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43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641035, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

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COMMUNICATION

Assessing illegal trade networks of two species of pangolins through a questionnaire survey in Nepal

Nikita Phuyal [1], Bipana Maiya Sadadev [2], Reeta Khulal [3], Rashmi Bhatt [4], Santosh Bajagain [5], Nirjala Raut [6] & Bijaya Dhami [7]

[1,5] Tribhuvan University, Institute of Forestry, School of Forestry and Natural Resource Management, Kathmandu, 44600, Nepal.
[2] Natural Resources and Environmental Studies, University of Northern British Columbia, Prince George, BC, V2N 4Z9, Canada.
[3] Tribhuvan University, Institute of Forestry, Office of Dean, Kirtipur, Kathmandu, 44600, Nepal.
[4] Tribhuvan University, Kathmandu Forestry Collage, Kathmandu, 44600, Nepal.
[6,7] Tribhuvan University, Institute of Forestry, Pokhara Campus, Pokhara, 33700, Nepal.
[7] IUCN/SSC Deer Specialist Group, Gland, 1196, Switzerland.
[1] nikitafuyal123@gmail.com, [2] bipanamaiyasadadev@gmail.com, [3] reetkc9336@gmail.com, [4] rashmibhatt032@gmail.com, [5] santosh_bajagain@hotmail.com, [6] nraut@iofpc.edu.np, [7] bijaysinghdhami@gmail.com (corresponding author)

Abstract: Pangolins are among the most extensively traded taxa in southeastern Asia mainly due to the perceived medicinal value of their scales and other body parts, putting them at risk of extinction, however, little is known about their trade status in Nepal. The purpose of the study was to assess the status of pangolin trade in Makwanpur district of Nepal. Semi-structured interview with household (n = 90), key informant survey (n = 15), Four focus group discussion at each study site was conducted. Seizure data (2015–2019) were gathered from the law enforcement agencies to identify and analyze the major trade routes. The majority of the respondents (63%) were well aware of the protection status of pangolins. Further, our study found that historically local peoples used pangolin body parts in making rings, bags, jackets, and musical instruments but at present they stopped it. Pangolin traders were typically middle-aged men and unemployed youth. Majority of the hunting was found to be opportunistic but when pangolins were caught, they were generally sold for additional income. Currently, the seizure data has shown the declining trend of pangolin trade within the Makwanpur district. Community forest user groups and community based anti-poaching units are working actively for the conservation and promulgation of threatened pangolins in the Makwanpur district which had long served as a major trade route to China. Thus, we advocate strengthening border security and the formation of community-based anti-poaching units, followed by mobilization, anti-poaching trainings, security assurance, and incentives for worthy conservation results in pangolin-rich communities. Further, we recommend sustained conservation awareness programs, in addition to alternative livelihood opportunities, for the long-term conservation of pangolins and their habitat.

Keywords: capacity strengthening, ethno-medicinal importance, middle-aged man, opportunistic hunting, semi-structured interviews.

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Author details: NF is a MSc graduate student at Tribhuvan University, Institute of Forestry, School of Forestry and Natural Resource Management, Kathmandu, Nepal. BMS is a MSc scholar at Natural Resources and Environmental Studies, University of Northern British Columbia, Canada. RK is a MSc graduate in wildlife, protected area management, and biodiversity conservation. RB is an undergraduate at Tribhuvan University, Kathmandu Forestry Collage, Kathmandu, Nepal. SB is a MSc graduate student at Tribhuvan University, Institute of Forestry, School of Forestry and Natural Resource Management, Kathmandu, Nepal. NR is an assistant professor at Institute of Forestry Pokhara, Nepal. She is teaching "Wildlife Conservation and Management" to Undergraduate and Graduate students. BD is a BSc graduate in forestry science and is actively involved in several conservation activities.

Authors contributions: NF—conceptualization, research design, data collection, data analysis and interpretation, drafting of manuscript, critical review, and revisions at different stages. BMS—drafting of manuscript, critical review, and revisions at different stages. RK—drafting of manuscript, critical review, and revisions at different stages. RB—drafting of manuscript, critical review, and revisions at different stages. SB—drafting of manuscript, critical review, and revisions at different stages. NR—drafting of manuscript, critical review, critical review, and revisions at different revisions at different stages. BD—conceptualization, methodology design, manuscript drafting lead, GIS mapping lead, review draft and edit.

