Nepalese Journal of Zoology

ISSN: 2705-4403 (Print) & 2705-4411 (Online)
www.cdztu.edu.np/njz

Volume 9 | Issue 1 | June 2025

https://doi.org/10.3126/njz.v9i1.81405

Short communication

First record of spotted linsang *Prionodon pardicolor* (Hodgson, 1841) (Mammalia: Carnivora: Prionodontidae) with photographic evidence in Khotang and Bhojpur, Eastern Nepal

Badri Baral[1, 2*] | **Dipak Raj Basnet**[1] | **Jeevan Rai**[1, 3]

[1] Nature Conservation Initiative Nepal (NCI-Nepal), Gokarneshwor-05, Nepal
[2] Nepal Environmental Research Institute (NERI), Tarakeshwor-09, Nepal,
[3] Frenchay Campus, University of West of England (UWE), Coldharbour Lane, Bristol, UK
*** Correspondence:** badri@ncinepal.org.np

Suggested citation: Baral, B., Basnet, D.R. & Rai, J. 2025. First record of spotted linsang *Prionodon pardicolor* (Hodgson, 1841) (Mammalia: Carnivora: Prionodontidae) with photographic evidence in Khotang and Bhojpur, Eastern Nepal. Nepalese Journal of Zoology, 9(1):76–79. https://doi.org/10.3126/njz.v9i1.81405

Article History:
Received: 13 February 2025
Revised: 08 June 2025
Accepted: 09 June 2025

Publisher's note: The statements, opinions and data contained in the publication are solely those of the individual author(s) and do not necessarily reflect those of the editorial board and the publisher of the NJZ.

Copyright: © 2025 by the authors

Licensee: Central Department of Zoology, Tribhuvan University, Kathmandu, Nepal

Abstract

Information on a globally 'Least Concern' and nationally 'Endangered' spotted linsang *Prionodon pardicolor* via camera trap image offers hope to address Wallacean shortfall outside the Protected Area in its range. The present paper reports the first verified record of its occurrence outside the Protected Areas in Khotang and Bhojpur districts, east Nepal.

Keywords: Camera Trap; Conservation; Small carnivore; Spotted linsang; Eastern Nepal

1 | Introduction

Distributional information about the species is of paramount importance to render accurate biogeographical interpretations (Ficetola et al. 2014). Of all major fauna, small mammals' conservation comes up with Wallacean shortfall (Troudet et al. 2017). The Wallacean shortfall refers to gaps in our understanding of species' geographic distributions, particularly for cryptic or elusive taxa. The elusive spotted linsang (*Prionodon pardicolor*) exemplifies this challenge due to their secretive nature and limited detection in ecological surveys. Expanding knowledge of its distribution outside Protected Areas in human dominated landscape remains crucial for refining conservation priorities and mitigating threats. Spotted linsang has been listed as 'Least Concern' in the IUCN Red List of Threatened Species (Duckworth et al. 2024) and nationally assessed as 'Endangered' in *The Status of Nepal's Mammals: The National Red List Series* (Jnawali et al. 2011; Amin et al. 2018). It is listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In Nepal, spotted linsang is accorded as protected priority species under the National Parks and Wildlife Conservation Act, 1973 (2029 BS). Ghimirey et al. (2018) documented the first verifiable record of spotted linsang in Nepal since the nineteenth century. Since then, only a handful of its confirmed records have been reported (Rai et al. 2018; Lama et al 2024), primarily as bycatch data from broader ecological surveys. The paper attempts to present its new critical locality record that could serve as a foundational reference amid the growing scientific interest in its distribution in Nepal.

2 | Materials and methods

2.1 | Study area

A camera-trap survey targeting the red panda (*Ailurus fulgens*) was conducted in the Salpasilicho Landscape between October 2023 and March 2024. The survey covered Kepilashgadi Rural Municipality (RM) in Khotang and Salpasilicho RM in Bhojpur District of Koshi Province. The study area spans from 27°16.445'N to 27°26.681'N and 86°51.0245'E to 87°02.675'E with altitudinal range between 706 m and 4022 m.

