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Assessment of illegal trade-related threats to Red Panda in India and selected neighbouring range countries

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2020

TRAFFIC REPORT

Assessment of illegal trade-related threats to Red Panda in India and selected neighbouring range countries

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LIST OF ABBREVIATIONS

CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
IUCN:	International Union for Conservation of Nature
M-STrIPES:	Monitoring System for Tigers - Intensive Protection and Ecological Status
SMART:	Spatial Monitoring And Reporting Tools
SAWEN:	South Asia Wildlife Enforcement Network
TWIX:	Trade in Wildlife Information eXchange System
WWF:	World Wide Fund for Nature

EXECUTIVE SUMMARY

The two-known (sub)species of Red Panda are distributed in the eastern and north-eastern Himalayan subalpine conifer forests and the eastern Himalayan broadleaf forests, which geographically falls in China, India, Nepal, Bhutan, and northern Myanmar.

The survival of Red Panda is threatened by issues like destruction of its habitat, hunting for meat and fur, and illegal collection for trade as pet animals. With only 14,500–15,000 individuals left in the wild it is listed as "Endangered" on the IUCN Red List of Threatened species. Further, to regulate its international trade, it has also been listed in Appendix I of CITES.

However, due to its distribution in the higher reaches of the Himalayas, which have limited access, information about the Red Panda's illegal trade is patchy and very difficult to collect. To fill this information gap in India and its neighbourhood, the present project was undertaken.

The project followed a four-pronged strategy to collect information on Red Panda trade in the project area (India, Nepal, and Bhutan). The first source of information was through open source media (newspapers/web portals/reports) etc. The second source of data was through government records and the CITES trade database. The third source was through individual contact with the experts working in this field via email, while the fourth method was a face to face questionnaire survey and physical market surveys in the Red Panda's distribution range. Due to logistical constraints, the face to face questionnaire surveys were conducted only in India (Arunachal Pradesh, West Bengal, and Sikkim).

During the study, 32 national/international experts were contacted, 54 markets in India and two markets in Nepal were surveyed and 1900 persons were interviewed in 289 villages of three states in India. Along with this, CITES trade database records from 2010 to 2018 were analysed while 18 e-commerce portals were actively monitored for 45 days to document any incidence of sale of Red Panda products over these platforms.

The overall conclusion of the study was that Red Panda-related crimes were found to be lowest in Bhutan while significant incidences have been recorded from Nepal. Similarly, though not reported prominently by media, Red Panda-related crimes (targeted/non-targeted poaching, trade of products mainly fur) does exist in India too, albeit at a fairly low level. Only a few incidences of live animal trade (for pets) and no incidences of web-based trade were encountered during the study.

Considering the information gathered during the study, it is recommended that management should be encouraged involving self-enforcement, snare swaps, mitigation of non-targeted trapping, awareness building etc.

In particular, TRAFFIC recommends:

- Governments in Red Panda range states should undertake special initiatives to register all existing Red Panda specimens to decide on their legality.

- Joint efforts by governments and conservation organisations should be undertaken to enhance the capacities of enforcement agencies.

- Transboundary law enforcement co-operation needs to be improved through the use of multi-government platforms like SAWEN.

- A DNA-based database should be created for various existing populations, so as to facilitate easier establishment of provenance of live animals or products, when they are found in trade.

- A Red Panda crime database should be established to give valuable insights regarding Red Panda trade.

- A Trade in Wildlife Information eXchange (TWIX) type platform, if established for South Asia, could act as a workable option for any such initiatives.

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1. Introduction and Background

The Red Panda *Ailurus fulgens* is the sole representative of the monotypic family Ailuridae. The two known (sub)species are native to the eastern and north-eastern Himalayan subalpine conifer forests and the eastern Himalayan broadleaf forest ecoregions, respectively. The separation of Red Panda into two species – the Himalayan Red Panda (*A. fulgens*) and the Chinese Red Panda (*A. styani*) – based on differences in morphology and biogeography has been proposed (Groves, 2011), with additional genetic evidence recently published to support this proposal (Hu *et al*., 2020). Such a taxonomic revision would have profound implications for the conservation of both species. The western nominate (sub)species *A. (f.) fulgens* is found in the mountains of north-eastern India in the states of Sikkim, West Bengal, and Arunachal Pradesh, with a small population recorded in Meghalaya, Nepal, Bhutan, and northern Myanmar, and is recorded between 2500 to 4800 m altitude Glatston *et al.*, 2015) while the eastern (sub)species *A. (f.) styani* is distributed in south western China (Liu, 2009).

The Red Panda's distribution range is considered to be disjunct and not continuous. In Myanmar it is restricted to the northernmost state of Kachin, in China, its largest distribution range, the species is found across three provinces—Sichuan, Yunnan and in the Tibetan Autonomous Region (Glatston *et al*., 2015). Earlier reports of the presence of Red Panda in Lao PDR were found to be unsubstantiated (Duckworth, 2011).

The present study is focussed on India and selected neighbouring range countries (Nepal and Bhutan), where the Red Panda is reported from temperate broadleaf forests with bamboo understorey and subalpine areas and is considered an indicator species for the broadleaf and conifer ecoregion of the Eastern Himalayan (Williams, 2003).

1.1. Global scenario:

The estimated global wild population of Red Panda stands at around 14,500–15,000 individuals (Glatston *et al.*, 2015). Its population in the wild in India is estimated to be between 5000 and 6000 individuals which is the second largest population after China (around 6000–7000 individuals) while 317–582 individuals are also estimated to be inhabiting the forests of Nepal. No estimate of the population in Bhutan and Myanmar has been undertaken (Glatston *et al.*, 2015).