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INTRODUCTION

Nepal has two of the eight extant species of pangolin found in the world: the Indian Pangolin *Manis crassicaudata* & Chinese Pangolin *Manis pentadactyla* (Suwal et al. 2020; Dhami et al. 2023). The Indian Pangolin is cryptic and has complex biology (Mohapatra et al. 2021), i.e., a single one is born in the breeding season and is a diet specialist, which makes it vulnerable. The Indian Pangolin has a wide range of distribution with major holds in India, Nepal, Pakistan, Sri Lanka, and Bangladesh (Mahmood et al. 2019) whereas the Chinese Pangolin is found to be distributed in Nepal, Bhutan, India, Bangladesh, Vietnam, Thailand, Myanmar, China, and Lao (Challender et al. 2019; Sharma et al. 2020a). Globally, both the species are listed as Endangered and Critically Endangered species, respectively, under the IUCN Red List of Threatened Species (Challender et al. 2019; Mahmood et al. 2019) and are appended in Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2020). Despite the ban on the international commercial trade of specimens by CITES, pangolins are one of the most widely trafficked mammal species (Boakye et al. 2015; Challender et al. 2014, 2020). Indian Pangolins are relatively larger than Chinese Pangolins; the former weigh 8–21 kg and are 100–120 cm in length (DNPWC 2019).

Wildlife trade, a major contributor to decline and extinction of species (Paudel et al. 2020), is now globally considered to be the fourth largest illegal trade, after drugs, people, and arms valued at $7 billion to $23 billion each year (Lehmacher 2016). Along with increased threats to biodiversity conservation, illegal wildlife trade also impacts the security of the community and their livelihood, living together with wildlife (Riskas et al. 2018). Furthermore, it has had far-reaching consequences for the nation's governance and economy (Felbab-Brown 2017). For instance, corruptions associated with the illegal wildlife trade undermines the rule of law thereby affecting the country's governance (Vines & Lawson 2014). Moreover, to regulate and control the illegal trade, manpower is required in the enforcement agencies which ultimately affects national economy in a way (Vines & Lawson 2014). Poverty, unemployment, illiteracy, and lack of alternative livelihood opportunities motivate individuals to partake in illegal wildlife trade (Rao 2002). While Nepal's effort in protecting species like tigers and rhinos is getting global recognition (Bhattarai et al. 2017), the rampant poaching and illegal trade of threatened pangolin species has not been given sufficient attention.

Income generated from illegal wildlife trade is essential to sustain the livelihood of wildlife poachers and traders in many developing nations like Nepal (Milliken 2014). It is impossible to reduce poaching without providing alternative livelihood options (Biggs et al. 2015). Therefore, mitigating the impacts of wildlife trade at the grassroots level ought to consider satisfying the short-term goals (ensuring livelihood) of nearby communities (Mulder & Coppolillo 2005). Until and unless the short-term goals of local communities living in proximity to wildlife is not fulfilled incidence of wildlife poaching is practically impossible to reduce. Despite the fact that Nepal is home to two species of pangolins and shares an international border with China, one of the world's largest pangolin traders, there is little information on the extent of pangolin trade in Nepal (Katuwal et al. 2015, 2016; Sharma et al. 2019; Ghimire et al. 2020; Paudel et al. 2020). On top of that, only few robust studies regarding illegal trafficking of pangolins have been conducted in central Nepal (Dangol 2015; Sharma et al. 2020b). Hence, this research aimed to identify the trade routes and understand the social attributes of the people involved in illegal trade in Makwanpur district of central Nepal.

METHODS AND MATERIALS

Study area

The study was carried out in the Hetauda sub-metropolitan city and Makwanpurgadi rural municipality (Figure 1) of Makwanpur (2,426 km^2) district, Nepal. The district is located with the coordinates (27.3333–27.6666 ^{0}N & 84.6833–85.6833 ^{0}E). The climate of the district varies from near-tropical to upper-temperate forest type with mean annual precipitation between 16.6°C to 30.3°C and mean annual rainfall (2,288 mm). About 75% of the land of the district is mountainous and the rest 25% is plain areas (Shrestha & Nepal 2016). The main ethnic groups residing in the districts are Tamang, Newar, Majhi, Magar, and Praja (CBS 2012). Vegetation like Sal *Shorea robusta*, Chilaune *Schima wallichii*, and Saj *Terminalia bellerica* are commonly found in this region. Different indicators such as the presence of pangolin in the study site, several anecdotal evidence such as seizure and arrest records on local and national newspapers as well as major markets were considered for selecting these municipalities as study areas. Katuwal et al. (2015) also used major market areas as indicators for site selection.

