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Status of Pangolins: A case study on "The most trafficked mammal in the world" in Central-South of Nepal

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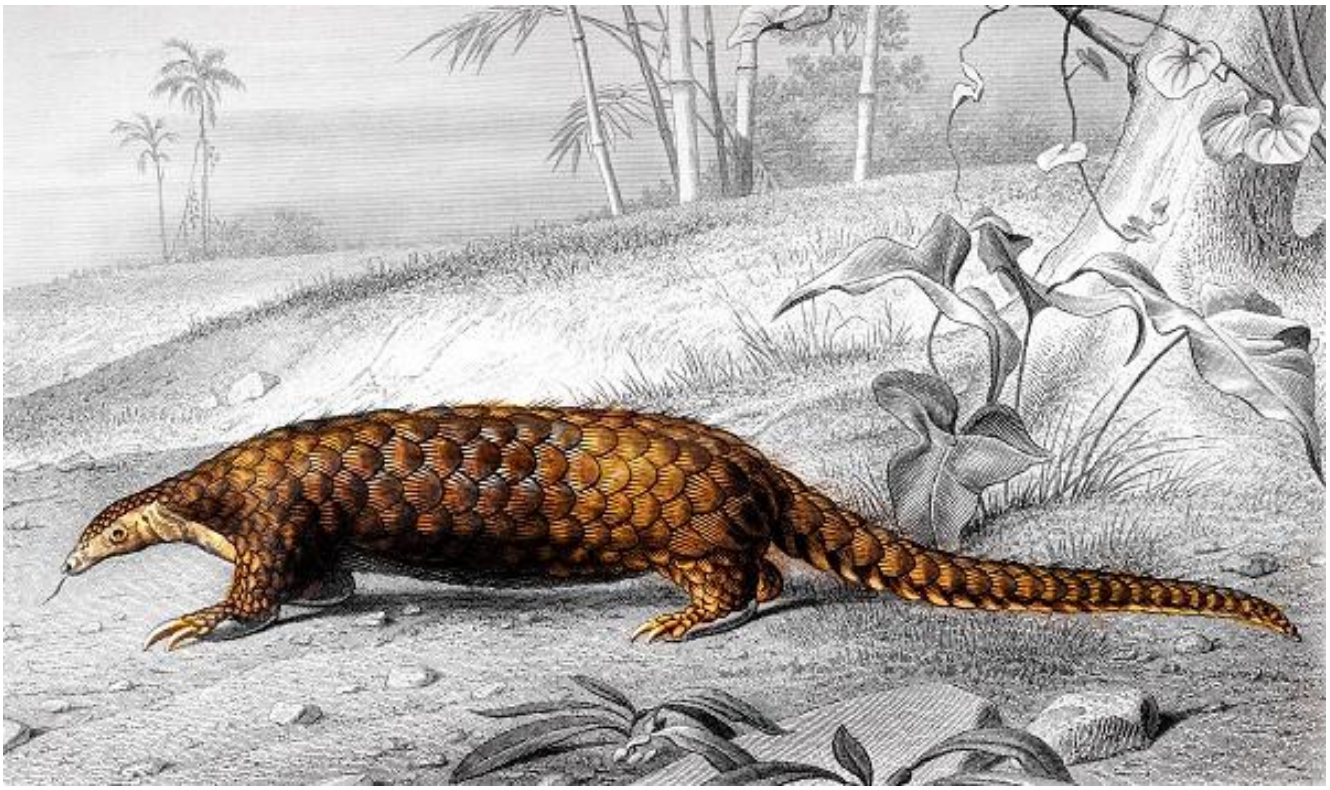
SIT Study Abroad

STATUS OF PANGOLINS (सालक): A Case Study On "The Most Trafficked Mammal In The World" In Central-South Of Nepal.



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TSOGYAL WANGMO LAMA

SIT STUDY ABROAD, SPRING SEMESTER

MAY 2023

[1] *https://christineelder.com/world-pangolin-day/*

Status of Pangolins: A case study on "The most trafficked mammal in the world" in Central-South of Nepal.

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Research Site: **Chitwan National Park and Parsa National Park**

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Acknowledgment

I would like to extend my gratitude to the SIT team for providing me with this opportunity to conduct a research paper on something I'm really interested in. This whole one-month research period has been nothing but a fun educational ride interacting with the locals and people who were willing to share their side of the story. I would like to thank all these people who participated in my research study.

Also, I would like to thank my project advisor Mr. Rinzen Phuntsok Lama for his constant guidance and feedback in places where I needed improvement.

In the end, I appreciate all the love and support that my family and friends provided me with throughout this Independent Study Period and also throughout the whole semester.

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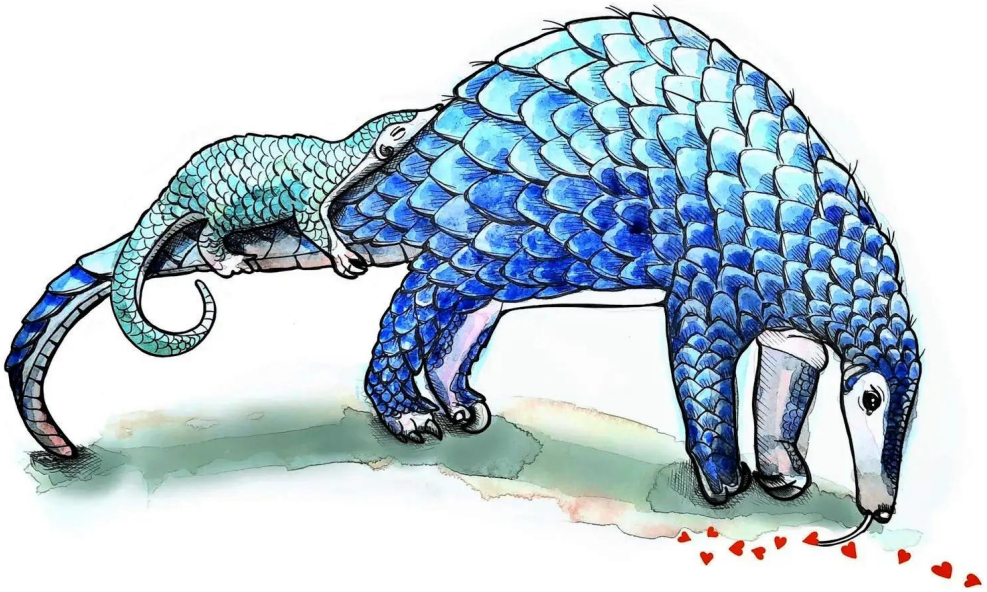
Abstract

