Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Financially Supported by the Research Management Cell of Sukuna Multiple Campus

Submitted To:

Research Management Cell (RMC-Sukuna)

Sukuna Multiple Campus

Sundarharaincha, Morang, Nepal

Submitted By:

Kishor Dahal

Teaching Assistant

Faculty of Science & Technology

Sukuna Multiple Campus

2024

Declaration

I hereby declare that the work presented in this research report has been done by myself, and has not been submitted elsewhere for the award of any degree. This research report would not be used any other context except in the Research Management Cell (RMC-Sukuna) because of its financial support. All the sources of information have been specifically acknowledged by reference to the authors or institutions.

Date: 24 May 2024 Kishor Dahal

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Acknowledgements

I would like to express my sincere gratitude to the Resource Management Cell (RMC-Sukuna) of Sukuna Multiple Campus for providing me with this grant for mini-research.

I want to express my sincere appreciation to the former campus Chief, Mr. Chandramani Rai, the current campus Chief, Mr. Arjunraj Adhikari, and the Chairperson of RMC, Mr. Ganesh Prasad Dahal, for their generous guidance and support.

I am very grateful to Mr. Nara Prasad Bhandari for his suggestions, support, patience, guidance, motivation, and continued support during my studies.

I would like to express my deepest appreciation to the external supervisor, Associate Professor Dr. Bharat Raj Subba, Degree Campus in Biratnagar, Nepal.

My deepest appreciation goes to Madi Municipality, Sankhuwasabha, for generously granting me access to the research field, Mr. Samir Tamang for his support during fieldwork, Mr. Dibya Raj Dahal for his encouragement and moral support, and Mrs. Ushakiran Wagle Dahal for her invaluable assistance with the English grammar in this research report.

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Recommendation

This is to recommend that the research report entitled **"Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal"** has been carried out by Mr. Kishor Dahal, a Teaching Assistant at Sukuna Multiple Campus, under my supervision.

To the best of my knowledge, this is his original work, which has been rigorously tested for plagiarism by iThenticate software and has passed with a similarity index of just 1%, affirming its originality and adherence to academic integrity.

Mr. Dahal's research report is thorough and well-executed, providing significant insights into the habitat and distribution patterns of pangolins in the specified region. The methodology, analysis, and presentation of findings are of high quality, making this report a valuable contribution to the field of wildlife conservation.

The RMC –Sukuna has funded for the completion of this research. So I am pleased to recommend this report to the Research Management Cell of Sukuna Multiple Campus for final approval.

Nara Prasad Bhandari
Research Facilitator
Member, RMC-Sukuna
Date: 06 June 2024

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Letter of Approval

This mini-research report submitted by Mr. Kishor Dahal entitled **"Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal"** is funded and approved by the Research Management Cell (RMC - Sukuna) of this Campus.

Committee

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2. Nara Prasad Bhandari
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3. Dipak Prasad Neupane, PhD
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Thanking Letter

I would like to express my heartfelt thanks to **Mr. Kishor Dahal,** a faculty member of Science and Technology of this campus for his invaluable contribution to the research report entitled **"Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal."** Mr. Dahal's dedication and hard work have been instrumental in the successful completion of this project, and we are truly appreciative of his efforts.

The mini-research has been financially supported by Research Management Cell of campus, and we are confident that the findings of this report will significantly contribute to our academic community. As such, the research report will be considered as a valuable academic property of this campus.

Once again, thank you for your hard work and commitment to this project. Lastly we are proud to have him as a part of our campus community. We look forward to continuing our collaboration on future projects.

Date: 10 June 2024

Arjun Raj Adhikari
Campus Chief

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Abstract

The habitat of Chinese pangolins (*Manis pentadactyla*) in Madi municipality, Sankhuwasabha, was surveyed for this study. The objective of this research was to study the pangolins' preferred habitats. Three habitats of forest (bamboo, grassland, and Nepalese alder) and cropland (millet, paddy, and tea plant field) were taken for study which was carried out in October, 2023. A total of six 500 m^2 strips of transect were used for the study. For each transect, five transect routes were established. A total of 20 burrows were recorded, including 16 in the forest (nine in the bamboo forest, five in the Nepalese alder forest, and two in the forest's grassland) and four in the cropland (single in the millet field, two in the paddy field, and a single burrow in the tea plant field). Out of the twenty burrows, only three were found in brown soil, while 17 burrows were in grey soil.

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List of Abbreviations

°C	degree Celsius
et al.	and others
GIS	Geographic Information System
GPS	Global Positioning System
i.e.	that is
M	Meter
Mm	Millimeters
SN	Serial Number

Introduction

Background

Pangolins are solitary, non-aggressive, burrowing, nocturnal mammals commonly known as "Salak" in Nepal and are easily recognized by their full armor of scales. "Pangolin" is a French word that is developed from the phrase "pen gulling," which denotes the curling ability of an animal. There are altogether eight species of pangolins recorded under the family Manidae of the order Pholidota (Gotch, 1979).

Four species of pangolins, *Phataginus tetradactyla*, *Phataginus tricuspis*, *Smutsia gigantea*, and *Smutsia temminckii*, exist in Africa, whereas the other four species, *Manis javanica*, *Manis culionensis*, *Manis pentadactyla*, and *Manis crassicaudata*, are recorded from Asia (Gaubert & Antunes, 2005). Two of the eight pangolin species are classified as critically endangered on the IUCN Red List of Threatened Species, and all eight are protected under local, national, and international law.

