

REPORT ON
ASSESSING DISTRIBUTION, HABITAT, AND THREATS
TO PANGOLIN IN KAMALA RIVER BASIN,
CENTRAL NEPAL



SEPTEMBER, 2021



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Background about the species

Nepal hosts two species of pangolin out of eight species distributed across the world: Chinese pangolin (*Manis pentadactyla*) and Indian pangolin (*M. crassicaudata*) (DNPWC, 2018). The pangolin is locally called "Saalak" in Nepal. Pangolins or scaly anteaters are unique among mammals by way of being covered in individual, overlapping scales comprised of keratin (Challender et al., 2014). Indian pangolins are distributed below 500 m and Chinese pangolins are distributed in lower regions as well as mountain areas with a maximum elevation of around 3,000 m (Jnawali et al., 2011; Kaspal et al., 2016; Khatiwada, 2016; Sharma et al., 2020a). In Nepal, the Chinese pangolin is distributed from eastern to western at the extreme limits of Gandaki Province (Acharya et al., 2018; Baral & Shah 2008; Suwal et al., 2020). Within these geographic regions, Chinese pangolin inhabits in forests, agricultural lands, degraded landscape, and near to human settlements (Katuwal et al., 2017; Sharma et al., 2020a, 2020b) and its occurrence is influenced by the forest canopy, soil, distance to water sources, distance to human settlements, road or footpath and slope (Katuwal et al., 2017). Pangolin has a habit of burrowing soil mainly to prey on termites, hibernate, rest, breed, hide and defend (Dorji, 2017). Generally, its distribution in these habitats will be supported by food availability such as termites and ants (Challender et al., 2019). Pangolins have been recorded from 43 districts in Nepal among which 27 districts have recorded the presence of Chinese pangolin (Ministry of Forest and Soil Conservation, 2016).



Figure 1: Pangolin burrow found during field visit

As other wildlife species, the pangolin is also facing survival threats due to anthropogenic activities like illegal hunting and trading, deforestation, unmanaged developmental activities, wildfire, increased agricultural landscape, and habitat fragmentation (Challender et al., 2014; Kaspal et al., 2016; Laurance et al., 2014; Sharma et al., 2020a). Climate-induced threats such as forest fires, droughts, flooding, landslides also impact the abundance of pangolin. The wide distribution of pangolins outside protected areas in Nepal also raises concerns about the vulnerability of the animals to threats including interactions with humans (hunting, poaching and illegal trade, persecution); deforestation; and infrastructure development, including road construction and hydropower projects that destroy and fragment habitat. Additional challenges include limited levels of awareness among local communities concerning the importance and conservation needs of the species; weak and under-resourced law enforcement; and excessive use of chemical fertilizers and pesticides in agricultural practices.

Nationally, both species are protected in Nepal under the National Parks and Wildlife Conservation Act (1973). The Government of Nepal has also recently ratified the Convention on International Trade in Endangered Species (CITES) Act 2018 which upgraded provisions for punishments associated with breaches of the Act. Fines ranging from NPR 500,000 (around USD 5000) to NPR 1000,000 (around USD 10,000) and/or a prison sentence of five to 15 years may be imposed on any person who keeps, uses, grows, breeds, sells, purchases, transfers or obtains pangolins or their parts without permission. Meanwhile, as global conservation approaches, the IUCN Red list categorized the Chinese pangolin as critically endangered whereas the Indian pangolin is listed in the endangered category. Similarly to control its trade and transport, CITES have kept all the species of pangolin in Appendix I category.

Rationale of the work

Despite, different national and international protection measures, the population status of the species is declining day by day (Ghimire et al., 2020; Heinrich et al., 2016; Katuwal et al., 2013; Paudel, 2015). The biggest challenges to conserving pangolins in a country like Nepal are a lack of population and ecological data, targeted conservation actions, and a poor understanding of the extent and impact of hunting, poaching for local use and its illegal trade. The detailed site-specific information on the pangolin especially on distribution and habitat preference is little known. Therefore, this study aimed to assess the habitat preferences of pangolin at the Kamala river basin for developing a management plan.

Approaches applied

Overall work was divided into two parts (a) action-based activity and (b) the field data collection. The action-based activities consisted of organizing conservation camps, sticker pasting, publication of articles, celebration of world pangolin day, coordination with the local committee. On the other hand, field data were collected by applying two approaches (i) field-based data collection to understand the habits and habitat of pangolin, (ii) carrying out schedule survey with the local people to understand the conservation awareness among the local people.