Pangolins are subject to constant trafficking in Asia and increasingly in Africa for their meat and scales. Very little research is done on this species due to its nocturnal, burrowing, and elusive nature. The larger the size of an animal is, the better it is known to the people and vice versa. Hence all these eight species of pangolins despite being under the International Union for Conservation of Nature (IUCN) red list with the four Asian species declared endangered or critically endangered, are still illegally abused and used for ulterior motives due to a lack of awareness among the general community.

The very reason I chose this topic is to check on the status of the pangolins itself which are protected in these two National Parks; Chitwan National Parks which extends over four districts: Chitwan, Nawalparasi, Parsa and Makwanpur, and Parsa National Park which extends up to three districts: Parsa, Bara, and Makwanpur). I was able to visit these two Government parks, interviewed around 25 locals in total living in Sauraha, Chitwan, and Amlekhganj, Bara, and also was able to interview 2-3 guides working under the Chitwan Parks but unfortunately, none from Parsa National Park.

Many locals, at least from among the people I interviewed, seem not to know about the pangolins. Lack of knowledge, and awareness of the pangolins seem to be one of the very reasons why these species are on the verge of extinction. With the continuation of poaching and trafficking of pangolins by humans for meat and traditional medicinal purposes, these species are bound to disappear soon within the next 10-20 years, according to some online research papers.

Hence, this research will talk about the status of the pangolins, especially the Chinese and the Indian pangolins mainly in the context of my field area along with ongoing issues related to Pangolins in general, in Nepal and discuss possible conservation measures to protect the remaining population of these species.



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[2] *A baby pangolin rides on its mother's tail or back. Source:https://www.etsy.com/listing/930312158/handmade-watercolor-art-print-of-love*

Acronyms Used

IUCN: International Union for Conservation of Nature

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

DNPWC: Department of National Parks and Wildlife Conservation

DoF: Department of Forests

WWF: World Wildlife Fund

WCN: Wildlife Conservation Nepal

ZSL: Zoological Society of London

NTNC: National Trust for Nature Conservation

CNP: Chitwan National Park

PNP: Parsa National Park

CCN: Campaign for Change Nepal

FECOFUN: Federation of Community Forestry Users Nepal

Objectives of the Research

- ☐ To understand the current status of the pangolins and enhance both ecological and social knowledge for its conservation.
- ☐ This research also focuses on understanding the behavioral and habitat dynamics of all species of pangolins.

Research questions:

Q1 How many Pangolins have approximately been recorded in the camera trap in the last seven years?
Q2. Which among the two species of Pangolins are seen more in general through the camera traps?
Q3. Have the National parks conducted any sort of workshop/awareness-related projects? If yes, what kind of awareness programs or projects are carried out for the conservation of Pangolins in the area?
Q4. What are the roles and responsibilities carried out by the government (DNPWC) for the protection of Pangolins from poachers and traffickers?
Q5. What could be done in the future to save the population of the pangolins from declining further?

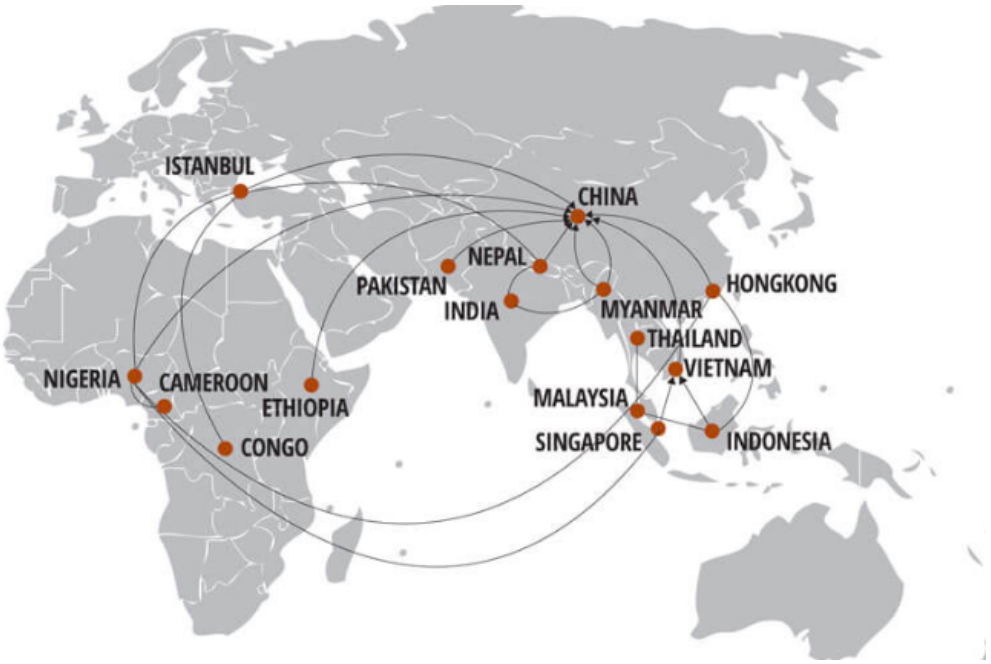
SOME PANGOLIN FACTS[3] TO START WITH:

