

# AN UNUSUAL SIGHTING RECORD OF EURASIAN OTTER (*Lutra lutra*) IN KATHMANDU VALLEY, NEPAL

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## Abstract

*The Eurasian otter (Lutra lutra) is a shy and solitary semi-aquatic species which is mainly nocturnal and prefers marshy places, rivers, lakes, seashores and estuaries. Contrary to the habit and habitat of the species, this report presents a Eurasian otter sighting in a built-up area at Chandragiri-6, Mahadevsthan, Chandragiri, in Kathmandu valley. One fresh carcass of a Eurasian otter was discovered in a human settlement area. The sighting of a Eurasian otter amidst this settlement area has resulted in queries requiring their exploration in rivers. primarily the Bagmati River. which could resolve the mysterious sighting.*

**Keywords:** Otter carcass, Chandragiri, exploration, Bagmati River

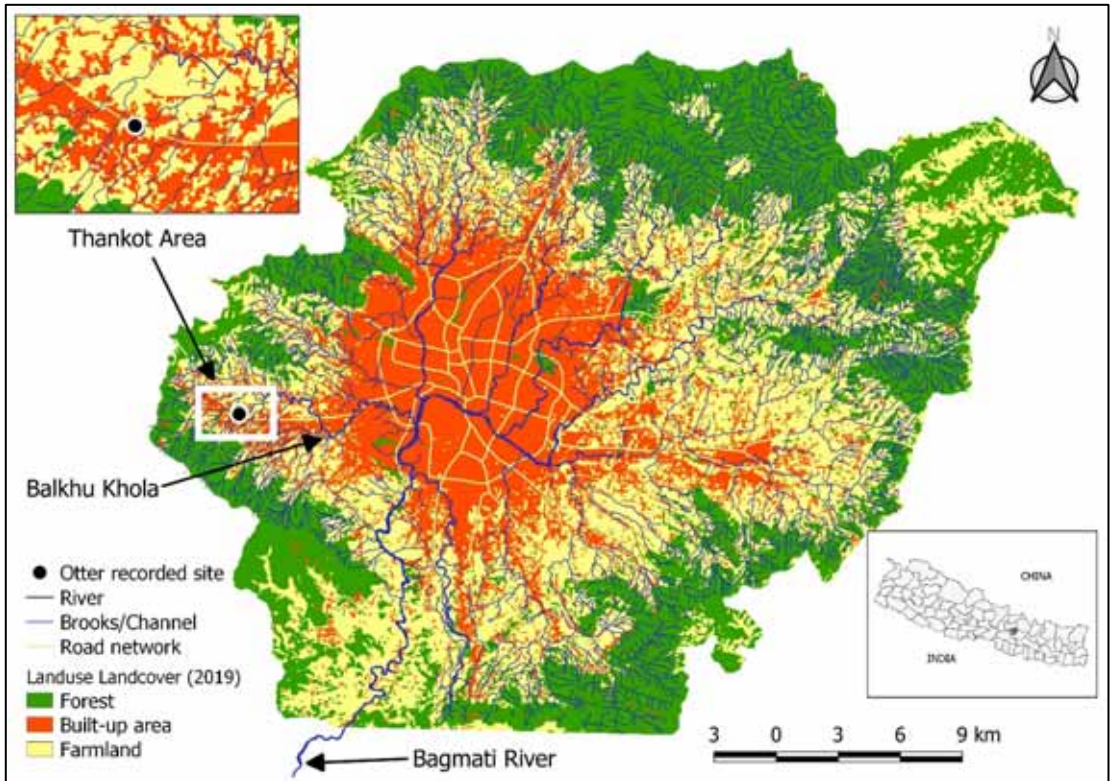
## INTRODUCTION

Nepal is home to three species of otters namely, smooth-coated otter (*Lutrogale perspicillata*), Asian small-clawed otter (*Aonyx cinereus*) and Eurasian otter (*Lutra lutra*). There are ample studies on smooth-coated otters proving its presence inside the protected areas in lowland Nepal. However, the decline in its population is resulting in it being regarded as a rare species. There is a marked deficiency in information on the Asian small-clawed otter which made its occurrence in Nepal puzzling (Jnawali et al., 2011). For decades evidence of the presence of Eurasian otters in Nepal was ambiguous until it was recorded in the Barekot River, Roshi River, and Tubang River (Shrestha et al., 2021) and most recently from Pelma River (Shrestha et al., 2022). In addition to the records, the unusual sighting of the carcass of a Eurasian otter in the urban area of Kathmandu valley is reported in this study.

