

# Distribution and Conservation Status of Chinese Pangolin (*Manis pentadactyla*) in Nangkholyang VDC, Taplejung, Eastern Nepal

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**Abstract** Chinese Pangolins are least studied burrowing mammals. There is great role of this species in nature to maintain ecological balance. Due to illegal trade and habitat destruction, Chinese Pangolins are in great risk of extinction although being protected by national as well as international laws. This research was carried out to find out the distribution, habitat utilization, social belief and conservation status of Chinese Pangolins in Nangkholyang VDC of Taplejung district, Eastern Nepal. This study was done with direct field observation followed by direct observation along the tracks and random search, group discussion, key informant survey and questionnaire survey. This study showed the presence of indirect signs of Chinese Pangolins such as 211 burrows (including 16 new and 195 old), scats, foot prints and trace of tail in Nangkholyang VDC, Taplejung. The distribution of Pangolins was found in all wards (political unit of village) with highest number of burrows in southwest aspect and least in north. The burrows were found in the elevation from 1126 m to 2406 m. The habitat utilized by Chinese Pangolins was found to be forest and agricultural land. In the forest, the maximum numbers of burrows were located at the crown cover of 0-25%. Pangolins were taken as the sign of bad luck but due to profit motive people were hunting this mammal. The Conservation status of Pangolins in the study area was found to be worse. Hunting for illegal trade was the major threat and the current price of Pangolin scales in village level was found to be Rs. 26,000 per kg.

**Keywords:** Pangolin, distribution, status, social belief

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## 1. Introduction

Pangolins (*Manis sp.*), often called "scaly anteater," are nocturnal, shy, non aggressive, solitary and burrowing strange mammals which have received low scientific attention [1,2]. Among eight different Pangolin species in the world, two species of Pangolins i.e. Chinese Pangolin (*Manis pentadactyla*) and Indian Pangolin (*Manis crassicaudata*) are found in Nepal. Chinese Pangolins occur in Nepal, Bhutan, northern India, northeastern Bangladesh, Myanmar, northern Lao PDR, northern Viet Nam, Thailand, China and Taiwan [3]. In Nepal Chinese Pangolins are distributed in Annapurna Conservation Area, Makalu Barun National Park, Taplejung, Illam, Panchthar, Ramechhap, Sindhuli, Pannauti (Beber area), Bhaktapur, Kavre, Soondarijal, Barabise and Baglung [1,2,4,5]. Chinese Pangolin belongs to susceptible species due to its taxonomic uniqueness (monotypic order, family and genus), food specialization, very low reproductive rate (usually one cub per litter, one litter per year) and strict

requirement for habitat and very poor defense [6]. The generic name of Pangolin in Nepal is "Salak" although it has some local names that are popular in particular areas. For instance, it is called "Kaynaya" (Newari language), "Kose" (Tamang language) and "Hilemaccha" in hill by the virtue of its bronze like overlapping scales [1]. In Limbu language it is called "Padasekh" (Field Survey, 2012). Chinese Pangolins are listed as Endangered under the IUCN category. In Nepal they are protected by Government of Nepal under the National Park and Wildlife Conservation Act, 1973. These mammals are listed at Appendix II of CITES. Although, Chinese Pangolins are ecologically beneficial they are receiving less scientific attention. Their ecology, behavior, status and distribution in Nepal are relatively unknown. Few studies regarding the Chinese Pangolin were made by Acharya (1993) [7], Gurung (1996) [8], Kaspal (2008) [1] and Suwal (2011) [2] in Nepal. But there is no any significant research upon this shy and non aggressive species. Due to illegal trade and habitat destruction, the population of the Chinese Pangolins is decreasing in

alarming rate. Also, lack of much information about this animal has triggered the condition more.

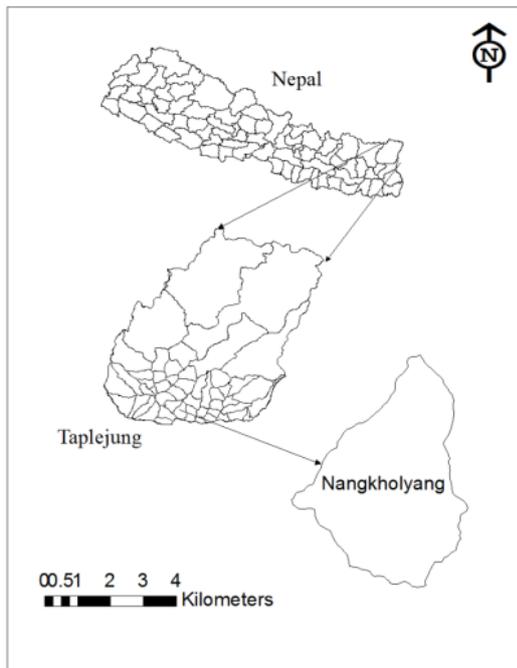
## 2. Objectives of the Study

The general objective of this study was to gather the baseline information about Chinese Pangolin in Nangkholyang Village Development Committee (VDC), Taplejung, Nepal. The specific objectives of this study were:

- To study the distribution of Chinese Pangolin in the study area.
- To study the habitat type utilized by Chinese Pangolin in the study area.
- To explore the social belief about Chinese Pangolin in the study area.
- To identify the conservation status of Chinese Pangolin in the study area.

## 3. Study Site

The study site was Nangkholyang Village Development Committee (VDC), Taplejung, eastern Nepal. It is situated at a distance of twelve kilometer from Taplejung Bazar. The field visit of this study was conducted in 2012 September 16-30.



**Figure 1.** Map showing location of the study area Nangkholyang VDC

This area is rich in floral as well as faunal diversity. The socioeconomic feature is mainly composed of lower middle class farmers. People mainly depend upon the agriculture. According to the census 2001 [9], there were 730 numbers of households with average household size 5.373 and total population was 4,015 including male 1,941 & female 2,074. The main castes of this VDC are Rai, Limbu, Brahmin, Sunuwar and Gurung.

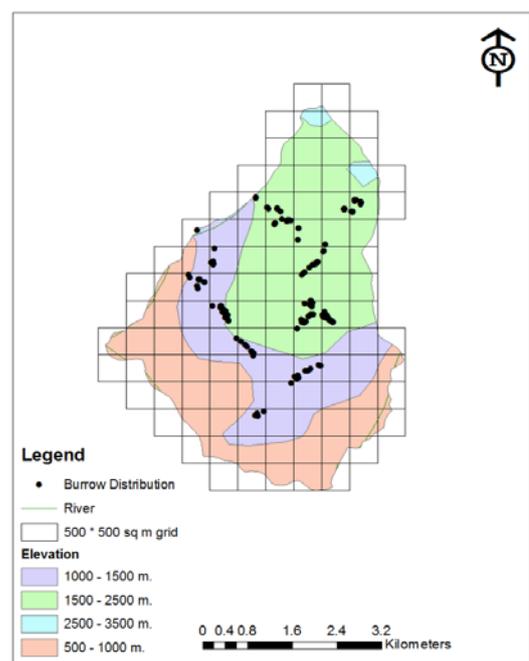
## 4. Methodology

A preliminary survey was carried out initially in Nangkholyang VDC to conceptualize the situation and to identify the potential sites where Chinese Pangolins were found. It was carried out by the discussion with District Forest Office authorities, local people and through relevant literatures. Then, three group discussions were carried out separately with school teachers, community forest users and local community with the use of checklist. Participatory mapping was also performed in these group discussions to know the potential distribution of Chinese Pangolin in village. The distribution site of Chinese Pangolin as identified during participatory mapping was surveyed by diurnal walking through the available tracks for the direct field observation. Another method of random search was also carried out for the field observation. The information about Pangolins burrows (old, new); scats, footprints and trace of tail were noted. The GPS reading was taken in the place where burrows and other related matters of Pangolins were found. About fifty two respondents were taken for the questionnaire survey to know information such as trend of hunting, price of scales and so on. Respondents were selected by using snow-ball sampling technique. For secondary data all the relevant journal papers, books, published and unpublished reports were consulted. The collected data was analyzed with the use of MS EXCEL 2007 and SPSS 16.00. An Arc GIS 9.3 was also used to map out the distribution of Pangolin.

## 5. Result and Discussion

### 5.1. Distribution

This study shows the distribution of Chinese Pangolin burrows in all the wards (political units of VDC). The indirect sign such as foot print, scat and trace of tail were found during the field observation. The distribution map showing the distribution of Pangolin in the study area is shown below:



**Figure 2.** GIS map showing the distribution of Pangolins

The burrows were found in all the wards (political unit of VDC) with highest number in ward number four and lowest in ward number six. Altogether 211 burrows were found during the field observation which includes 16 new and 195 old burrows. The maximum burrows were found in south west aspect and least in north aspect. Similarly, the burrows were found in between 1126m to 2406m elevation with maximum burrows at the elevation range of 1520m to 1620m. The average width and depth of Pangolins burrows were found to be 18 cm and 49.630 cm.