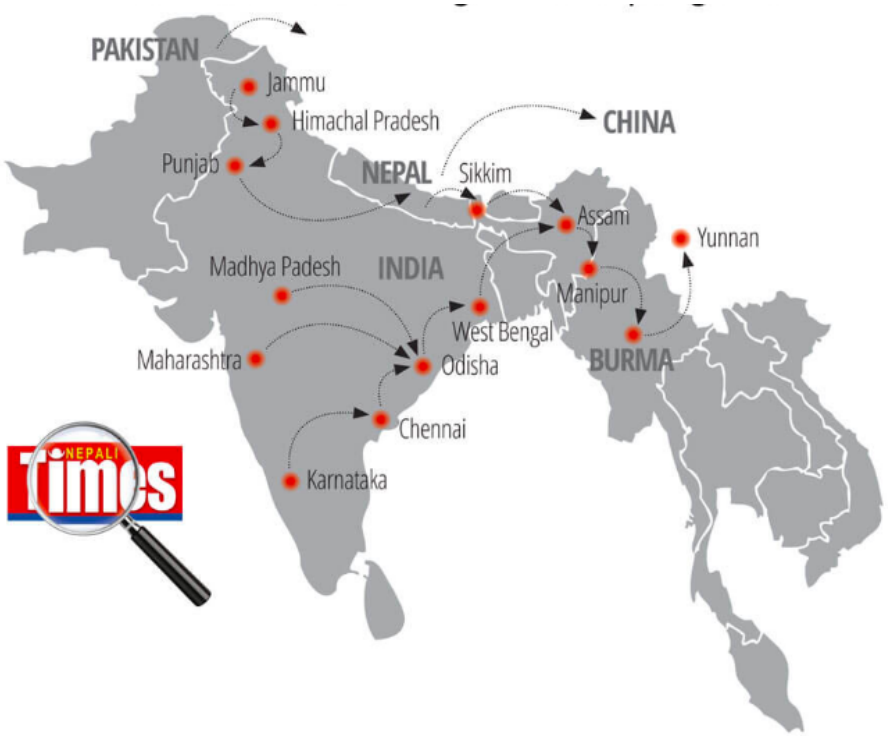
- ➢ 18 of February is celebrated as World Pangolin Day!
- ➢ Pangolins are the only mammals in the world covered in scales.
- ➢ Pangolins are active and feed at night.
- ➢ They have the ability to curl up into a ball to protect themselves from large predators.
- ➢ This animal has no teeth but uses a long, sticky tongue to eat ants and termites – their favorite food in the wild.
- ➢ Pangolins can consume up to 200,000 ants per day!
- ➢ Mother pangolins breastfeed and keep their young close.
- ➢ Pangolin babies are also called 'Pango Pups'!
- ➢ Mother pangolins carry pups safely on their tails when they venture out at night to hunt for ants and termites.
- ➢ 100,000 pangolins are smuggled live from Southeast Asia and Africa into China every year.
- ➢ Save Pangolins, a global organisation that supports conservation actions in Africa and Asia, and raises awareness of pangolins around the world

[3] ("Pangolin - SVW - Save Vietnam's Wildlife" 2020)

THE ROUTE

International Trafficking Routes for Pangolins





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4 https://www.nepalitimes.com/here-now/the-routes-for-the-world-s-most-trafficked-mammal

Poached pangolins from southern India are collected in Chennai and taken to the Northeast via Odisha, where more scales are picked up. Stock from Maharashtra and Madhya Pradesh is moved to West Bengal and then by train or road to Burma via the Moreh border in Manipur state.

The scales are smuggled hidden with dried fish and unless one pulls out all the items they can go unnoticed in checks.

The other smuggling route for pangolins and their scales — from Jammu, Himachal Pradesh, Uttarakhand, and Haryana — is across the open border with Nepal, and then over the new roads being built across the Himalayan mountains to China.[5]

[5] (Times 2019)

Literature Review:

Here's a list of things that would help one understand what Pangolins actually are, according to data and information provided mainly by the Save Pangolins Organisation, IUCN SSC Pangolin Specialist Group, ZSL, WWF, and more;

Pangolins- Overview

Pangolins possess a distinct feature of tough scales that overlap, providing them with a unique appearance. They consume ants and termites by utilising an exceptionally long and sticky tongue. Additionally, when they sense danger, they have the remarkable ability to rapidly curl themselves into a compact ball. There are eight diverse species of pangolins residing in Asia and Africa. Sadly, due to the illegal wildlife trade and the destruction of their natural habitats, these extraordinary creatures have become one of the most endangered groups of mammals globally.

Taxonomy and Status

There are a total of eight types of pangolins, all of which fall under the genus Manis in the family Manidae. This family is unique and is the only one found within the order Pholidota. Despite bearing resemblances to Xenarthrans (such as anteaters, armadillos, and sloths), pangolins are actually more closely related to the order Carnivora, which includes animals like cats, dogs, and bears.

A. Asian pangolins:

All following images of Pangolin species are sourced from the "*Scaling up Pangolin Conservation"* project by the IUCN SSS Pangolin Specialist Group. (July 2014)

1. Chinese pangolin (*Manis pentadactyla*)- **Critically Endangered**

2. Sunda pangolin (*Manis javanica*) – **Critically Endangered**

3. Philippine pangolin (*Manis culionensis*) – **Critically Endangered**

4. Indian pangolin (*Manis crassicaudata*) – **Endangered**

B. African pangolins:

1. White-bellied pangolin (*Phataginus tricuspis*) –**Endangered**

2. Giant pangolin (*Smutsia gigantea*) – **Endangered**

3. Ground pangolin (*Smutsia temminckii*) – **Vulnerable**

4. Black-bellied pangolin (*Phataginus tetradactyla*) **Vulnerable**

Physical Characteristics

Pangolins share a similar physical structure, with the unique feature of being covered in overlapping scales made of keratin. Pangolins exhibit a range of characteristics and adaptations. They come in various sizes, weighing between 1.6kg to 33kg. Their coloration varies from light to dark brown. One way to distinguish Asian pangolins from their African counterparts is the presence of bristles between their scales.

