

Short Communication

Distribution updates of the yellow-bellied weasel *Mustela kathiah* in the Kathmandu Valley, Nepal

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Abstract

Yellow-bellied weasel (*Mustela kathiah*) is one of the least known small carnivores of Nepal. Although it is assumed to distribute within the mid-hills region, its sightings are very few in Nepal. We updated its distribution from Kathmandu Valley based on literature review and opportunistic sightings. Now, the yellow-bellied weasel is known from three locations in the Kathmandu Valley (Phulchowki, Budhanilkantha, and Dallu-Pharping) between 1300 and 2710 meters above sea level (m asl). Only one individual was sighted in each observation. The observation from Phulchowki (2710 m asl) represents the highest elevation record for the Kathmandu Valley and the second highest for Nepal. The weasels were observed in the forest, bushes, and agricultural areas near small rivers and human settlements.

Keywords: Carnivore; Forest; Mustelidae; Phulchowki; Small mammal

1 | Introduction

Yellow-bellied weasel (*Mustela kathiah*) is a medium-sized weasel with a chocolate brown upper body and a sulphur-yellow belly, a whitish upper lip, chin, and upper throat, faint whitish feet, a head-to-body length of 20–29 cm, and a 13–18 cm long brown tail (Jnawali et al. 2011; Menon 2014). It is found in Nepal, Bhutan, India, China, Myanmar, Thailand, Vietnam, Lao People's Democratic Republic, and Cambodia (Willcox et al. 2016). It is predominantly carnivorous, feeding on birds, mice, rats, voles, and other small animals and prefers woodland, shrub, and grassland habitats (Jnawali et al. 2011; Ghimire & Acharya 2012; Willcox et al. 2016).

Yellow-bellied weasel is one of six species of weasels recorded in Nepal (Amin et al. 2018). It is known as *Pitodar Malsapro* or *Kathia-nyal* in Nepali (Jnawali et al. 2011). There are a few occurrence records of yellow-bellied weasel in Nepal (Fig. 1); the available information is primarily from protected areas such as Annapurna Conservation Area, Sagarmatha National Park, and Makalu Barun National Park (Jnawali et al. 2011) and a few outside protected areas such as Kathmandu, Ilam, Myagdi, and Jajarkot (Baral et al. 2019a; Katuwal et al. 2018). It is listed as Data Deficient in the National Red List assessment (Amin et al. 2018; Jnawali et al. 2011), but as Least Concern in the global IUCN Red List assessment (Willcox et al. 2016). It is typically observed between 1000 and 3100 m in subtropical and temperate forests of Nepal (Baral et al. 2019a; Jnawali et al. 2011).

Till now, there is only one published record of the yellow-bellied weasel in Dallu-Pharping of Kathmandu Valley (Katuwal et al. 2018). Here, we provide two additional records with photographs including the highest elevation record to update its distribution in Kathmandu Valley. These records will serve as a foundation for future research on the Yellow-bellied weasel in the Kathmandu Valley.

2 | Materials and methods

2.1 | Study area

This research was carried out in the Kathmandu Valley, Nepal. Politically, Kathmandu Valley is divided into three districts: Kathmandu, Lalitpur, and Bhaktapur. Kathmandu is the capital city of Nepal. Kathmandu Valley is the most populated city in Nepal. The Phulchowki Hill which mostly lies in Lalitpur is the highest point of Kathmandu Valley with an elevation 2760 m and is recently designated as protected forest. The climate ranges from subtropical to temperate. The major vegetation in the valley are *Alnus nepalensis*,

Schima wallichii, *Castanopsis indica*, *Pinus roxburghii*, *Quercus* spp., and *Rhododendron* spp., whereas commonly found mammals include *Felis chaus*, *Panthera pardus*, *Muntiacus vaginalis*, *Sus scrofa* etc., and the birds are *Lophura leucomelanos*, *Eudynamys scolopaceus*, *Athene brama*, *Aquila nipalensis*, *Corvus splendens*, *Hirundo rustica*, *Passer domesticus*, etc. (Katuwal et al. 2020).