Figure 2: Local looking at the photo of pangolin

Major highlights, results, and impacts of the project:

On pangolin's habitat

Kamala Basin as a favorable habitat

All four districts found the presence of pangolin (Figure 3) either through indirect signs like (burrow, scratches) from the field or based on the literature/local authorities or local people.

It was hard to differentiate between two pangolins (Chinese and Indian) with the indirect sign but based on the literature and local experiences we came to know that the lower belt of the Kamala River Basin was favourable habitat for the Indian Pangolin while the upper belt was for the Chinese pangolins.

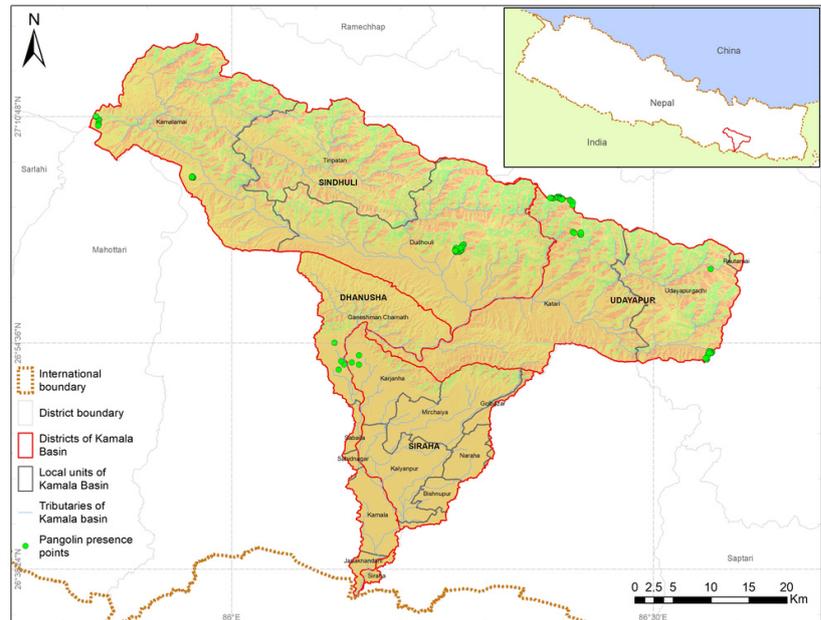


Figure 3: Presence of pangolins in the study area

Distribution of burrows in Kamala Basin

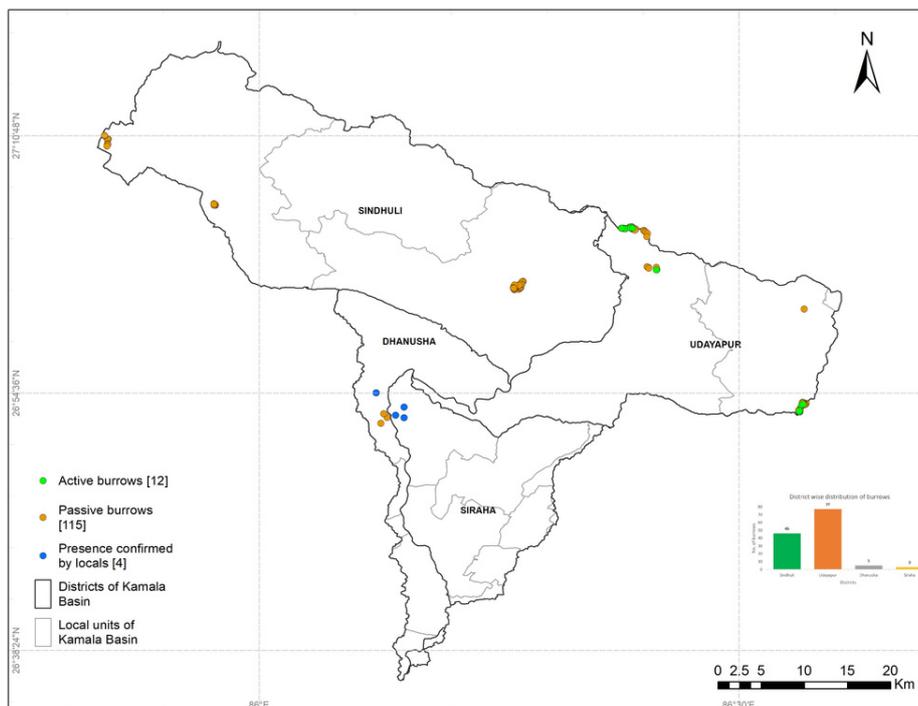


Figure 4: Recordings of active & passive burrows of pangolins in the study area

Altogether 131 burrows were recorded directly or indirectly from the field (Figure 4). Among which Udayapur has 59% (n=77), Sindhuli has 35% (n=46), Dhanusha 4% (n=5) while Siraha had only 2% (n=3). Since Sindhuli and Udayapur covers over 70% of the Kamala River Basin, this difference in area might have been one of the significant factor guiding our result.

On sensitization/awareness campaigns at local level

Throughout the project, we conducted awareness programs in five communities of Kamala River Basin. All were done with the proper coordination with the local authorities, communities.

Conservation camps: Episode 1 (Ranibas, Sindhuli)

The first of the five conservation camps (workshop) was done in the Janata Secondary School from Ranibas, Sindhuli where 36 students from class 8, 9, and 10 participated (Figure 5). The conservation camp was organized in partnership with the Division Forest Office, Sindhuli, and the school itself. The program was divided into two sessions; the first was an introductory session about the pangolin while the second was the quiz context and prize distribution. In the first session, students were shared about the pangolin's behaviour, distribution, conservation importance, and also the role of young people in its conservation. The school staff, as well as students during the workshop, shared that they had heard about the pangolin (few of them have seen it) but they didn't know this species is on the verge of extinction. The school staff and students expressed their willingness to help save this species after the session.



Figure 5: Representative of DFO, Sindhuli sharing his remarks about coordination for pangolin conservation