These creatures have small heads and toothless jaws but possess remarkably long, muscular tongues that are sticky and perfect for reaching deep into ant and termite nests. Due to their limited vision, pangolins rely on their strong sense of smell to locate their prey. The tongue, which can extend up to half the length of their head and body, is connected near their pelvis and last rib pairs. Pangolins have a muscular stomach lined with keratinous spines that aid in grinding prey, similar to a bird's gizzard, often containing small stones.

Pangolins have sturdy limbs that are well-suited for digging. Their paws consist of five toes, with the forefeet equipped with three long, curved claws used for demolishing termite and ant nests and digging burrows for nesting and resting. They move by shuffling on all fours, balancing on the outer edges of their forefeet while tucking their foreclaws underneath. Surprisingly, they can run quite fast and occasionally stand on their hind limbs to sniff the air. Pangolins are also capable swimmers. Although some species like the ground pangolin are fully terrestrial, others such as the black-bellied pangolin are skilled climbers, utilising their claws and semi-prehensile tails to grip bark and scale trees.

Distribution and Habitat

There are four pangolin species in Asia, namely the Indian pangolin, Chinese pangolin, Sunda pangolin, and Palawan pangolin. In Africa south of the Sahara Desert, four species can be found: the ground pangolin, white-bellied pangolin, giant pangolin, and black-bellied pangolin. Pangolins inhabit

various habitats, including tropical and flooded forests, dense vegetation, cleared areas, cultivated land, and savannah grasslands. They typically live in areas where there is an abundance of ants and termites, which are their primary food sources. The Asian pangolins, in particular, face threats from habitat loss due to expanding agriculture and human activities. Pangolins construct deep burrows with circular chambers for sleeping and nesting. Some terrestrial pangolin burrows have large sections that are spacious enough for a person to crawl inside and stand up. Additionally, certain pangolin species like the Sunda pangolin also seek refuge in tree hollows and the crevices of logs for sleeping.

Diet

Pangolins primarily rely on a diet consisting of ants and termites, although they may occasionally include other invertebrates like bee larvae, flies, worms, earthworms, and crickets. Their specialised dietary preferences make it challenging to keep them in captivity since they often refuse unfamiliar insect species or experience health issues when fed unfamiliar food. In the wild, pangolins utilise their strong sense of smell to locate insect nests, and they skillfully extract ants and termites from mounds, stumps, and fallen logs using their sharp claws. They have remarkably long and adhesive tongues that they employ to capture and consume their prey.

The voracious appetite of pangolins for insects serves a crucial ecological function by controlling pests. It is estimated that a single adult pangolin can consume over 70 million insects every year. Pangolins possess unique muscular structures that enable them to seal their nostrils and ears, safeguarding themselves against attacking insects. Additionally, their mouths are equipped with specialised muscles that prevent ants and termites from escaping once they have been captured.

Reproduction and Lifespan

Male and female pangolins have differing weights, with males generally being 10-50 percent heavier than females. Pangolins

reach sexual maturity at the age of two, and most species give birth to a single offspring, although some Asian species have been known to have two or three young. Newborn pangolins are approximately six inches long and weigh around 12 ounces (0.75 lbs). Initially, their scales are soft and pale, but they start to harden by the second day. Pangolin mothers take care of their young in nesting burrows, where they provide protection by rolling around them while sleeping or in the face of danger. The babies nurse for three to four months but can start consuming termites and ants at one month old. When the mother goes foraging for insects, infant pangolins ride on the base of her tail. The lifespan of pangolins in the wild is uncertain, but they have been reported to live up to twenty years in captivity.

Behavior

Pangolins are elusive creatures that are difficult for scientists to study due to their solitary and secretive nature. Many aspects of their behavior and habits remain a mystery. Some species, like the Chinese pangolin, sleep in underground burrows during the day, while others, such as the black-bellied and Sunda pangolins, sleep in trees. They come out at night to search for insects as their primary food source. Pangolins are well adapted for digging, using their strong front legs and claws to excavate burrows and their tails and rear legs for support. They push up and from side to side with their tough scaled bodies to create passages and kick dirt out of the entrance. **Chinese pangolins** in colder regions spend winters in deep burrows near termite nests for a constant food supply. In Chinese folklore, pangolins are believed to travel underground all over the world, and their name in Cantonese translates to "the animal that digs through the mountain" or "scaly hill-borer."

While pangolin species share many characteristics and behaviors, there are also differences among them. Some species, like white-bellied pangolins, are adept climbers, while others, like ground pangolins, prefer to dwell on the ground. Certain species, including all four Asian species, are opportunistic and can be found foraging both in trees and on the ground. **Indian pangolins** in Sri Lanka are known to inhabit

the rainforest canopy, where they find fruit and flowers that attract ants, rather than staying on the dark forest floor with limited food. Some pangolin species even have semi-prehensile tails, which they use to grasp and hang from branches, aiding in their climbing abilities.

Pangolin scales serve as a defense mechanism against predators. When threatened, pangolins can quickly roll into a protective ball, shielding their vulnerable undersides. They also deter predators by hissing, puffing, and using their sharp-edged tails. Pangolins rely on their keen sense of smell to mark their territories with urine, secretions from a special gland, and scattered feces. These odors are believed to convey dominance, sexual status, and individual recognition among pangolins.

Pangolins in Context to Nepal- Department of National Parks and Wildlife Conservation (DNPWC), Ministry of Forests and Environment, Government of Nepal

Out of all the eight species, the two species of Pangolins found in Nepal are the Indian Pangolin and the Chinese Pangolin. The first national survey conducted in 2016 revealed the distribution of Chinese Pangolin in 25 districts and Indian Pangolin in 7 districts of Nepal.