Across much of its natural distribution range, Red Panda faces the threats of loss and fragmentation of its habitat due to deforestation, infrastructure development and conversion of forested land for agriculture. Poaching and illegal extraction from the wild is another major threat to the survival of the species. While the prevalence of demand for its pelt appears to have reduced in recent times (Liu, 2009), reports of Red Panda in the pet trade appear to have increased (Media Reports 1 and 2).

Considering the decline of its population by 50% over the past two decades and the likelihood that it will continue to decline over the next three generations (about 18 years), the Red Panda was up-listed into the "Endangered" category on the IUCN Red List of Threatened Species in 2008 (Glatston et al., 2015).

The present study concentrated on assessing the levels of poaching and illegal wildlife trade of Red Panda and its derivatives in India, Bhutan, and Nepal, and takes forward a similar study conducted by TRAFFIC in China (Ling and Jing Guan, 2018).

1.2. Country-wise distribution of Red Panda in South Asia

India:
In India, the species is reported from three states namely, Sikkim, Arunachal Pradesh and West Bengal. Although it has also been reported in the state of Meghalaya, from Balapakram and Nokrek National Park in Garo hills area (Choudhury, 1997), it has however not been confirmed from there in recent times. Locally the Red Panda is called *Habre* in parts of Darjeeling and Sikkim, *Aaye-michunji* in Dibang Valley of Arunachal Pradesh and *Matchibel* in the Garo Hills of Meghalaya.

In 2012, Jnawali *et al.* reported that the amount of habitat available for Red Panda in Sikkim and Arunachal was 6400 sq. km., while when assessed with rigid constraints for assessing "most suitable habitat", the area was found to be approx. 2600 sq.km only, which is half of the earlier proposed area (Choudhury 2001).

As per an estimate (Ziegler *et al*., 2010), the population of Red Panda in Sikkim was estimated to be around 225–370, distributed over 650 sq. km of suitable forest area. Another estimate (Jnawali, 2012), however puts the population in Sikkim at 250–300 individuals (Zeigler *et al*., 2010). The state of West Bengal (North region), is estimated to host 55–60 individuals which combines the estimates from Singhalila National Park (Roka and Jha 2014) and Neora Valley (Mallick 2010). Both these populations are reported from a single district, namely Darjeeling in West Bengal. Arunachal Pradesh is presumed to hold the largest Red Panda population in India but there have been very few site-specific studies, those that have taken place mostly restricted to the western part of the state (Chakraborty *et al.*, 2015; Ghose and Dutta, 2011). Within Arunachal Pradesh, Red Pandas have been reported from 11 districts of the state viz; Changlang, Dibang Valley, East Kameng, East Siang, Lohit, Lower Subansiri, Upper Siang, Upper Subansiri, West Kameng, West Siang, and Tawang; (Choudhury 2001).

A habitat suitability study (Thapa, 2018) indicates that most Red Panda habitat in Arunachal is in the eastern part of the state, while the second-best habitat is in the west, around Tawang district and Eaglesnest Sanctuary.

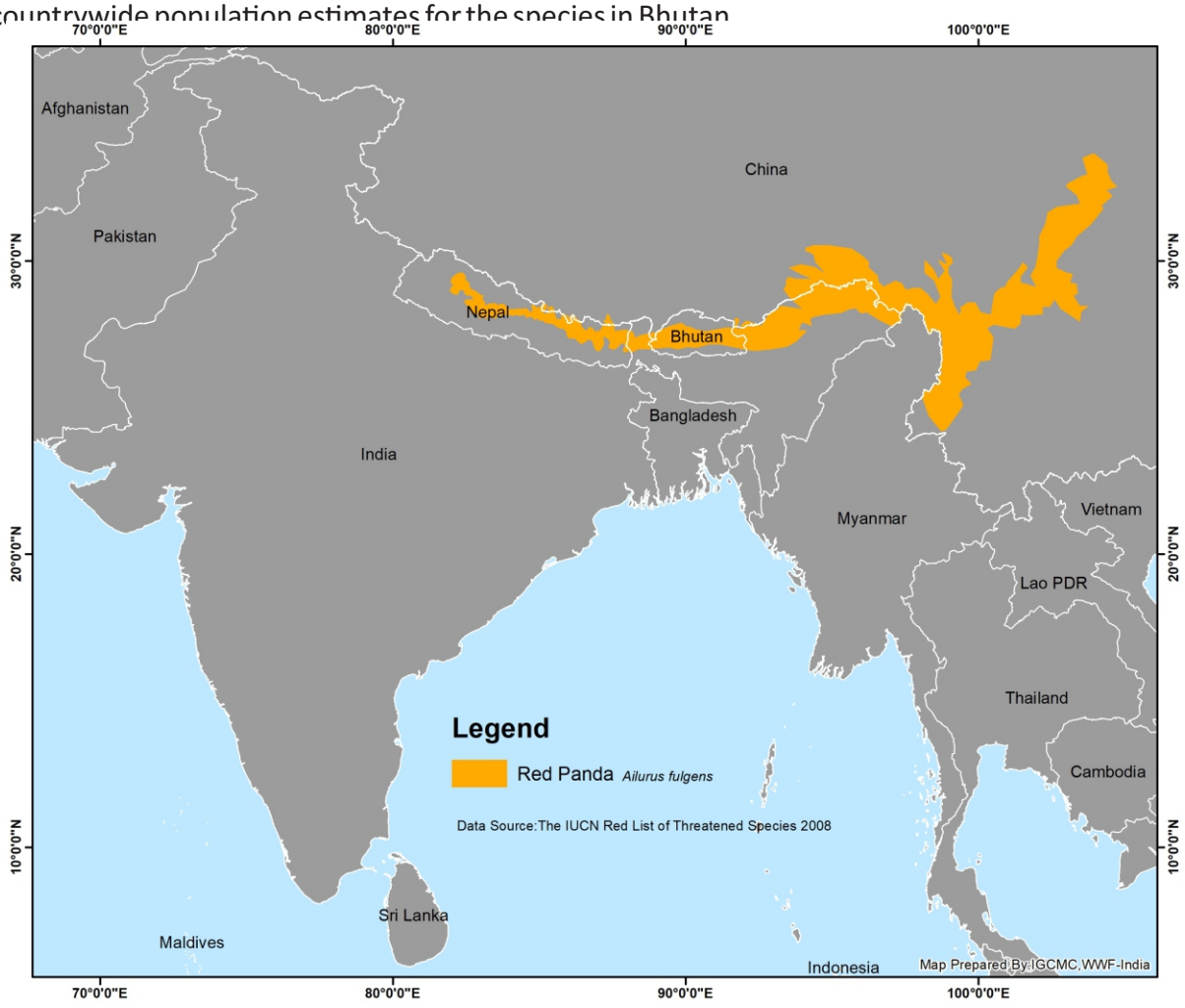
Surveys in the state also suggest sightings of the species in Namdapha Tiger Reserve near northern snowclad mountains of the National Park (Chakraborty *et al*., 2015).