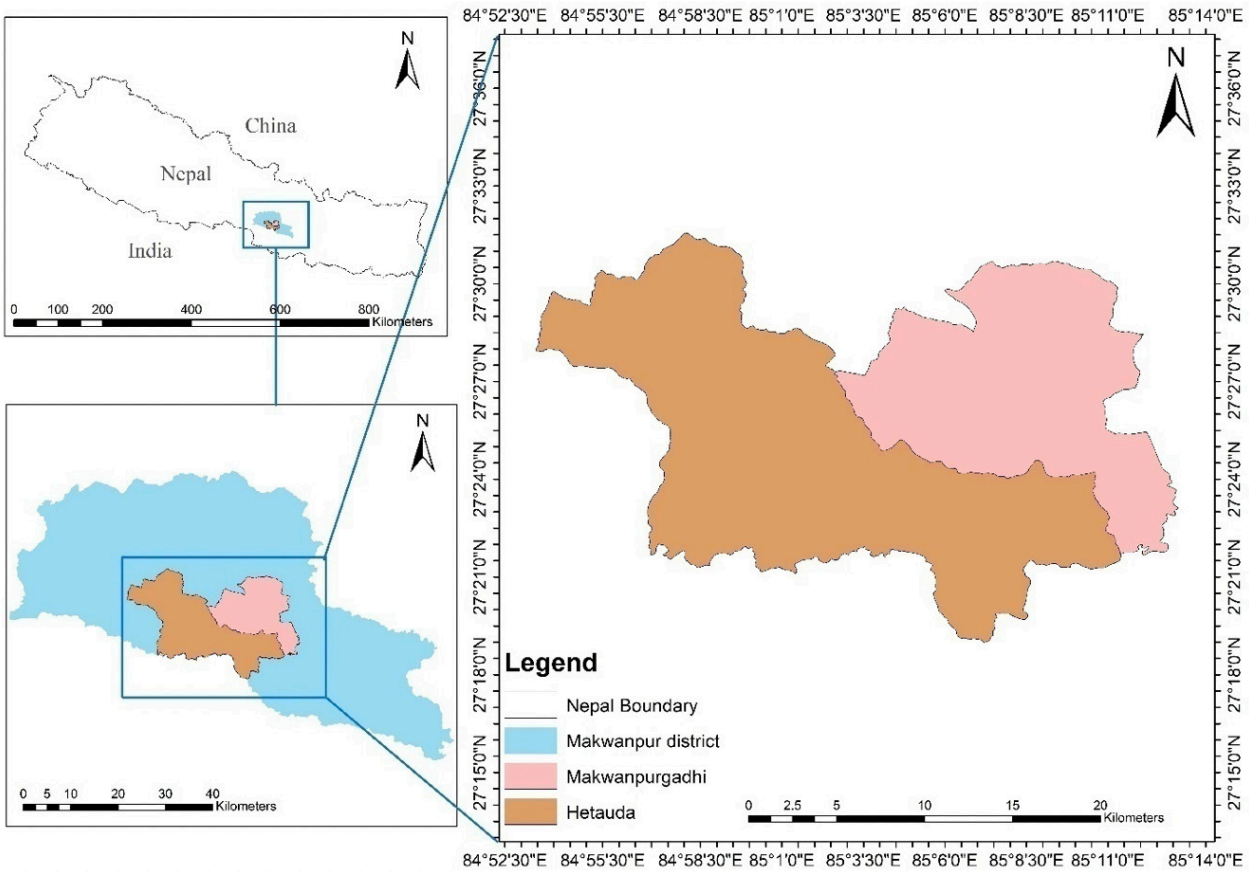

Figure 1. Map of study area showing Hetauda & Makwanpurgadhi.

Data collection and analysis

The study was conducted between February and March 2020. Data were collected through both primary sources (household survey, key informant survey, focus group discussion, and seizure data) and secondary sources (published and unpublished reports). Snowball technique of purposive sampling method was used to identify the potential respondent (Newing 2011) from different ethnic groups and about 90 households were selected (60 households from Hetauda and 30 households from Makwanpurgadhi). Although the study area was dominated with Brahmin and Rai community, we also ensured the representation of other communities in our purposive survey (see Table 1 for detail). We interviewed the head of each household, but if he or she was unavailable, we interviewed the available (>18 years old) adult. A semi-structured questionnaire was used to interview the selected respondents (Newton et al. 2008) (Appendix A). Interviews were conducted in the local language and were then translated into English. We tried to pose open-ended questions wherever possible in order to access the respondent's true feelings on an issue. Surveyor provided well-illustrated pictures of both Chinese and Indian Pangolins and also played videos showing the behavior of both species to facilitate the respondent for species identification. In addition, we asked respondents to rank five pre-determined threats from 1 to 5 according to the degree of severity posed, 5 being the greatest and 1 being the least. We used the non-parametric Friedman test to identify people's opinions regarding pre-determined threats at a 1% level of significance similar to Ghimire et al. (2020). Further, 15 key informant interview was conducted involving division forest office (DFO) staff (n = 5), FECOFUN head (n = 1), police officers (n = 5), and district court staff (n = 4). There were altogether 32 questions that were directed towards assessing information on trade and its triggering factors (Appendix B). Also, four focus group discussions were carried out in each study site (three with the local respondent and one with community-based anti-poaching Unit) to identify major trade routes and market hub for pangolin trade. During the focus group discussion, the team tried to pose close-ended questions to compare and validate the answers

of different respondents. In addition, we obtained trade information from DFO and district police station including details on quantity and part of pangolin seizure, date, time and place of seizure, name, and address of the culprit from 2015–2019. The information gathered was entered into excel for analyses and presentation. Information accessed from household surveys, key informants, focus group discussion and seizure records was used to prepare a map highlighting the possible trade route with the help of the ArcGIS 10.8 version.

RESULTS

Socio-economic characteristics of respondents

Most of the respondents interviewed were male (70%) belonging to the age group of 35–55 years (74.44%). Similarly, most of the respondents (48.89%) surveyed were illiterate. And the majority of the respondents (74.44%) were involved in agriculture as shown in Table 1.