The study area beholds temperate, sub alpine type of vegetation. The area comprises of Temperate Mountain Oak Forest, East Himalayan Oak-Laurel Forest, Fir Forest, Hemlock-Oak-Rhododendron Forest, Fir-Hemlock-Maple Forest and East Himalayan Oak-Laurel Forest (Dobremez 1976). *Quercus* spp., *Betula utilis, Rhododendron arboreum, Juniperus* spp. were the dominating tree species in the range with the bamboo understory.

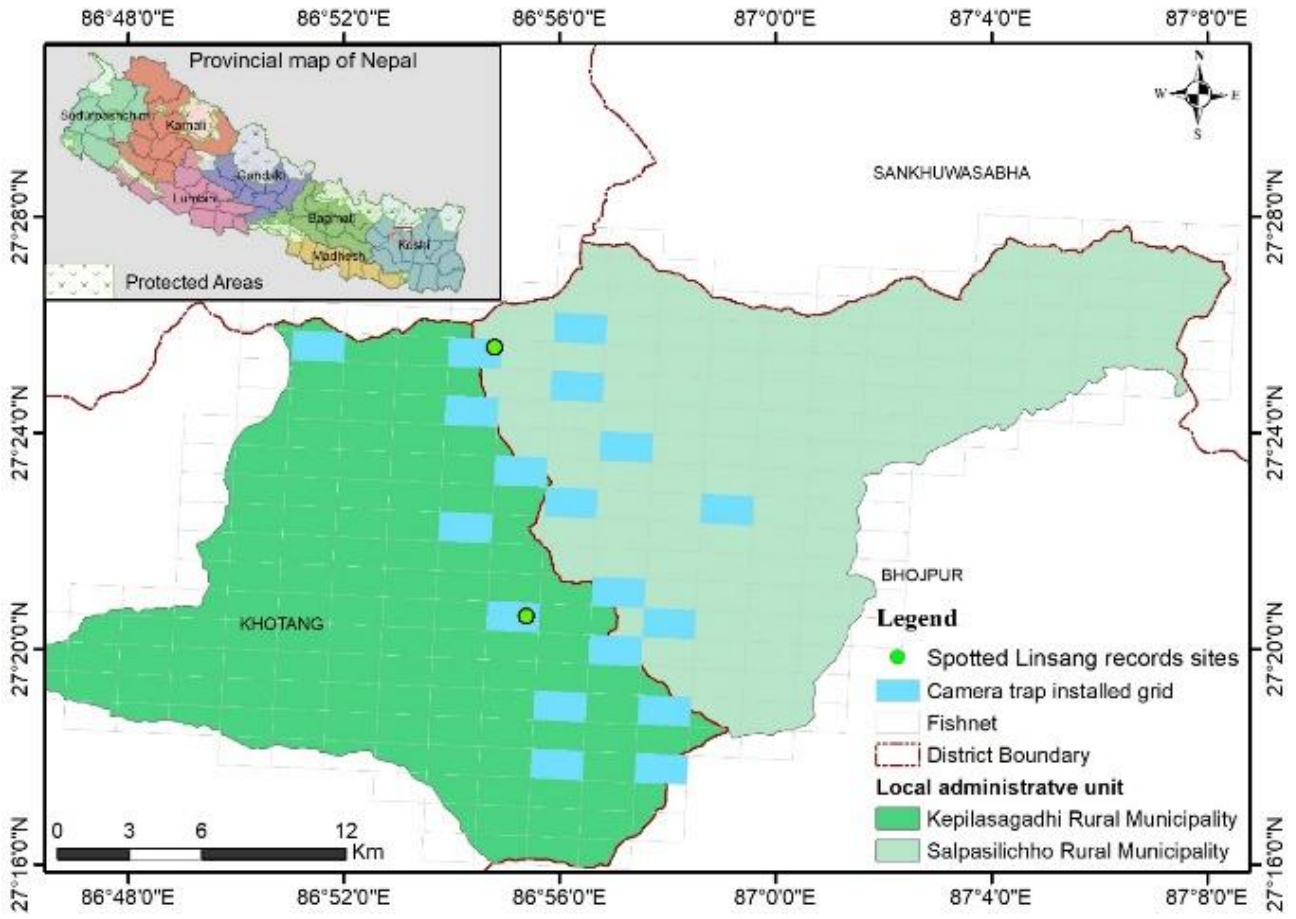

Figure 2. Study area with Spotted Linsang recorded localities in Khotang and Bhojpur

