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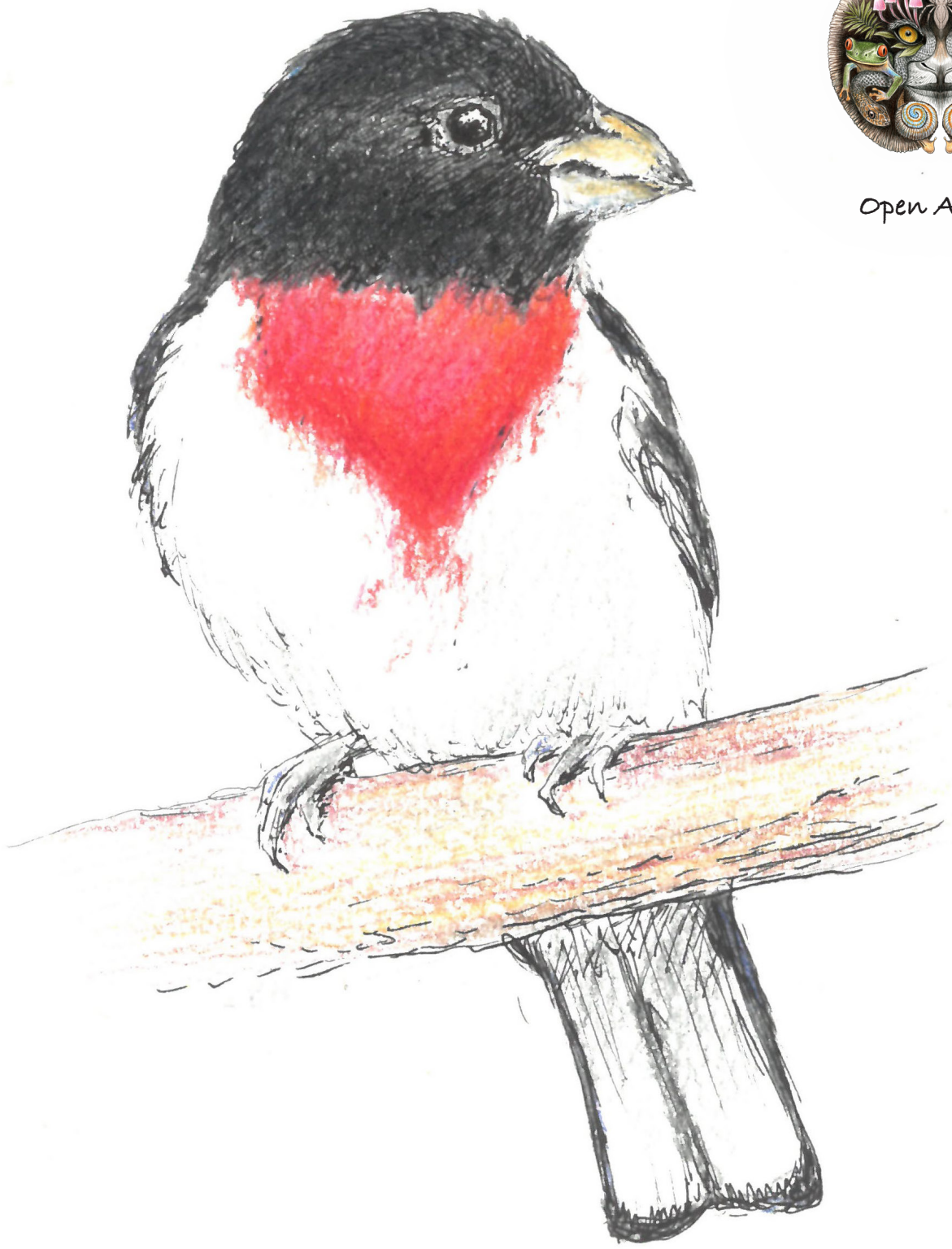

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Cover: Rose-breasted Grosbeak *Pheucticus ludovicianus*, pen & ink with colour pencil. © Lucille Betti-Nash.

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SHORT COMMUNICATION

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First photo evidence of Siberian Weasel *Mustela sibirica* Pallas, 1773 (Mammalia: Carnivora: Mustelidae) in Gaurishankar Conservation Area, Nepal

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Abstract: Five photographs of Siberian Weasel were captured by camera traps in two locations at an elevation of 2,840-3,200 m. in Gaurishankar Conservation Area. The species was identified based on its uniform yellowish-brown coat, the presence of a black mask that surrounded its eyes and the white chin, which are key characteristics that distinguishes it from other weasel species. This is the first confirmation of the presence of Siberian Weasel in Gaurishankar Conservation Area, Nepal. Based on present and previous confirmed records, a distribution map of the species has been updated for Nepal.