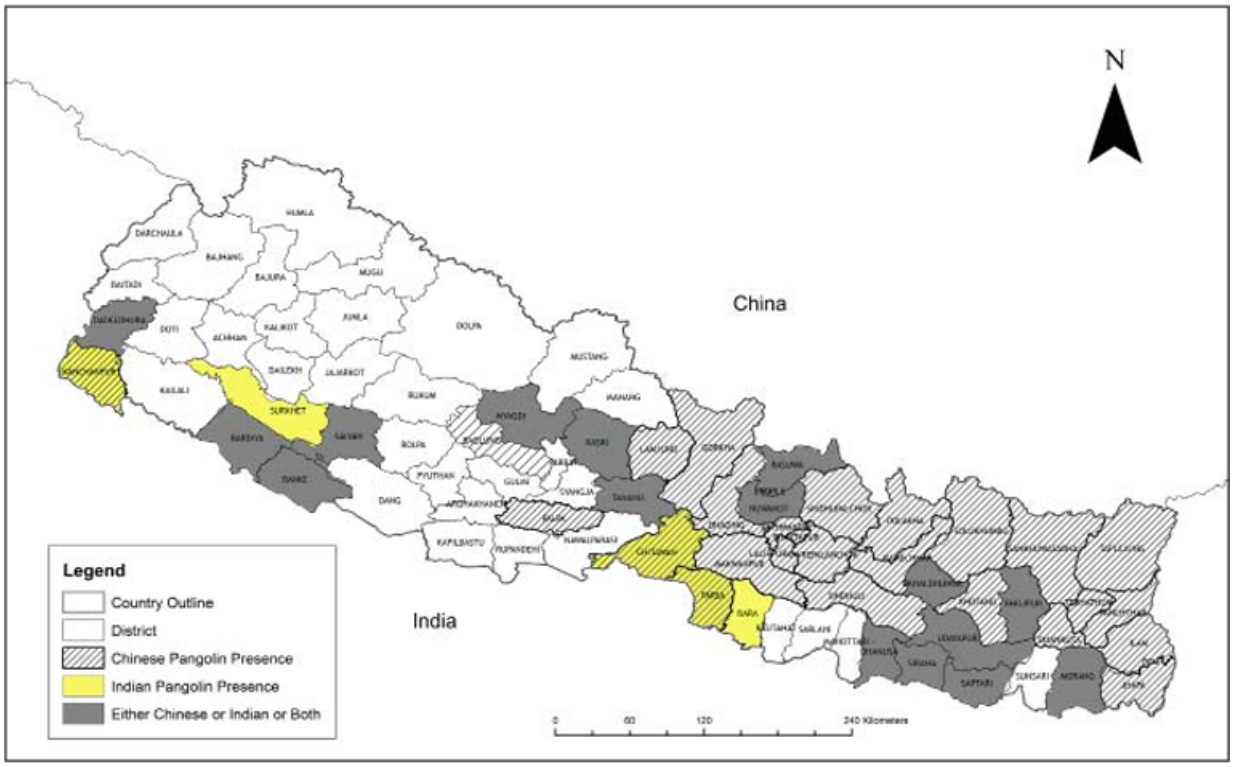


Fig 1: District-wise distribution of Pangolins in Nepal.
Source: Pangolin Conservation Action Plan for Nepal 2018-2022

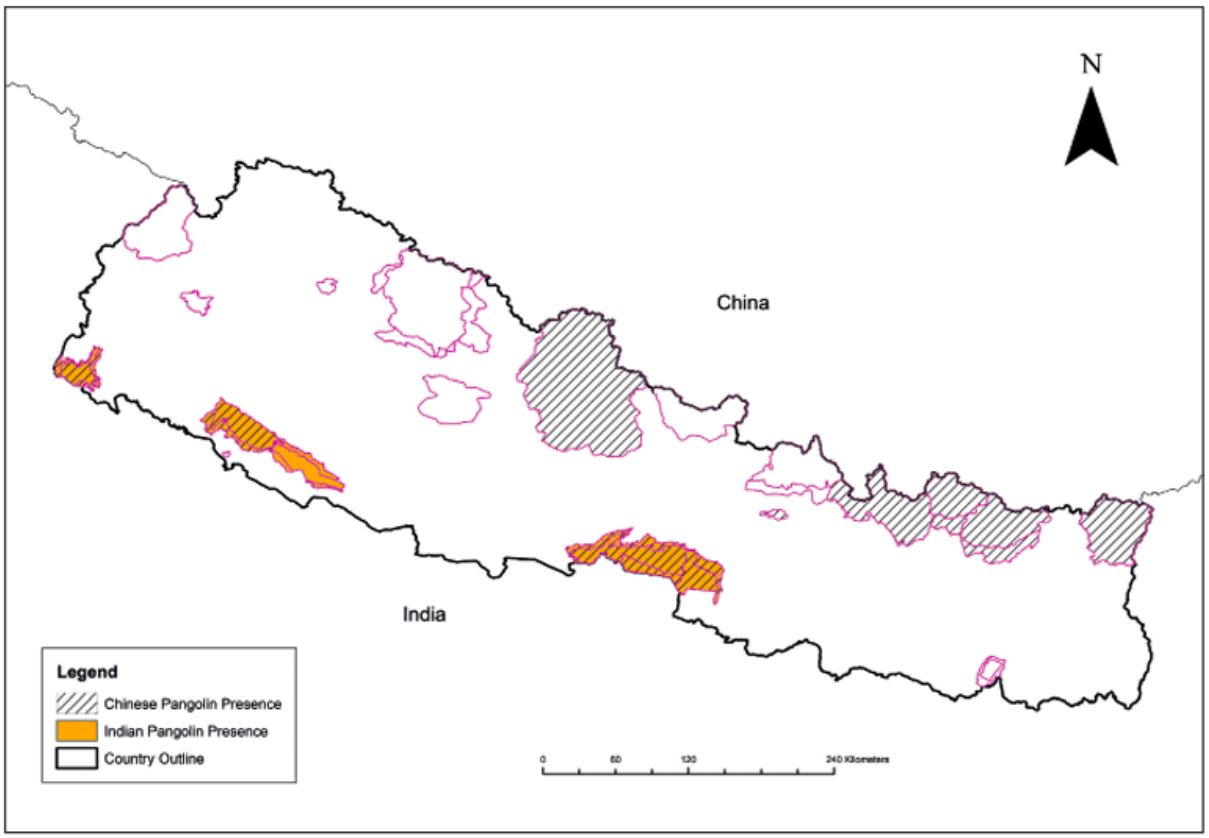


Fig 2: Distribution of Pangolins in protected areas of Nepal.
Source: Pangolin Conservation Action Plan for Nepal 2018-2022