## STUDY AREA

Kathmandu valley is bowl-shaped being surrounded by the Mahabharat hills ranging from the lowest elevation of 1230m mean above sea level at Chobhar Gorge to the highest elevation of 2831m at Phulchowki peak (ICIMOD, MoEST and UNEP, 2007). The climate is sub-tropical to temperate influencing the occurrence of mixed

vegetation including *Alnus nepalensis*, *Schima wallichii*, *Castanopsis indica*, *Pinus roxburghii*, *Quercus* spp., *Rhododendron* spp., etc. (Katuwal et al., 2020). The Kathmandu valley floor is endowed with fertile soil that is irrigated by three major rivers systems: Bagmati River, Manohara River, and Bishnumati River. The valley is the fastest growing urban area and the most populous metropolitan region in Nepal. In recent decades, urbanisation sprawled in suburban and rural villages and a dramatic population growth resulted in the conversion of farmland, forest patches and river corridors into settlements (Thapa and Murayama, 2012). Chandragiri is a suburb located at the southwest of the Kathmandu valley, 16km from the core city. The Chandragiri hills are a biodiversity hotspot (Katuwal et al., 2020) which is located adjacent to the Chandragiri area. Multiple brooks originating from the Chandragiri hills flow across Chandragiri and join the main channel, named Balkhu Khola downstream. Further downstream this joins the Bagmati River that drains to the southern flatland of Nepal (Figure 1).



**Figure 1.** Otter site overlaid on a Landuse/landcover map of Kathmandu valley.

Landuse/landcover data source: International Center for Integrated Mountain Development (ICIMOD)

## METHODS

A site visit was carried out following information shared by locals on 10 July 2021. The carcass was examined and photographs were taken for otter species identification. The exact location was recorded in order to try to understand this mysterious sighting of an otter amidst the built-up area. Photographs were shared with research specialists at the International Otter Survival Fund and IUCN Otter Specialist Group for species confirmation and validation.

## RESULTS AND DISCUSSION

The fresh otter carcass was found at a courtyard (27° 41' 16.28'' N 85° 13' 38.41''E) which is used as a badminton court. The carcass had a fresh wound below the left fore limb which had punctured deep into the body causing its death. The nature of the wound inferred that the otter was attacked by a predator, most probably the street dogs patrolling the area. The carcass had clear visible webbed toes, a long and tapering cone-shaped tail, dense dark-brown pelage over most of the body with lighter-colour fur near the throat (**Sivasothi and Nor, 1994, Melissen, 2000, Kruuk, 2006**) (Figure 2). This indicated it was a Eurasian otter, which was confirmed by research specialists on otters.

This record of a dead otter is unfortunate as the species is largely depleted with a declining population. However, such carcasses, road kills or otter pelts confirm their presence in an area:

- A freshly road killed Eurasian otter provided proof of the species occurrence in the Anamalia hills of Southern Western Ghats in India where the species had been previously undiscovered (**Mudappa et al., 2018**).
- A fresh skin of an adult male otter accidentally killed by electrocution by a fisherman became the first indication of permanent presence of the Maxwell sub-species of smooth-coated otter (*Lutrogale perspicillata maxwelli*) in Southern Iraq.
- Two freshly killed otters with one preserved skin gave evidence of smooth-coated otter presence in Lake Al Baghdadiya, Chebaeish in Iraq.
- Two fresh skins of an adult male Eurasian otter and an adult male Iraqi smooth-coated otter were seized from a local trader in the old city of Amara in Iraq. The Eurasian otter pelt came from the Al-Musharah River, a tributary of the Tigris River in Mayssan, and the smooth-coated otter pelt came from Umm Al- Na'aj the core lake of Hor Al-Hawizeh (**Al-Sheikhly and Nadar, 2013**). The otters had been electrocuted.
- A pelt recorded in the Pelma River of Rukum East, Nepal (**Shrestha et al., 2022**) and a skull recorded in the Roshi River of Kavrepalanchowk, Nepal

(Shrestha et al., 2021) confirmed the presence of the Eurasian otter in those rivers.

It is not unexpected to hear of otters in the wetlands and rivers but the record of a Eurasian otter carcass in the middle of a settlement area in Kathmandu valley is puzzling.



