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PANGOLINS IN EASTERN NEPAL: TRADE AND ETHNO-MEDICINAL IMPORTANCE

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Abstract: Pangolin populations are declining globally due to illicit trade for meat and ethno-medicinal practices. We performed semi-structured interviews to analyze scenario of trade activities and documented the ethno-medicinal importance of pangolins in four districts of eastern Nepal. Out of 106 respondents, 78.3% had seen live pangolins, 90.6% had seen their burrows and 66% respondents speculated their decreasing population. Although 64% of the respondents were aware that pangolin is protected species, 44% of respondents had eaten its meat. We found the trade as an organized network where poachers of one village supply pangolins and its parts to poachers of another village and so on until it reaches the international border. Trade flow was more across the Chinese border via different routes where the prices varied from US\$ 500–625/kg or even more. For this illegal trade, poachers provoke unemployed youths especially from ethnic communities. Most people hunt pangolins merely for trade without knowing its exact medicinal value. Some people, however, use meat and scales to supposedly cure gastro-intestinal disease, skin disease, cardiac problem, pregnancy pains, back pain; and also for making rings, bags, jackets, purses and musical instruments. As most pangolin habitats lie outside protected areas, illicit trade is increasing rapidly. We recommend immediate strategic plans, effective monitoring

techniques and inter-border cooperation to thwart the trade, and raise awareness of their importance.

Keywords: Ethno-medicinal importance, illicit trade, pangolin, poachers, protected species, semi-structured interviews.

Pangolins are included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II and all Asian pangolins are categorized in zero export quota which bans the trade of the animal caught in the wild from 2000 (CITES 2000; Baillie et al. 2014; Challender et al. 2014). However, pangolin trade is identified as one of the major trades of mammals in Southeast Asia (Nooren & Claridge 2001; Newton et al. 2008, Challender et al. 2015a). China following Vietnam is a major market for illicit trade of



Manis pentadactyla
Chinese Pangolin



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pangolins (Semiadi et al. 2009; Challender et al. 2014) and is thought to be increasing mainly due to two reasons: demand in restaurants for luxury meat and scales for traditional Chinese medicine (Chin & Pantel 2009; Yongping 2009; Baillie et al. 2014; Challender et al. 2014, 2015a). This illicit trade is also thought to be increasing due to the lack of monitoring the demand and supply of the market, and weak regulation of CITES (Challender et al. 2015a,b). Decrease in the wild population and strong law enforcement in all countries have increased the price of the pangolins in the markets (Shepherd 2009; Yue 2009). They are threatened by hunting and poaching for meat and traditional medicinal purposes, use of pesticides in agricultural fields, habitat degradation and recently through changes in land management system (Jnawali et al. 2011; Baillie et al. 2014; Challender et al. 2012, 2014).

Pangolin is a protected species in Nepal and it is illegal to kill or hunt (Jnawali et al. 2011), but newspapers and television channels frequently report the smuggling and seizure of pangolins from different parts of Nepal (Image 1). It is found that via Nepal-Tibet and Nepal-India borders, the scales of pangolin reach Chinese and Indian markets, and Kathmandu acts as a transit point. Poor economic status of local people (Semiadi et al. 2009) and weak law enforcement has encouraged the trade in Nepal. Presently, hunting for the market has increasingly outweighed hunting for subsistence (Corlett 2007). Based on the reports published in different newspapers and discussion with the people, eastern Nepal is known to be one of the hotbeds for pangolin trade. Considering these facts, we chose four districts of eastern Nepal to understand people's perception about pangolin in their localities. We also recorded the most likely routes for its trade and simultaneously documented ethno-medicinal practices.

MATERIALS AND METHODS

Based on grey reports, news in national and local newspapers, and discussion with the people we chose four districts in eastern Nepal, namely Ilam, Taplejung, Sankhuwasaba and Dhankuta (Fig. 1). All these hill districts lie outside protected areas and poaching activities were being regularly reported. Brahmin, Chettri, Rai, Limbu, Tamang and Sherpa are the major ethnic communities of the areas.

We obtained trade records from the district forest offices, which contain the date of seizure, place, name and address of the poacher, and the quantity of pangolins seized. We wanted to compare the rate of capturing poachers as being reported in the media. Then,

