SHORT COMMUNICATION
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**Ailurus fulgens** (Cuvier, 1825) FROM LAMJUNG DISTRICT OUTSIDE ANnapurna CONservation AREA, NEPAL

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**Abstract:** In May and June, 2018, a series of field surveys was undertaken to determine the presence of the Red Panda *Ailurus fulgens* in Marsyangdi Rural Municipality in Lamjung District, western Nepal. A single, adult, Red Panda was photographed and recorded on video at Nafada Khola while scratch marks and distinctive scats provided evidence of Red Panda activity at eleven further localities at elevations between 3,150 and 3,650 m. Threats to the habitat of *A. fulgens* within the study area are discussed.

**Keywords:** *Ailurus fulgens*, Red Panda, distribution, Lamjung District, Nepal.

The Red Panda *Ailurus fulgens* is classified as Endangered by IUCN and is confined to the temperate forests in the foothills of the Himalaya. Its range extends from Kalikot District in western Nepal (Dangol 2014), eastwards through northeastern India, Bhutan, and northern Myanmar to Sichuan Province in south-central China (Glatston et al. 2015). Throughout its range, its preferred bamboo habitat is increasingly under threat from human activity, adding further pressure to its highly disjunct distribution.

Despite having extensive tracts of bamboo forest between 2,500 and 4,000 m, which is the species’ preferred habitat, Nepal is considered currently to support only 1.9% of the total global population of Red Pandas (Bista & Paudel 2014).

In Nepal, *A. fulgens* has been reported from the following districts: Taplejung, Panchthar, Sankhuwasabha, Solukhumbu, Ramechhap, Dolakha, Sindulpalchowk, Rolpa, Rukum, and Mug (Jnawali et al. 2012), Ilam (Williams 2004), Jajarkot (Baral 2014), Kalikot...
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(Dangol 2014), Khotang (Mali 2014), Bhojpur, Dolpa, and Lamjung (MoFSC 2016), and Rasuwa, Nuwakot, Myagdi, Baglung, and Dhading (Bista et al. 2017). *Ailurus fulgens* was reported to occur in Manang District (Paudel 2009) but its presence there has not been confirmed (Bista et al. 2017).

The protected areas in Nepal in which the species is known to occur include Kangchenjunga Conservation Area (Mahato & Karki 2005; Yonzon 1996), Manaslu Conservation Area (Yonzon et al. 1997), Makalu Barun National Park (Jackson 1990), Sagarmatha National Park (Mahato 2004), Langtang National Park (Yonzon 1989; Yonzon & Hunter 1991; Yonzon et al. 1991; Fox et al. 1996), Annapurna Conservation Area (Shrestha & Ale 2001), Dhorpatan Hunting Reserve (Sharma & Kandel 2007), and Rara National Park (Sharma 2008).

Until the present study, *Ailurus fulgens* was known to occur in Lamjung District only within Annapurna Conservation Area (MoFSC 2016) although scats consistent with those of *A. fulgens* were identified also in the District at Ghermu (28.378°N & 84.411°E) (MoFSC 2016). The purpose of the current field surveys was to determine the presence and population status of *A. fulgens* in Lamjung District outside protected areas.

**MATERIALS AND METHODS**

**Study area**

Lamjung District is located in Gandaki Province in western Nepal. The total population of the district is 1,67,724 with 42,079 households (CBS 2011). The district is located between 28.055–28.510°N and 84.189–84.189°E (Fig. 1). It has an elevation range of...
385–8,162m and covers an area of 1,692km² (DDC 2011). The climate is dictated by elevation and topography, which results in a mosaic of different geographical zones, from subtropical conditions in southern areas to an alpine zone in the north. Average annual rainfall is 2,448mm. (www.meteomean.com), more than 80% of which occurs during the monsoon season (June to September) (DDC 2011). Average air temperature ranges from a minimum of 15.50°C to a maximum of 27.17°C (DDC 2011).

