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Cover: Little Andaman is part of the island chain with incredible biodiversity, but these amazing species are threatened by development projects, and need our support. Pen and ink artwork by Priyanka Iyer.

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SHORT COMMUNICATION

First photographic record of Smooth-coated Otter *Lutra perspicillata* (Carnivora: Mustelidae) from Nandhaur Wildlife Sanctuary, Uttarakhand, India

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Abstract: Otters serve as apex predators and function as keystone species within aquatic ecosystems. Three species of otters are found in India, i.e., Eurasian Otter *Lutra lutra*, the Smooth-coated Otter *Lutra perspicillata,* and the Asian Small-clawed Otter *Aonyx cinereus*. However, little is known about otter distribution in Uttarakhand. Our study presents the first photographic evidence of Smooth-coated Otter from Nandhaur Wildlife Sanctuary, Uttarakhand. Smooth-coated Otter is listed on Schedule I of Wildlife (Protection) Act 1972, affording it highest level of protection in India. Further studies will be crucial for assessing their distribution pattern and threats faced by them in the Nandhaur landscape.

Keywords: Aquatic ecosystems, camera trap, Nandhaur landscape, otters, photographic evidence, riverine habitat, Schedule I, semi-aquatic species.

Otters belong to the family Mustelidae and are well adapted for semi-aquatic life with their webbed feet, fur, and tapering tail. They serve as indicator species within ecosystems and play a vital role in regulating invasive species in aquatic environments (Anoop & Hussain 2005). There are 14 extant species of otters found worldwide, with three species occurring in India (Mammal Diversity Database 2025).

India is home to the Eurasian otter *Lutra lutra*, the Smooth-coated Otter *Lutra perspicillata,* and the Small-clawed Otter *Aonyx cinereus* (Hussain 1999). Smooth-coated Otter is a large-sized otter, weighing 8–11 kg and found across much of southern and southeastern Asia (Pocock 1941; Medway 1969; Hussain 1993; Hussain 2013a). It is classified as 'Vulnerable' on the IUCN Red List and is protected under Schedule I of Wildlife (Protection) Act, 1972 (amended 2022). Among all three species of otters found in India, Smooth-coated Otter is perhaps most widely distributed (Hussain 2013b). They have been studied from different regions of India, for example Chambal region (Hussain & Choudhury 1995, 1997; Hussain 1996, 2013a), Kerala (Anoop & Hussain 2004, 2005; Raha & Hussain 2016; Sreehari & Nameer 2016), Goa (Krupa et al. 2017; Dias et al. 2022; Duke & Goldberg 2022; Dias 2023), Odisha (Mishra et al. 2018; Palei et al. 2020, 2023; Rath et al. 2023), and Rajasthan (Nawab 2013), among others.

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Competing interests: The authors declare no competing interests.

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In Uttarakhand, otters are present in Bhagirathi basin (Pal et al. 2021), upper Ganga basin (Nawab & Hussain 2012a,b; Khan et al. 2014) Kosi, Ramganga, and Khoh (Gupta et al. 2020). In addition to that, otters are also found in Rajaji, Corbett Tiger Reserve, and Lansdowne Forest Division (Nawab & Hussain 2012a; Joshi 2014; Basak et al. 2021). However, there is limited information regarding presence of Smooth-coated Otters in Kumaon region of Uttarakhand, particularly beyond Corbett Tiger Reserve. This situation is also evident in the Nandhaur Wildlife Sanctuary (NWS), where suitable habitat for otters exists, yet no studies have reported their presence. We present the first photographic record of Smooth-coated Otter from Nandhaur Wildlife Sanctuary.

Methods

Nandhaur Wildlife Sanctuary was created in 2012 and lies in Uttarakhand state of India. Its geographical extent is 79.675 E, 29.184 N & 80.009 E, 29.138 N (Mehra 2015). It is bounded by Gola River in the west and Sharda River in the east, providing connectivity with Shuklaphanta National Park of Nepal. NWS is an integral part of the Terai Arc Landscape (TAL), which is spread across India (Uttarakhand, Uttar Pradesh, and Bihar) and Nepal. The major forest type is tropical moist-deciduous forest dominated by Sal *Shorea robusta* and associated species such as *Terminalia tomentosa* and *Adina cordifolia* (Champion & Seth 1968). Among the mammals, Bengal Tiger *Panthera tigris*, Indian Elephant *Elephas maximus*, Sambar *Rusa unicolor*, Chital *Axis axis*, and Barking Deer *Muntiacus vaginalis* are found. NWS comprises of four ranges, namely, Nandhaur, Jaulasal, Danda, and Sharda with an area of approximately 270 km^2 (Figure 1). Nandhaur and Kalaunia are the major rivers which are perennial in nature. Apart from that several seasonal streams crisscross the Nandhaur landscape.