2.2 | Methods

We reviewed the occurrence of the yellow-bellied weasel in the Kathmandu Valley and found a single paper from the Kathmandu District (Dallu-Pharping in 2016; Katuwal et al. 2018). In this paper, we reported data from both our own observation (Budhanilkantha and Phulchowki hill) and the previously published one (Dallu-Pharping). All the observations of the yellow-bellied weasel were opportunistic. When we observed the species, we recorded their locations using Garmin eTrex 10 GPS and took the photographs using camera Sony alpha 1 (200–600 mm). We identified the species with the help of field guide 'Wild Mammals of Nepal' (Baral & Shah 2008).

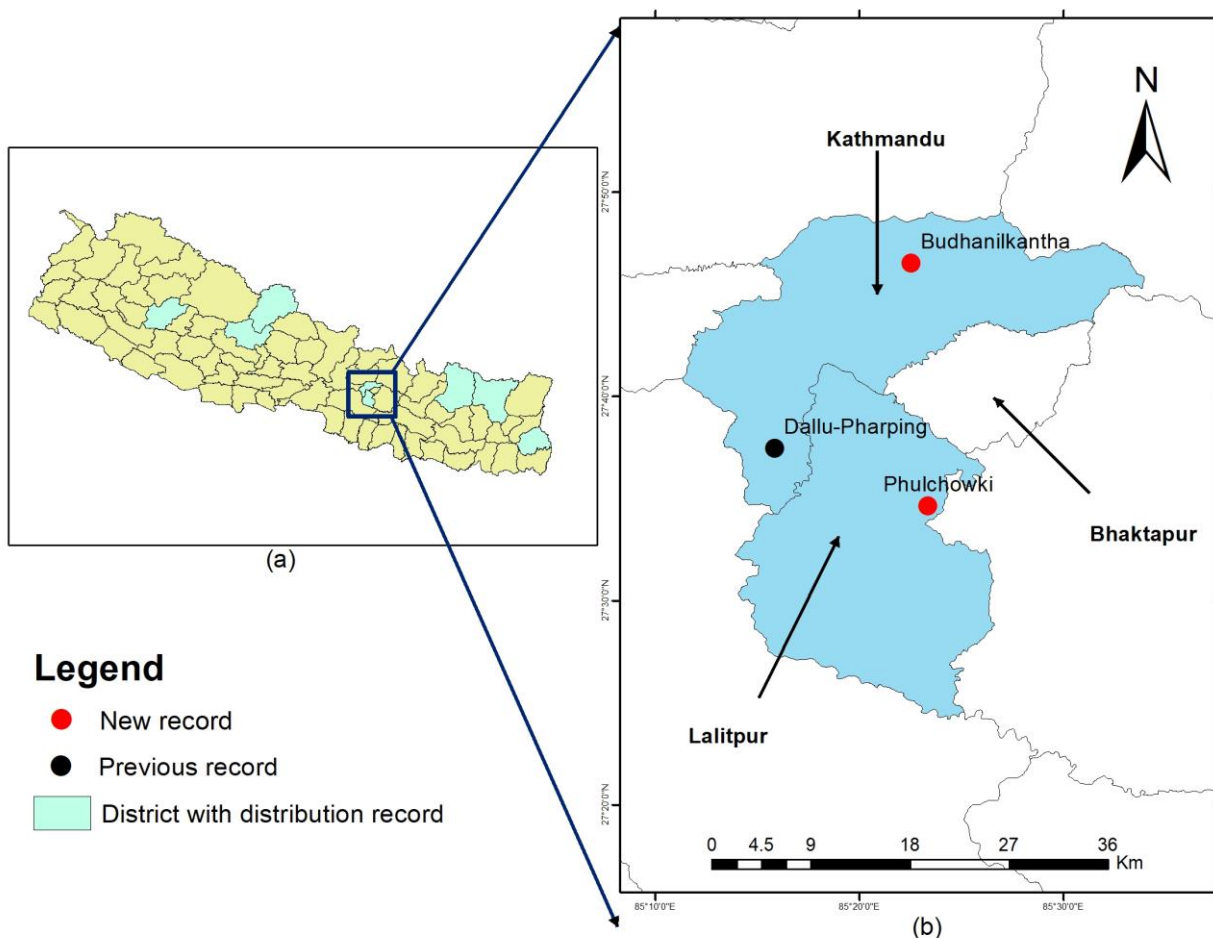


Figure 1. Sightings of the yellow-bellied weasel in Nepal (a) and in Kathmandu Valley (b)