Marsyangdi Rural Municipality is the largest of the rural municipalities in Lamjung District and covers an area of 597.25km² with a total population of 18,759 (CBS 2011). The Municipality is located between 28.251–28.510°N and 84.238–84.619°E. Marsyangdi Rural Municipality is characterised by subtropical, temperate, subalpine, alpine, and nival vegetation. Common plant species include Abies spectabilis, Betula utilis, Drepanostachyum falcatum, Juniperus spp., Quercus lanata, Q. semecarpifolia, Rhododendron anthopogon, R. arboreum, R. barbatum, and Tsuga dumosa.

Marsyangdi Rural Municipality has nine wards, of which wards 5, 6, and 7 (Ghermu, Bahundanda, and Bhumhule VDCs) lie outside Annapurna Conservation Area (ACA) with the remainder of the wards being managed as part of the ACA.

Seasonal transhumance (the movement of cattle and herders between lower valleys in winter and higher pastures in summer) is commonplace within the study area.

**METHODS**

As a part of a Rufford Small Grant project, a team comprising six members surveyed areas near Ghermu, Bahundanda, and Bhumhule (Wards 5, 6, and 7 of Marsyangdi Rural Municipality) in May and June, 2018.

An area of 15.54km² of potential Red Panda habitat were searched and 12 line transect surveys were done. Length of transects varied between 780m and 1500m depending upon the terrain. Red Panda signs like scat, scratch marks were searched for 12 search-effort hours in the potential habitats. Relative abundance of signs per unit hour and unit kilometer was estimated.

A Canon Powershot SX 50 camera was used to photograph the single, adult *A. fulgens* together with arboreal scratch marks, and scats. A video of the Red Panda was recorded using the same camera. Coordinates of localities were ascertained using a hand-held Garmin eTrex10 GPS.

**Figure 2.** A—*Ailurus fulgens* photographed at Nafada Khola, Bhumhule VDC, Lamjung District | B—Distinctive Red Panda scratch marks on a tree trunk at Nafada Khola | C—Fresh Red Panda scats on a tree limb at Nafada Khola | D—Red Panda habitat at Nafada Khola showing an understorey of Slender bamboo *Drepanostachyum falcatum*. © Ganesh Ghimire.
RESULTS

New locality record

One adult *Ailurus fulgens* was sighted in the forested area of Nafada Khola (28.438°N & 84.530°E), Marsyangdi Rural Municipality Ward Number 7 (Bhulbhule) on 28 May 2018 at 07.00h. (Fig. 1, Image 1A).

A total of 11 scat groups were observed in 12 line transects of length ranging between 780m and 1500m. Relative abundance of Red Panda scats was 1.44 scat groups per 1,000m walk and 0.92 scats groups per hour search effort in 15.54km².

Scratch marks consistent with those of *A. fulgens* were observed on a tree trunk approximately 50m east of the site (Fig. 1, Image 1B).

Scats consistent with those of *A. fulgens* were observed between 3,150m and 3,650m at 11 localities within 200m of the live observation site (Fig. 1, Image 2C). The principal threats to the preferred habitat of the Red Panda within the study area were identified as overgrazing by cattle, man-made forest fires, and the collection of tender shoots and mature stalks of bamboo by local people.

DISCUSSION

This paper provides the first photographic evidence of Red Panda in Lamjung, which was once reported as one of the potential areas for Red Panda (Jnawali et al. 2012). Different researchers have considered the panda sign encounter rate as the basis for abundance analysis. Williams (2004) found 5.1 Red Panda sign/km and 235 pellets per day in the altitudinal range of 2,800–3,000 m in eastern Nepal, Ilam. Pradhan et al. (2001) suggested rate of pellet groups and Red Panda to be 28.8±32.16 and 2.98 ± 2.1/100 hours walk respectively in Singhalila National Park, Darjeeling. In the study area, the scat group encounter rate was found to be 1.44 scat groups per 1,000m walk and 0.92 scats groups per hour search effort on an average which is lower than those encountered by Williams (2004). So, the study area may have lower relative density than Ilam and similar to Jumla. This relative abundance in small spatial scale over short period of study, however, may mislead the results hence an intensive study over a period of time is highly recommended for better understanding of numbers of Red Pandas in this isolated habitat and to meet Red Panda Conservation Action Plan (2019–2023)’s aim of protecting and managing the Red Panda population in Nepal through a holistic approach of conservation including research, monitoring, awareness building, habitat improvement, and threat management (DNPWC and DFSC 2018).

