



First camera trap photo evidence of Snow leopard (*Panthera uncia*) presence in the Langtang National Park, Nepal

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Abstract

The snow leopard (*Panthera uncia*) is known to be distributed across twelve countries in Central and South Asia. Nevertheless, the elusive behaviour of the species, in conjunction with its remote habitat has resulted in a paucity of knowledge regarding its population distribution in several areas including Nepal. Despite prior local reports in the Langtang National Park (LNP), Nepal, scientific confirmation of snow leopards in the area was only recently established, relying on direct and indirect signs of presence. In 2023, the OSI-Panthera programme was granted authorisations to deploy camera traps in Nepal for the first time to investigate the presence of snow leopards. Six camera traps were set up over a period of one month in spring 2024, and two sets of pictures of snow leopards were obtained. This preliminary study provides the first camera trap photo evidence of snow leopards in the LNP.

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Introduction

The snow leopard (*Panthera uncia*) is known to be distributed across twelve countries in Asia. Of these, Nepal represents a crucial habitat for the species. The Department of National Parks and Wildlife Conservation estimated the population to 397 (95% CI: 331.11- 475.60) individuals with a mean density of 1.56 individuals per 100 km² (95% CI: 1.30–1.87) (DNPWC & DoFSC 2025). The altitudinal range of snow leopards in Nepal is thought to extend from 2,700 to 5,600 metres (McCarthy & Mallon 2024), with most findings above 4,000 metres (Adhikari 2004). Snow leopards had previously been reported in the Langtang National Park (LNP), Nepal, by local people and researchers (Green 1982). The latter reported sightings especially in the vicinity of Gosainkunda Lake (3,900 metres above sea level) and the Langsisa plateau (4,540 metres above sea level). However, the scientific community only recently established the presence of snow leopards there (Chalise 2011, Khatiwada 2004), relying on signs of presence such as faeces, pawmarks, markings, or leftover food items. The most significant signs were recorded in the Langtang region, specifically at Cherkori Kharka, Langsisa Kharka, Yala peak Kharka and Langtang Glacier Kharka (Chalise 2011). The species plays a crucial role in maintaining the ecological balance of the mountain ecosystems in Nepal, and its protection is linked to that of many others. The OSI-Panthera programme, run by the Objectif Sciences International (OSI) NGO, has been working to conserve snow leopards in Kyrgyzstan and Nepal since 2006 and 2019 respectively, by conducting participatory research expeditions. In 2023, the team was allowed to conduct a camera trap study in Nepal for the first time. This paper presents the first photographic evidence of the presence of snow leopards in the LNP.

Material and Methods

The study was conducted in the LNP, which covers an area of 1,710 km², including Langtang valley. It extends from the border between Nepal and the Tibetan Autonomous Region of China in the north to the city of Kathmandu along the Langtang River in the south, and from the Bhote Koshi River in the east to the Trishuli River in the west (Figure 1). The area’s topography generates a wide diversity of ecosystems with altitudes ranging from 3,000 to 5,125 metres. Six Bushnell camera traps (Essential E2 and E3 models) were installed over a period of one month in spring 2024 (Figure 1, Table 1). These were powered by rechargeable lithium batteries, used 32 GB SD cards and were secured to rocks with straps. The camera traps were set up and collected by volunteers supervised by one of the OSI-Panthera science educators, with logistical support from local guides and porters. The team followed transects along natural boundaries (ridges and watercourses) to search for signs of snow leopards. When the group identified a marking or a suitable spot, they set up a camera trap there. The traps were set in “camera” mode, taking a series of three photos at each trigger with a one-second delay between two photos.

Table 1 Types and locations of the camera traps used in this study in Langtang National Park (Nepal), OSI-Panthera.

