 1 2025

ISSN 2454 – 3055

INTERNATIONAL JOURNAL OF ZOOLOGICAL INVESTIGATIONS

Forum for Biological and Environmental Sciences

Published by Saran Publications, India

International Journal of Zoological Investigations Vol. 11, No. 1, 620-624 (2025)

International Journal of Zoological Investigations

Contents available at Journals Home Page: www.ijzi.net

Editor-in-Chief: Prof. Ajai Kumar Srivastav

Published by: Saran Publications, Gorakhpur, India

ISSN: 2454-3055

Assessing the Presence of Himalayan Wolf (*Canis lupus chanco*) in Kargil District of Union Territory of Ladakh (India) using Occupancy Modeling

Javed Mohammad Iqbal

Department of Zoology, Government Degree College, Kargil (Sankoo Campus), Ladakh, India

Received: 6th August, 2024; **Accepted:** 23rd October, 2024; **Published online:** 24th April, 2025

https://doi.org/10.33745/ijzi.2025.v11i01.065

Abstract: This study investigates the occurrence of the Himalayan wolf (*Canis lupus chanco*) in the District Kargil of Union Territory of Ladakh, India through an occupancy survey. Kargil, home to various endangered species, spans 14,000 km^2 across four sub-divisions and seven tehsils. Despite its biodiversity, Kargil lacks comprehensive data on species distribution. To address this gap, an occupancy survey using a structured questionnaire was conducted in 92 villages, engaging local experts and knowledge holders. The results revealed the presence of Himalayan wolves in 89 villages, indicating a significant population well-adapted to the local environment. This study underscores Kargil's importance as a habitat for the Himalayan wolf and highlights the challenges of human-wildlife conflict. Citizen science played a crucial role in data collection, promoting community involvement in conservation. These findings are vital for developing effective conservation strategies and managing human-wildlife conflicts in the region.

Keywords: Himalayan wolf, *Canis lupus chanco*, Occupancy survey, Kargil, Endangered species, Citizen science, Species distribution

Citation: Javed Mohammad Iqbal: Assessing the presence of Himalayan wolf (*Canis lupus chanco*) in Kargil district of Union Territory of Ladakh (India) using occupancy modeling**.** Intern. J. Zool. Invest. 11(1): 620-624, 2025.

https://doi.org/10.33745/ijzi.2025.v11i01.065

Introduction

Kargil is home to several endangered species of fauna, including the snow leopard (*Panthera uncia*), brown bear (*Ursus arctos*), Ladakh urial (*Ovis vignei vignei*), ibex (*Capra sibirica*), marmots (*Marmota himalayana*), and various raptors (Fox *et al*., 2004). This region, spread over 14,000 km^2, is divided into four Sub-Divisions (Kargil, Zanskar, Sankoo, and Shakar-Chiktan) and seven Tehsils (Drass, Kargil, Shargole, Shakar-Chiktan, Sankoo, Taisuru, and Zanskar). Effective conservation planning requires reliable information on species occurrences and status. However, such information is mostly lacking for Kargil, although it is available for the Leh District due to years of research and conservation efforts (Mishra, 2000).

Recent advances in occupancy surveys provide an effective tool to gather such information (MacKenzie *et al*., 2002). When combined with