Nepal:

In Nepal, the Red Panda's altitudinal distribution is reported from 2800–3900 m (Bista *et al*., 2017). Its distribution has been confirmed from 24 districts of the country, while 12 additional districts have been identified to have potential Red Panda habitat when a Population and Habitat Viability Assessment (PHVA) was undertaken (Jnawali *et al.*, 2012). The overall population in the country is considered low, at 317–582 individuals and is fragmented into 11 subpopulations (Jnawali *et al.,* 2012).

Bhutan:

The species is reported from 2000 to 4300 m altitudinal range from the temperate forest in Bhutan covering 13 districts (Haa, Thimphu, Paro, Punakha, Wangdiphodrang, Gasa, Trongsa, Zhemgang, Bumthang, Mongar, Lhuntse, Trashigang, and Trashiyangtse) (Glatston *et al*., 2015). High-elevation areas in other districts (Chukha, Tsirang, Dagana, Samtse, and Samdrupjongkhar) will however require further surveys (Dorjii *et al*., 2012). There are no countrywide population estimates for the species in Bhutan



Distribution range of Red Panda
Map source: IUCN, Red List Database (Glaston et al., 2015)
Map Prepared by IGCMC, WWF-India

1.3. Legal protection for Red Panda in South Asia:

India:
Red Panda is given the highest possible legal protection under Indian wildlife laws by listing it in Schedule I of the Wildlife (Protection) Act, 1972, which means that unauthorised trapping, possession, hunting or trade in live, dead or any part, is completely prohibited and is a punishable offence. Any such act can lead to an imprisonment of three to seven years or fine of INR10,000 to INR25,000 (USD150 to 350) or both for the offender.

Bhutan:
The species is protected under The Forest and Nature Conservation Act, 1995 of Bhutan. It is listed as a "totally protected species" under Schedule I of the Act. Any offence committed in relation to such protected species is a criminal offence of "fourth degree felony" under the Bhutan Penal Code, 2004 and the offender is liable for imprisonment of three to five years, or for a fine and compensation of BTN10,000 if the offender is willing to settle the case with the Department.

Nepal:
The National Park and Wildlife Conservation Act, 1973 of Nepal lists the species in Schedule I of the Act. This restricts and prohibits hunting, possession or owning/trading in any part or product of the species without a permit issued by the Ministry certifying lawful acquisition. An offence under the Act can lead to a fine ranging from NPR50,000–1,00,000 (USD450–900) or an imprisonment ranging from 5 to 15 years or both.

At the international level, the species has been listed in CITES Appendix I since 1995, thus prohibiting any commercial international trade of the species or its parts and derivatives.

Despite the best possible protection measures employed by all the range countries through national legislations, as well as restrictions on international trade through CITES, it is widely agreed that along with the rapid loss and degradation of habitat of the species, poaching, unauthorised wild collection and illegal trade of the Red Panda are the major reasons behind the rapid decline in its population in the wild. Unfortunately, little is known about the actual field level dynamics of the trade, although Red Pandas are hunted and traded to satisfy demands for wild meat, traditional local medicines and pelts. Unauthorised trapping to satisfy the demand for the pet trade is also a major factor and observations of live animals for sale have recently become more prevalent, mainly attributed to the spread of the internet.

Efforts are hence being made to fill gaps in knowledge about the species' illegal trade. Research suggestions in the latest IUCN Red List of Threatened Species also highlight the need for a better understanding of threats posed to Red Pandas, including assessing the harvest and trade levels. A study conducted by TRAFFIC in China (Ling and Jing, 2018) analysed seizure data of Red Pandas and assessed the species' presence in physical and online markets, thus revealing the existence of a low yet persistent demand for Red Pandas as pets and for breeding purposes in China. The study also recommended research on trade aspects in other range countries as well.

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2. Methodology:

Due to a paucity of information in the public domain about the levels of Red Panda trade in India, Nepal, and Bhutan, various methods of data collection were employed during the study. They varied from open source media monitoring to getting secondary verified and memory recall data from experts and getting primary information through targeted interviews of locals living in the Red Panda distribution range in India, as suggested by Hansen *et al*., 2012.

2.1. Collection and analysis of seizure and confiscation data:

Efforts were made to collect official as well as open source data on Red Panda poaching, seizures and confiscations during the 2010 to 2018 period from all three countries. Data, whenever available, was collated along with the information on date and place of seizure and number of animals involved in the incidence.