Keywords: Carnivore, distribution, mustelid, Nepal Himalaya, opportunistic record.

Mustelidae is a diverse family of carnivorous mammals. It includes weasels, badgers, otters, martens, and wolverines. The genus *Mustela* consists of 14–17 species (Corbet 1978; Abramov 2000; Macdonald 2001; Wozencraft 2005). In Nepal, 11 species are recognized belonging to family Mustelidae (Chetri et al. 2014; Thapa 2014). Among them, five species of the genus *Mustela*: Mountain Weasel *M. altaica*, Yellow-bellied Weasel *M. kathiah*, Stripe-backed Weasel *M. strigidorsa*, Steppe Polecat *M. eversmanii*, and Siberian Weasel *M. sibirica* are known to occur in Nepal (Chetri et al. 2014; Thapa 2014). The existence of Stoat in Nepal *M. ermenia* remains doubtful (Thapa 2014). According to Abramov et al. (2016), the taxonomic status of the Himalayan and central Asian population of *M. sibirica* is uncertain. The species from Kashmir and Sikkim in India, and Nepal, are morphologically distinct and can be treated as a separate species *M. subhemachalana* Hodgson, 1837 (Abramov et al. 2018). The average body weight range of Siberian Weasel *M. sibirica* is 650-820 g for males and 360-430 g for females (Hunter 2011). Globally, the species is listed as 'Least Concern' on the IUCN Red List of Threatened Species (Abramov et al. 2016). However, very little information is available on the species distribution and ecology from Nepal Himalaya (Jnawali et al. 2011; Ghimirey & Acharya 2014). This paper presents the first camera trap photo evidence of the presence of Siberian Weasel in the Gaurishankar Conservation Area (GCA).

Survey area and methods

The survey was conducted in the GCA (27.87^{0}N, 86.18^{0}E) within an elevation range of 1,650–5,000 m (Figure 1). GCA is located between Langtang National

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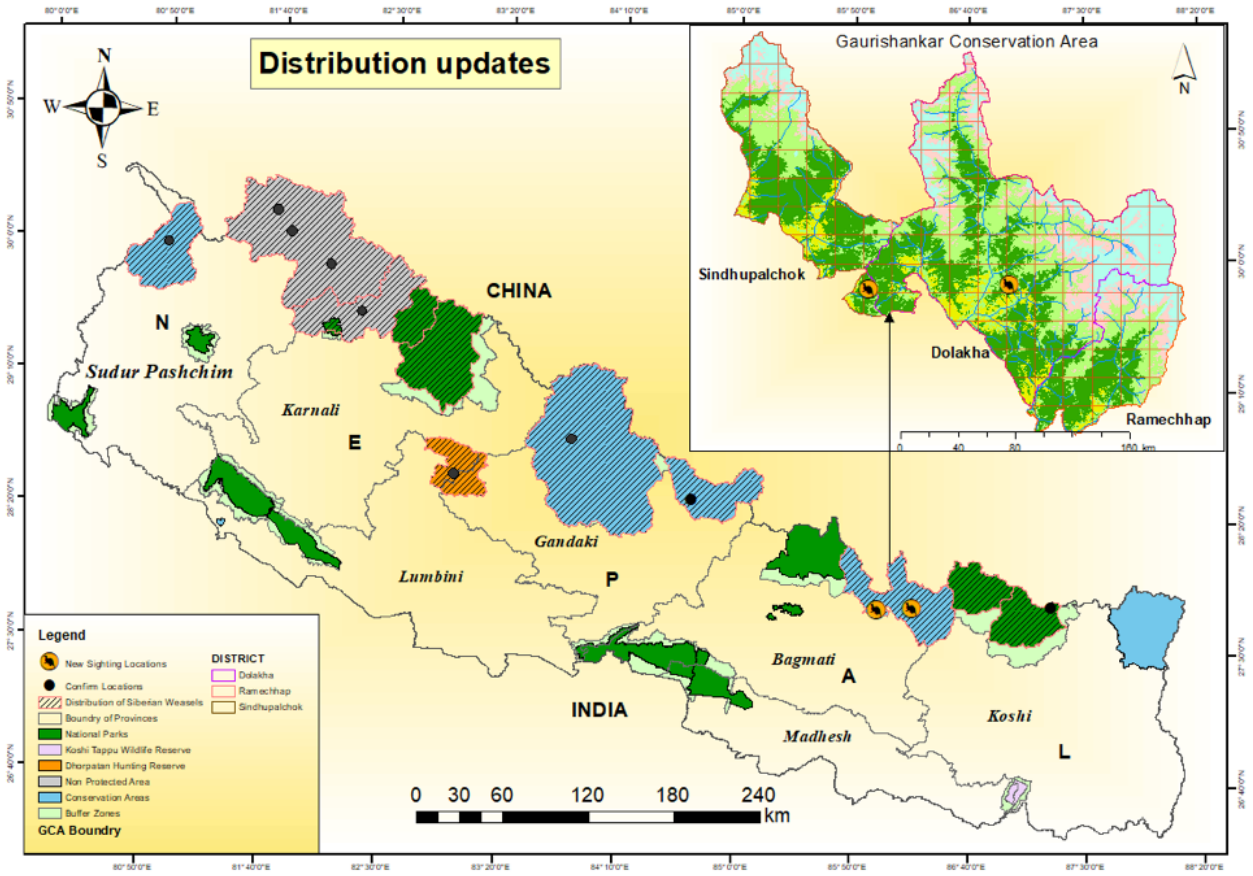