In the second session, the quiz competition was organised to foster the understanding of the students. In the end, a bio-diversity conservation club was also formed with the leadership of seven students from the schools. The bio-diversity club is also supported by the school authority as well as Division Forest Office, Sindhuli to maintain the sustainability of local biodiversity. This club is believed to encourage local youths in conservation activities.

On sensitization/awareness campaigns at local level

Conservation camps: Episode 2 (Katari, Udayapur)

Udayapur district was found to be a favourable habitat for pangolins but the local people were found to have limited knowledge about the pangolin. So, to aware local people of the importance of pangolin and enhance local participation in its conservation a conservation camp was organized.

After the coordination with the Division Forest Office and local communities, the workshop was organized in Shree Secondary School, Katari-8 of the Udayapur district. Altogether 77 students from class 7-10 actively participated in the workshop (Figure 6). The students and the school authority were amazed to know the different facts about the pangolin.

The school principal said they felt very lucky to host species that are on the verge of extinction and added it is also their responsibility to help in its conservation. One of the students added that he has heard about the illegal trade of pangolin from their area before and from now onwards he will play his part to stop such activities and rather encourage other people in its conservation.



Figure 6: Students participation in conservation camp in Katari, Udayapur

On sensitization/awareness campaigns at local level

Conservation camps: Episode 3 (Dudhauri, Sindhuli)

Together with Division Forest Office, Sindhuli a conservation camp at Dudhauri, Sindhuli was organized. As per DFO records, this place is believed to be rich in biodiversity and also at risk of human-wildlife conflict and illegal activity. So, to minimize future risk timely awareness campaign in the form of a conservation camp was organized (Figure 7). Altogether, 38 local people representing the community forestry group, teachers, businessmen, affected group, leaders were present. The program information and the importance of pangolin conservation to the local people and their ecosystem/livelihood were shared. A local biodiversity hotspot mapping was also done in this event. The program successfully brought local people and DFO together and discusses how future conservation activities and minimization of risks can go together.