There are two pangolin species, *Manis pentadactyla* and *Manis crassicaudata*, documented in Nepal (Shrestha, 1981). Both species face steep population declines due to extensive poaching and trafficking of their meat and scales.

Physical Characteristics

Pangolins are distinct and look like reptilian because of their horny body scale, tiny, tapering heads, small eyes, and fleshy noses with nostrils. The external pinna is smaller or completely absent. They do not have teeth, and their tongue is used for feeding, which is long, and they always have salivary secretions where insects get stuck.

The forelimbs and hind limbs of pangolins are small and powerful, with sharp claws. The forelimbs are adapted for digging to make burrows. They have a prehensile or semi-prehensile tail that helps to balance during movements and a rolled-up position (Chao, 2001).

Habit and Habitat

Pangolins live in a range of habitats, and they are found in grasslands, bamboo forests, bushy areas, farmlands, steep hillsides, and near human settlements. Pangolins typically reside in regions with red and brown soil, which are rich in their primary food sources like termites and ants (Suwal, 2011).

Feeding Ecology and Diet

Pangolins often referred to as scaly anteaters, primarily feed on ants and termites (Prater, 1971; Heath & Vanderlip, 1988).

Since pangolins are edentate animals, they use their strong front claws to break mounds of ants and termites, and then reach deep inside with their long tongues, which are coated with sticky saliva, causing ants, termites, and other insects to easily become stuck. Additionally, pangolins often live near water sources to drink water (Suwal, 2011).

Social Behavior

Pangolins have poor eyesight but possess a powerful smelling power, which helps them locate food and communicate. They dig holes for defecation, cover them with soil, and also use their droppings to mark their territories (Fang & Wang, 1980). When threatened or frightened, they roll up into a tight ball to cover their sensitive nose, which is without scales.

They also produce unpleasant odours from their anal glands and urine, serving as a powerful warning to nearby and intruding animals that the territory is already inhabited, prompting enemies to quickly escape from their presence.

They are affected by climate-induced disasters, including prolonged drought, fire, and landslides. Pangolins are unsocial (Suwal, 2011) and slow breeders (Shrestha, 2003). Chinese pangolins (*Manis pentadactyla*) are found in eastern Nepal, Bhutan, India, Bangladesh, and Myanmar (Duckworth et al., 2008), whereas Indian pangolins (*Manis crassicaudata*) are found in India, Nepal, Pakistan, China, and Bangladesh (Molur, 2008).

The presence of both species of pangolin (*Manis pentadactyla* and *Manis crassicaudata*) in Nepal has been recorded in CITES Appendix II (CITES, 2000) and their protection under the Department of National Park and Wildlife Conservation Act of 1973. Consequently, hunting these species is strictly forbidden in Nepal.

Threats to pangolins include rapid habitat loss and poaching for local use as meat and for international trade in skins and scales (Duckworth et al., 2008; Molur, 2008).

Statement of the problem

Protected by the National Parks and Wildlife Conservation Act of 1973, pangolins are the most trafficked species globally, yet they have received minimal attention from the scientific community.

Several scientific publications have addressed the behaviours and habitats of pangolins (Katuwal et al., 2013), there remains a notable gap in research regarding their habitat and distribution patterns, specifically within Madi, Sankhuwasabha.

The study and analysis of the pangolin's habitat give core ideas about its status and distribution pattern in different habitats, such as forest and cropland, in the proposed study area.

Hence, this study is intended to explore the information gap and present habitat status of pangolins to develop conservation strategies.

Limitation of the Study

The research conducted exclusively within Madi Municipality, Sankhuwasabha, presented challenges in generalizing findings to other regions due to its regional specificity. Additionally, constraints in time, funding, and personnel resources posed challenges to comprehensive data collection. Furthermore, the inability to utilize all data collection methods might have resulted in missing important details, thereby limiting the scope and depth of the analysis.

Objectives

The main objectives of research are:

a. To study the habitat preference of pangolin

b. To explore the distribution pattern of pangolin

Literature Review

Habit and Habitat Utilization

Katuwal et al. (2013) studied pangolin trade in Ilam, Taplejung, Sankhuwasabha, and Dhankuta of eastern Nepal via questionnaire methods and found that Ilam had the largest number of pangolin burrows and Sankhuwasabha had the least.

In the protected Nagarjun Forest between January 1 and 7, Gurung (1996) surveyed pangolins and discovered 50 old burrows along a four-kilometer area in Raniban. In the grasslands above the Ratamata, where *Imperata cylindrica* and *Gleichemia* fern species predominated, he had seen six new and ten old burrows near human settlement areas.

He noticed that the pangolin habitat in Nagarjun was similar to those reported in Dhading, Sankhuwasabha, and Sindhupalchowk districts. The distribution of burrows was found to be closely associated with the presence of red soil.

A study on pangolins in Shivapuri National Park was conducted by Shrestha (2005), who discovered that their burrows were located in red soil within open forests, particularly on southeast and southwest-facing slopes with sparse vegetation. However, activities such as grazing, deforestation, and fodder collection disrupted these burrows, leading to a decline in their population.

According to Heath & Vanderlip (1988), the Chinese pangolin is primarily terrestrial, despite having the ability to climb trees and swim like other pangolins. Chao (2001) found that pangolin species inhabited various environments, including grassland and forests. Fang and Wang (1980) observed that pangolin either constructs its own burrows or modifies tunnels originally created by termites.

Distribution and Status

In the Nagarjun forest in central Nepal, Acharya (2001) surveyed the status and distribution of pangolins.

