

ORIGINAL ARTICLE

First verifiable record of Spotted Linsang *Prionodon pardicolor* from Nepal since the nineteenth century

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Abstract.

Spotted Linsang *Prionodon pardicolor* has been rarely recorded in Nepal except for Hodgson's collection in the 19th century and several sighting records in Chitwan National Park during the late 1970s and 1980s. A camera-trap record in Annapurna Conservation Area during a Mainland Clouded Leopard *Neofelis nebulosa* survey in January 2017, constitutes the first verifiable evidence of the species in the country since the nineteenth century. This authenticates the westernmost known limit of its current global distribution.

Keywords: Hodgson, montane forest, camera-trap, small carnivore, first recent record, range clarification.

Spotted Linsang *Prionodon pardicolor* is found in the forests of South and South-east Asia and southern China in a wide variety of forest habitats and, sometimes, dense grasslands (Prater 1971, Sunquist 1982, Jennings & Veron 2015). Previously the species was proposed to be rare (Schreiber *et al.* 1989) but with the advent of modern survey equipment like camera traps, it is in at least some of its range recorded more regularly (e.g. Zhang *et al.* 1997, Than Zaw *et al.* 2008, Lau *et al.* 2010). Hence it is categorized as Least Concern by *The IUCN Red List of Threatened Species* (Duckworth *et al.* 2016); the species is however classified as nationally endangered in Nepal (Jnawali *et al.* 2011).

Nepal is believed to be the westernmost range of Spotted Linsang's global distribution with very few authentic records in the country to date. The species was described to science from the country by Brian H. Hodgson (Hodgson 1841) who collected a total of eight specimens, with no specific localities (Hodgson 1841, 1847). Hodgson used 'Nepal' for a much larger area than is encompassed by today's national limits. Hinton & Fry (1923) accepted the Linsang to occur in today's Nepal based on Hodgson's records, but it is not clear how many of the eight originated within the country. Besides this, apparently the only other

claims of specific records of this species from Nepal come from Chitwan National Park (CNP) (Table 1).

Table 1. Reports of Spotted Linsang *Prionodon pardicolor* from Chitwan National Park, Nepal.

Location	Type of record	Habitat	Date(s)	Time of day	Observer, reference	Number of animals
27°34'14" N 84°29'23" E 130 m	Field sighting	Riverine forest (<i>Dalbergia</i> , <i>Bombax</i> , <i>Mallotus</i> and <i>Trewia</i>)	January 1978	Dusk	Kirti Tamang per Prasad Yonzon <i>in litt.</i> 2008	1
27°30' N 84°20' E 150 m	Found drowned in a well	lowland forest– grassland	Late Feb 1975	n/a	Sunquist 1982 <i>in litt.</i> 2008	2
27°30' N 84°20' E 150 m	Field sighting	lowland forest– grassland	17 Jan 1975	late after- noon	Sunquist 1982 <i>in litt.</i> 2008	1
27°30' N 84°20' E 150 m	Field sighting	Dense riverine forest	4 Feb 1975	18h30	Sunquist 1982 <i>in litt.</i> 2008	1
27°30' N 84°20' E 150 m	Field sighting	Sal forest interspersed with tall grass	Mid Mar 1979	17h00	Sunquist 1982 <i>in litt.</i> 2008	1
“western edge of CNP” 150 m	Field sighting	Riverine forest tall grassland	1980s	not known	C. McDougal <i>in litt.</i> 2008	1

All *in litt.* records per J. W. Duckworth.

The species has also been reported, without detail, from Kanchenjunga Conservation Area (KCA), easternmost Nepal (Jnawali *et al.* 2011). The most recent report of the species has been from Yamphudin area of Kanchenjunga Conservation Area where a forest guardian from the Red Panda Network claimed to have taken a photograph in 2014 which was apparently deleted later (Sonam Tashi Lama *in litt.* 2017). There have been no verifiable records since Hodgson's, raising concerns on its status in Nepal.

Annapurna Conservation Area

Annapurna Conservation Area spans from 1,300 m to 3,000 m above sea level in Kaski and Lamjung districts. Sikles, Tangting, Pasgaun and Bhujung are the closest permanent human settlements.

The camera-trap survey was targeting Mainland Clouded Leopard *Neofelis nebulosa* and was carried out in the Sikles-Bhujung landscape in Annapurna Conservation Area (Fig. 1) during January–March 2017. A potential camera trapping area was selected using a land use map of the area. Camera-trapping points were selected in the whole of the study area at a

minimum of 1 km separation. Points too close to human settlements (within 1 km) were eliminated from the final camera trap locations. In total, 53 camera-trap stations were used, with each camera-trap unit running for between 70 and 90 days, for a total sampling effort of 4,345 camera-trap nights.