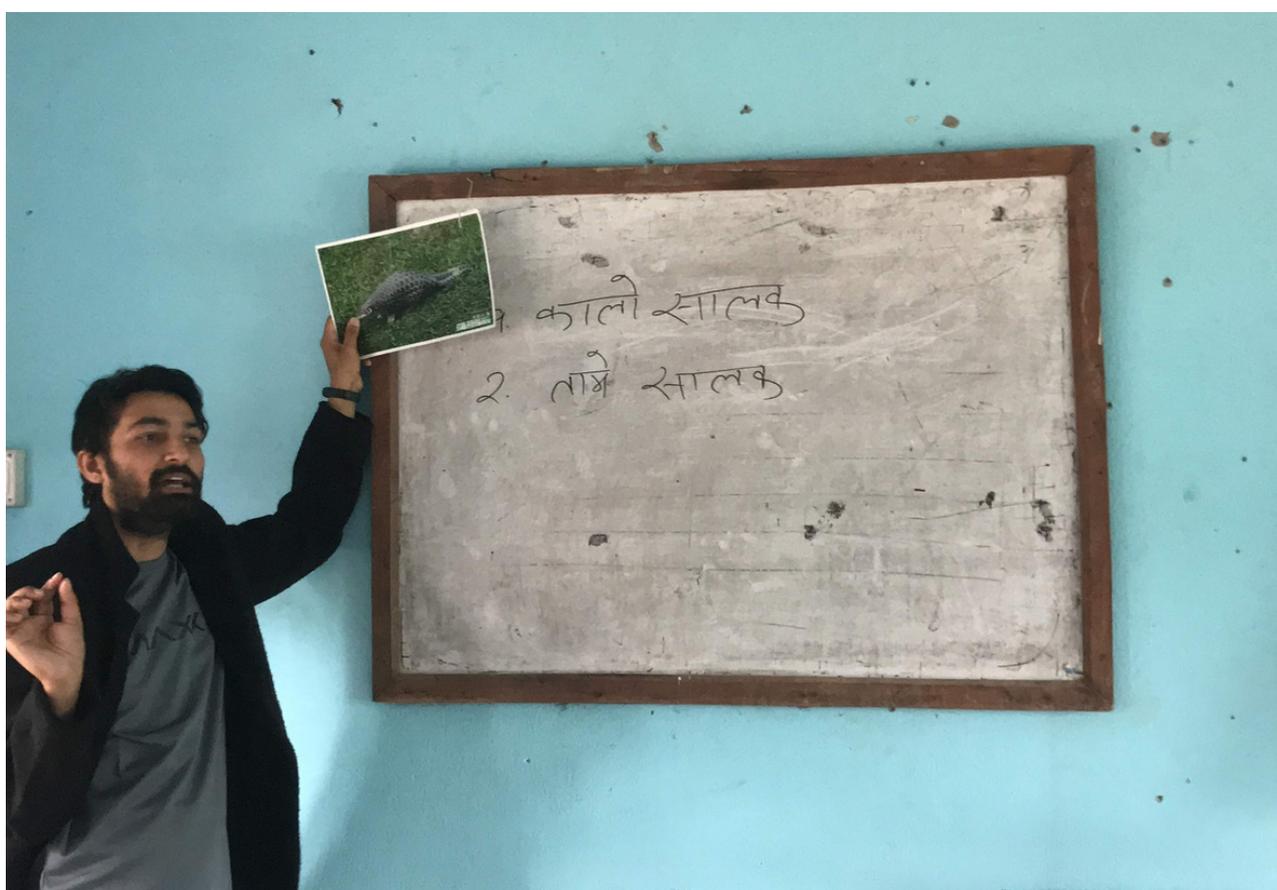


Figure 7: Sharing about the pangolins and its conservation importance to local people

Conservation camps/World Pangolin Day: Episode 4 (Katari, Udayapur)

As a part of our awareness program, the annual World Pangolin Day, 2020 was celebrated in the Katari Municipality of the Udayapur district as this municipality and district were found to be a favorable habitat for pangolins. The event was organized in Lekhani Secondary School of Katari municipality with coordination and support of the local people. The event was very participatory as more than 100 people from different associations were present in the event which includes the representative from the local government, Police, community forestry user groups, teachers, local leaders, elders, businessmen, and students.

On sensitization/awareness campaigns at local level



Figure 8: Elected ward president sharing their plan for local conservation activities

The half-day event was divided into three sessions where the first session focused on the dissemination of the information regarding pangolin and circulating the result of this research. The second session focused on the formation of the local pangolin conservation committee. Whereas, the third session focused on the art competition and award ceremony. The event was able to bring local stakeholders under the same roof and to discuss and work for the pangolin conservation. The representative from the newly formed local pangolin conservation committee also shared that they are very happy to have formed this committee and they will work for the conservation of this species as a group.