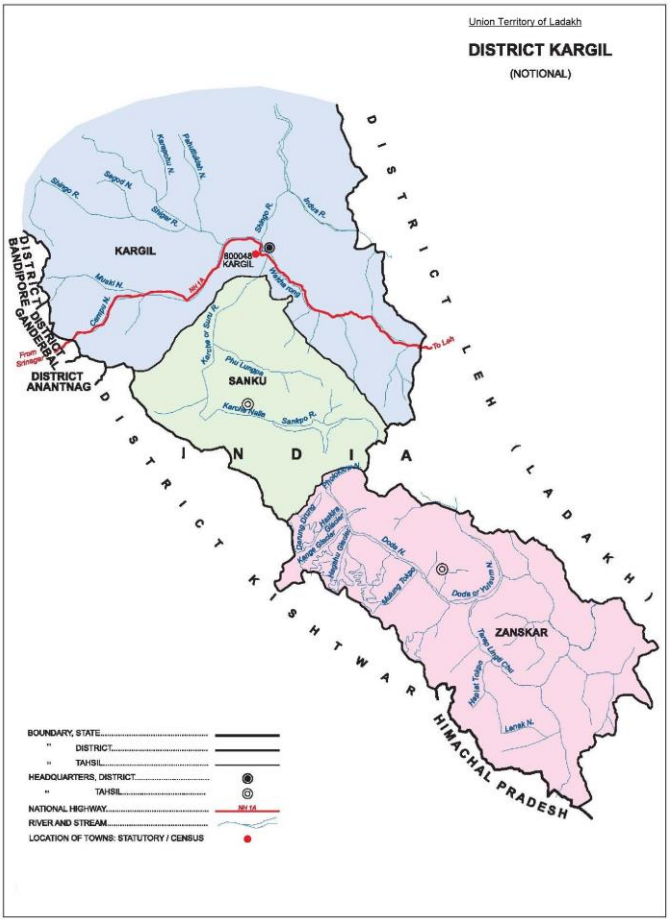

Fig.1: Map of District Kargil. (LAHDC Kargil, 2024)

citizen science initiatives, these surveys can help bridge the information gap in Kargil. Occupancy surveys can identify critical areas for species conservation and extant threats, including human-wildlife conflict hotspots (Karanth *et al*., 2011). Additionally, interview-based surveys can provide insights into changes in species occurrences over time (Treves *et al*., 2006).

This study investigates the occurrence of the Himalayan wolf (*Canis lupus chanco*) in the District Kargil of Union Territory of Ladakh, India through an occupancy survey.

Materials and Methods

The study was conducted across Kargil District (Figs. 1, 2), which covers an area of 14,000 km^2. The district is characterized by rugged terrain, high-altitude desert climate, and diverse habitats that support a variety of wildlife species (Fox *et al*., 2004). An occupancy survey was conducted using a structured questionnaire in 92 villages across Kargil District. The villages were selected to ensure a representative sample of different habitats and elevations within the district. Student field researchers, trained in survey techniques, conducted interviews with at least five local experts and knowledge holders in each village. These experts included shepherds, hunters, and local wildlife enthusiasts who have extensive knowledge of the local fauna. The questionnaire focused on recent sightings, signs of presence (such as tracks and scats), and historical knowledge of the Himalayan wolf (*Canis lupus chanco*). The collected data were analyzed using occupancy modeling to estimate the detection probability and the proportion of area occupied by the Himalayan wolf. This method accounts for imperfect detection and provides more accurate