The local people in the study areas are mostly agropastoralists belonging to the *Kirati* ethnic group. The traditional practice of transhumance in red panda habitats contributes to the livelihoods of communities in the region, relying mainly on subsistence agriculture with a strong linkage between farming, pasturelands and forestry. Their livelihood is based on collection of non-timber forest products, livestock husbandry and agriculture. During the late spring and summer seasons livestock herders graze their livestock like cows *Bos* sp., buffaloes *Bubalus* sp., horses *Equus* sp., mules *Equus* sp., goats *Capra* sp. and sheep *Ovis* sp.in the subalpine and alpine pastures above their villages.

2.2 | Methods

The study area was filtered by 2500 m altitudinal line and forest area and 9.6 km^2 grids (Fox et al. 1996) were overlayed considering home range of red panda. Each grid was further divided into 6 sub-grids having 1.6 km^2 area and 30% of these sub grids were selected randomly. In total, 18 camera-trap stations were used, with each camera-trap unit running for between 89 and 108 days, for a total sampling effort of 1380 camera-trap nights. The cameras were tied to a pole/tree at a height of 30–45 cm from the ground and programmed to take 3 photos per triggered events with 5 seconds time delay between successive pictures.

Figure 1. Camera trap picture of Spotted Linsang *Prionodon pardicolor* (a, b) on the rock outcrop in Kepilashgadi RM, Khotang and (c) on the snag tree trunk Salpasilicho RM, Bhojpur District

3 | Results

Among the 18 camera trap stations, spotted linsang was recorded at two camera-trap stations twice at 27°25.58472'N 86°54.78642'E 3228 m at 2:41:58 am on Saturday, 16 December 2023 and at 4:59:56 am on Sunday 17 December 2023 in Salpasilicho, Bhojpur and one at 27°20.59662'N 86°55.37574'E at 2839 m at 12:54:50 am on Wednesday, 27 December 2023 in Kepilashgadi RM, Khotang. A total of 16 species of mammal belonging 11 families of four orders had been reported from Camera trap survey as shown in Table 1.

4 | Discussion

Among the handful of all verified and unverified records, i.e., Chitwan National Park (CNP) (Sunquist 1982) mentioning the spotted linsang's presence in Nepal, Tinjure-Milke-Jaljale, Eastern Nepal (Rai et al. 2018), Annapurna Conservation Area (ACA) (Ghimirey et al. 2018), Kangchenjunga Landscape (Lama et al. 2024), it was not reported before from the present study areas. These are the first ever confirmed photographic records of this species in Bhojpur and Khotang district.

These current records of the spotted linsang were: first one (Figure 1, image a & b) on the rock outcrop adjacent to the joints of dark grey to greenish white quartz biotite schists in Sarungkhola Formation and another on the snag tree trunk (image, c) in the montane forests dominated by *Rhododendron* species with bamboo understory, a habitat similar to the habitat types where the species had previously been recorded by (Ghimirey et al. 2018) in ACA, Kangchenjunga Landscape (Lama et al. 2024) and different than those habitat types characterized by tropical moist deciduous forest, with patches of tropical semi-evergreen forest along rivers (Sunquist 1982; Choudhury 2002; Borah 2010; Ghose et al. 2012; Naniwadekar et al. 2013; Khatonier & Lyngdoh 2021).

The formative work by Hodgson collecting a total of eight specimens of the species, with no specific localities in the 1840s had set evidence of spotted linsang's presence in the country. Allied to this, Hinton & Fry (1923), Baral & Shah (2008), Jnawali et al. (2011), documented the spotted linsang to occur in today's Nepal. At the meantime, four observations made in CNP (Sunquist 1982) claim the global westernmost range of the species. Ghimirey et al. (2018) asserted its record in ACA to be approximately 5 km west of the previously westernmost limit of the species' mapped global distribution range (Duckworth et al. 2024). Based on present sightings of the individuals on a small spatial scale over a short period of time, it would be impractical to conclude anything about the species population status.