Figure 9: Representative of Nepal police requesting to support them to curb illegal wildlife trade

On sensitization/awareness campaigns at local level

Conservation camps: Episode 5 (Chisapani, Dhanusha)

The final conservation camp from our project was done in the Dhanusha district. This workshop was particularly challenging because due to COVID 19 travel restriction we couldn't organize this workshop as per our plan.



Figure 10: Project team member sharing the importance of pangolin to local people in Chisapani, Dhanusha

Following the precautionary measures, we organized a workshop in Ganesthan Charnath Municipality, Chisapani Of Dhanusha district (Figure 10 and 11) where 24 people participated from different sectors including the community forestry group, business person, teachers, social workers, and youths. People were very surprised to hear that the pangolins play such a big role in the ecosystem balance. A local shared that in past they used to see lots of burrows in the forest and the farmland but now such sights are decreasing. This might be due to limited knowledge among the locals. Many local people were unaware of the pangolins and were very excited to hear the fact about it.



Figure 11: Demonstrating the habits and habitat of pangolin

During this project, we were able to publish two articles as a part of the mass awareness campaign. The article played a huge role to reach hundreds of people virtually. To access the articles:

- Save the pangolins
- Conserving Nepal's pangolins amid COVID-19



SAVE THE PANGOLINS

Pangolins are on the verge of extinction. They need to be saved



Subitri Rai
Email: sabitrirai4env@gmail.com

Pangolin, the world's most trafficked mammal, is shy and nocturnal in nature. It curls-up and becomes stationary when it sees other animals, humans or any objects. Usually at dark, because of its peculiar behaviors, there have been increased incidents of pangolins being stumped by heavy vehicles like trucks, where these vehicles travel round the clock to and from Katari through Lekhani of Udayapur district.

Once, a container ran over a pangolin on the way to Ghurni Bazaar. Nearby locals promptly gathered and took hold of injured pangolin and let the transportation workers go.

"That container weighed more than 20 tons. Astonishingly, instead of instant death it was alive and immobile but it died after a couple of days. My family forced me to delete all photographs and videos that I took. Even, I was scared to carry it," said one local person.

Many old and recent remains of manmade gullies near pangolins' burrows were observed at Nepal's forests which are non-protected areas. These gullies

were dug all around the burrows in order to trap and capture pangolins. All these indicate the level of threat to this species. Some locals said the meat of pangolins tastes delicious.

Hearing them, it seemed that many have eaten it without prior knowledge that pangolins are enlisted as "protected species" by the government of Nepal. Out of eight species only Chinese pangolin, listed as "critically endangered" and Indian pangolin listed as "endangered" are found in Nepal.

According to International Union for Conservation of Nature (IUCN) Red List (2020), pangolin along with rhino, tiger and more than 30,000 species face the threat of extinction. Many nations protect all of eight pangolin species but they are also described as being under threat of extinction. Main reason why pangolins are being smuggled is that their scales are highly priced in black market. These illegal activities have driven this scaly anteater into great threat. Hundreds of tons of pangolins' scales along with hundreds of live pangolins are being confiscated around the globe every year.

Pangolins are killed and poached for meat and scales. For



Republica

example, its meat is consumed as delicacy in many parts of China and Vietnam. But now pangolin is also being linked as intermediate host of new zoonotic disease called novel coronavirus. Zoonotic diseases are such diseases which get transmitted from animals to humans. It is pandemic and believed to have spread from Wuhan Seafood Wholesale Market in China with increasing number of tens of thousands being infected and hundreds of death toll till date. Researchers from South China Agriculture University have said that pangolin shares 99 percent similar genetic sequences to coronavirus. Researchers are assuming that coronavirus outbreak was transmitted from pangolins as a result of its consumption by humans.

Pangolins are consumed because of many unscientific facts and placebos (placebo is defined as a dummy medicine

which constitutes inactive substance/s but is given/used in the belief that it exhibits effective treatment). For instance, pangolins' scales are believed to cure many ailments like rheumatism and epilepsy. These "hearsays" are widely believed.

Likewise, many believe that its scales have incredible medicinal benefits, but majority are unaware about the fact that pangolin's scales have the same composition as that of our hair and fingernails. Even though it is already proven to have no medicinal value, its scales are publicized to revitalize one's health and widely believed to cure many diseases.