Below Jamachowk, in muddy places, largely on laterite soil, on a south-facing hill, were discovered six recently excavated burrows in the *Schima wallichi* and pine forests.

Weerakoon (2001) documented that the Indian pangolin was the only species found on Sri Lanka's island. Additionally, it was reported in Nepal, Bangladesh, Pakistan, and India. These species quickly became extinct in Sri Lanka as a result of hunting for their meat and scales, habitat loss from deforestation, and other factors.

The majority of Asia is home to Chinese pangolins. Through North India, Bhutan, Nepal, and Bangladesh, it was dispersed throughout Southeast Asia, including Taiwan, and the majority of southern China, including the island of Hainan (Chao, 2001).

In addition to primary and secondary forests, bamboo forests, and agricultural fields, he also noted the presence of pangolins in other habitats.

Behavior and Habitat Range

The behaviours of pangolins in the Panauti region were observed by Shrestha (1981), who noted that the pangolins emerge from their burrows to search for ants and termites. He also documented that pangolins typically occupied a territory of approximately two square miles, noting their ability to swim and climb rocks and trees with the help of their robust claws and prehensile tails.

In their study at Maoming Dawuling Natural Reserve, Wu et al. (2005) recorded that pangolins consumed a diverse variety of ants and termites, totaling eleven species. This included five ant genera with five species, along with four termite genera consisting of six species.

Materials and Methods

Study Area

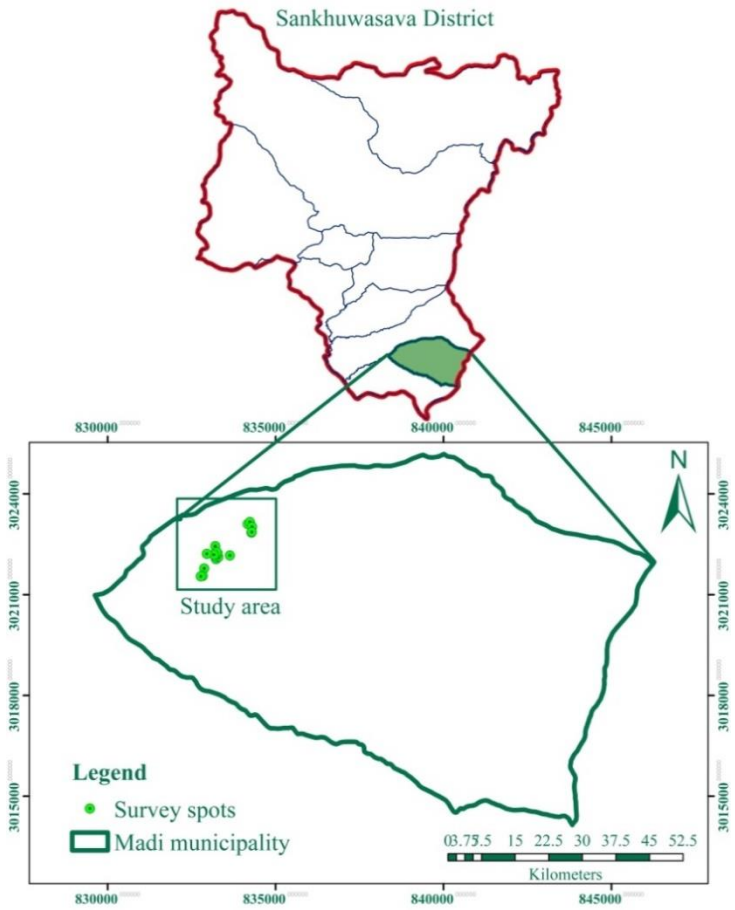
Location and Topography

The study area was Madi municipality, the southern part of Sankhuwasabha district, which is located in the Mid-Hill zone with great variation in altitude, landscape, and climate and lies between 1000 m and 2000 m (ICIMOD, 2016) in Nepal.

The research site comprises diverse landscapes, including forests, grasslands, terraced farmlands, and human settlement areas. Its geographic coordinates span from 27° 20' N to 27° 30' N latitude and 87° 32' E to 87° 49' E longitude. Elevations within the study area range from 1000 m to 1900 m above sea level.