Figure 1. Distribution updates of Siberian weasel in Nepal. Dot signs represent new sighting locations of species in Gaurishankar Conservation Area, Nepal.

Park in the west and Sagarmatha National Park in the east. The northern border is adjacent to the Qomolangma National Nature Reserve, the largest nature reserve in the Tibetan autonomous region of the People's Republic of China. GCA covers an area of 2,179 km^2 along three districts - Dolakha, Rammechhap, and Sindupalchok. Within 120 km of south-north, the elevation rises from less than 1,000 m to over 7,000 m in Dolakha District. The physiographic and climatic zones vary from mid-hills to high mountains and from sub-tropical to alpine. The diverse physiographic and climatic zones vary from mid-hills to high mountains and from subtropical to alpine mosaics habitats with many threatened species of flora and fauna (GCA 2013). The area harbors more than 700 plant species. The most common ungulates seen at lower altitudes is the Himalayan Goral *Naemorhedus goral*. Three primate species are found in the region, including the globally near-threatened Assamese Macaque *Macaca assamensis* (Boonratna et al. 2020). The area also harbours Chinese Pangolin *Manis pentadactyla*, Red Panda *Ailurus fulgens*, Asiatic Black Bear *Ursus thibetanus*, Common Leopard *Panthera pardus*, Snow Leopard *Panthera uncia*, and Himalayan Wolf *Canis lupus chanco*.

Nearly 70,000 people are living within GCA. The pressure on forest habitats is high. National Trust for Nature Conservation-Gaurishankar Conservation Area Project has been managing the area since July 2010 and has initiated important conservation work in partnership with the concerned stakeholders and local communities. At higher altitudes, rangelands are used for grazing livestock such as goats, sheep, cows, horses, yak-hybrid (chauri & dzo), yak and demu (female yak). During summer, livestock such as goats, sheep, yak and yak-hybrids are taken to higher altitudes for grazing by using temporary cattle sheds. To escape severe winter, some northern villages also have a tradition of temporary migrating to lower altitudes for 3–4 months with livestock herds.

The entire GCA was overlaid with 5 x 5 km grid cells using ArcGIS (see Figure 1). Among 97 grid cells, we avoided 34 cells due to difficult terrain, human settlements, and agricultural farmland. Pairs of camera traps were set to obtain pictures of both flanks of the

Image 1. Siberian Weasel *Mustela sibirica* in Gaurishankar Conservation Area: A--Front view showing the dark muzzle, white chin and black tip tail | B-Lateral view. © NTNC-GCAP.

Table 1. List of mammalian and bird species recorded along with Siberian Weasel in the study area.