**5.2. Habitat Utilization**

Pangolin burrows were widely distributed in forest and agricultural land. The numbers of burrows present in forest and agricultural land were 146 and 65. Among 146 burrows found in forest area, the maximum number of burrows in forest were found at a crown cover percentage of 0 - 25. And least were found at a crown cover percent

of 50-75. The burrows were mainly found around *Imperata cylindrical*, *Nephrolepis auriculata*, *Dendrocalamus*, *Ficus nerifolia* and *Pinus roxburghii*. Altogether thirty eight species of plants were found to be associated around the burrows. The study conducted by Kaspal (2008) [1] recorded thirty five species of vegetation and the distribution of burrows in different plant species does not differ.

**5.3. Social Belief**

It was found that Chinese Pangolins were taken as the sign of bad luck. But due to high market value of scales, people were hunting this mammal. There was a belief for being away from Pangolins in past days. It would be something bad if Pangolin was seen. Similar type of belief was also taken in Vietnam (www.huffingtonpost.com) and China [10]. But nowadays due to profit motive people were illegally hunting this insectivorous mammal.

**Case study: Pangolins taken as a sign of bad luck in past days**

While going to forest, Shwayala Maden of my village found the baby of Pangolin. He took that baby Pangolin in his home. We knew that information and went to see that Pangolin. It was twenty year before than today. I had not seen Pangolin than that before. Every one of our village came to his house. Our elders told that Pangolin is a symbol of bad luck and suggested others for being away from this animal. Our elders guessed that there would be something wrong in village. Then, as per the suggestion of our elders Shawala Maden returned that baby Pangolin in the forest from where he took. But now the situation is different. Due to profit motive people are hunting this animal although people know seeing it is a bad evil (Nir Kumar Maden pers.com).

**5.4. Conservation Status**

A total of fifty two respondents were interviewed for finding the conservation status, trade issues and possible threats. Of these respondents interviewed, 43 respondents (82.7%) had seen Chinese Pangolin in their life whereas nine respondents (17.3%) had not seen Pangolin. However, all the respondents were aware of Pangolin sign i.e. burrows. Forty seven respondents (90.4%) were male and five respondents (10.6%) were female. Regarding literacy,

forty seven respondents (90.4%) were literate and five (10.4%) were illiterate.

**5.4.1. Population trend with in Last Five Years**

Among fifty two people interviewed, forty four (84.6%) of them answered the decreasing population of the Pangolin. Five respondents (9.6%) answered the stable population. Three respondents (5.8%) were unknown about the population trend.

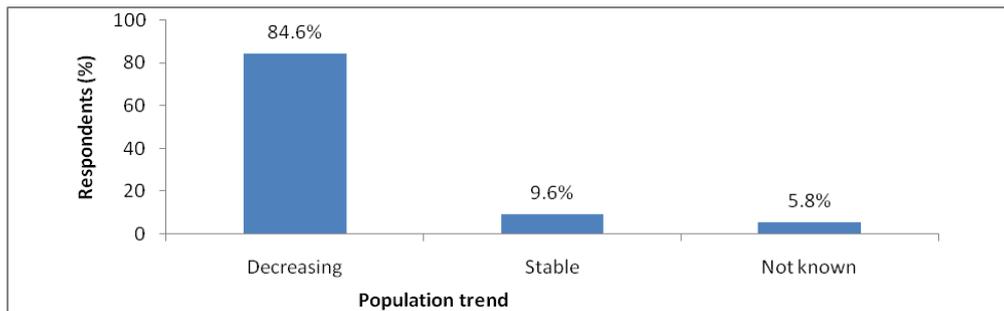


Figure 3. Population trend of Pangolins in last five years

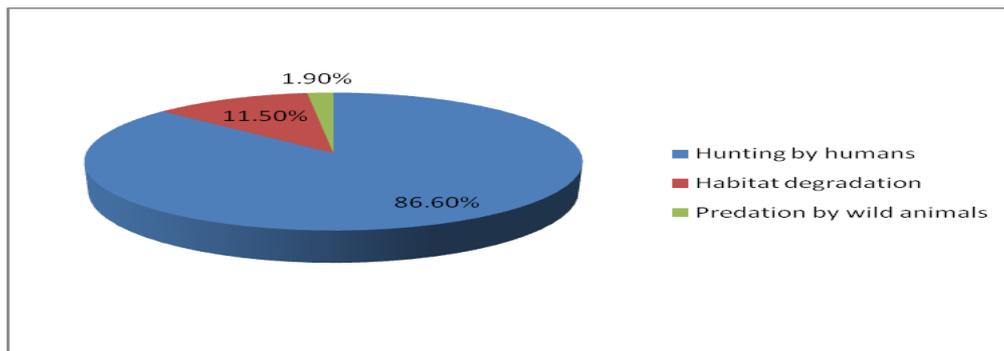


Figure 4. Threats for Pangolins

**5.4.2. Threats for Pangolin**

About forty five respondents (86.6%) thought hunting by human as the main threat for Pangolin. Six respondents (11.5%) thought habitat degradation as the main threat. Only one of the respondent (1.9%) thought predation by wild animal as the main threat.