Table 1. Socio-economic characteristics of respondents.

Characteristics	Number	% of respondents
Gender		
Male	63	70
Female	27	30
Community		
Brahmin	35	39
Chhetri	11	12
Tamang	13	14
Chepang	13	14
Rai	18	20
Age group		
Young (<35 year)	15	17
Adult (35–55 year)	67	74
Old (>55 year)	8	9
Education		
Illiterate	44	49
School-level	35	39
College level	11	12
Occupation		
Agriculture	67	74
Forest guard	3	3
Teacher	2	2
Shopkeeper	8	9
Housewife	6	7
Government job	4	4

People's perception of protection of pangolin

The majority of the respondents supported pangolin conservation (63%), few were against it (4%), and 32% were ignorant of the issue.

Ethno-medicinal importance of pangolin

People belonging to Tamang (40%), Chepang (24%), and Rai (16%) communities are more aware of the ethno-medicinal importance of pangolin in the study area (Figure 2). They do have good knowledge regarding the use of pangolin claws and scales.

In the local context, the use of pangolin and its body parts (like its scales) are believed to have healing power to cure wounds. More importantly, pangolin meat is used for treating gastrointestinal problems, pain killers during pregnancy, cardiac problems, back pain relief, and bone problems. The scale is used as a symbol of good luck to avoid danger and to make finger rings. Scales are rubbed together and applied to cure skin diseases, burn wounds, teeth problems, and to cure pneumonia. Likewise, scales are kept near the baby basket (kokro) to protect children from different diseases. They used the scales in preparing bags, boots, and musical instruments. Similarly, pangolin claws are used to make a ring, necklace, and bracelet that help to protect individuals against bad omen as well as protect from any other bad consequences.

Manner of pangolin hunting

Out of the total respondents surveyed, the majority (42%) reported the hunting to be opportunistic, followed by rare (19%), intentional (17%) hunting, and no idea (22%), respectively.

Type of people involved in hunting

Mostly unemployed adults (45.55%) and young men (40%) were involved in the trade. The rest had no knowledge about the trade (Figure 3).

Purpose of pangolin hunting

About the purpose of hunting, 53% reported hunting for money, 23% for traditional medicine, 17% for meat and 7% for cultural value (ornaments such as rings and bracelets made from pangolin scales are considered as an emblem for good luck).

Threat to pangolin

Out of five threats, respondents ranked human hunting (4.43) as a severe threat to the pangolins followed by habitat fragmentation (3.39) and least for

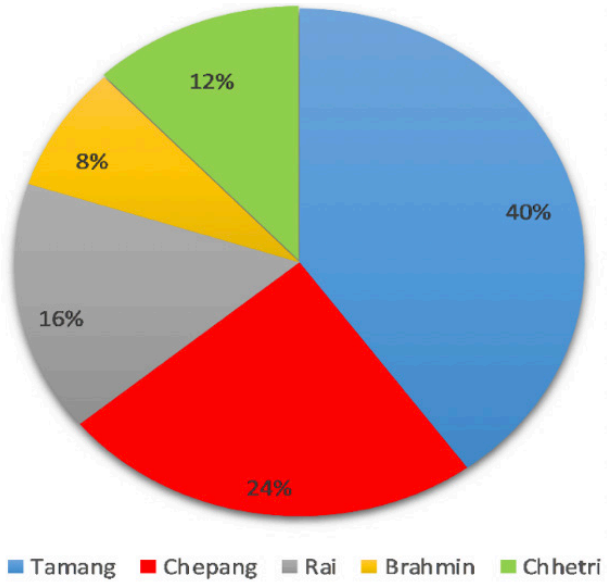

Figure 2. Different community people's knowledge on ethno-medicinal use of pangolin.

complex biology (1.93). On applying the Friedman test the results were statistically significant (χ^2 = 135.997, p <0.01) as shown in Table 2.

People's perception on status of Pangolin and major reasons for trade

Out of the total respondents, the majority (44.44%) had noticed the increase in the pangolin population, some (32.22%) had no idea about the pangolin population and the remaining (23.34%) had noticed the decrease in pangolin population.

Regarding the reasons behind the trade, the majority (34.44%) of the respondent identified high profit to be the major reason for trade followed by poor security, poverty, and lack of awareness as 26.68%, 23.33%, and 15.55%, respectively.