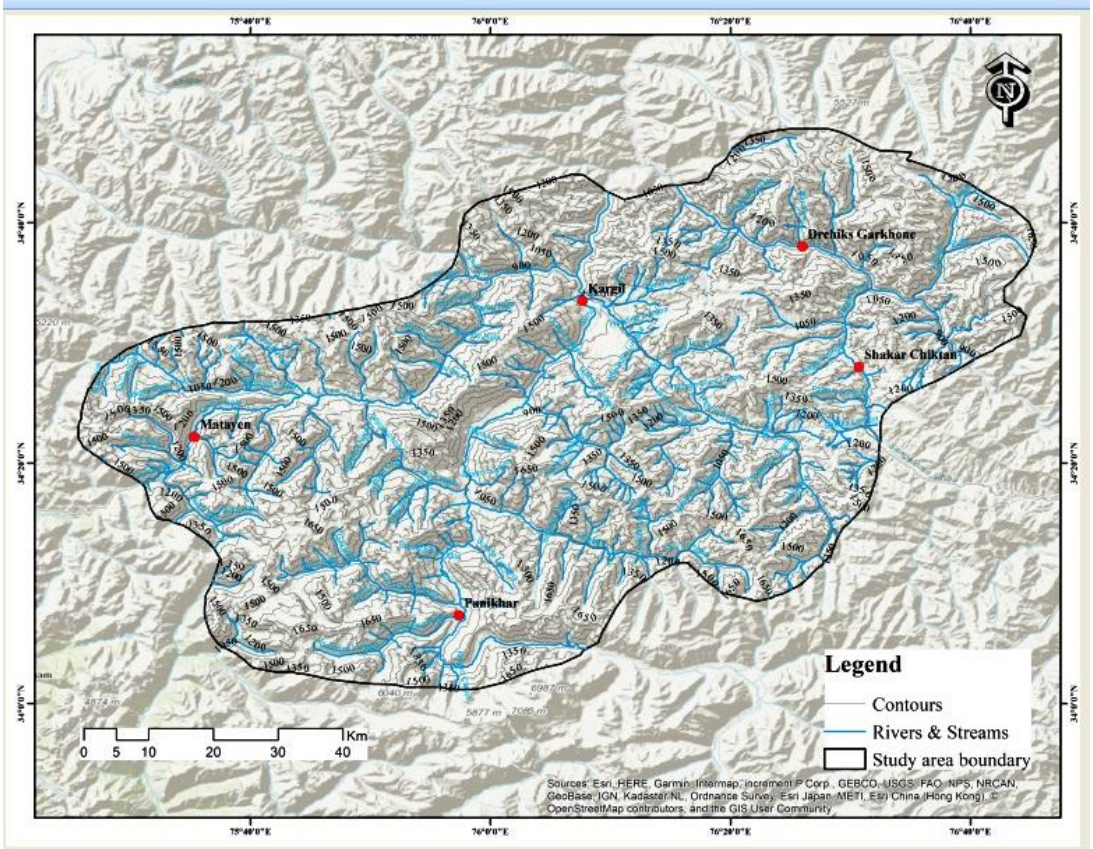

Fig. 2: Fig. 2: Map of the study area in Kargil district prepared on field data collected during 2020-2022.

estimates of species distribution (MacKenzie *et al*., 2002).

Results and Discussion

The survey reported the presence of the Himalayan wolf in 89 out of the 92 surveyed villages in Kargil District during the years 2020 to 2022 (Table 1). This indicates a widespread presence of the species within the region, with multiple live observations documented over the three-year period. These reports have been crucial in understanding the distribution and behavior of the Himalayan Wolf in this area, contributing valuable data for conservation efforts and wildlife management strategies. The consistent reporting across such a large number of villages underscores the significance of Kargil as a habitat for the Himalayan Wolf, highlighting the need for ongoing monitoring and protective measures to ensure the species' sustainability in this region. The high detection rate suggests that the species is well-adapted to the local environment and has established stable populations across various habitats within the district.

The findings from this survey highlight the importance of Kargil as a habitat for the Himalayan wolf. The high occurrence rate suggests that Kargil provides suitable conditions for this species. However, the presence of the Himalayan wolf also raises concerns about human-wildlife conflict, which needs to be managed to ensure the coexistence of wildlife and local communities (Mishra, 2000).

Habitat Suitability

Kargil's diverse habitats, ranging from alpine meadows to high-altitude deserts, provide the necessary resources for the Himalayan wolf. The availability of prey species, such as ibex and marmots, supports the wolf's dietary needs, while the remote and rugged terrain offers refuge from

Table 1: List of Villages of Kargil District where sighting of H. Wolf reported during occupancy survey