2.2. Analysis of CITES database:

The CITES trade database (https://trade.cites.org/) was analysed to record the incidences of reported Red Panda trade and reasons for the same, involving all the three countries as well as at the global level (July 2010 to June 2018).

2.3. Rapid online e-commerce surveys for Red Panda trade:

A rapid (45 days) monitoring of popular e-commerce platforms of the region was done to document levels of Red Panda trade using these portals. During this period, English versions of a total of 18 websites were monitored using prime keywords linked to Red Panda and its products.

2.4. Market level surveys for sale of Red Panda products in India:

Market level surveys were conducted in 54 local markets in India and two prominent markets in Nepal. The surveys were conducted to document the availability of Red Panda products, their types, demanded price, reported source, additional contacts and awareness of traders as well as market dynamics including gaining preliminary insights on buyer groups and traders and other relevant information on illegal Red Panda trade.

2.5. Questionnaire surveys:

Since it was widely assumed that information related to crime in this rare species, found in relatively remote areas, would be difficult to obtain, a large-scale questionnaire survey was conducted, involving both experts (from all three countries) contacted through emails, as well as locals (for India only), where the information was gathered through targeted face-to-face interviews.

a) Questionnaire surveys involving experts:

Experts were identified based on a published literature review and those representing non-governmental organisations working towards Red Panda conservation. The questionnaire was designed to collect information on illegal trade and hunting of Red Pandas; it used a quantitative format to document information related to cases (e.g. cases of conflicts, poaching, smuggling, seizures, confiscations, pet keeping, and traditional uses) in the areas where individuals work or had worked, including the motives and outcomes of the cases, if known. These questionnaires were sent to 32 experts working as independent researchers or representing organisations working on Red Panda conservation in their respective countries. A total of 10 detailed replies were received containing valuable information. These included three each from Bhutan and Nepal and four replies from India. These responses reflected inputs from many experts as there was a consolidated response from the Red Panda Network—an NGO-network of experts, zoos, foundations and businesses working predominantly in Nepal—representing their collective work undertaken for the last 15 years in multiple areas of Nepal. Similarly, WWF-India submitted a single consolidated response covering 10 years of their work in the areas extending from the western part of Arunachal Pradesh to Sikkim and West Bengal.

b) Questionnaire survey involving locals in India:

To collect primary data at the state-level across the species' range in India, a field level questionnaire survey was conducted through two field officers from November 2018 to June 2019. The semi-structured questionnaire was prepared to collect primary level information on Red Panda trafficking in various villages and in their vicinity. The questionnaire included questions starting from testing the basic knowledge about the presence or absence of Red Pandas in forest near the village, information on and reasons behind poaching and illegal trade, if reported from the area, possible identification of trade routes, as well as reasons for demand and use of Red Panda products, patterns of local use and other contextual information.

For selecting the villages/respondents for surveying, the Red Panda distribution zone was superimposed over Administrative District maps and forest cover maps of India using ArcGIS software. To this was added the elevation (2000 m and above) layer as a criterion to determine the best sites for data collection. Villages that fell within the known distribution range and those located near the forests and at an elevation of 2000 m or above were finally selected. For each village, snowball techniques (the survey starts with a small sample size which gradually increases by including the references given and acquaintances of the persons being surveyed) were used for the survey, selecting the household as a unit for the survey. It covered 10% of all households. However, if there were only five (5) or fewer households in a village, then all the households were included in the survey. One representative from each household was interviewed under the survey by a field officer. Through these targeted interviews additional information on the history and status of poaching for and trading of the species or its products was sought. Informal interviews were also conducted with some local residents in the evenings to know

more about the overall wildlife trade and hunting scenario in the village. Personal observations were also made during the formal as well as informal interviews.

These village level questionnaire surveys were carried out by surveyors in all the three principal Red Panda states (Arunachal Pradesh, Sikkim and West Bengal) in India. Within these three states, the questionnaire survey was conducted in all the districts reporting the distribution of Red Panda. This represented 20 districts in Arunachal Pradesh, one district in West Bengal and all four districts of Sikkim (Table 1). In total 1900 persons were interviewed in 285 villages across the three states.

Table 1: Red Panda survey across India

States	Districts	Villages covered	Markets surveyed	Persons interviewed
Arunachal Pradesh	20	147	38	968
Sikkim	4	122	12	761
West Bengal	1	20	4	171
Total	**25**	**289**	**54**	**1900**

2.6 Limitations faced during the study:

Overall the information related to illegal trade of Red Panda and its products was found to be very patchy and incoherent across the study area. Further, the level of information (whatever was available) also varied considerably between countries. The best information (from open source, media and experts) came from Nepal, followed by India. The least accessible information, even after repeated efforts, was from Bhutan where only sparse information could be collected through experts from the country. However, since the experts are either current or former officers from the Department of Forest and Park Services of Bhutan, it can be considered as effectively coming from government sources.

Due to these varying degrees of available information, extrapolating the collected poaching, use and trafficking data to the country level could lead to an erroneous impression about relative rates of Red Panda-related wildlife crime in any country. Similarly, due to the uneven availability of detail even through the field surveys, it was not always possible to determine trends of poaching, smuggling or trade in Red Pandas with certainty. For the same reason, gathered information could not be analysed comprehensively to determine the motivations and methods of poachers, sellers and buyers.

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3. Results:

3.1. Analysis of seizures and confiscation data:

During the period under review (July 2010–June 2019), no incidence of poaching or illegal wildlife trade in Red Panda was reported from Bhutan nor India. However, in Nepal, a total of 13 seizure records were collected (2016–2019), which overall accounted for a total of 29 pelts. In one reported case, only snares were seized; 11 out of the 13 cases of seizure incidents were in Kathmandu itself, while Jajarkot and Ilam were the other two districts which recorded one case each of Red Panda seizures.