Figure 1

Map of the study area



Soil Texture

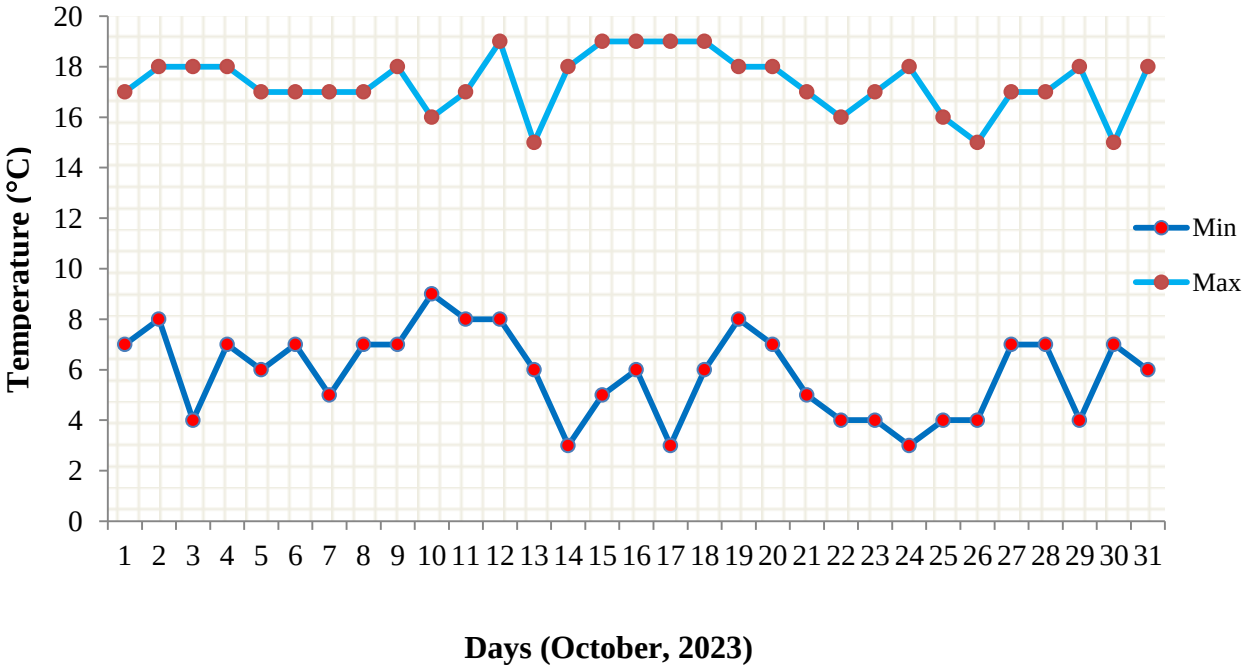
The soil in the study area had a porous and sandy texture, transitioning from predominantly sandy to clayey, with varying colours of grey, brown, and brownish-black. Lowland plains, characterized by finer sand and clay loams, exhibited greater fertility.

Temperature

During the study period in the study area, the maximum temperature ranges from 15°C to 19°C, with the minimum temperature varying between 3°C and 9°C.

Figure 2

Maximum and minimum temperature of the study area



Flora

Due to variations in landscape and the natural sources studied, the study area shows a wide range of biodiversity that is highly diversified, ranging from subtropical to temperate zones. The prevalent plant species within the study area consist of *Schima wallichi*, *Alnus nepalensis*, *Castanopsis hystrix*, *Bambusa nutans*, *Elaeocarpus angustifolius*, *Pyrus communis*, *Rubus ellipticus*, *Amomum subulatum* and *Ageratina adenophora*.

Additionally, *Oryza sativa*, *Zea mays*, *Tritucum aestivum*, *Pennisetum glaucum*, *Saccharum officinarum*, *Brassica oleracea*, and *Brassica campestris* are cultivated crops in the area.

Within the study area, blossoming flora comprises *Malvaviscus arboreus*, *Dahlia pinnata*, *Jasminum sambac*, *Hibiscus rosa*, *Durunta repens*, and *Catharanthus roseus*. Additionally, medicinal varieties comprise *Phyllanthus emblica*, *Rubia manjith*, *Zanthoxylum armatum*, *Swertia chirayeta*, and *Terminalia chebula*.

Fauna

The study site is a good habitat for mammals, such as the Chinese pangolin (*Manis pentadactyla*), porcupine (*Hystrix sps.*), and squirrel (*Funabulus sps.*).

It is equally rich in avifauna such as Kalij pheasant (*Lophura leucomelanos*), common myna (*Acridotheres tristis*), rock pigeon (*Columbia livia*), Robin (*Tarsiger sps.*), house crow (*Corvus spenders*), and house sparrow (*Passer domesticus*).

Within the study area, herpetofauna such as oriental rat snake (*Ptyas mucosa*), oriental lizards (*Calotes versicolor*), and Indian bullfrogs (*Rana tigrina*) are also present. Asla fish (*Schizothorax sps*.) are rich in the Piluwa and Maya rivers.