The adult Red Panda, which was observed from a distance of approximately 100m, was seen grooming itself and resting on a moss covered, horizontal limb of a mature Himalayan Birch *Betula utilis* (Image 1A). The tree was growing on a north-west facing slope with a gradient of 39° (cp. Wei et al. 1999). The immediate area was dominated by Himalayan Birch, Eastern Himalayan Fir *Abies spectabilis*, and *Rhododendron* spp. with an understorey of Slender Bamboo (*Drepanostachyum falcatum*). This floral matrix compares favourably with Red Panda habitat reported by Yonzon (1989). The nearest water source, the Nafada River, was at a distance of 100m.

Scratch marks considered to have been made by *A. fulgens* were observed on the trunk of a tree 50m east of the live observation site (Image 1B). Red Panda fur was found at the site.

Red Panda scats are spindle-shaped, soft, moist, and green in colour (Image 1C). They are highly diagnostic and are reliable indicators of Red Panda activity. Scats consistent with those of *A. fulgens* were observed at 11 localities within an area of 15.54km², each locality lying within 200m of the live observation site (Fig. 1). The localities were situated between 3,150 and 3,650 m. The fresh scats were found on the limbs of trees and on the ground over a two month period (May–June 2018). The size of Red Panda scats can be helpful in determining whether they are those of a mature or immature individual (Yonzon 1989). The size of scats ranged from 35.5mm to 40.3mm in length and 15.2mm to 20.7mm in width. Owing to the limited duration of the field survey, it was not possible to determine the abundance of Red Pandas in the study area but the variation in scat size would seem to indicate the presence of at least one mature and one immature individual and, accordingly, the possibility of a reproductive population.

Several threats to Red Panda habitat were identified within the survey area. Principal amongst these were grazing by livestock and man-made forest fires. Mahato (2004) mentioned overgrazing pressure between 3,200m and 3,400m in prime Red Panda habitats. We observed similar overgrazing pressure caused by the movement of cattle throughout the study area, particularly during seasonal transhumance. Grazing, trampling of vegetation and soil compaction were noted to damage the understorey and to impact negatively on floral regeneration. These movements during the main season when Red Pandas give birth and raise young (May–August) have been identified as a threat to Red Panda populations (Jnawali et al. 2012). Other threats to habitat integrity included the collection of bamboo and
plants. Tender shoots of bamboo are utilised in cooking while the stalks are used as winter cattle fodder, in the construction of walls and roofs of buildings, to stabilise soil in the fields, for basket weaving, and for producing utilitarian bamboo products such as ‘nanglo’ (a flat, round, woven tray used for sifting grain) and ‘mandro’ (a mat for sun-drying cereals). Plants that are collected include *Paris polyphylla* (Himalayan Paris), *Berberis asiatica* (Asiatic Barberry), and *Daphne* spp. (Lokhta).

The current distribution of *A. fulgens* in Nepal is
shown in Fig. 2 while Fig. 3 indicates the extent of the Red Panda’s preferred habitat throughout the country. Although resident in a broad area of the Nepalese Himalaya, it is clear from a comparison of the two figures that the distribution of *A. fulgens* is markedly disjunct with a notable hiatus between eastern and western subpopulations. It is recommended that further field research be undertaken in Nepal, particularly in Kaski District, which adjoins Lamjung District to the west and from which there are no records of *A. fulgens* despite the presence of suitable Red Panda habitat. Efforts to create corridors between isolated groups to maintain genetically viable populations, as suggested by Bista et al. (2017), should be encouraged.

References


Partner

Wild Nutmeg

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