3.2. CITES trade database:

Analysis of CITES trade data from 2010–2018 (July) was undertaken (https://trade.cites.org/); overall 89 records of Red Panda trade were recorded in that period. Of the reported cases, 84% of the trade involved species kept in captivity, for which zoo transfers accounted for 76% of all transactions. There were no cases in the CITES trade database during 2010–2018 involving the three focal countries of Bhutan, India and Nepal.

3.3. Expert and village level surveys:

Estimates of Red Panda poaching/killings

a. Expert estimation

Bhutan: The responses from Bhutan covered the areas of Merak, Sakteng, and Phubjikha, but no respondent reported Red Panda poaching or illegal wildlife trade in these areas. Potential trade routes were identified, but all responses showed zero seizures of Red Panda either live, or its parts or products.

Roka, B. (2014) also found no case of targeted hunting of Red Panda during examination of official records of Jigme Dorjee and Thrumshingla National Parks. He also mentioned that although historically the people of Shingkhar, Sengore, and Chume in Thrushingle National Park and Soe in Jigme Dorjee National Park used Red Panda fur to make hats, this is no longer practiced. However, he indicated the possibility of Red Pandas getting inadvertently trapped in snares set out for other wildlife like Musk Deer *Moschus* spp and pheasants. One such case of accidental trapping of a Red Panda in a snare has been reported in Jigme Dorjee National Park (Dorji 2009).

Nepal: The responses from Nepal represented the areas in and around Kanchenjunga Conservation Area, Sagarmatha National Park, Gaurishankar Conservation Area, Langtang National Park, Manaslu Conservation Area, Annapurna Conservation Area, Dhorpatan Hunting Reserve, Rara National Park, Panchthar-Ilam-Taplejung, Gorkha, and Mustang. In total, the respondents shared about 25 incidences related to Red Panda poaching, involving approximately 55 individual Red Pandas. Experts also reported to have witnessed and/or confirmed reports related to poaching on six occasions involving 15 individuals. These reports were from Jajarkot, Kalikot, Jhumla District, Gaurishankar Conservation Area and Sagarmatha National Park areas.

India: The respondents from India covered multiple sites from districts in the states of Arunachal Pradesh, Sikkim, and West Bengal. There were no responses from the eastern parts of Arunachal Pradesh. The respondents reported knowledge regarding six incidents of poaching accounting for six individual animals. An incident was also reported by an expert in central Arunachal Pradesh on Red Panda skins displayed at a government establishment along the Arunachal–Tibet Autonomous Region of China (TAR) border way back in 1999. There were more than 20 skins displayed. The fate of those is not known presently. Most of the individuals poached in India were reported to be adults. This may indicate that poaching was mainly for meat or pelts and not for the pet trade.

Other than the three targeted countries some sporadic cases of Red Panda trade in a few other countries of the region were also encountered. Glatston (1994) mentions an offer for sale of a pair of Red Pandas reputedly born in captivity in Bangladesh. Similarly, Rabinowtiz and Khiang (1998) reported that in northern Myanmar, Red Pandas are found in the forests north of the Nam Tamai River and that the skins were purchased by Chinese Traders.

b. Village level surveys (conducted only in India)

Arunachal Pradesh:

A total of 968 persons from 147 villages of 20 Districts, were surveyed/interviewed during the present study. At three sites, namely Anjaw, Rouliang and Menchuka, the presence of old pelts were recorded during the survey. As per the information gathered during the surveys, in the previous seven months there had been only one reported incidence of poaching of a Red Panda, in Anjaw District. One historical incident was also narrated from 2009, when three Red Panda cubs were reportedly traded to a Bhutanese person in Lumla, Tawang District.

Formal/informal interviews revealed that over the past 10–15 years, six Red Pandas were poached through apparently targeted operations in Anjaw District of Arunachal alone. The surveys indicated that currently there is no targeted poaching in the area, however there are incidences where Red Pandas get accidentally trapped in snares set up for catching other wildlife species, primarily Himalayan Musk Deer *Moschus leucogaster* or Alpine

A stuffed Red Panda photographed in Shi Yomi District (Source: TRAFFIC)

Musk Deer *M. chrysogaster*. Such incidences were narrated in three districts, namely Dibang, Shi Yomi and West Kameng.

Four incidents involving Red Panda pelts were noted by the survey team in Arunachal Pradesh's Shi Yomi, West Kameng, Anjaw, and Dibang Valley Districts out of which, three were photographed by the team. The pelt in Shi Yomi was kept by a shopkeeper who claims to have bought it for INR500. Another skin was also shown (but could not be photographed) in West Kameng, which was stuffed as a toy for children. The owner of the West Kameng skin reported to have got it in 2010, while all the other owners couldn't confirm the date of acquisition of their skins.

Pelt seen in a Idu Mishmi house in Dibang Valley, Arunachal Pradesh (Source: TRAFFIC)

Pelt at a house in Anjaw, Arunachal Pradesh (Source: TRAFFIC)

Questions on relative awareness about the species revealed that out of the 968 interviewees, 27% reported to have seen the species in the wild or have confirmed knowledge about its presence in their geographic areas, while 73% denied any knowledge about the presence of Red Pandas in their area, and were also not aware that the species is protected under law.

During the surveys, 80 traders dealing with herbs and local medicines were also interviewed related to their knowledge about Red Pandas and their products. Twelve of the 80 traders reported to have seen Red Pandas or their products during their lifetime. Others had never heard or had little knowledge of them. Two of the traders

belonging to the “Idu-Mismi” tribe reported that hats made of Red Panda pelt, traditionally called “*Apotolo*”, were a popular traditional headgear in the past, but are hardly used now. There was generally agreement that the younger generation don't show interest for such products. This may indicate that traditional demand for such products has reduced over time and also be indicative of the success of awareness campaigns undertaken in the area in the past.