Sampling Technique

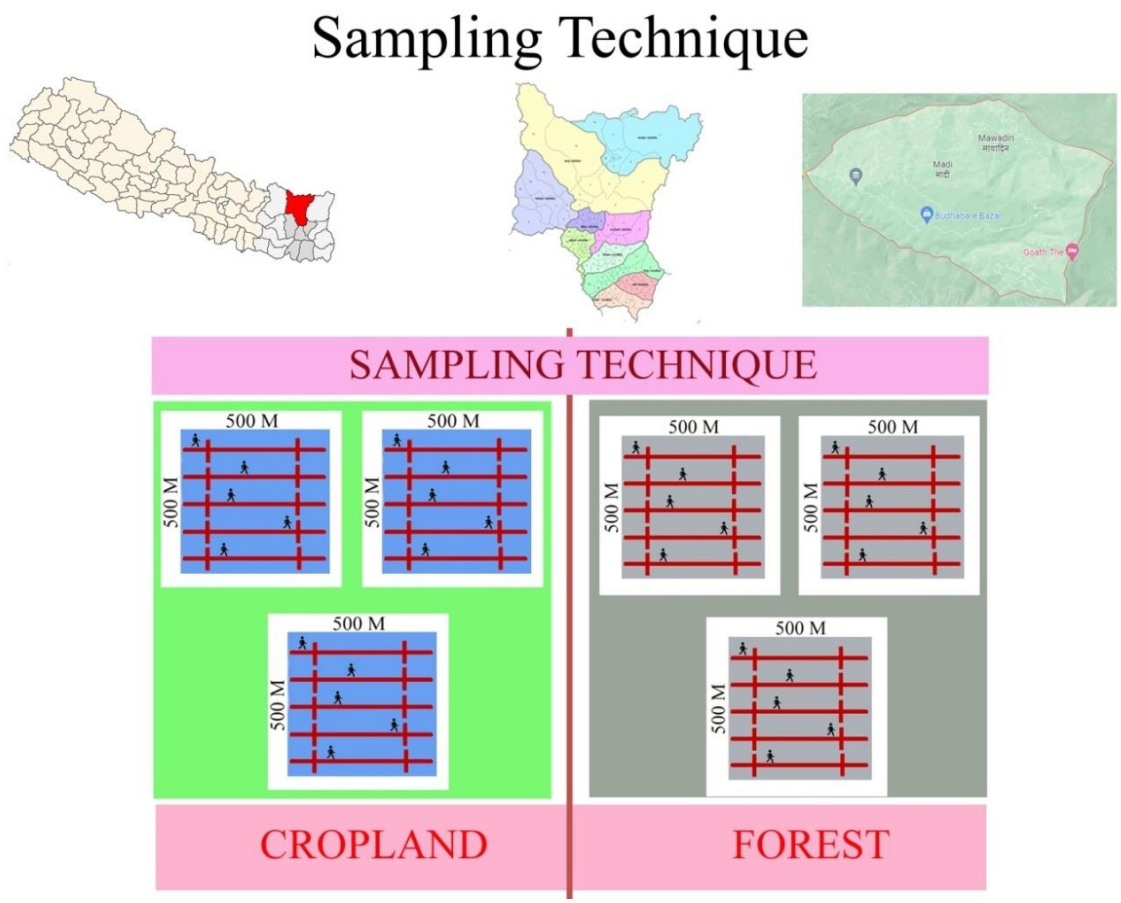
The main study sites were forests and cultivated lands. Sampling was carried out in October by using the strip transects method (500×500 m^2) three in each forest and cropland.

Five transect routes were established in each strip transect, and burrows were observed on either side of the centerline up to 20 m while walking at a slow and steady pace.

The study thoroughly explored the attributes of newly constructed burrows, including their coloration, location, and the composition of the surrounding soil.

Figure 3

Sampling technique



Observation

In October 2023, the study was conducted at Madi Sankhuwasabha, and the biophysical characteristics of the study region were observed together with several pangolin burrows.

The distribution patterns and frequency of pangolin occurrences were documented using a variety of characteristics, including burrows, footprints, and scratches.

The temperature of the study area was recorded with the help of a maximum and minimum thermometer.

The counting of the total number of burrows was manual and their GPS coordinates were recorded. Secondary data on pangolins was collected by extensively reviewing different sources, including books, reports, journals, and online resources.

Data Analysis

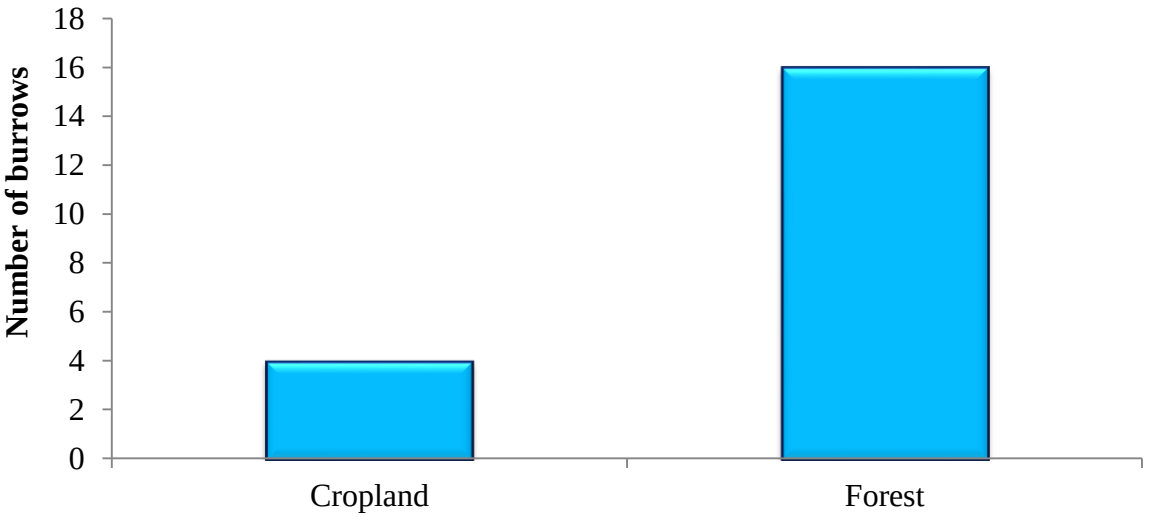
The relationship between the presence of the burrow with insects' colonies, and habitat-wise pangolin distribution were analyzed.

Results

A total of 20 burrows were recorded throughout the study period (Appendix I).