Indian pangolin: The Indian Pangolin, scientifically known as Manis crassicaudata and called Tame Salak in Nepali, belongs to the order Pholidota and the family Manidae. Indian Pangolins have corn-shaped heads with small dark eyes and a long muzzle. Their total body length measures about 84122 cm and weighs around 10–16 kg (Mahmood et al. 2013). It is naturally found in Bangladesh, India, Nepal, Pakistan, and Sri Lanka. In Nepal, it primarily inhabits the lowland regions in the southern and western parts of the country. This species has been observed within protected areas such as Bardia, Banke, Chitwan, Parsa, and Shukla Phanta National Parks (Basnet et al. 2016). Additionally, it has been documented outside protected areas in Bara, Chitwan, Makwanpur, and Parsa districts. While the global population of the Indian Pangolin remains unknown, there are indications of a declining trend. Although not recorded during the recent national survey, the species is likely to occur in the eastern foothills and Terai

regions since there have been many records in the adjoining Indian side.
Consequently, it is listed as an endangered species by the IUCN Red List due to the potential future decline of its population by 50% over three generations (2019-2043) due to excessive exploitation. The national red list of Mammals also classifies it as endangered. In Nepal, the Indian Pangolin holds protected status (Appendix I) under the National Parks and Wildlife Conservation Act of 1973. It is listed under Appendix I in CITES regulations (Jnawali et al. 2011, Amin et al. 2018).

Chinese Pangolin: The Chinese Pangolin, scientifically known as Manis pentadactyla, belongs to the Pholidota order and Mandiae family. The Chinese Pangolin has a small, narrow mouth and a tiny, pointed head; and. measures a total body length of ca 40-58cm. An adult Chinese Pangolin weighs up to 9 kg and bears 1518 rows of overlapping dark grey scales around the mid-body and is accompanied by hair (Kaspal et al. 2016). It is found in various countries globally, including Nepal, where a recent survey has shown that it is distributed throughout the inner Terai, mid-hills, and mountains, often in human-dominated areas. The species has been observed in many of Nepal's protected areas and outside, in the Kathmandu and Baglung districts. However, information regarding the population levels, both nationally and globally, is scarce, and only a few studies have been conducted on their abundance. The current population in Nepal is estimated to be around 5,000 individuals, but it is in decline due to hunting and poaching for local and international trade. Consequently, it has been listed as Critically Endangered on the IUCN Red List, with a decline rate exceeding 80% over three generations (2019-2040). Despite this, the national red list of mammals considers it an endangered species, and it is legally protected in Nepal under the National Parks and Wildlife Conservation Act 1973 and CITES Appendix I (Jnawali et al. 2011, Amin et al. 2018).

Who is Tulsi Laxmi Suwal[6]?

Tulsi Laxmi Suwal is a dedicated conservationist in Nepal who has made significant contributions to saving pangolins, one of the most critically endangered species in the world. Her relentless efforts and passion for wildlife preservation have had a positive impact on pangolin conservation in Nepal.

Tulsi Laxmi Suwal recognized the urgent need to protect pangolins due to their alarming decline in population numbers, largely driven by illegal hunting and trafficking. Understanding the importance of raising awareness and engaging local communities, she initiated various initiatives to address this issue.
One of her notable contributions was the establishment of a grassroots organization called"Pangolin Conservation Nepal." Through this organization, Suwal spearheaded numerous awareness campaigns and educational programs across the country. These initiatives targeted both urban and rural communities, aiming to spread knowledge about pangolins, their ecological significance, and the threats they face.

To combat the illegal trade of pangolins, Suwal works closely with law enforcement agencies, local communities, and non-governmental organizations. She collaborates with authorities to strengthen the enforcement of wildlife protection laws, enhance anti-poaching efforts, and develop strategies to combat wildlife trafficking networks. Through these collaborations, she played a vital role in increasing the enforcement of regulations and ensuring legal action against those involved in the illegal pangolin trade.

Suwal also focuses on capacity-building among local communities. She organizes training workshops and provides resources to equip individuals with the necessary skills to actively participate in pangolin conservation. By involving communities in monitoring and reporting activities, she encourages local ownership and promoted a sense of responsibility toward protecting pangolins and their habitats.

[6] *(Times 2022)*

Furthermore, Tulsi Laxmi Suwal has been instrumental in promoting international cooperation and collaboration in pangolin conservation. She is actively engaged with global organizations, participated in conferences and workshops, and shares Nepal's experiences and best practices. Her efforts help raise awareness at the international level, leading to increased support and cooperation in the fight against pangolin trafficking.
Through her unwavering commitment and leadership, Tulsi Laxmi Suwal has made a significant impact on pangolin conservation in Nepal. Her efforts have not only helped raise awareness about the importance of protecting these unique creatures but have also strengthened law enforcement, empowered local communities, and contributed to the global fight against illegal wildlife trade. Her dedication serves as an inspiration to others, highlighting the importance of individual action in safeguarding our planet's precious biodiversity.

Through her expertise and involvement in pangolin conservation, she was made a member of the IUCN's pangolin specialist group in 2012. She is among seven Nepalis in the group and this network brings her together with 148 experts from 37 countries. Further, her dissertation is aided by Save Pangolins, which recently recognized and honored her conservation work.