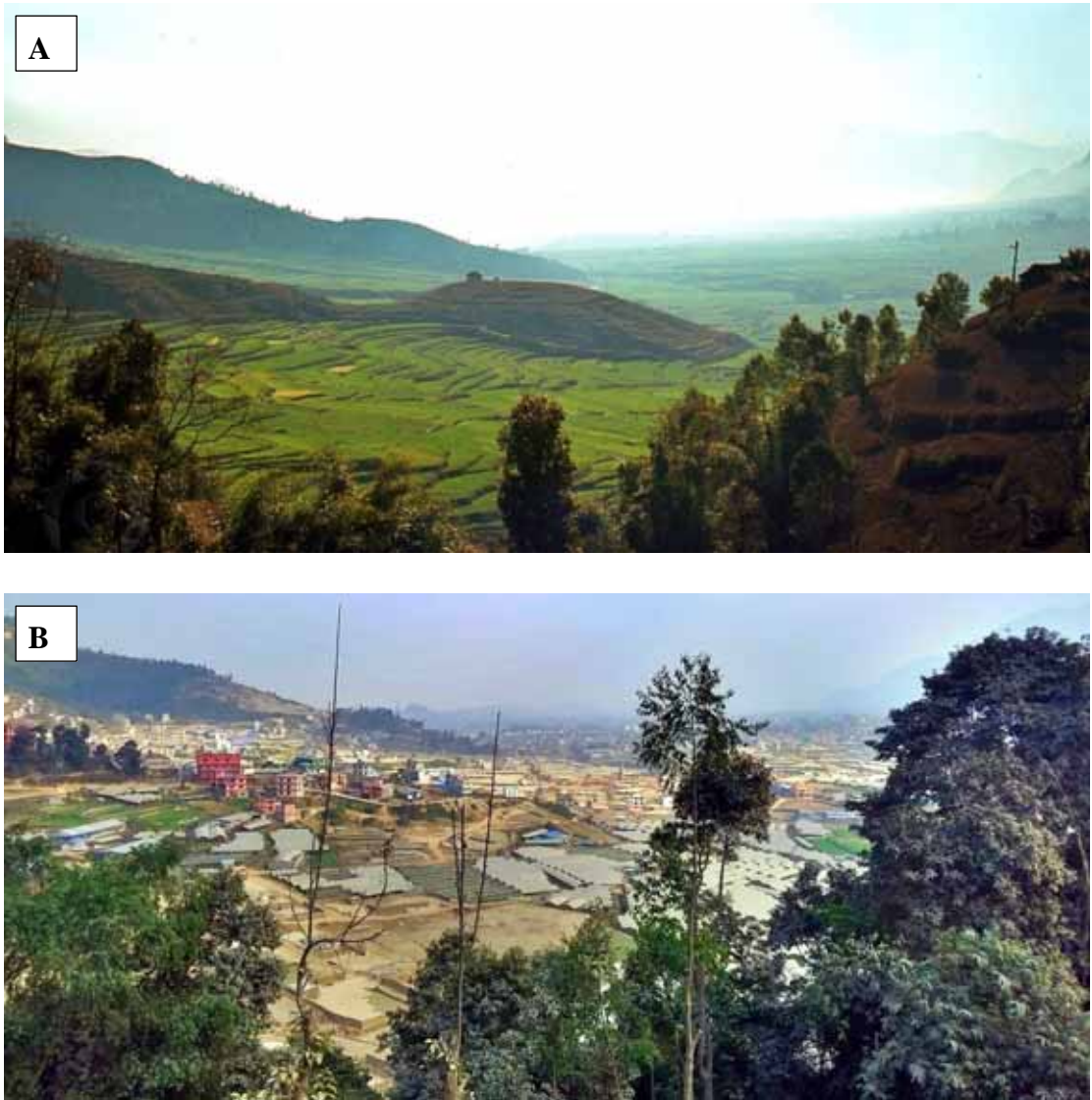
**Figure 2.** Otter carcass lateral view (A); front view (B); courtyard used as a badminton court where otter carcass was found (C); nearby brook (D)

Photo credits: Mahendra Maharjan (A and B); Mohan Bikram Shrestha (C and D)

Thirty mammal species were reported in the Chandragiri hills (Katuwal et al., 2020) located in the vicinity of the site where the otter carcass was found. All the mammal species are terrestrial and inhabit the forest. In contrast, the record of the semi-aquatic Eurasian otter in this area is mysterious. Communication with senior local citizens in the locality revealed that several decades earlier the species had been present in rice paddies and but it had disappeared with urbanisation. Urbanisation is one of the most