However, in Dibang Valley it was mentioned that in the last 2–3 years on at least two instances, foreign tourists visiting the area had offered to buy a live Red Panda if captured from the wild. This demonstrates that demand for Red Pandas from outside the area still exists.

West Bengal

Red Pandas are reported from only Darjeeling District of West Bengal; surveys were carried out in 20 villages nearest to the distribution area of the species. In total 171 people were interviewed during this survey, which included 106 persons from villages around the Singalila National Park and near the Indo-Nepal border, 22 in Darjeeling town and 43 in Siliguri town respectively.

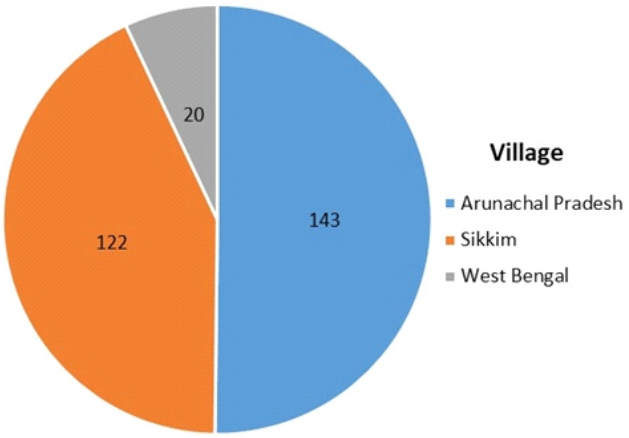
Of the 171 interviewees, only 68 (40%) were reported to have seen Red Panda in the wild at least once or confirmed information about the presence of Red Pandas in their geographic areas. However, among the 68 who knew about Red Panda presence, only 23% had knowledge about the Red Panda's protection status. The remaining 103 interviewees (60%) had no knowledge either about the presence of Red Pandas or their protection status.

During the survey, some incidences of regular transboundary movement of poachers were also reported by the villagers. In Kanyakata village (Darjeeling District) for instance the interviewees spoke about hunters coming from Nepal to hunt wildlife species. This may not be exclusively for Red Pandas, but considering the distribution of the species in this area, it could be one of the targeted species. However, such allegations need to be investigated further.

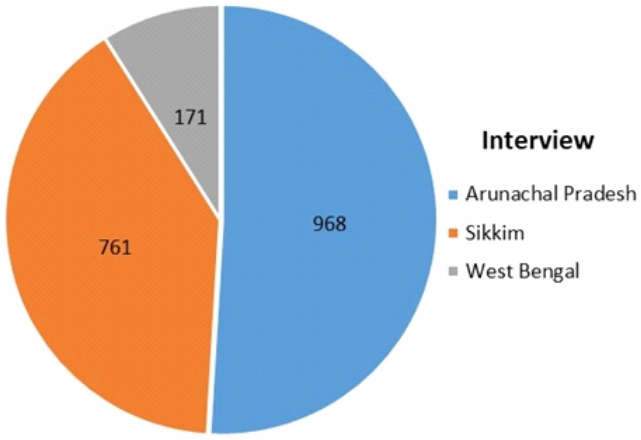
Sikkim

All four districts in Sikkim were covered in the survey. A total of 761 persons belonging to 122 villages in the state were interviewed during this survey. These included 285 from East Sikkim, 233 from North Sikkim, 159 from West Sikkim and 84 from South Sikkim districts respectively.

Of the 761 interviewees, 440 interviewees (66%) stated that they have seen Red Pandas in the wild or had at least heard about the presence of this species in their area. Quite surprisingly all 440 interviewees with knowledge of Red Pandas said they knew the species is a protected animal. The remaining 34% of interviewees had no knowledge about Red Pandas or their protected status. The high percentage of awareness of the protected nature of the species is a clear indication of the success of various awareness programmes run by the government and prominent conservation NGOs in the area. Innovative ways are used to make people aware about the need to conserve this species, including wall paintings and installation of Red Panda statues at major tourist sites. It is also the state animal of Sikkim.



Number of villages surveyed



Number of households surveyed

3.4. Reasons and methods adopted for killing Red Pandas in the region:

a. Experts' opinions

Based on the responses of the experts, the main reason attributed for poaching and trapping of Red Pandas in India and Nepal was for their fur (70%), while live trapping for the pet trade (20%), captive breeding (5%), and traditional medicines (5%), were the other reported reasons.

As per the expert opinions, the poaching methods included the use of snares (95%) and shooting (5%). In India, accidental trapping of Red Pandas in nets laid for other mammal species was also indicated as a reason for non-targeted poaching.

b. Villagers' information

As per the information collected across the three states during the survey, no known targeted poaching of Red Pandas was recorded in India, however it was reported that Red Pandas are still getting killed if caught in snares laid for other mammals. Most of the villages suggested that the "*Apotolo*" (the traditional headgear made of Red Panda fur) is no longer preferred or sought after.

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During the survey, there were references to the species being traded in the past (1990–2010) for pets and captive breeding, however, there were no references given for any such incidence in recent times.

Markets for Red Panda products and trade routes.

a. Experts

Based on the study in the three countries, Kathmandu in Nepal emerged as a major collection centre for Red Panda trade in the region. No major markets in India or Bhutan could be identified during the study or were reported by experts or locals during the survey.

In Nepal, the main trade routes for Red Panda products relate to demand from within the country and link to locations in Lamabagar, Olangchung Gola, Sindhupalchowk, Rusuwa, Mustang areas in the north and Biratnagar, Hetauda, Nepalgunj in the south.