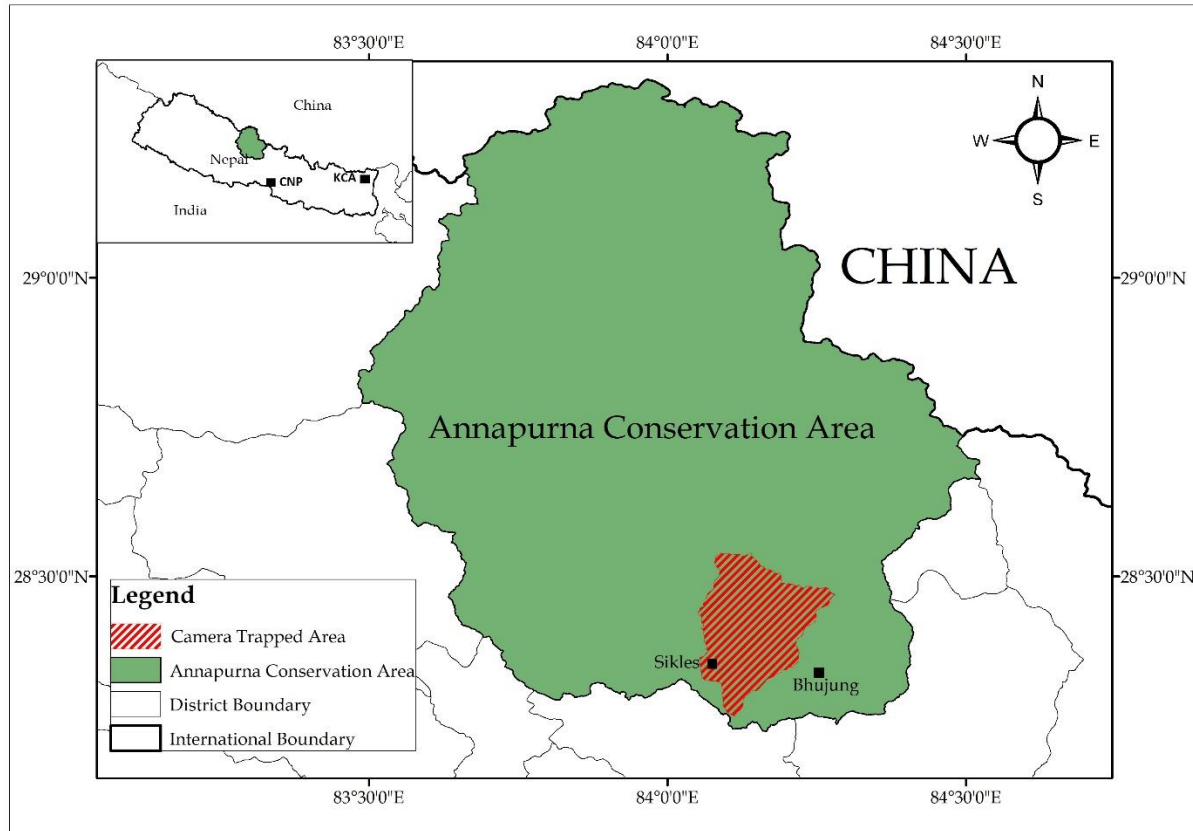


Figure 1. Study area with nearest human settlements. Map of Nepal also shows locations that accounted for other Spotted Linsang *Prionodon pardicolor* records from the country

Spotted Linsang camera-trap records

A survey from December 2016 to March 2017 in the Sikles – Bhujung landscape camera photographed Spotted Linsang at two stations. There was only one record at each station.

The altitudes of the two camera-trap stations were 2,392 m and 2,745 m, estimated from the GPS location. Both stations were in the montane forests with the habitat at the first dominated by oaks *Quercus* and champ *Michelia kisopa* and at the second station by rhododendrons *Rhododendron*, champ, Common Yew *Taxus baccata* and Paper Plant *Daphne papyracea*. Undergrowth common to both camera-trap stations included ground ferns.



Figure 2. Spotted Linsang *Prionodon pardicolor* near Pyanwa dada, Nepal.

Spotted Linsang had never been photographed in Nepal prior to the present survey and there were no verifiable records from the country since those of Hodgson in the 1840s. The present records are approximately 5 km west of the westernmost limit of the species' mapped global distribution range from *The IUCN Red List of Threatened Species* (Duckworth *et al.* 2016). Further exploration could provide information on its status in the areas West of the Sikles-Bhujung landscape, because this part of Nepal remains inadequately surveyed for small carnivores. Although, given the species high tolerance and persistence in areas with few other small carnivores left (e.g., Protected Areas in Vietnam), it is likely the species is not a conservation priority.

Human disturbance is not uncommon in the Sikles-Bhujung landscape. There was a base camp for timber logging 200 m below and a *goth* (a seasonal livestock shed) 150 m above the first camera-trap station. The second station was between two *goths*. During the herding season (i.e., May to August), local people come to the *goths* with their livestock. The herders kill wild birds and mammals using snares and guns which might be one of the primary

threats to the species. However, the species' persistence in heavily hunted areas of northern South-east Asia (e.g., Duckworth 1997, Than Zaw *et al.* 2008, Gray *et al.* 2014, Chua & Lim 2017) suggests the possibility that it would face no threats from human activity in this part of Nepal.



Figure 3. Spotted Linsang *Prionodon pardicolor* captured at Chyarsikharka, Nepal.

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