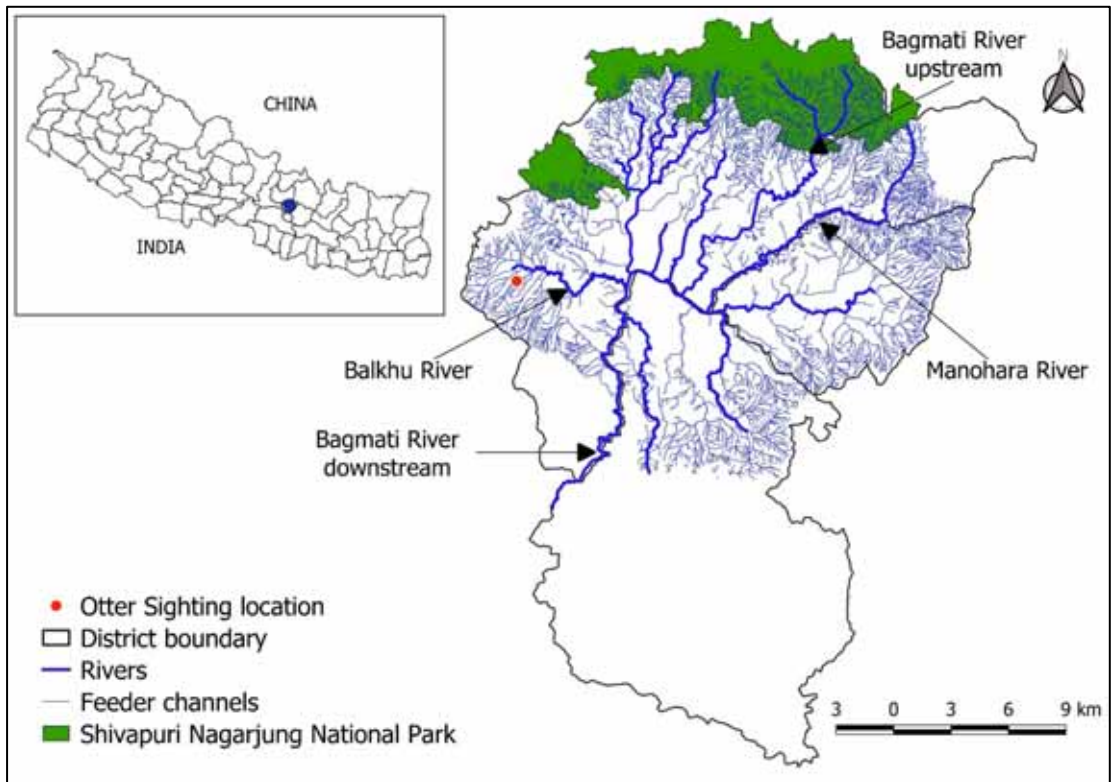
important factors which contributes to the subsequent loss of the natural environment in the Kathmandu valley (**Thapa and Murayama, 2012**). Conversion of agricultural land into built-up areas is the prime visible change (Figure 3): built-up areas have increased by 412% while agricultural land showed a 31% loss between 1989 and 2016. Much is unknown about how this affects fragile ecosystems within this mountainous valley (**Ishtiaque et al., 2017**). Is it possible that this Eurasian otter has survived in the changing natural environment in the Kathmandu valley? Or, did it arrive from nearby rivers?



*Figure 3. Change in natural environment in the Chandragiri area where the otter carcass was found between 1977 (A) and 2021 (B)*

Photo credits: Museum Nepal (A) and Jeevan Ale Mager (B)

The Bagmati River is the main river of the Kathmandu valley. It is fed by all of the tributaries in the valley and flows to the Southern lowlands of Nepal (**ICIMOD, MoEST and UNEP, 2007**). The Eurasian otter is reported to be present in the Shivapuri Nagarjun National Park, the headwater or origin of the Bagmati River (**SNNP, 2017**), although there are no direct sighting records of the otter within the Park. It is not clear whether the otter was actually chased and killed while travelling outside the Park area or within the Park itself. It is even possible that the Eurasian otter is still thriving in the Bagmati River further downstream beyond the Kathmandu valley, and that it moved upstream and was chased to Chandragiri and killed (Figure 4). This query is still to be addressed through a detailed study along the Bagmati River watercourse.



*Figure 4. Otter site location and the river network and nearby National Park*

## CONCLUSION

Destruction of the natural ecology and native habitat have threatened the survival of wild species (**Corvalan et al., 2005**). Kathmandu valley is a classic example with a city which has evolved from a green city to a grey city. The conversion of land use into a built-up area has put great pressure on agricultural land, forest patches and river corridors in the valley (**Thapa and Murayama, 2012, Ishtiaque et al., 2017**). Wild species are wiped out or become displaced to refuges in the forest which still

surrounds the valley. A multitude of queries arose following the mysterious occurrence of the Eurasian otter in the middle of a built-up area in the Kathmandu valley. An investigation into the presence of the Eurasian otter in the Bagmati River could resolve the question and enable conservation and environmental management for the survival of the species (De Snoo et al., 2013, Bennett et al., 2017).

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### **Disclosure Statement**

No potential conflict of interest was reported by the authors.

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MOHAN BIKRAM SHRESTHA is a wildlife researcher carrying out otter research in Nepal. He is primarily involved in gathering evidence of the presence of the Eurasian otter and otter conservation awareness campaigns in Nepal. He has been a member of the IUCN Otter Specialist Group since 2017.

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