The Tibet Autonomous Region (TAR) is reported as a destination market for wildlife products and one of the collaborators of this report found Red Panda skins being sold as a talisman during his surveys in the TAR in 2007.

In India, the main trade route involves Tawang, Anjaw, Dibang, and the Upper and West Siang Districts of Arunachal Pradesh, leading to China as well as the rather open and inadequately patrolled western border areas of the states of Sikkim and West Bengal with links to Nepal and Bhutan.

b. Market surveys

Physical market surveys were carried out in India, covering the three states of Arunachal Pradesh, West Bengal and Sikkim. Some of the markets covered were in towns and cities that are known to be major trading hubs of forest produce within the state. During these surveys, shops selling arts and crafts material and traditional clothing were more carefully covered.

Arunachal Pradesh

In Arunachal Pradesh 38 village markets were surveyed, a minimum of one market in each of the 19 Districts was covered, while six markets in Tawang were surveyed. None of the markets had any parts or products made of Red Panda on offer or for sale.

West Bengal

A total of four markets were surveyed for Red Panda products. They included four shops in Maney Bhanjyang, 15 shops in Darjeeling and 10 shops in Siliguri. None of the shops were found to offer any Red Panda products for sale.

Sikkim

A total of 12 markets were surveyed in Sikkim, they included 13 shops in Gangtok, five shops in Mangan, 10 shops in Geyzing, six shops in Namchi, and four shops in Jorethang. None of the shops were found to offer Red Panda products.

Nepal:

Opportunistic market surveys were also conducted in Kathmandu and Pokhara. None of the eight shops surveyed in Thamel market of Kathmandu accepted to have knowledge about Red Panda trade or made any offer to sell Red Panda products. All shopkeepers knew about the illegal nature of the trade and said that law enforcement is strict on products made from Red Panda.

Of the five shops surveyed in Pokhara, three stated that it is illegal to sell such products. Two shopkeepers denied having Red Panda in stock but remarked that although difficult, supply could be arranged on special orders. However, when explored further, they could not give details of any confirmed source(s) or indicate the likely time or prevalent price of obtaining such products.

During the survey in Pokhara it was observed that the government of Nepal—with the help of local NGOs and international organisations—has taken up a mass public awareness campaign in the area to make inhabitants and travelers aware about the illegal nature of wildlife trade.

c. E-commerce platforms:

A total of 18 e-commerce websites (the available English versions of non-English language websites) were checked daily from 13th June to 31st July 2019 for the sale of Red Panda parts, and any value-added products. During the survey period no trade of Red Pandas (either live, parts or value-added products) were noticed on these platforms. The list of sites is given in Annex II.

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Discussion and Recommendations:

This report indicates that poaching of Red Pandas is still prevalent in Nepal with reports from the previous four years indicating nearly 70 units of Red Panda hides (Media report 3), and also to a lesser extent in India. While no cases of poaching or trade in Bhutan could be gathered during the study period, but surveys near the Indo-Bhutan border indicate that there might still be a demand for Red Panda pelts in Bhutan.

According to Glatston *et al*. (2015), the overall population of Red Pandas has plausibly declined by 50% over the last three generations (estimated at 18 years) and this decline is projected to continue, and probably intensify, in the next three generations. The main reasons for this are habitat loss and degradation in almost all the range countries. Around 70% of potential habitat of Red Pandas still lies outside the purview of the present protected area (PA) network (Thapa *et al.,* 2018), hence it is imperative that efforts are required outside PAs to give additional legal protection to these areas, which might be achieved through establishing either community conservation sites, transboundary conservation zones, wildlife corridors or special conservation sites.

Recommendations to Governments of Red Panda range countries

Support efforts to mitigate non-targeted trapping

There are reports of snares being deployed for other targeted animals in different parts of the Red Panda range, and Red Pandas are also accidentally trapped in these snares. Hence, there is a need to de-snare areas and enhance the capacity of enforcement agencies to remove these snares and enforce the prevailing legislation for the protection and conservation of the species. TRAFFIC's initiative of equipping the patrolling officers with Deep Search Metal Detectors can be scaled up to cover more agencies. However sometimes snares are also made of plant material, making their detection difficult. An enhanced field-based information sharing mechanism can help in overcoming these problems.

Capacity building for law enforcement agencies

There is an urgent need to enhance the capacity of wildlife law enforcement agencies, particularly to increase the capacity across multiple agencies and within the region through transnational commitments to combat wildlife crime and illegal wildlife trade.

In the three countries, there is a need for greater information sharing between state and national agencies responsible for enforcing wildlife laws including customs, police, paramilitary forces and forest departments. Multi-agency teams should be incentivised for implementing performance and anti-corruption measures and be provided with the latest technical tools (monitoring tools like M-STrIPES, SMART etc) including setting up of mobile response teams to address law enforcement needs in remote areas including Red Panda habitat and trafficking routes.

Increase transboundary law enforcement co-operation

Operationalisation of the South Asia Wildlife Enforcement Network (SAWEN), to focus the attention of the three range countries on illegal Red Panda trade and to increase the professional capacity of participating governments to conduct intelligence-led anti-poaching and trade seizures. Regular transboundary meetings between environment/forestry agencies, police, customs and border officials involved in law enforcement are essential and a mechanism to conduct joint operations must be operationalised.

The respective governments could also consider strengthening transboundary wildlife law enforcement and interagency collaboration by means of agreeing to establish a TWIX (Trade in Wildlife Information eXchange System) between the law enforcement agencies of the three countries.

A better enforcement mechanism also needs to be set up in Nepal where better co-ordination among enforcement agencies, quick response, community engagement and garnering public awareness can prove to be a successful strategy to curb wildlife crime.