Camera trap ID	Model	Transect	Altitude (metres)
24	Bushnell E3	Langsisa Kharka camp	4,104
3		Langsisa Morimoto, right bank (RB)	4,235
22		Yala glacier	4,216
2			4,203
18	Bushnell E2	Tilman glacier, RB	4,229
10			4,320

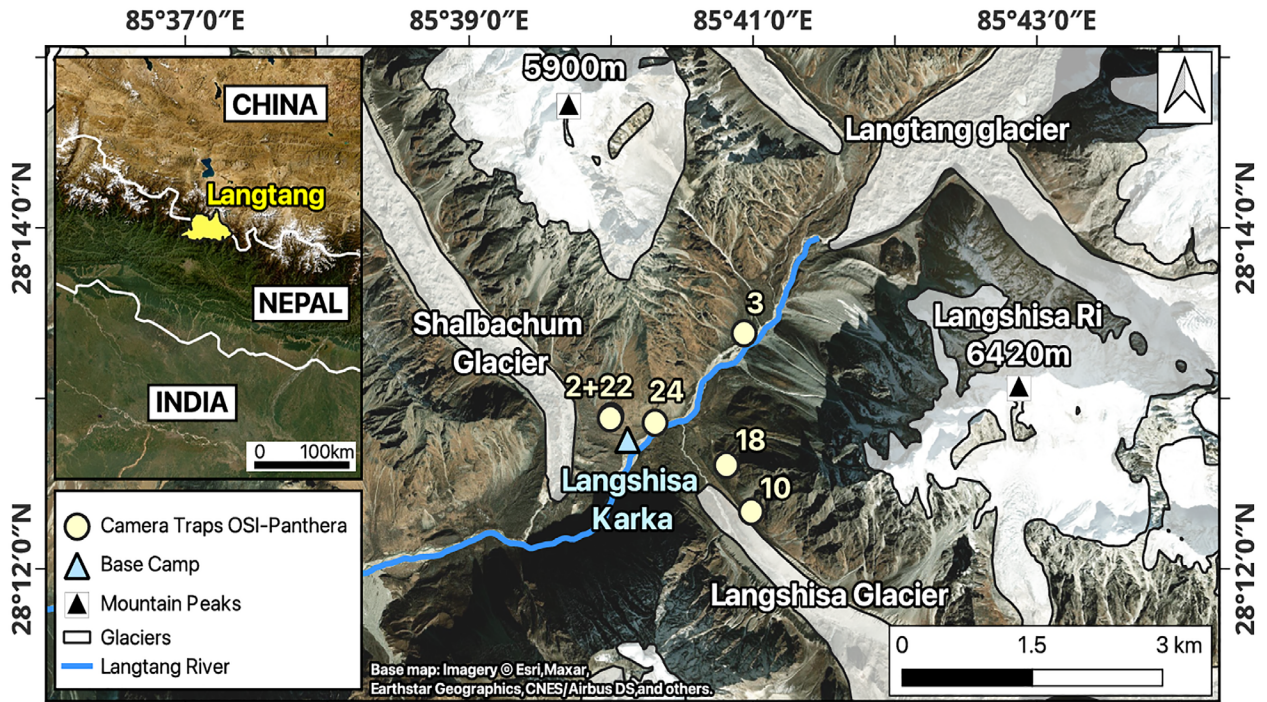


Figure 1. Map of the camera trap study area, Langtang National Park (Nepal), OSI-Panthera (©Vianney Houard)

Snow leopards are identified from the pictures relying on the unique patterns of their fur rosettes (Alexander *et al.* 2016, Jackson *et al.* 2006, Macdonald & Loveridge 2010, McCarthy *et al.* 2008, Sharma *et al.* 2014). Identification is performed by volunteers in a triple-blind process with each volunteer conducting an independent analysis of the pictures, and the results being compared afterwards.

Results

Snow leopard

On 21 April 2024, two sets of snow leopard pictures were obtained from two camera traps which were installed a few metres apart on the Yala Glacier transect. No images of the species were recorded on the other four cameras. Trap no. 22, located on the crest right bank of the Yala glacier, captured a series of ten photographs between 08:06 AM

and 08:07 AM, at an altitude of 4,216 metres. One individual could be identified by its clearly visible head, tail, and flanks (Figure 2). Further down on the crest on the same transect, a second camera trap (no. 2) recorded a series of four photos between 06:52 PM and 06:53 PM, at an altitude of 4,203 metres. The fur patterns appeared similar to those of the individual photographed about eleven hours earlier by camera trap no. 22, but given the poor quality of the pictures we could not confirm whether it was the same individual.