These beliefs and hearsays are driving these illegal wildlife activities and illegal wildlife trade (IWT) as a multibillion-dollar industry. This has put huge pressure on many nations to control IWT to demotivate wildlife crimes. Nepal has executed one of

the stringent laws. For instance, according to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Act (2017), committing wildlife crimes like killing, poaching, possessing, transporting, buying, selling pangolin and its scales will result in up-to 15 years imprisonment or one million rupees of fine or both. But such illegal activities are going on unabated. Various reports of pangolin smuggling substantiate this.

In Udayapur, scales of pangolins are the source of lucrative income for poachers and buyers. Besides, many of the locals are not aware of the fact that killing wildlife is illegal. Thus they need to be educated on this matter as well.

Pangolins are on the verge of extinction. They need to be saved. But for this, there should be stringent punishment for those who are involved in killing and smuggling of pangolins. Awareness should be spread that consuming pangolins' meat can even result in contraction of diseases like coronavirus. This will help to discourage people from consuming pangolin's meat. Besides, we also need to raise awareness among local communities for saving the pangolins. Otherwise, this endangered mammal could go out of existence because of our actions.

The author is affiliated with Greenhood Nepal. The write-up is based on field anecdote of assessing Chinese pangolin's distribution, habitats and threats in Kamala River basin



Blog

Thursday, Magh 15, 2077 7:50:34

Unicode Nepali

Home Politics Society Business Entertainment Sports Opinion Blog Photo Gallery

Conserving Nepal's pangolins amid COVID-19



Regan Sapkota

182 Shares

Publication and distribution of informative stickers

More than 250, A3-sized stickers with the image and message about the importance of pangolin conservation, consequences of involvement in trade were designed and pasted/distributed in strategic places such as schools, colleges, bus stand, public places, market, Division Forest Office, community buildings, etc. These stickers were able to catch the eyes of hundreds of people. One of the residents said, "he has seen many people coming to this community building and reading these beautifully designed and informative stickers". These stickers have been successful to circulate the conservation message of pangolins among hundreds of people.

Art competition to motivate young minds

Art competition on the occasion of World Pangolin Day, 2020 was organized to encourage local students in conservation activities. Altogether 15 students from four different local schools and of different age groups (age group 9-15 of grade 3-9) participated. One of the students shared that she felt very happy while doing the art of pangolin. She added she didn't know pangolin are on the verge of extinction before this and now will play her part in its conservation.



Figure 12: Students displaying their pangolin art during the art competition

Formation of the local pangolin conservation committee



Figure 13: Members of newly formed local pangolin conservation committee

We were able to form a local pangolin conservation committee with the local people of Katari Municipality. Under the presidency of elected ward official, a team of 11 people were formed which also included representatives from Nepal police, teachers, women's group, community forestry member, businessmen, and local leaders. This committee is formed to foster local conservation efforts and decrease illegal hunting/trading activities.

Formation of Eco-club

We were also able to form a school-based Eco-club to motivate young minds in conservation activities. A total of seven students from Janata Secondary School, Ranibas, Sindhuli were the members of the club. The Division Forest Office as well as the school administration also said they will assist and motivate young students in their activities. This club is believed to encourage local students in conservation activities from a young age and this might help them to be conservation conscious/leaders in the future.



Figure 14: Members of newly formed eco-club from Janata Secondary School, Ranibas, Sindhuli

Coordination and partnership

The project would not have been successful without the various coordination and partnership. We tried to coordinate with relevant stakeholders in every step possible. The Division Forest Office of all four districts was coordinated and collaborated, consultation with the local government was also done. Other relevant stakeholders like school, community group members, police force, local leaders, local clubs, local people, and many others were coordinated and involved whenever possible. Not only local level organization, coordination with the national and international organization, group/networks, academician/experts were also done. The partnership from this project has helped to broaden the pangolin conservation society.

Highlighted findings from the interaction with the locals

To understand the perception of local people about pangolins, a total of 52 household surveys were carried out.

When asked if they have ever seen pangolin in the local area, a high portion of them responded that they have seen pangolin before (Figure 15). This also could be the indicator of the fact that the study area is the favourable habitat for the pangolin. On the other hand, above 56% of the respondent said that the population of the pangolin in their area has been decreasing. Locals also said that the presence of less proportion of the fresh burrow is also an indicator of the decreasing population of the pangolin.