Similar strategies can also be employed in India where confirmed/reported incidents of Red Panda trapping and/or poaching have been encountered in certain areas. Greater adoption of community-based anti-poaching programmes can facilitate in reducing the pressure of trapping and poaching on the species.

A clear paucity of information was seen in the media regarding poaching and trafficking of Red Pandas. In India, no poaching or seizure reports were found in the mainstream media. However, during the field surveys some direct or indirect information about poaching or trapping were gathered.

At the national level, several Red Panda seizures have been reported from Nepal, showing that not only is it likely a significant area for illegal trade, but the country might also be acting as an important collection and transit point. More studies to understand the dynamics of the trade in Nepal need to be undertaken by engaging local conservation partners.

Recommendations for communities

Threat assessment

Village interviews and key informant surveys were part of the report, and there is a growing sense within the younger generation on issues of conservation for the species. They do not favour the use of products made from

Red Panda but there are a few traditional caps and pelts that are still being kept as heirlooms and are inherited within the family and may enter the supply chain at any time. As per the Wildlife (Protection) Act, 1972 of India all these articles should have been declared to the authorities. A special drive should be undertaken to register all these inherited articles.

Community-based conservation management

Community benefits from wildlife conservation are key to increasing conservation benefits to Red Pandas. Community-based conservation programmes are probably the single most important approach to reducing poaching and trafficking and should be considered a high priority for funding support across the Red Panda's range. The primary needs are for funding, training and equipment. These programmes should foster self-reliance and sustainability, to provide or generate economic incentives to protect Red Pandas and deter an understandable reluctance to self-police. One option is the practice of "soft enforcement," with alternative remedial actions for transgressions (such as the signing of no-hunting and informant contracts in exchange for benefits), or the fining of a livestock animal instead of financial penalties), as well as the option to summon government authorities when outsiders are involved or the transgression is serious or repeated. The rapid and regular removal of snares is just one example of the benefits of this approach and could be incentivised with "snare swaps" where snares can be exchanged for useful household items.

WWF-India has been working with local communities in western Arunachal Pradesh and has set up Pangchen Lumpo Muchat and Pangchen Lakhar Community Conserved Areas focussed towards Red Panda conservation.

Recommendations to conservation organisations and experts

DNA database and population assessment

A DNA database needs to be created at the regional level which could facilitate in establishing the provenance of seized live cubs and for tracing the source of any seized products. This will help in understanding the actual trade dynamics as well as help in rehabilitation of healthy seized individuals.

Regular population estimations at the transboundary scale as well as habitat viability assessments should be carried out for the species in the region to get an idea of population change due to various factors.

Red Panda crime database

The clear paucity of crime data is a concern as "No Data" can easily be inferred as "No Crime", which may not be actually the case. TRAFFIC should partner with range countries and continue to build on the database created for this report. Many experts have the opportunity to observe or collect reports on the poaching and trade of Red Panda, but the academic publishing process is not an ideal way to capture this information. This information can be strengthened and built upon by including all Red Panda range countries. A suitable platform like a TWIX should be created for experts to input their observations from the field easily. This could be designed in the form of a simple plugin or mobile app using a common platform, which would allow rapid uploading of Red Panda poaching or illegal wildlife trade reports and spatial information. This would aid both monitoring and analysis, as well as serve as an important means of rapid communication with law enforcement authorities, preferably through a trained database focal point to liaise through law enforcement agencies in each country.

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Annexure I: List of village and market surveys in three range states of India.

State	District	Villages surveyed	Markets surveyed	Interviews conducted
ARUNACHAL PRADESH	Anjaw	18	**4**	84
	Changlang	3	1	25
	Dibang Valley	4	4	54
	East Kameng	11	3	64
	East Siang	2	2	42
	Kamle	1	1	20
	Kra Daadi	7	1	22
	Kurung Kumey	5	1	34
	Lepa Rada	1	1	26
	Lohit	2	1	20
	Lower Dibang	3	1	31
	Lower Subansiri	8	1	63
	Namsai	1	1	18
	Pakke Kesang	3	1	22
	PapumPare	4	1	46
	Shi Yomi	1	1	26
	Tawang	35	6	138
	Upper Subansiri	7	1	40
	West Kameng	29	5	150
	West Siang	2	1	43
	TOTAL	**147**	**38**	**968**
WEST BENGAL	Darjeeling	**20**	**4**	**171**
SIKKIM	East Sikkim	43	3	285
	North Sikkim	34	2	233
	South Sikkim	16	4	84
	West Sikkim	29	3	159
	TOTAL	**122**	**12**	**761**

Annexure II: List of e-commerce websites searched for sale of Red Panda products.

S.NO	NAME OF THE ONLINE SITE	LINK
1.	Amazon India	https://www.amazon.in/
2.	Amazon Japan	https://www.amazon.co.jp/
3.	Amazon China	https://www.amazon.cn/
4.	eBay India	https://www.ebay.in/
5.	eBay Vietnam	https://www.ebay.vn/
6.	eBay Japan	https://www.ebay.co.jp/
7.	Snapdeal	https://www.snapdeal.com/
8.	OLX Kuwait	https://olx.com.kw
9.	OLX India	https://www.olx.in
10.	OLX Philippines	https://www.olx.ph
11	Made-In-China.com	https://www.made-in-china.com/
12.	Ali Express	https://www.aliexpress.com/
13.	Bikroy.com	https://bikroy.com
14.	Argos	http://www.argos.co.uk
15.	Mudah.my	https://www.mudah.my
16.	Kijiji	https://www.kijiji.ca/
17.	Etsy	https://www.etsy.com
18.	Exotic Animals for Sale	https://www.exoticanimalsforsale.net

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