Regarding the causes of habitat degradation, nineteen respondents (36.5%) focused on forest fire as the main cause of habitat degradation. Twelve respondents (23.1%) focused in deforestation. Eleven respondents (21.2%) focused in road construction. Six respondents (11.5%) focused in fodder or grass collection and four respondents (7.7%) focused in grazing for the main cause.

**5.4.3 Causes of Habitat Degradation**

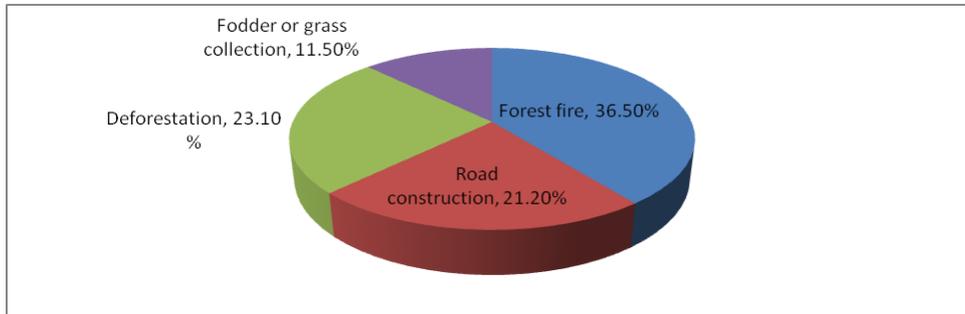


Figure 5. Causes of habitat degradation

**5.4.4. Period of Hunting Pangolins in Village**

About twenty five of the respondents (48.1%) said that the period of hunting was occasionally (quarterly or half yearly). Nine of the respondents (17.3%) answered that it was regularly (weekly or monthly). Eight of the

respondents (15.4%) said that it was rarely (annually or biannually). Ten of the respondents (19.2%) were unknown about the period of hunting of Pangolins in village.

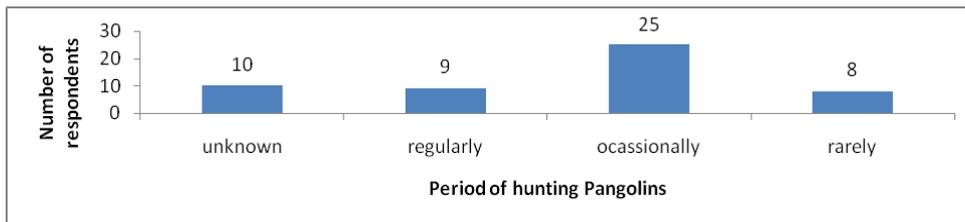


Figure 6. Period of hunting pangolins in village



Figure 7. Reasons for hunting

**5.4.5. Reason for Hunting**

In accordance to the respondents view, forty two (17.3%) respondents said that for trade Pangolins were hunted. Nine respondents (17.3%) said that the reason was for meat. Only one respondent (1.9%) answered that it was for traditional medicine.

**5.4.6. Respondents Involved in Hunting**

Among fifty two respondents, eleven respondents (21.2%) were involved in hunting. The frequency of their hunting of Pangolin is shown in the following bar diagram:

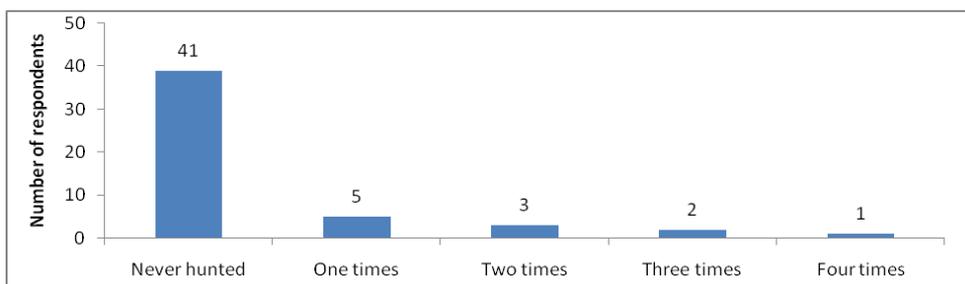


Figure 8. Respondents involved in hunting

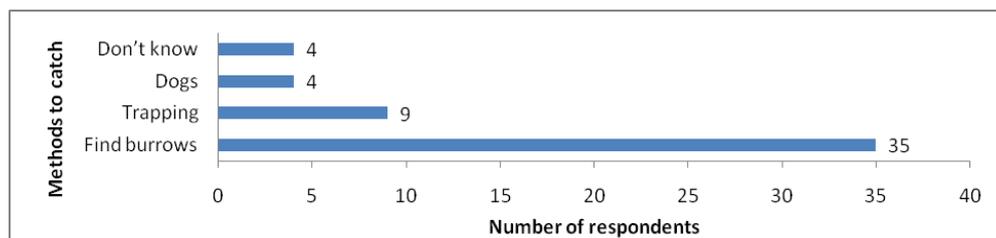


Figure 9. Methods used to catch Pangolins

#### 5.4.7. Methods Used to Catch Pangolin

Thirty five respondents (67.3%) answered that Pangolins were catch by finding their burrows (wait, dig, fire). Nine respondents (17.3%) answered that Pangolins were catch by trapping. Four respondents said that dogs were used for catching Pangolins. Four respondents were unknown about the methods used to catch Pangolins.

#### 5.4.8. Price Dynamics

About fifteen respondents (28.8%) were known about the illegal trade of Chinese Pangolin on that area. According to their response the price dynamics of scales within last five years is as follows:

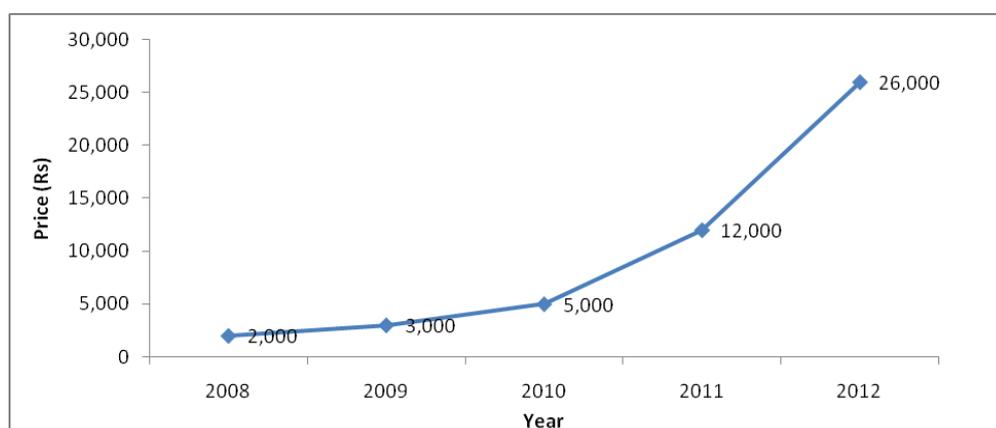


Figure 10. Price of scale within last five years

Pangolin scales were seen in two houses during questionnaire survey. The local price of Pangolin scale was so high i.e. Rs. 26,000. There is no need of extra skill to kill this animal. So from school children to old people, all are in the search of Pangolin. Regarding the price of Pangolin scales, it varies from person to person and place of the sale. Respondents answered that the price of Pangolin scales depends upon the person of selling and his bargaining power with the purchaser. Also, the rate of money depends upon the selling place as. The price of same Pangolin scale is higher if it is sold in market (Taplejung bazar, Birtamod) but when it is sold in village the price is comparatively low than market. Also, respondents answered that the price of Pangolin scales depends upon quality of scales. If the scales are of mature one then there will be higher price than immature one. The price trend shows the increasing price of scale in rapid way. Five hunting tunnels were found during the field observation.

## 6. Conclusion

Chinese Pangolins were distributed in all the wards of Nangkholyang VDC, Taplejung. The indirect signs of Pangolin found in the study area were 211 burrows (16 new, 195 old), scats, foot prints and trace of tail. The burrows were distributed from sub-tropical to temperate region i.e. 1126 to 2406 m altitude with highest at 1520 –

1620m. The most preferred aspect was southwest. The habitat utilized was in agricultural land and forest. In forest, the maximum burrows were in open forest with the crown cover of 0-25 %. Thirty eight types of plant species were found around the burrows Social belief about Chinese Pangolin was found to be negative but due to profit motive people were hunting this creature. Conservation status of Chinese Pangolin was found to be worse. Hunting and trapping for Illegal trade was found to be the major threat for Pangolins. Habitat degradation was also the threat for Pangolin. Population trend within last five years was found to be decreasing. The valuable part for selling was scales and the price of scales per kg in village was Rs. 26,000.

## Acknowledgements

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