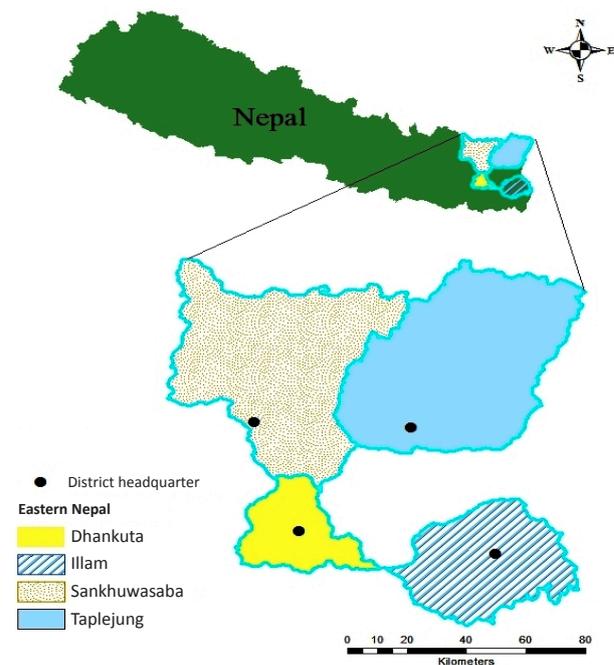


Figure 1. Study area in eastern Nepal



Image 1. Chinese Pangolin *Manis pentadactyla*

we conducted semi-structured interviews (Newton et al. 2008; Chin & Pantel 2009) with locals of different ethnic communities, concerned authorities, and also community forest users' group, forest offices and range posts, police, army, traders and traditional healers. We focused on district headquarters in Taplejung (Fungling), Ilam (Ilam and Barbote), Dhankuta (Dhankuta and Pakhribas) and Sankhuwasaba (Madi and Khadbari) as these have major markets. Interviews were conducted in February–March, 2013. We visited local market in each district at least once to enquire about pangolin and its trade. We could not record any pangolin products in the local markets as people were afraid of showing them. We, however, recorded different information regarding

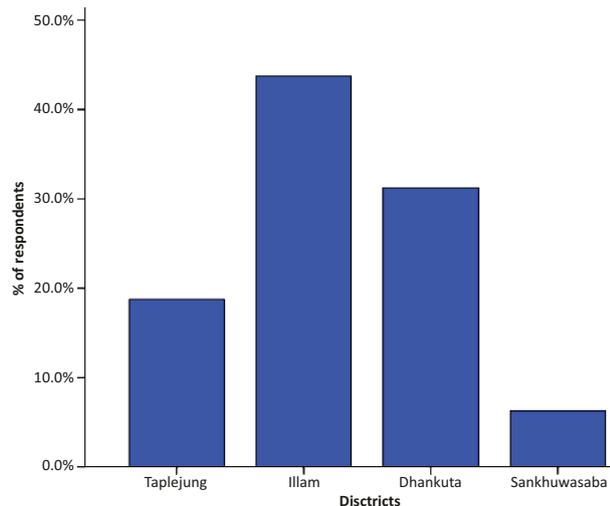


Figure 2. Knowledge about pangolin protection status and meat eaten by the same respondents

the trade and ethnic importance. After obtaining the final data, frequency and cross tabulation were done to look for associations between different variables using SPSS version 16.0.

RESULTS

Altogether, we interviewed 106 people (30 each in Taplejung and Ilam, 26 in Dhankuta and 20 in Sankhuwasaba) in eastern Nepal, of which 78.3% people had encountered live pangolins and 90.6% had frequently seen burrows.

Knowledge about the legal status of pangolin and meat eaten

We found that 64% of people (20.8% each from Taplejung and Ilam, 16% from Sankhuwasabha and 6.6% from Dhankuta) were aware of the legal status of pangolin (a protected species). Out of 44% who had eaten pangolin meat, 30.2% of respondents had eaten the meat in the last five years despite the knowledge of protected species status (see Fig. 2). During the survey, 66% of the respondents (88% at Dhankuta, 83% at Ilam, 73% at Taplejung, 20% at Shankhuwasaba) speculated gradual decline of pangolin numbers from their localities (Fig. 3).

Trade activities, probable trade routes and market price

We found 27.4% of respondents who had seen pangolin products on sale. People also disclosed that poachers usually come from other villages and use unemployed youth from ethnic communities, mostly from Sherpa and Tamang, to export pangolins to the nearest border; 30.2% of respondents revealed that

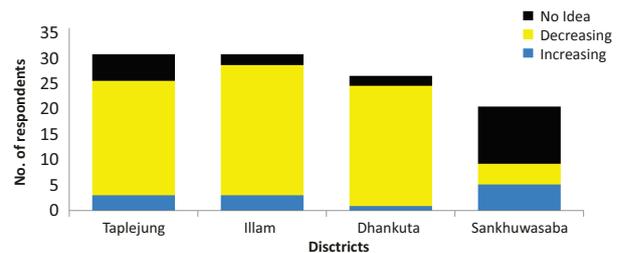


Figure 3. People's perception on current status of the pangolins from their area



Image 2. Scale of pangolin at District Forest Office, Dhankuta. Dead pangolin was found in the road and scales extracted by the forest authorities.

pangolins are traded to China, 16% indicated the trade to India, but majority of people ignored to answer it or did not have any idea. We obtained very few registered cases of pangolin seizures (see Images 2 and 3 for scales of pangolin) at the district forest offices.