Table 1. Wildlife species recorded from Salpasilicho RM and Kepilashgadi RM during camera trap survey 2023.

S.N.	English Name	Scientific Name	Red List Category		CITES
			IUCN	National	
Order: Carnivora					
Family: Ailuridae					
1	Red panda	*Ailurus fulgens*	EN	EN	I
Family: Ursidae					
2	Asiatic black bear	*Ursus thibetanus*	VU	EN	I
Family: Felidae					
3	Leopard	*Panthera pardus*	VU	VU	I
4	Leopard cat	*Prionailurus bengalensis*	LC	VU	II
Family: Mustelidae					
5	Yellow-throated marten	*Martes flavigula*	LC	LC	III*
6	Large-toothed ferret badger	*Melogale personata*	LC	DD	
Family: Viverridae					
7	Masked palm civet	*Paguma larvata*	LC	LC	III*
8	Spotted linsang	*Prionodon pardicolor*	LC	EN	I
Order: Rodentia					
Family: Sciuridae					
9	Hodgson's giant flying squirrel	*Petaurista magnificus*	LC	DD	
10	Hoary-bellied squirrel	*Callosciurus pygerythrus*	LC	LC	
Family: Hystricidae					
11	Indian crested porcupine	*Hystrix indica*	LC	DD	
Order: Primates					
Family: Cercopithecidae					
12	Nepal gray langur	*Semnopithecus schistaceus*	LC	LC	I
Order: Artiodactyla					
Family: Suidae					
13	Wild boar	*Sus scrofa*	LC	LC	
Family: Cervidae					
14	Northern red muntjac	*Muntiacus vaginalis*	LC	VU	
Family: Bovidae					
15	Himalayan serow	*Capricornis thar*	VU	DD	I
16	Himalayan goral	*Naemorhedus goral*	NT	NT	I

*The Government of India has requested the assistance of Nepal to regulate international trade.

5 | Conclusions

The photographic documentation of the spotted linsang for the first time from Khotang and Bhojpur districts underscores the importance of continued biodiversity monitoring and habitat conservation efforts. This significant finding expands our understanding of the species' distribution, habitat and hereafter could encourage researchers to undertake further studies not only in these areas, but also further afield in Nepal. This documentation strengthens efforts to refine distribution models and conservation strategies for small, elusive carnivores in the region and to mitigate the conservation threats like habitat degradation, fragmentation and human-wildlife conflict across Nepal's rapidly changing landscapes. The finding also highlights the ecological richness of the region. Employing advanced monitoring technologies, such as camera traps, has proven crucial in uncovering hidden populations of elusive and nocturnal species like the spotted linsang. Additionally, the new locality record may prompt further exploration and surveys in adjacent areas to better understand the species' range and ecological needs.

Acknowledgements

We acknowledge the financial support of Mohamed Bin Zayed Species Conservation Fund (232527685). Appreciation also goes to the Department of Forests and Soil Conservation for granting study permission. The Division Forests Office of Khotang and Division Forests Office of Bhojpur are thanked for their coordination in the field. The citizen scientists at Nature Conservation Initiative Nepal were with us from very beginning of the study and supported tremendously.

Authors' contributions

B.B.-involved in data collection, wrote and reviewed the manuscript, D.R.B., J.R.-data collection and wrote manuscript.

Funding Information

Mohamed Bin Zayed Species Conservation Fund (232527685) contributed for ecological assessments, with camera trap data collected as part of broader field surveys. The spotted linsang record emerged as incidental bycatch data, contributing to biodiversity documentation efforts. No dedicated funding was available for the publication of this study.

Conflicts of interest

The authors declare no conflict of interest.

References

Amin, R., Baral, H.S., Lamichhane, B.R., Poudyal, L.P., Lee, S., Jnawali, S.R., Acharya, K.P., Upadhyaya, G.P., Pandey, M.B., Shrestha, R., Joshi, D., Griffiths, J., Khatiwada, A.P. and Subedi, N. 2018. The status of Nepal's mammals. Journal of Threatened Taxa, 10(3):11361–11378. https://doi.org/10.11609/jott.3712.10.3.11361-11378

Baral, H.S. and Shah, K.B. 2008. *Wild mammals of Nepal*. Himalayan Nature.