Fluctuation in pangolin trade

The fluctuation in pangolin trade was assessed,

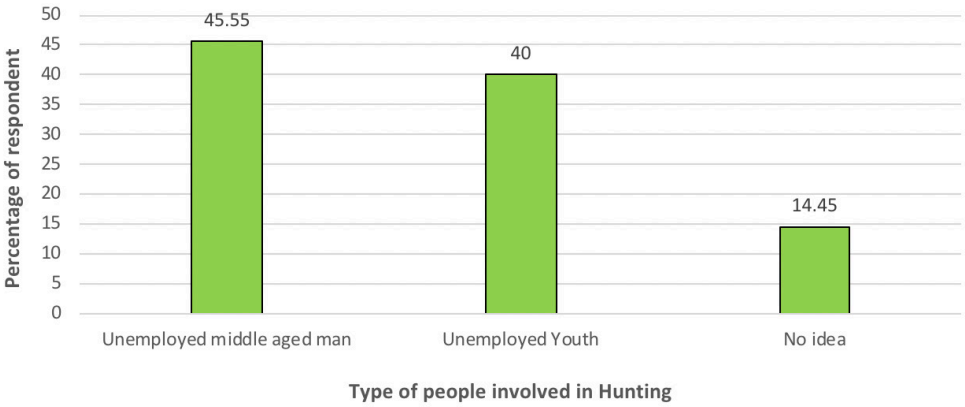

Figure 3. Type of people involved in hunting of pangolin.

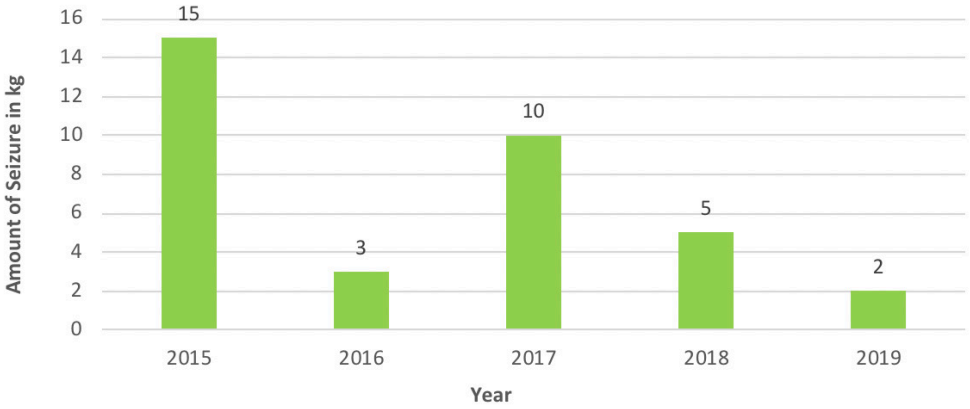

Figure 4. Analyzing pangolin trade condition from seizure data.

Table 2. Pre-determined threat ranking based on people's opinion using non-parametric Friedman test.

	Major threat	MR	χ^2	P-value
1.	Human hunting	4.43	135.997	0.0000*
2.	Habitat fragmentation	3.79		
3.	Hunting by wild animal	2.57		
4.	Low food availability	2.27		
5.	Complex biology	1.93		

MR—Mean Rank | X^2—Chi-square value | P—significant value.

taking into account both the respondent's opinion and the seizure data obtained from DFO, District Police Office (DPO) for the last five years. The seizure data were tallied with the respondent's opinion which showed a decreasing trend in trade. When questioned about the pattern or trend of pangolin trade in the district, 43.33% admitted about declining status of trade, 24.45% feel the trade is still increasing, and the remaining 32.22% had no idea about the pangolin trade as shown in Figure 4.

Identification of major trade routes through Makwanpur district

As per the information provided by concerned authorities (DFO, Police office), major markets for pangolin trade are either China or India. The majority of the pangolin parts from different parts of the district or from outside the district reach the district headquarters, Hetauda – a sub-metropolitan city and are transported to China and India via various routes.

The highlighted pink line indicates the trade route via road (Figure 5). The route is identified through information obtained from group discussion, key informant interviews and mainly by analysis of seizure data and follows following route:

1) Hetauda—Birgung—Kalaiya—Gaur—Malangawa—Rajbiraj—India
2) Hetauda—Kathmandu—Dhadingbesi—Bidur—Dhunche—China
3) Hetauda—Kathmandu—Dhulikhel—Chautara—Charikot—China

DISCUSSION

Our results show that the majority of respondents supported pangolin conservation which could be attributed to the efforts of the personnel of the community forests and community-based anti-poaching units in the study site. Media such as television, radio, and newspapers might also have played a positive role in creating awareness among the people (Sharma et al. 2019). Especially people living around Rani and Chhucekhola community forests were highly positive towards the protection of threatened pangolins despite knowing the fact that pangolin meat, scales, and skin are of high value in an international market Katuwal et al. (2015), they were against the trade of pangolins. Our result contradicts with the findings made by Katuwal et al. (2015) where most people were unaware of the protection status of pangolin. Sharma et al. (2020b) mentioned that people from the diverse background were knowledgeable about Chinese Pangolin and concerned about the conservation of this species as pangolin plays a vital ecological role in controlling the pest such as termites, ants (Swart et al. 1999) and also in improving the soil structure and composition similar to other burrowing mammals (Laundré & Reynolds 1993).