Through our survey we heard the trade is an organized network where different levels of poachers get involved. Probable pangolin trade routes speculated by the people in each district are shown below:

- Taplejung: Collected at Fungling – taken to upper Fungling – Tapethok – Lelep – Olanchungola and finally to Tibet.
- Ilam: People in Ilam think that it is exported to Mirik, Darjeeling and Siliguri of India or is exported to Taplejung via Panchthar.
- Dhankuta: People cited that it gets sold to the market of Hile, Dhanuta, Parkhreas and is exported to the other places, like Sankhuwasaba or Dharan. A few years ago it was sold openly in the haat bazar of Pakhribas.
- Sankhuwasaba: People think that it is collected from different villages and transported via Chainpur – Tumlingtar – Khandbari – Num – Hatia – Chepuwa – Kimathanka – Tibet.

The minimum price for live pangolin/scale was Nepali



Image 3. Scales of pangolin seized by the District Forest Office, Ilam.

Rs. (NPR) 500–1000/kg (US\$ 7–12.5/kg) to the local hunter. The price usually doubled with each subsequent level of poachers. The average price of the pangolin scale was NPR 10,000–15,000/kg (US\$ 125–190/kg) to NPR 40,000–50,000/kg (US\$ 500–625/kg) and even more at the borders.

Ethno-medicinal importance of Pangolin

We found that 84% of respondents had no knowledge of the medicinal value of pangolins. However, some believed that the meat is used for treating gastro intestinal problems, used as pain killer during pregnancy, used for cardiac problems, back pain relief and for bone problems. The scale is used as a symbol of good luck to avoid danger and to make finger rings. Respondents indicated that the scales are rubbed together and applied to cure skin diseases, burn wounds, teeth problems, and to cure pneumonia. Scales are kept near the baby basket (kokro) to protect children from different diseases. They believe that scales are used in preparing bags, boots and musical instruments.

DISCUSSION

As per the respondents, pangolin population has been decreasing in eastern Nepal over the last five years and illegal trade is considered a major reason for the declines. People are aware about the legal status of the pangolin, but they still kill, eat and sell. This might be due to the ignorance of people towards the importance of pangolin and weak law enforcement (Jnawali et al. 2011). According to National Parks and Wildlife Conservation Act 1973, the maximum punishment for the trafficking of pangolin in Nepal is NPR 75,000 (US\$ <900) or 10 years of imprisonment or both. But, as the law enforcement is very weak, people are not afraid

of it. As a result, trade is increasing and the population is declining from the area. CITES (2000), Newton et al. (2008), Yue (2009), Suwal (2011), Baillie et al. (2014) and Challender et al. (2014) collectively highlighted poaching and habitat destruction as prime factors for the decline of pangolins.

We found youths, local hoteliers, cow traders and unemployed people mostly from Sherpa and Tamang community used by poachers to kill pangolins. This is because these people have easy accessibility to borders, are illiterate, and work for small amounts of money. In last two years, various newspapers reported that more than 100kg of pangolin scales were seized by Nepalese police, but there were very few records of seizure cases from eastern Nepal; only one case from Ilam with 4.2kg of scales, one dead pangolin recovered from the forest in Dhankuta and two cases from Sankhuwasaba with 40.65kg of scales, and most of them were released with nominal penalties. This might be due to the reason that poachers maintain a strong chain of network and stakeholders. Both Sankhuwasaba and Taplejung have direct border access to Tibet and pangolins were traded across these borders. The price received by a local hunter in Nepal was less in comparison to other countries. This price is much less in comparison to the price received by local hunter in Vietnam (more than US\$ 95/kg) (Challender et al. 2014) and in China (US\$ 170/kg) (Yue 2009).

We found very few people who were well informed about ethno-medicinal importance of pangolin. This might be due to the fact that now pangolins are hunted mostly for trade than for traditional medicinal use, or it could be an artifact of sampling bias. Like in our study, high ethno-medicinal importance of pangolins has been recorded in different Asian and African countries. Many studies (e.g., CITES 2000; Shepherd 2009; Mahmood et al. 2012, Baillie et al. 2014; Challender et al. 2014, 2015a) reported meat as sources of protein while scales mostly used in preparing ethno-Chinese medicines and different types of ornaments, rings, bags, boots and musical instruments. The scales of pangolins purportedly have aphrodisiac properties and even have cultural significance and cure spiritual ailments (Challender et al. 2012; Boakye et al. 2014). Boakye et al. (2014, 2015) reported use of many body parts of pangolin (e.g., scales, head, eyes, bones etc.) as of medicinal importance by different traditional medical practitioners in African countries.

In Nepal, pangolin habitats lie outside protected areas (Jnawali et al. 2011). They are found in the patches of forest and agricultural land near human dominated

landscape. The forest department, national parks and wildlife conservation department, security forces and local conservation units have to network actively with the community, conduct awareness programs, build capacity amongst local people to save the pangolins. Strategic plans, effective monitoring techniques and inter-border cooperation are needed urgently for the conservation of threatened pangolins.

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