Other species

The camera traps also documented several prey species in the same area, including Himalayan tahr (*Hemitragus jemlahicus*), Himalayan musk deer (*Moschus leucogaster*), domestic yak (*Bos grunniens*), mountain weasel (*Mustela altaica*), stone marten (*Martes foina*) and Himalayan snowcock



Figure 2. Picture of a snow leopard captured by OSI-Panthera camera trap no. 22 in Langtang National Park (Nepal), in April 2024.

(*Tetraogallus himalayensis*). Of particular interest were the detections of leopard cats (*Prionailurus bengalensis*) at high elevations (4,320 and 4,104 metres).

Discussion

The objective of this study was to confirm the presence of snow leopards in the LNP using non-invasive methods. During the one-month monitoring period, it was possible to confirm the presence of at least one adult snow leopard.

However, multiple factors suggest the presence of several individuals in the LNP. Firstly, the vocalisations heard at 9:00 PM by one of the OSI-Panthera groups of volunteers in April 2023 were consistent with those documented in snow leopards. Furthermore, the discovery of recent signs of presence (tracks, scats, and scrapes) by our volunteers at various locations throughout the study area indicates ongoing activity by different individuals, which is in alignment with previous findings (Chalise 2011).

This preliminary study corroborated the presence of snow leopards in the LNP and demonstrated the effectiveness of deploying camera traps alongside analysing signs of presence, as part of the OSI-Panthera programme. Conducting a similar study over a longer period of time and across a larger area in Nepal, and performing genetic analyses on collected faeces could provide a better understanding of the population. Data collected about other species supports the ecological viability of the area for snow leopards. The valuable results of this programme also illustrate how citizen science can contribute to a better understanding and the conservation of such emblematic species.

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Conflict of Interest

No known conflicts of interests. Research conducted without external funding.

Literature cited

- Adhikari, J.N. (2004) 'Ecological Study of the Snow leopard (*Uncia uncia*) in Langtang National Park, Nepal'. Dissertation. Central Department of Zoology Ecology Program Tribhuvan University Kathmandu, Nepal.
- Alexander, J.S., Zhang, C., Shi, K., Riordan, P. (2016) 'A granular view of a snow leopard population using camera traps in Central China'. *Biol. Conserv.* 197, p27–31.
- Chalise, M.K. (2011) 'Snow Leopard (*Uncia uncia*), Prey Species and Outreach in Langtang National, Park, Nepal'. *Our Nature*, 9(1), p138-145
- DNPWC & DoFSC (2025) 'Status of Snow Leopard Population in Nepal'. Department of National Parks and Wildlife Conservation and Department of Forests and Soil Conservation. Ministry of Forests and Environment, Kathmandu, Nepal.
- Green, M.J.B. (1982) 'Status, distribution and conservation of the Snow Leopard in Northern India'. *International Pedigree Book of Snow Leopards: Proceedings of a Symposium*, p7-10
- Jackson, R.M., Roe, J.D., Wangchuk, R., Hunter, D.O. (2006) 'Estimating snow leopard population abundance using photography and capture–recapture techniques'. *Wildl. Soc. Bull.* 34 (3), p772–781.
- Khatiwada J. R. (2004) 'The status of snow leopard (*Uncia uncia*) and its impact on principal prey species in Langtang National Park. Tribhuvan University, Kathmandu, Nepal.
- Macdonald, D.W., Loveridge, A.J. (2010) 'Biology and Conservation of Wild Felids'. Oxford University Press.
- McCarthy, T.M., Fuller, T., Munkhtsog, B. (2005) 'Movements and activities of snow leopards in southwestern Mongolia'. *Biol. Conserv.* 124, p527-537.
- McCarthy, K.P., Fuller, T., Ma, M., McCarthy, T.M., Waits, L.P. (2008) 'Assessing estimators of snow leopard abundance'. *J. Wildl. Manag.* 72(8), p1826-1833
- McCarthy, T., Mallon, D. (2024) 'Snow Leopards: Biodiversity of the World: Conservation from Genes to Landscapes'. Elsevier, London.
- Sharma, K., Bayrakcismith, R., Tumursukh, L., Johansson, O., Sevger, P., McCarthy, T., Mishra, C. (2014) 'Vigorous dynamics underlie a stable population of the Endangered Snow Leopard *Panthera uncia* in Tost Mountains, South Gobi, Mongolia'. *PLoS One* 9 (7), e101319.