Previous studies (Nash et al. 2016; D'Cruze et al. 2018; Ghimire et al. 2020) recorded that the pangolin parts are used for traditional medicines. Similar to our finding on ethno medicinal use of pangolin parts for curing wounds, gastrointestinal problems, pain killer during pregnancy, cardiac problems, back pain, and bone problems, cure wounds, cure arthritis, and anti-poisonous reagents. Pangolin scales were used for ornaments such as rings and bracelets and as an emblem for good luck while others showed that they bring bad luck (Nash et al. 2016; D'Cruze et al. 2018; Ghimire et al. 2020).

In our study, the majority of the respondents reported hunting to be opportunistic followed by rare and intentional, thus providing insights into the intensity of hunting. Results from the study by Ghimire et al. (2020) and D'Cruze et al. (2018) also suggest that opportunistic hunting is one of the major causes of pangolin population decline.

Our study showed that unemployed middle-aged men followed by unemployed youths were majorly involved in pangolin hunting. Our results are similar to the studies made by Ghimire et al. (2020) and Katuwal et al. (2015) where they reported that youth, especially those unemployed, were involved in pangolin hunting for monetary reasons. We suggest two key strategies of the many used to combat illegal wildlife poaching; first the development of reward and sanction mechanism through legally agreed rules and regulations and second, the introduction of strong and sustained awareness programs, prioritizing and implementing income generating activities or skill development trainings to facilitate alternative livelihood options (Khatiwada et al. 2020). The effective conduction of skill development training and income-generating activities like mobile repair, house wiring, and plumbing is likely to make

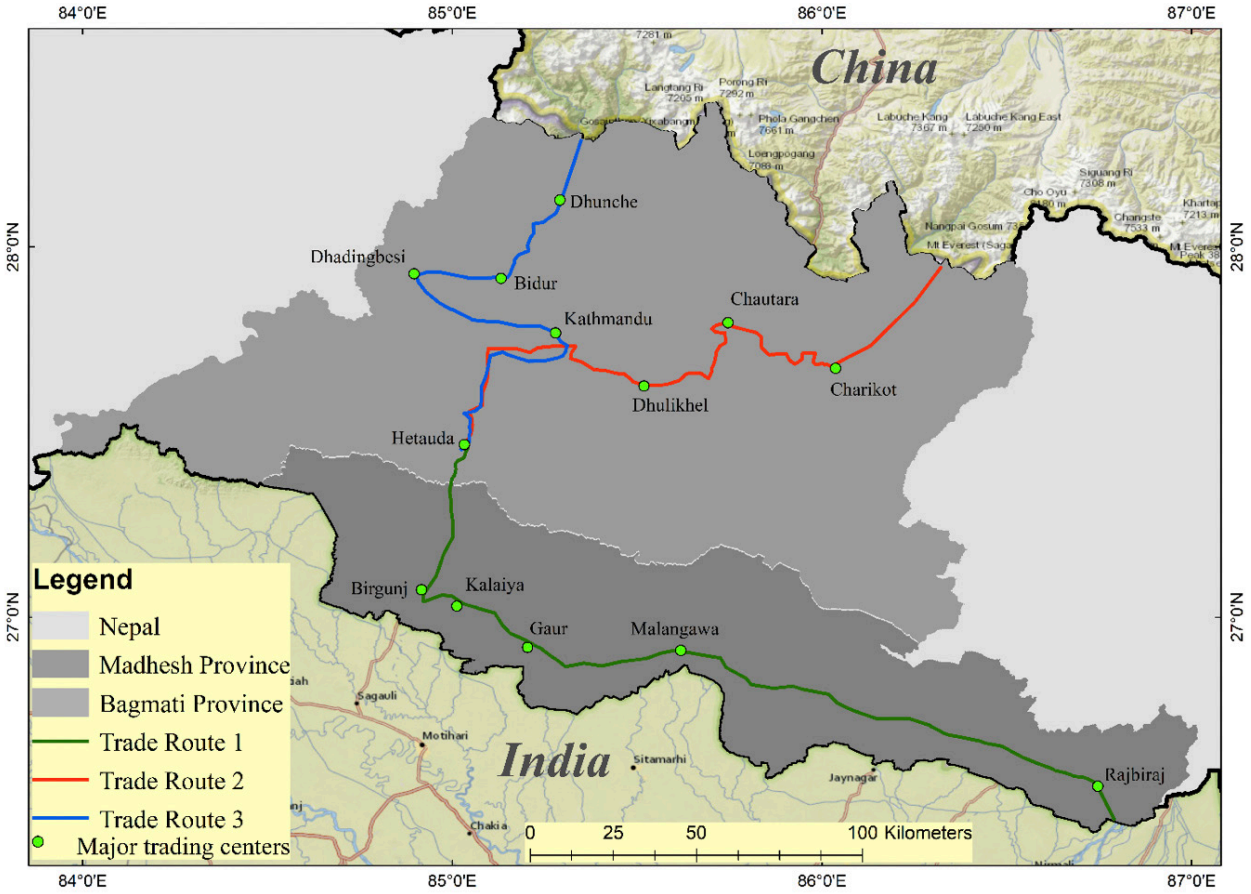

Figure 5. Map showing trade route of pangolin within Makwanpur district.

the marginalized populations self-reliant and less likely to engage in poaching and illicit activities (Bhatta et al. 2018).