[7] *A pangolin burrow.*

[7] *https://www.nepalitimes.com/latest/planet-of-the-pangolins*

Research Methodology

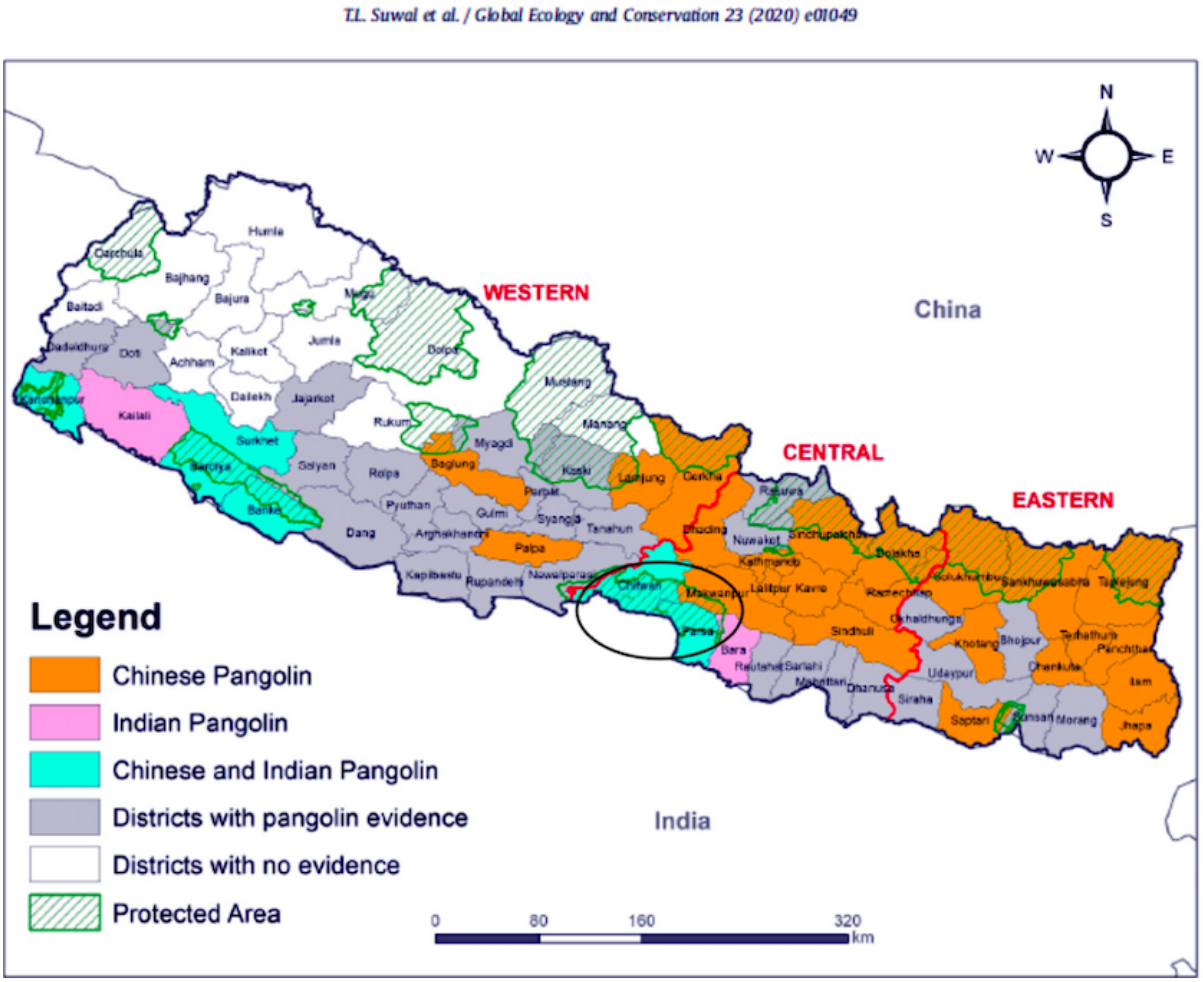


Fig 3: Map depicting the distribution of Pangolin in Nepal by district based on the mixed methods used.
Source: T.L Suwal et al/Global Ecology and Conservation 23 (2020)

The circled area illustrates my study area;

Primary Research Sites

1. **Suraha- Buffer zone, Chitwan National Park**
2. **Amlekhganj, Bara/Parsa- Buffer zone, Parsa National Park**

Chitwan National Park[8], Chitwan, Nepal

Established.: 1973
Area: 952.63 sq. km.
Buffer Zone: 729.37 sq. km.
Population of Sauraha (2011 census): 69851

The Chitwan Valley consists of tropical and subtropical forests. Sal forests cover 70% of the park. Sal leaves are used locally for plates in festivals and religious offerings. Grasslands cover 20 percent of the park. There are more than 50 different types of grasses, including the elephant grass (Saccharum spp), renowned for its immense height. It can grow up to 8m in height. The park is home to more than 50 mammal species, over 525 birds, and 55 amphibians and reptiles. The endangered fauna found in the park are the One-horned rhinoceros, Gaur, Royal Bengal tiger, Wild elephant, Four-horned antelope, *Pangolin*, Golden monitor lizard, Python, etc. Bengal florican. Lesser florican, Giant hornbill, Black stork, While stork, etc.