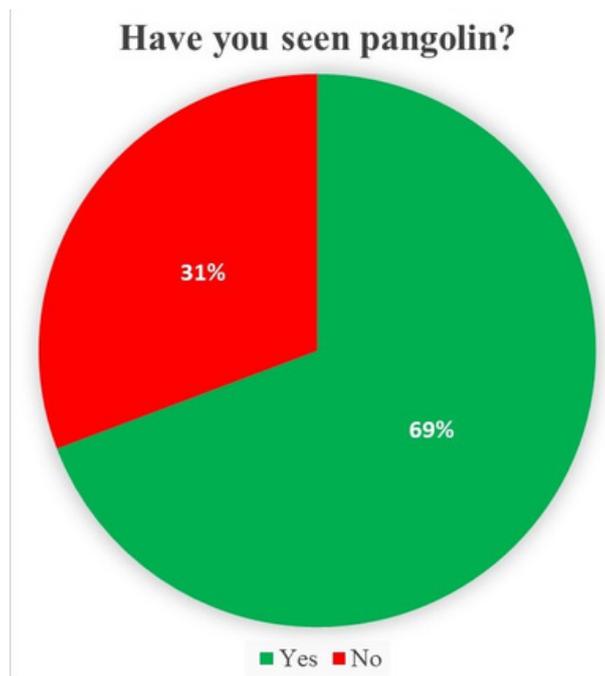


Figure 15: If locals have seen pangolin



Figure 16: Project team asking questions during questionnaire survey in Udayapur

Highlighted findings from the interaction with the locals

According to the locals, the main reason behind the decreasing population of pangolin in their area is Illegal hunting/poaching, habitat degradation/fragmentation, disaster (forest fire, landslide, flood) and exploitation of natural resources. Among them, illegal hunting/poaching along with habitat degradation has been identified as the main reason behind the decrease in the population of the pangolins in the local area. Among 52 respondents, 54% have heard about the incident of the killing of pangolins from the local area (Figure 17). As per the local people, illegal hunting/poaching is mostly done for food (38%), for money (35%), or for traditional medicine (12%).

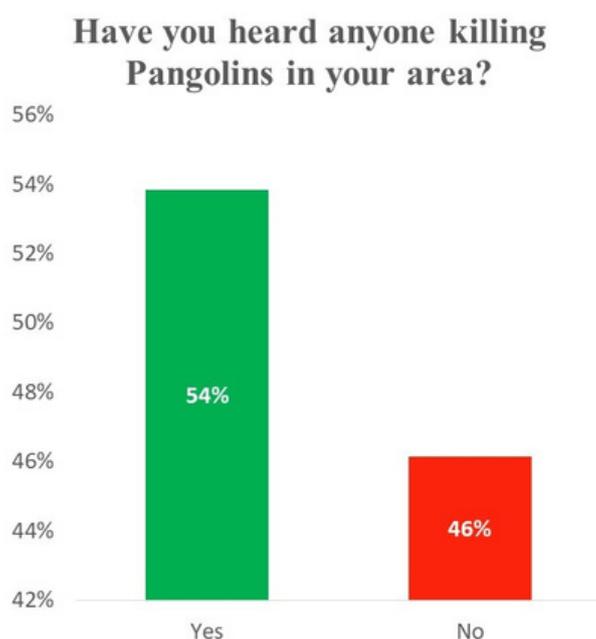


Figure 17: If heard about killing of pangolins



Figure 18: Discussion with members of local community forest user's group in Udayapur



Figure 19: Documenting the perception of local people about pangolin

Highlighted finding from the interaction with the locals

Despite, the decreasing population of the pangolin from the local area, people were found to be concerned about its future and also expressed their interest in its conservation. Almost all (96%) of the respondent said that they are willing to participate in the pangolin conservation activities (Figure 20). Most of them (77%) believe that pangolin is beneficial species for the local community and the ecosystem balance. They believe the conservation or protection of this species should be carried out more effectively.