Figure 4

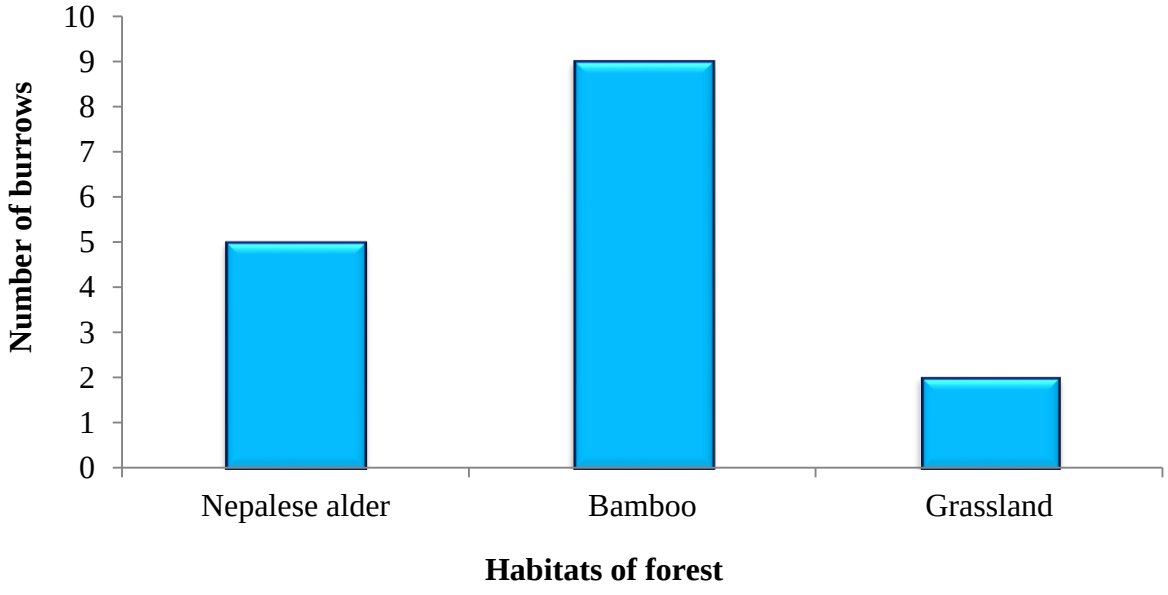
Habitat-wise distribution of pangolin



Sixteen burrows were recorded in the forest; among them, bamboo habitat had nine burrows, followed by Nepalese alder with five burrows, and grassland only had two.

Figure 5

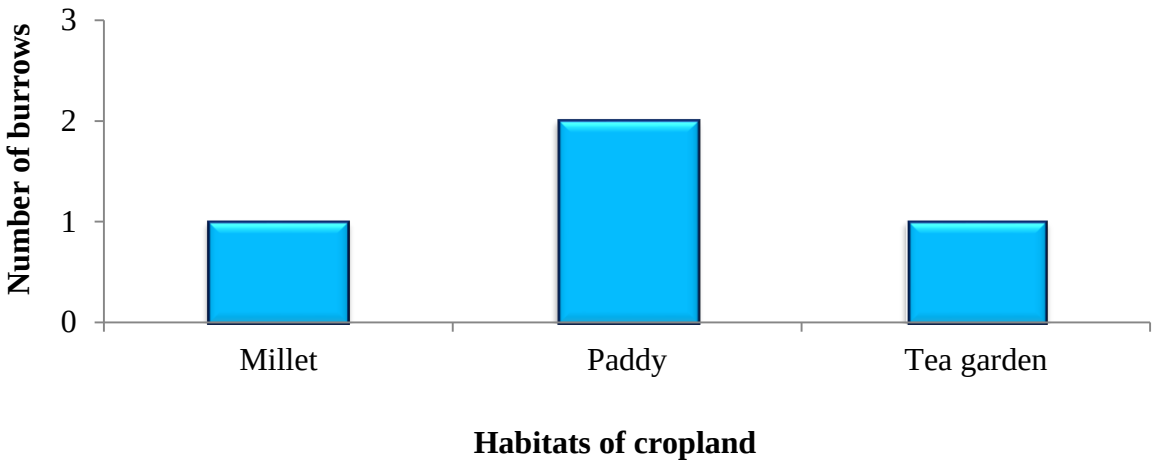
Number of burrows of pangolin in the forest



Millet had one of the four cropland burrows, paddy fields had two, and tea garden habitat had a single burrow.

Figure 6

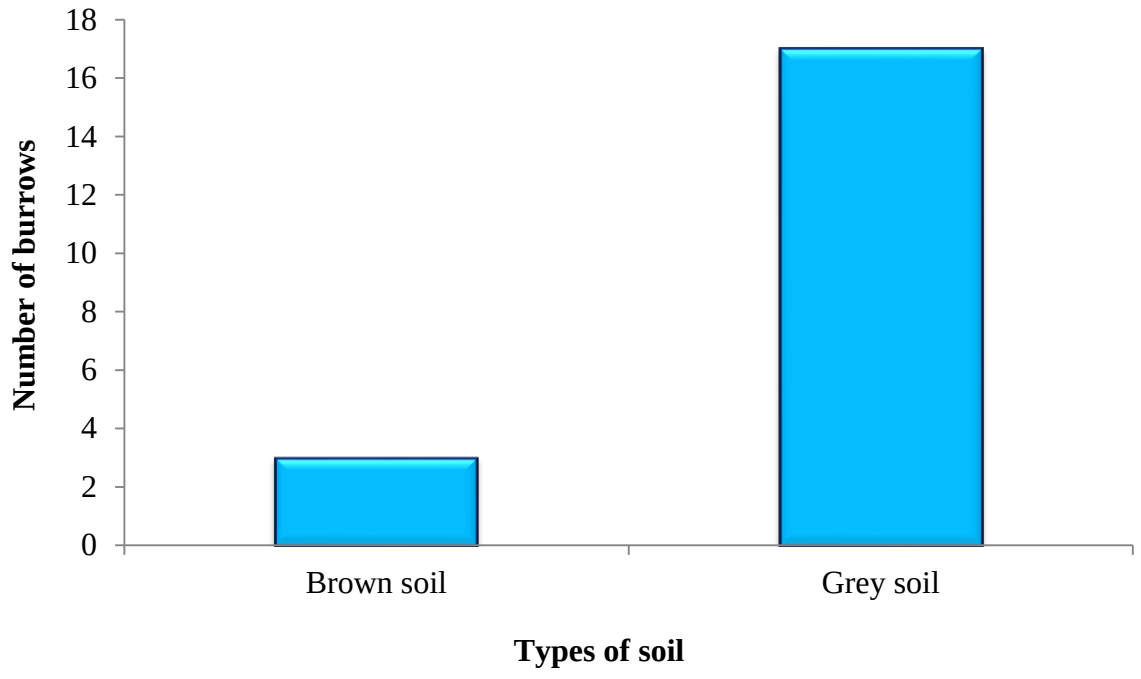
Number of burrows of pangolin in cropland