Likewise, our study showed that money and traditional medicinal values were the driving factors for hunting. Different parts of the pangolins are consumed traditionally in a local context as the parts of pangolins are believed to have curative properties as mentioned earlier Ghimire et al. (2020). However, these social and cultural values are suppressed by monetary value at present which coincides with the study made by Corlett (2007) where he stated that pangolins are hunted for trade rather than for local consumption. Further, Katuwal et al. (2015) revealed that the minimum price of live pangolin and scales of pangolin in the Nepali market range between $ 7–12.5 /kg for local hunters, however the price doubles at every subsequent level of trader which supports our results. Despite the fact, people believe that the pangolin population is increasing in the study site, however, this hypothesis need to be proved by detailed field study. The reason could be the decrease in pangolin trade with the active involvement of police and concerned authority in controlling the wildlife trade. Further, National Park and Wildlife Conservation (NPWC) Act has a provision of a penalty of NRs 100,000–500,000 or 1–10 years of imprisonment or both if any offense regarding them is committed (GoN 1973).

Heinrich et al. (2017) explored the impacts of hunting on tropical forests in southeastern Asia and highlighted the importance of opportunistic hunting as it does not require much skill. We also identified hunting as the major threat which is similar to the findings of Ghimire et al. (2020). Challender & Hywood (2011) and Patel & Chin (2009) also identified hunting and poaching as the primary threats to pangolin. Local people use different techniques to hunt pangolins. The most commonly used hunting practice is filling burrows with water and hitting on snout of pangolin when they attempt to escape from the burrow (Katuwal et al. 2016). Hunters catch pangolins to supply to the trader for money rather than personal consumptions (Corlett 2007) as a decrease in the global wild population and strong law enforcement have increased the price of pangolins in the market (Shepherd 2009; CITES 2016).

As compared to the record of previous years, the pattern of pangolin seizures seems to be decreasing in the study area after 2015. The result corresponds with the result of Ghimire et al. (2020) where they have clearly stated that the seizure of Pangolin in recent years is declining in Illam, Dhankuta, Taplejung, and Sankhuwasaba districts. However, the obtained result is in contrast with the findings of Katuwal et al. (2015) where they have reported the increasing pattern of pangolin trade in eastern Nepal. Currently, several attempts are made by the Nepal government for pangolin conservation. National pangolin workshop was organized by the government of Nepal to develop a road map for conserving the country's globally significant pangolin population. Similarly, a wide range of stakeholders from local pangolin experts including pangolin specialist group to government officials are working together to develop scientific information through performing intensive surveys on multiple arenas of threatened pangolins. In addition to this, the Pangolin Conservation Action Plan for Nepal (2018–2022) aimed to address the critical threats to pangolin conservation by developing appropriate conservation strategies and action (DNPWC 2018). The major objective of this plan is to curb poaching and illegal trade of pangolins. Currently people in Makwanpur district are also more aware of the protection status of pangolins. Similarly, CF (especially Rani and Chhuchekhola CF) are working actively for the conservation of pangolins. They keep conducting awareness classes in various schools and trade-prone areas to make community people aware of the legal and ecological consequences of trade. In addition to this, pangolin park is made in Chhuchekhola CF for the conservation and promulgation of threatened pangolins. Nevertheless, the community-based anti-poaching Unit (CBAPU) was established four years ago in Makwanpur district which discourages people against the illicit trade of pangolins. We obtained very few registered cases of pangolin seizures at the DFO, Makwanpur. Even though very few seizures and arrest records have been registered in DFO and DPO, police are claiming that trade is still happening but in a confidential way. Due to the clandestine nature of the trade and the strong network among the poachers, they are finding it very difficult and challenging to track and arrest culprits.

According to the information on trade routes provided by DPO, Makwanpur, poachers from each area use different trade routes nevertheless, the final destination in Nepal is typically the border to China. Similarly, most of the key informants admitted China to be the major market place for trade. In the study made by Katuwal et al. (2015) also trade flow was more across the Chinese border. The findings of our study is again supported by the study made by Sharma et al. (2020b) where they have clearly stated that most illegal Chinese pangolins trades from Nepal are motivated by the demand from China. Illegal wildlife trade generally occurs through a complicated network of locations and routes where poachers of one village supply pangolin to poachers of another village and so on until it reaches the international border. Heinrich et al. (2017) stated that wildlife trafficking occurs through a mobile trade network with constantly shifting trade routes. This may also be presumed in our study area that trade might still be rising by shifting the route rather than using old routes.