Borah, J. 2010. Sighting of Spotted Linsang *Prionodon pardicolor* at Nameri Tiger Reserve, Assam, India. Small Carnivore Conservation, 43(2):40–41.

Choudhury, A. U. 2002. Some recent records of the Spotted Linsang *Prionodon pardicolor* from India. *Small Carnivore Conservation,* 27, 12.

Dobremez, J.F. 1976. Le Ne´pal: E´cologie et Bioge´ographie [Ecology and Biogeography of Nepal]. Centre Nationale de la Recherche Scientifique, Paris, France.

Duckworth, J.W., Lau, M., Choudhury, A.U., Chutipong, W., Timmins, R.J., Willcox, D.H.A., Chan, B.P.L., Long, B. and Roberton, S. 2024. *Prionodon pardicolor* (amended version of 2016 assessment). The IUCN Red List of Threatened Species 2024: e.T41706A259356428. https://dx.doi.org/10.2305/IUCN.UK.2024-2.RLTS.T41706A259356428.en. Accessed on 18 May 2025.

Ficetola, G.F., Rondinini, C., Bonardi, A., Katariya, V., Padoa-Schioppa, E. and Angulo, A. 2014. An evaluation of the robustness of global amphibian range maps. Journal of Biogeography, 41(2):211–221. https://doi.org/10.1111/jbi.12206

Fox, J., Yonzon, P. and Podger, N. 1996. Mapping conflicts between biodiversity and human needs in Langtang National Park, Nepal. Conservation biology, 10(2), 562-569.

Ghimirey, Y., Yadav, K., Rai, J., Prasai, R., Rana, P. and Acharya, R. 2018. First verifiable record of Spotted Linsang *Prionodon pardicolor* from Nepal since the nineteenth century. Small Carnivore Conservation, 56:48–53.

Ghose, P. S., Sharma, B. K., Theengh, L. T. and Shrestha, P. 2012. Records of Spotted Linsang *Prionodon pardicolor* from Barsey Rhododendron Sanctuary, Sikkim, India. Small Carnivore Conservation, 47:67–68.

Hinton, M.A.C. and Fry, T.B. 1923. Report No. 37: Nepal. Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon. Journal of the Bombay Natural History Society, 29:399–428.

Jnawali, S. ., Baral, H. ., Lee, S., Acharya, K. ., Upadhyay, G. ., Pandey, M., Shrestha, R., Joshi, D., Lamichhane, B.R., Griffiths, J., Khatiwada, A.P., Subedi, N. and and Amin, R. 2011. The Status of Nepal ' s Mammals : The National Red List Series. In *Department of National Parks and Wildlife Conservation Kathmandu, Nepal* (Issue January 2017).

Khatonier, P. and Lyngdoh, A.W. 2021. First record of Spotted Linsang *Prionodon pardicolor* (Mammalia: Carnivora: Prionodontidae) with photographic evidence in Meghalaya, India. Journal of Threatened Taxa, 13(11), 19649–19651. https://doi.org/10.11609/jott.6802.13.11.19649-19651

Lama, S.T., Bugler, K.A., Ross, J. G. and Paterson, A.M. 2024. Diversity of mammalian species in the Kangchenjunga Landscape of eastern Nepal. European Journal of Wildlife Research, 70(6):1-16.

Naniwadekar, R., Shukla, U., Viswanathan, A. and Datta, A. 2013. Records of small carnivores from in and around Namdapha. Small Carnivore Conservation, 49:1–8.

Rai, J., Yadav, K., Ghimirey, Y., G.C., S., Acharya, R., Thapa, K., Poudyal, L.P. and Singh, N. 2018. Small Carnivores in Tinjure-Milke -Jaljale, Eastern Nepal. Friends of Nature, Nepal and Rufford Small Grants, UK.

Sunquist, M. E. 1982. Incidental observations of the spotted linsang (*Prionodon pardicolor*). Journal of the Bombay Natural History Society, 79:185–186.

Troudet, J., Grandcolas, P., Blin, A., Vignes-Lebbe, R. and Legendre, F. 2017. Taxonomic bias in biodiversity data and societal preferences. Scientific reports, 7(1):9132.