Among the 20 burrows, Pangolin preferred 17 burrows in various types of gray soil, with only three burrows in brown soil.

Figure 7

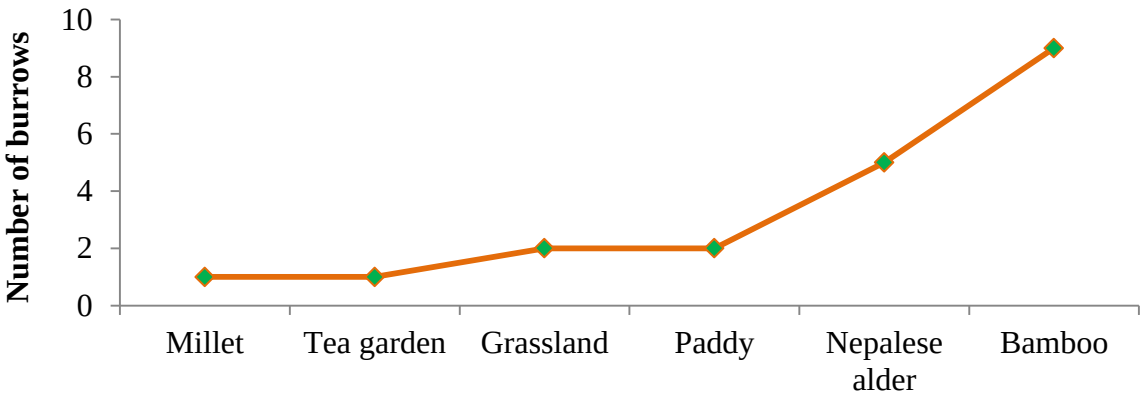
Soil colour preference by pangolin



Among the six quadrants, the bamboo field had the maximum number of burrows, i.e., nine, followed by Nepalese alder with five burrows, paddy and grassland had two each and least one in each millet and tea garden fields.

Figure 8

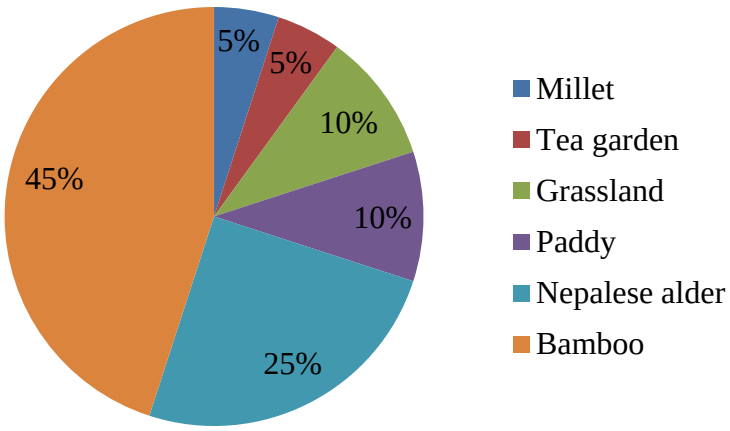
Quadrate-wise burrows distribution



Bamboo forests contribute 45% of the habitat to the pangolin, followed by Nepalese alder forests with 25%, and lastly, millet and tea gardens each contribute 5%.

Figure 9

Number of quadrates (%)



Among 20 borrows 12 burrows were present near water sources such as streams, and water ponds, and the other eight were far away from water sources.

Discussion

The presence of burrows was the primary indication of pangolin occurrence; however, burrow information was insufficient to determine the exact species of pangolin. The present study revealed that the forest is the preferred habitat of pangolins, which supports the result (Panta et al., 2023), conducted in Gorkha district. Previous research (Gurung, 1996; Acharya, 2001; Bhandari & Chalise, 2014; Katuwal et al., 2017; Suwal et al., 2020; Dhami et al., 2023) has indicated that burrows are predominantly located in forested regions, consistent with the findings of the present study.

The large number of pangolins in the forest (Swart et al., 1999) could be due to the high ant and termite abundance (Okwakol, 2007; Ellwood, 2002; Lee et al., 2017, Ackerman et al., 2009), where forests offer plenty of space and food.

The number of fewer burrows in cropland areas than in forests might be higher in a human-dominated landscape (Sharma et al., 2020b). Despite their preference for brown soil, as indicated by previous studies (Suwal, 2011; Bhandari & Chalise, 2014; Suwal et al., 2020), the majority of burrows discovered in the research area were in grey soil, possibly due to its greater abundance in the study area.