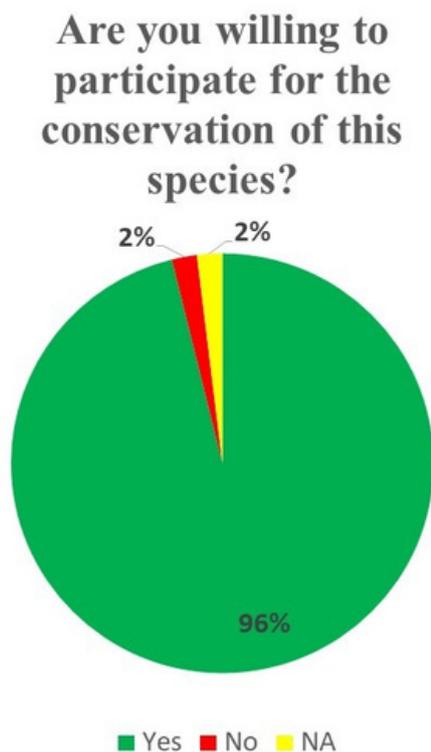


Figure 20: Willingness to participate in the conservation activities

Conclusion and recommendations

The Kamala river basin was found to be a very good habitat for pangolins, more specifically the hilly regions of Udayapur and the Sindhuli districts. The study also indicated that the number of pangolins is decreasing at this river basin. However local people are very interested to support and work together with conservation groups to save this species from the danger of extinction from the local area. Thus, the concerned stakeholders should focus and plan their conservation activities accordingly. This work also conducted different awareness campaigns through the means of conservation camps, pangolin day celebration, publication of Op-ed, stickers pasting, art competition, quiz contexts, which were able to motivate young minds and the local people towards conservation activities of this species.

This work isn't enough for the sustainable conservation of this species. Hence, some of the recommendations are drawn for the long-term conservation of this species:

- Carry out site species detailed research of pangolins and make conservation action plans accordingly
- Scale-up study on a river basin and landscape-level studies to understand various dynamics about habits and habitat of this species
- Very limited understanding of the pangolin is seen among the locals. Hence, prioritize activities to sensitize local people about its conservation status, penalties for wrongdoings and the conservation importance
- Form more local conservation committees, support and coordinate with them
- Implement and enforce policies/laws effectively.

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ANNEX

Annex 1: Design of informative stickers



सालक किसानको साथी,
खान्छ कमिला र घमिरा १ वर्षमा
७ करोड भन्दा माथि ।

The
Rufford
Foundation

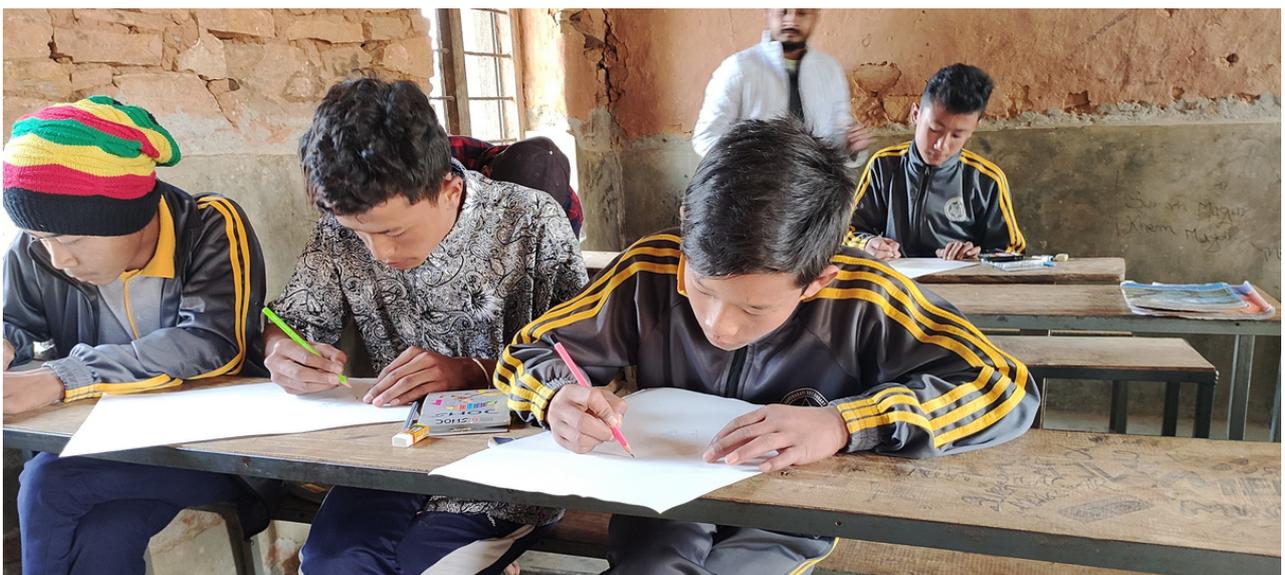

डिभिजन वन कार्यालय
उदयपुर

 **Greenhood**
for people and wildlife

Annex 2: Photographs



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