Village	Indirect Sighting / Live	Year of Sighting	Village	Indirect Sighting / Live	Year of Sighting
Gargardo	Live	2021	Styangkoong	Live	2021
G M Pore	Live	2021	Karchey Khar	Live	2022
Skambo	Live	2020	Batalik	Live	2021
Bhimbet	Live	2021	Wakha	Live	2021
Nunamchay	Live	2021	Pangbar	Live	2022
Parkachik	Live	2020	Khardoon	Live	2021
Lalung	Live	2021	Sanjak	Live	2020
Batambis	Live	2021	Tacha	Live	2022
Tambis	Live	2021	Choskore	Live	2021
Lankerchey	Live	2022	Chanigund	Live	2022
Chutuk	Live	2021	Latoo	Live	2022
Matayeen	Live	2020	Silmo	Live	2020
Pargive	Live	2022	Taisuru	Live	2022
Kaksar	Live	2020	Fokar	Live	2021
Karpokhar	Live	2022	Tumail	Live	2021
Garkon	Live	2022	Hunderman Brok	Live	2020
Darket	Live	2021	Khangral	Live	2022
Guniyal	Live	2021	Shakar Rong	Live	2021
Karit	Live	2021	Pargive	Live	2021
Rambirpora	Live	2020	Minjee	Live	2021
Nama Kussar	Live	2021	Khunda	Live	2021
Karchey Khar	Live	2020	Khabeir	Live	2021
Archu Choskore	Live	2020	Jusgound	Live	2020
Taiket	Live	2022	Gramthang	Live	2020
Taisuru	Live	2021	Muradbagh	Live	2021
Kanoor	Live	2021	Yourbaltak	Live	2021
Goshan	Live	2021	Tumail	Live	2021
Maita	Live	2020	Purtikchey	Live	2021
Trespone	Live	2021	Shakar Doo	Live	2022
Kukstay	Live	2022	Gongma Minjee	Live	2021
Shimsha	Live	2020	Youkma Kharboo	Live	2022
Yarkashing	Live	2021	Sandow	Live	2022
ThailaBrok	Live	2022	Thovina	Live	2021
Khamothal	Live	2021	Lochum	Live	2020
Tingdoo	Live	2022	Mulbekh	Live	2022
Pashkum	Live	2021	Shargole	Live	2021
Hagnis	Live	2022	Faroona	Live	2021

Bartoo	Live	2023	Throngos	Live	2021
G M Pore	Live	2024	Umba	Live	2022
Panikhar	Live	2021	Barchey	Live	2021
Lalung	Live	2022	Sangrah	Live	2020
Stakpa Yuljook	Live	2021	Sapi	Live	2021
Chumikchan	Live	2021	Saliskote	Live	2022
Gongma Kargil	Live	2021			
Pandrass	Live	2020	Kharboo	Live	2021

human disturbance (Fox *et al*., 2004).

Human-Wildlife Conflict

The presence of the Himalayan wolf in close proximity to human settlements poses challenges for local communities. Livestock predation by wolves can lead to significant economic losses for pastoralists, which may result in retaliatory killings of wolves. Effective conflict mitigation strategies, such as livestock insurance schemes and community-based conservation programs, are essential to promote coexistence (Karanth *et al*., 2011).

Citizen Science and Conservation

Citizen science initiatives proved valuable in this study, engaging local students and experts to gather comprehensive data. This approach not only provides critical information for conservation planning but also promotes community involvement and awareness about wildlife conservation (Silvertown, 2009). The involvement of local communities in data collection fosters a sense of ownership and responsibility towards wildlife conservation (Dickinson *et al*., 2012).

Conclusion

The occupancy survey successfully documented the widespread presence of the Himalayan wolf in Kargil District. This information is crucial for developing effective conservation strategies and managing human-wildlife conflicts in the region. The combination of occupancy surveys and citizen science is an effective tool for gathering reliable data on species occurrences, especially in regions with limited prior research.

Ethical Statement

No animal or microbes have been used or sacrificed for this study, hence Ethical Approval not required.

Conflict of Interest

The author declares no conflicts of interest.

References

Dickinson JL, Zuckerberg B and Bonter DN. (2012) Citizen science as an ecological research tool: Challenges and benefits. Annual Rev Ecol Evol Systematics 44: 49-72.

Fox JL, Sinha SP and Chundawat RS. (2004) Himalayan snow leopard and wolf: Large mammal surveys in northern India. Oryx 38(2): 168-170.

Karanth KK, Nichols JD, Hines JE, Karanth KU and Christensen NL. (2011) Patterns and determinants of mammal species occurrence in India. J Appl Ecol. 48(4): 1048-1056.

MacKenzie DI, Nichols JD, Lachman GB, Droege S, Royle JA and Langtimm CA. (2002) Estimating site occupancy rates when detection probabilities are less than one. Ecology 83(8): 2248-2255.

Mishra C. (2000) Socioeconomic transition and wildlife conservation in the Indian Trans-Himalaya. J Bombay Natural History Soc. 97(1): 25-32.

Silvertown J. (2009) A new dawn for citizen science. Trends Ecol Evol. 24(9): 467-471.

Treves A, Wallace RB, Naughton-Treves L and Morales A. (2006) Co-managing human–wildlife conflicts: A review. Human Dimensions Wildlife, 11(6): 383-396.