In contrast to this study, most of the burrows were found in soil that exhibited a red coloration (Acharya, 2001; Sharma et al., 2020; Dhami et al., 2023), indicating a greater occurrence of pangolin burrows in red soil.

The present study revealed that elevations of 1276 m to 1494 m are the high-frequency sites of Chinese pangolin. Similar results were drawn by Acharya et al. (2021), where 1300 m to 1895 m were the habitat ranges and the most preferred range was 1450 m to 1600 m in the mid-mountain regions of Nepal, which supports the present study.

The findings reported by Sharma et al. (2020a) and Suwal et al. (2021), along with field-based studies related to pangolins by Thapa et al. (2014), Dorji (2017), and Wu et al. (2020), support the current study, possibly due to similar elevations in the study areas.

The existence of burrows close to a water supply could be because ants, termites, and other insects in wet environments and pangolins require water for survival (Katuwal et al., 2013). Pangolins preferred living close to a water source; similar results were documented by Shrestha et al. (2021) and Dhami et al. (2023), who also noted that hydration is essential for maintaining a healthy body temperature (Suwal, 2011).

Conclusion and Recommendations

From the present study, the following conclusions were derived:

- Altitude, types of soil, vegetation type, quantity of food and water available and weather are all likely to have a significant impact on pangolin distribution.
- In addition to preferring sandy, gray, or brown soil near water supplies like streams and ponds, Chinese pangolins also favor forest habitat over cropland.
- Special emphasis should be given to pangolin conservation and research in the Madi municipality region of Sankhuwasabha.

Based on the study, the following recommendations have been made for further research:

- Additional scientific research into the population status of pangolins is essential to bridge existing research gaps, ascertain their status, and provide baseline data for all related stakeholders.
- Research on pangolins should be designed to cover a broader range of seasons and habitats throughout the year and across consecutive years.
- Local communities, students, and other related organizations should be engaged through awareness initiatives focusing on the importance and conservation strategies of pangolins.

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Appendix I: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Table 1

Burrows distributed along different attributes studied

Cropland	Millet field	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	-	-	1	-	-
		Soil colour	-	-	Brown	-	-
		Soil type	-	-	Sandy	-	-
		Insect colony	-	-	-	-	-
		Altitude	-	-	1392 m	-	-
	Paddy field	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	-	1	-	-	1
		Soil colour	-	Grey	-	-	Grey
		Soil type	-	Sandy	-	-	Sandy
		Insect colony	-	Ant	-	-	-
		Altitude	-	1420 m	-	-	1443 m
	Tea plant filed	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	1	-	-	-	-
		Soil colour	Grey	-	-	-	-
		Soil type	Sandy	-	-	-	-
		Insect colony	Ant	-	-	-	-
		Altitude	1494 m	-	-	-	-

Appendix I: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Table 1

Burrows distributed along different attributes studied

Forest	Bamboo field	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	2	2	1	2	2
		Soil colour	Grey, Brown	Grey	Grey	Grey	Grey
		Soil type	Sandy	Sandy	Sandy	Sandy	Sandy
		Insect colony	-	-	-	-	-
		Altitude	1361 m, 1402m	1417 m, 1425 m,	1436 m	1447 m, 1463 m	1472 m, 1474 m
	Grassland	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	-	1	-	-	1
		Soil colour	-	Grey	-	-	Grey
		Soil type	-	Sandy	-	-	Silty
		Insect colony	-	-	-	-	-
		Altitude		1332 m			1377 m
	Nepalese alder	Transects	1st	2nd	3rd	4th	5th
		Number of burrow	1	-	1	1	2
		Soil colour	Grey	-	Grey	Brown	Grey
		Soil type	Sandy	-	Sandy	Sandy	Sandy
		Insect colony	-	-	-	Ant	-
		Altitude	1276 m	-	1317 m	1368 m	1414 m, 1415 m

Appendix II: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Table 2

Coordinates and altitude of burrows

	Site	Number of burrows	Site coding	Coordinate		Altitude
				Latitude	Longitude	
Cropland field	Millet field	1	MF_1	27.2728	87.3616	1392 m
	Paddy field	2	PF_1	27.2708	87.3611	1443 m
			PF_2	27.2707	87.3605	1420 m
	Tea plant field	1	TF_1	27.2761	87.3694	1494 m
Forest field	Bamboo field	9	BF_1	27.2756	87.3655	1472 m
			BF_2	27.2754	87.3653	1447 m
			BF_3	27.2752	87.3652	1463 m
			BF_4	27.2757	87.3659	1474 m
			BF_5	27.2759	87.3651	1436 m
			BF_6	27.2764	87.3652	1417 m
			BF_7	27.2768	87.3657	1425 m
			BF_8	27.2787	87.3651	1361 m
			BF_9	27.2771	87.3655	1402 m
	Grassland field	2	GF_1	27.2764	87.3646	1377 m
			GF_2	27.2767	87.3625	1332 m
	Nepalese alder field	5	NA_1	27.2844	87.3750	1317 m
			NA_2	27.2849	87.3757	1276 m
			NA_3	27.2836	87.3763	1368 m
			NA_4	27.2821	87.3761	1414 m
			NA_5	27.2822	87.3762	1415 m

Appendix III: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Burrows of cropland

Burrow at millet field

Burrow at tea plant field

Burrows at paddy field

Appendix III: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Burrows of forest

Burrows at bamboo field

Appendix III: Habitat and Distribution Pattern of Pangolin in the Southern Part of Sankhuwasabha, Nepal

Burrows of forest


Burrows at grassland field




Burrows at Nepalese alder field