3 | Results

We confirmed three photographic evidences of the yellow-bellied weasel in the Kathmandu Valley from 2016 to 2022 (Figs. 1 & 2). The two observations in Kathmandu (Budhanilkantha in October 2016 and Dallu-Pharpping in March 2016) were at 1300–1400 m, while the Phulchowki hill in Lalitpur was at 2710 m above sea level in June 2022. A single individual was sighted during each observation. Sighting in Budhanilkantha was within the buffer zone of Shivapuri Nagarjun National Park. The yellow-bellied weasels were observed in bushes, tree patches, and agricultural areas near small rivers, as well as in human settlements in Kathmandu, while in the *Quercus* spp. forest on Phulchowki Hill.

4 | Discussion

We updated the distribution and habitat of the yellow-bellied weasel in Kathmandu valley. We confirmed the highest elevation record for the yellow-bellied weasel in Kathmandu Valley (Phulchowki Hill, elevation = 2710 m), and the second highest for Nepal. The Yellow-bellied weasel was thought to be distributed between 1000 and 2000 m (Baral & Shah 2008; Jnawali et al. 2011),

but Baral et al. (2019a) recorded a live individual at 2190 m asl and a dead individual at 3078 m asl in Myagdi and Jajarkot districts, respectively while Ghimire & Acharya (2012) at 2457 m asl in buffer zone of Makalu Barun National Park. Thus, to our knowledge, our sighting is significant because it is the second highest elevation record in Nepal, and the first for a living species. In addition, our observations and the available literatures (Ghimire & Acharya 2012; Katuwal et al. 2018; Baral et al. 2019a, b) show that the yellow-bellied weasel mostly prefers Nepal's mid-hills region, i.e. sub-tropical to the temperate regions.

We found yellow-bellied weasel in both dense forest as well as human habitations, as reported by Willcox et al. (2016). Our sighting habitat at Phulchowki is dominated by *Quercus* spp., which is similar to the habitat described by Ghimire and Acharya (2012) and Baral et al. (2019a). They are mostly overlooked and rarely seen because they prefer dense forest (for example, in Phulchowki). However, the species may be susceptible to anthropogenic impacts because some individuals have been spotted near human settlements, and people may kill them as they sometimes prey on poultry and there is a possibility of road kills (Henderson et al. 1994; Supparatvikorn et al. 2012). Nevertheless, systematic studies are required to determine how anthropogenic activities impact their population and distribution.



Figure 2. Photo of yellow-bellied weasel and its habitat (base of rocky wall and motorable road in *Quercus* spp. forest in Phulchowki). Photos A and B are from Phulchowki, C from Budanilkanta (© Bikash Sing Lama), and D from Dallu-Pharpping (© Pratap Gurung).

5 | Conclusions

This study updates the distribution and habitat of the yellow-bellied weasel in the Kathmandu Valley. There is little information about its occurrence, behaviour, ecology, and distribution in Nepal; thus, we recommend conducting focused research throughout the country, beginning with the Kathmandu Valley.

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Authors' contributions

Gosai, K. R. designed the research, collected data and wrote the manuscript; Bijukchen, D. and Khatri, S. R. collected photographic evidence; Shrestha, T. K. revised the manuscript; Katuwal, H. B. designed the research, collected data and wrote the manuscript. All authors contributed critically to the drafts and gave final approval for publication.

Conflicts of interest

Authors declare no conflict of interest.

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