CONCLUSION

Our study shows that especially the unemployed adults were involved in pangolin hunting especially for a monetary cause. Further, our study reported the use of different parts of the pangolin as cultural values and curative reagent in the study area. Similarly, our results have shown the decreasing trend of seizure records of pangolin whereas trade flow was more skewed towards the Chinese border. On top of that, hunting and habitat fragmentation were ranked as most severe threat for pangolin conservation. However, community forests are working actively for the conservation and promulgation of threatened pangolins in the Makwanpur district. Finally, we suggest that to discourage the involvement of youth in illegal pangolin trade, strong and sustained awareness programs should be launched with development of alternative livelihood opportunities. In addition, forming community-based anti-poaching units in prospective pangolin habitat could be a significant intervention to stop the trade. This necessitates long-term motivation, anti-poaching training, security guarantees, and, most importantly, incentives for worthy conservation outcomes. Finally, we propose a national-level investigation into unlawful pangolin hunting and trading, as the species' survival is in jeopardy.

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Appendix A
Questionnaire survey

1. Socio-economic characteristics of respondents
a. Gender (circle one)
i. Male ii. Female
b. Age group:
i. Young(<35yr) ii. Adult(35-55yr) iii. Old(>55yr)
c. Education:
i. Illiterate ii. School-level iii. College level
d. Occupation: .....
e. Community:
i. Tamang ii. Chepang iii. Rai iv. Brahmin v. Chhetri

2. People belonging to which community are more aware with ethno-medicinal uses of pangolin?
a. Tamang b. Chepang c. Rai d. Brahmin e. Chhetri

3. Do you agree pangolin should be protected?
a. Agree b. Disagree c. No idea

4. Do you know the medicinal value of pangolin?
a. Cure of arthritis b. Cure wound c. Prevent body ache problem d. Others

5. Do you know the cultural value of pangolin?
If yes, Please specify.....

6. Have you ever heard or seen pangolin killed in your locality?
a. Intentional b. Opportunistic c. Rare d. No idea

7. What type of people are mostly involved in hunting?
a. Unemployed middle aged man b. Unemployed youth c. No idea

8. Why are pangolins hunted?
a. Meat b. Cultural value c. Traditional medicine d. Money

9. Rank the following threats to pangolin according to the degree of the severity?
a. Habitat fragmentation b. Human hunting c. Hunting by wild animals d. Complex biology e. Low food availability

10. Have you perceived an increase or decrease pangolin habitat and its number in your area?
a. Increase b. Decrease c. Don't know

11. What driving factors is most responsible to encourage people to involve in trade?
a. Low awareness b. High profit c. Poor security d. Poverty

12. Can you tell me the trend of pangolin trade for last 5 years?
a. Increase b. Decrease c. Don't know

13. What are the major hub for pangolin trade?
a. China b. India c. China and India d. No idea

Appendix B
Checklist for Key- Informant Interview

Name of respondent: Date:
Address: Age:
Phone number: Sex:
Designation:

1. Have you seen Pangolin or their burrow? When and where?
.....
2. How familiar are you with Pangolin and its benefits?
.....
3. Are you aware regarding ethno-medicinal use of pangolin?
.....
4.Which part of pangolin is most valuable?
.....
5. What are the major threats for pangolin?
.....
6. Are pangolins being hunted in your area?
.....
7. What method they used to hunt them?
.....
8. For what purpose they hunt pangolins?
.....
9. How often does the hunting of pangolin occur in your area?
.....
10. Can you estimate the hunters number in your locality?
.....
11. In average how much pangolins are being killed in one year from your area? Can you estimate last year's number?
.....
12. People of which caste are mostly involved in trade?
.....
13. People of which occupation are mostly involved in trade?
.....
14. People of which age are mostly involved in trade?
.....
15. What are the major reason for increased trade of the pangolin?
.....
16. Do you have any estimate of pangolin population trend in last five years? Is it increasing or decreasing? If decreasing why?
.....
17. Do you know where live Pangolins and its body parts are sold?
.....
18. Are there any selling and buying station in the market?
.....
19. Who are mainly responsible for selling?
.....
20. Where do buyers come from?
.....
21. Where are Pangolin's scales sold, do you have any idea?
.....
22. What are the major hub for pangolin trade in this area? (key places)
.....
23. Does any buyer/middleman visit the place for buying? If yes then from where.....

24. How and where Pangolins are hidden during transport and trade?
.....
25. By what route the Pangolins are smuggled? Identify the key routes within the district?
.....
26. In your information, what is the average price per kg of pangolins scale at local level? Or how much a poacher earn selling a kg of pangolin scale in your area?
.....
27. Do you have any idea how much a middleman earn selling a kg of pangolin scale?
.....
28. In your opinion, why is the trade network so vast and difficult to control?
.....
29. Do you have any idea of fine and punishment in case of seizure? Is it enough to limit the alarming trade?
.....
30. Is there any conservation effort to mitigate illegal wildlife trade of Pangolin?
.....
31. What type of organization worked here/ working here to control the illegal trafficking and poaching of threatened pangolins?
.....
In case the key informant is the dignitaries of any organization.....
a. What kind of programs and actions are carried out to control illegal trafficking and poaching of threatened pangolins?
.....
32. Are community-based anti-poaching unit working effectively to control illegal trade of endangered pangolins?
.....

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ravi@threatenedtaxa.org

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