	Species	Family	IUCN Red List Status (2023)	Camera location
1	Siberian Weasel *Mustela sibirica*	Mustelidae	LC	Khare (Dolkha) & Khalsa (Sindhupalchok)
2	Red Panda *Ailurus fulgens*	Ailuridae	EN	Khare (Dolkha)
3	Common Leopard *Panthera pardus*	Felidae	VU	Khalsa (Sindhupalchok)
4	Leopard Cat *Prionailurus bengalensis*	Felidae	VU	Khalsa (Sindhupalchok)
5	Barking Deer *Muntiacus muntjac*	Cervidae	LC	Khalsa (Sindhupalchok)
6	Wild Boar *Sus scrofa*	Suidae	LC	Khalsa (Sindhupalchok)
7	Himalayan Serow *Capricornis sumatraensis*	Bovidae	VU	Khalsa (Sindhupalchok)
8	Himalayan Goral *Naemorhedus goral*	Bovidae	NT	Khalsa (Sindhupalchok)
9	Red Gaint Flying Squirrel *Petaurista petaurista*	Sciuridae	LC	Khalsa (Sindhupalchok)
10	Himalayan Monal *Lophophorus impejanus*	Phasianidae	LC	Khalsa (Sindhupalchok)
11	Blood Phasant *Ithaginis cruentus*	Phasianidae	LC	Khalsa (Sindhupalchok)

LC—Least Concern | EN—Endangered | VU—Vulnerable | NT—Near Threatened.

animal species. Altogether, 183 camera locations were used during the survey period (April 2022–May 2023). Camera traps were placed at key locations for 43 days (except one camera trap), including major livestock trails, junctions of the trails, ridgelines, and in mountain passes, where we expected a high likelihood of wildlife activity. Depending on the topography and gradients, cameras were placed ca. 40–100 cm above the ground, and they were programmed to take three photos per triggered event.

Observations

We obtained five photos of Siberian Weasel in two locations (Image 1A-B) during April 2023 in GCA. At both locations, Siberian Weasels were captured during daytime, one at 0702 h (two photographs, elevation: 3,200 m) and another at 1735 h (three photographs, elevation: 2,840 m). Both cameras were located at an approximate distance of 4–5 km from a human settlement. One of the locations was in a main livestock/human trail dominated by Nigalo Bamboo *Drepanostachyum* spp. with patches of *Rhododendron* species, and the other was in an animal trail at the base of the ridge with forest dominated by *Rhododendron* spp., *Pinus wallichiana*., *Drepanostachyum* spp., and *Litsea* spp. The species was identified based on uniform yellowish-brown coat, black tip tail and dark chocolate coloration on the snout (Law 2015). Several other mammalian species were also recorded from the two camera stations (Table 1). Two pheasants, i.e., Himalayan Monal and Blood Pheasants were also recorded.

The animal is locally known as 'Malsapro' in Nepali language. We talked with the local communities who are using the areas for livestock grazing and other forest

resources. However, local people failed to identify the species, and they were completely unaware of its presence, probably due to their rarity in the area. Based on the present and earlier records, a distribution map has been updated for the species in Nepal (see Figure 1).

Discussion

Among the five species of mustelids in Nepal, two species—Mountain Weasel *M. altaica* and Siberian Weasel *M. sibirica*—were found in the GCA. Although the Siberian Weasel is listed as Least Concern in the National Red List of Nepal (Jnawali et al. 2011), its conservation status needs reevaluation. Ghimirey & Acharya (2012) suggested the species need to be placed in Data Deficient category as very limited information available for assessing status of the species. The GCA was established in 2010, and thereafter, several research- and biodiversity surveys have been conducted (GCA 2013). The recently published mammalian checklist of GCA highlighted the possibility of the presence of Siberian Weasel through a literature survey (Chetri et al. 2022). However, there was no confirmed evidence of their presence until the present finding.

Few authenticated localities of Siberian Weasel presence are known in Nepal. There have been recent confirmation records of its presence in Dhorpatan Hunting Reserve (Basnet et al. 2022). Earlier, the presence of the species was also reported from Makalu-Barun National Park and Manaslu Conservation Area (Ghimirey & Acharya 2012; Katuwal et al. 2013) and from Mugu and Humla districts which lie outside the protected area (Ghimirey & Acharya 2014; Yadav et al. 2019).

Weasels played an important role in controlling rodents from agricultural fields, but in some countries, they cause significant damage to poultry (Jo et al. 2018), and therefore they may be persecuted (Abramov et al. 2016). In GCA, human activities and livestock grazing pressure was high in the forests, as local communities are residing within the conservation area. Also, the awareness level of several forest dependent ethnic communities is limited. Therefore, awareness campaigns regarding the importance of the species are needed. As the taxonomic status of the Himalayan and Central Asian population of *M. sibirica* is still uncertain (see Abarmov et al. 2016), and several subspecies are currently recognized (Suzuki et al. 2013; Wozencraft 2005), we believe it is important to undertake a genomic study in the future.

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