On 6 March 2024, we saw an otter while we were deploying camera traps for the estimation of tiger density in NWS. However, there was some doubt regarding the identity of the species. To further confirm the identity of otter species found in NWS, we deployed five IR camera traps (OT1, OT2, OT3, OT4, and OT5) (Cuddeback Inc, USA) for a period of 10 days in the Nandhaur range of NWS. The placement of camera traps was based on

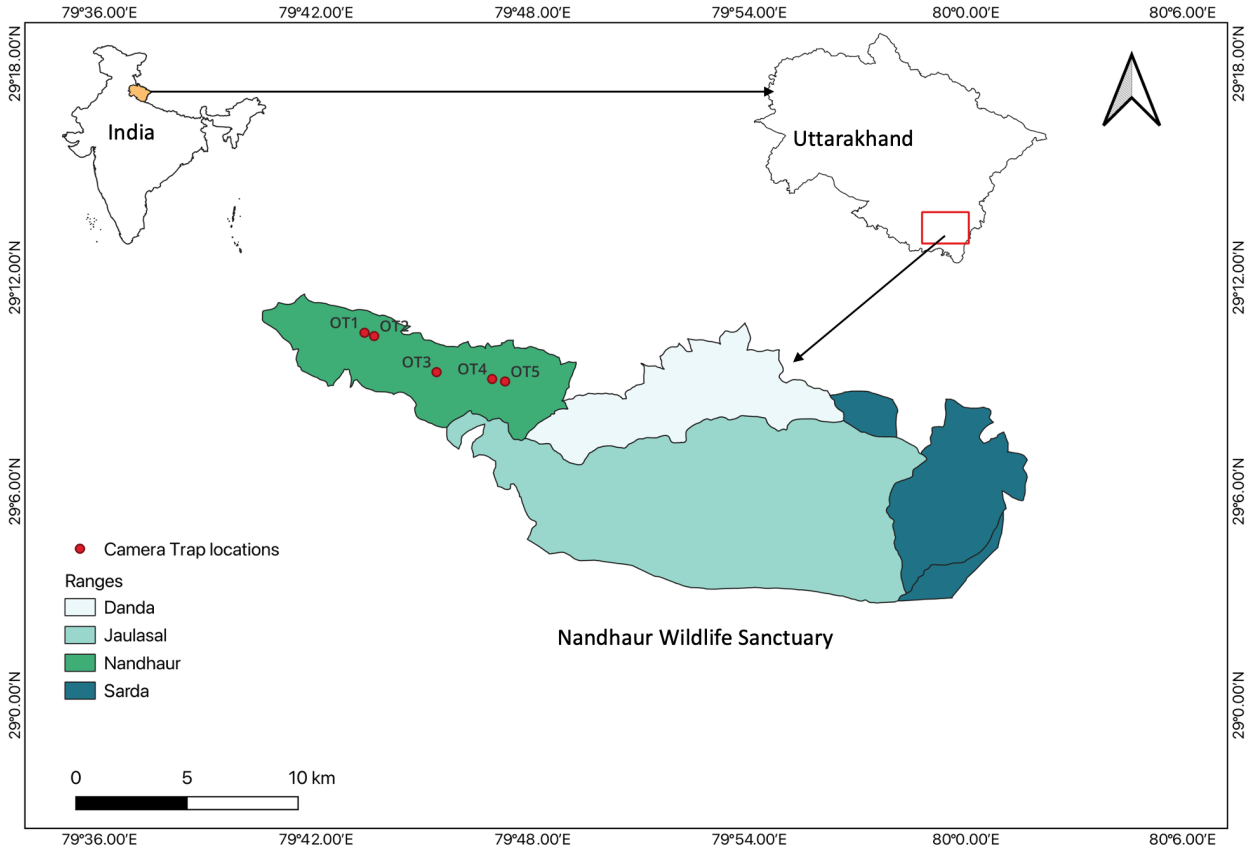

Figure 1. The geographical location and map outlining the ranges within Nandhaur Wildlife Sanctuary (NWS), Uttarakhand, India. The red dots show the location of camera traps deployed in Nandhaur range of NWS.

Image 1. Photographs of Smooth-coated Otters captured in Nandhaur range, Nandhaur Wildlife Sanctuary, Uttarakhand, India.

the presence of otter signs, such as tracks or scat. The geographical coordinates of the camera traps were recorded using a Garmin GPSMAP 64s device. The resultant data was then used to create a map using QGIS version 3.34.4 Prizren (QGIS Development Team 2024).

Results

Otter photographs were captured at two locations in the Nandhaur range, i.e., OT4 and OT5 on separate days (Image 1). They were identified as Smooth-coated Otter based on tail characteristics, smooth fur, and overall stature in consultation with members of IUCN Otter Specialist Group (Atul Borker & Nicole Duplaix, pers. comm. July 2024).

Discussion

This study establishes the presence of Smooth-coated Otter in Nandhaur Wildlife Sanctuary and future management plans must take it into consideration. Forest department should focus on minimising disturbance to riverine habitat, reducing soil erosion, and conserving fish population which will allow otters to thrive in NWS.

There are no reliable estimates of Smooth-coated Otter population, and it is suspected to decline by more than 30% over the next three decades (Khoo et al. 2021). Lack of information on population estimates and distribution of species could hinder our ability to make informed decisions, potentially undermining conservation efforts. Therefore, it is imperative to conduct systematic surveys for otters in Nandhaur landscape to determine their population and distribution patterns, thus ensuring their long-term survival.

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