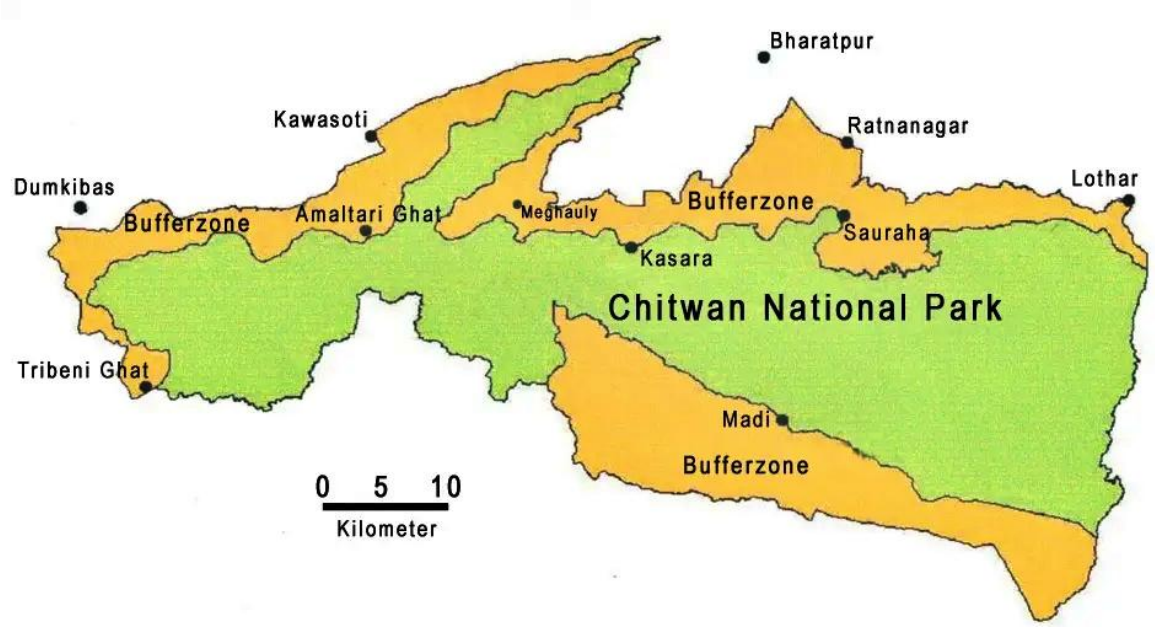


Fig 4: Map illustration of Chitwan National Park showing buffer zone areas in Yellow.
Image: https://imvoyager.com/chitwan-jungle-safari-nepal/

[8] https://dnpwc.gov.np/en/conservation-area-detail/78/

Parsa National Park[9], Parsa, Nepal

Established.: 1984
Area: 627.39 sq. km
Buffer Zone: 285.30 sq. km
Population of Amelkhgunj district (2011 census): 6709

Parsa National Park is located in the south-central lowland Terai of Nepal. It is contiguous with Chitwan National Park in the west. In 2017 it was gazetted as a National Park.
The forests are mainly composed of tropical and subtropical species. Sal forests compose about 90% of the reserve's vegetation.
The reserve supports good populations of various endangered species including the wild Asian elephant, Royal Bengal tiger, *Pangolins*, Sloth bear, and Leopard. Blue bull, Sambar, Chital, Hog deer, Barding deer, Langur, Rhesus macaques, striped hyenas, Jungle cats, and Palm civets are also found in the reserve.

Fig 5: Map illustration of Parsa National Park showing buffer zone areas in Yellow.
Image: https://www.wondersofnepal.com/parsa-national-park/

[9] https://dnpwc.gov.np/en/conservation-area-detail/74/

Sample Design: I opted for a convenience sampling method under the non-probability sampling style.
Sample size: The number of individuals I interviewed in both the buffer zone area of Chitwan and Parsa adds up to around 24 individuals in total from which 14 individuals (9 males, 5 females) are the locals from Sauraha buffer zone area and 10 individuals (4 males, 6 females) are the locals from the Amlekhgunj buffer zone area. Three of the people I interviewed separately are professional local guides from the CNP. So with that, the total number of respondents including the guides would be 27.
Additionally, I was able to gain further information and updates regarding pangolins from two of my college friends who were there working, as interns under the NTNC in Chitwan National Park (CNP). Through the two of them, I also got to talk to one of the technicians of the CNP on call as he was away from Sauraha during my field visit there.
The other important person I was able to catch up with was the Chairperson of the Tharu Cultural Museum and Research Centre, Sauraha, Chitwan.

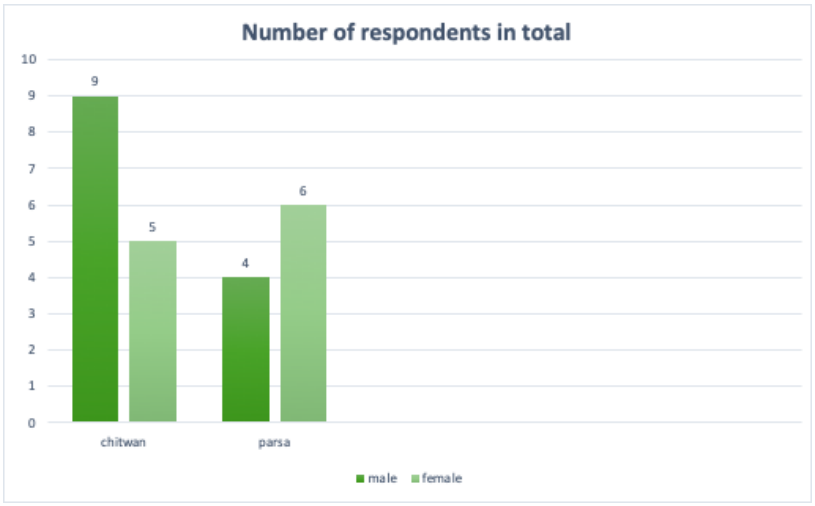


Fig 6: Total number of respondents from the two districts; Chitwan and Parsa excluding the guides.

Data source: As per the requirements of the research objectives both primary and secondary data were used that were collected during the research period. Primary data were collected from surveys through unstructured, semi-structured, and structured interviews. The secondary data were collected by studying relevant literature from various organizational websites, articles, and journals.

Ignorance or Lack of knowledge? - The issue with the '*very little known*' to '*unknown existence*' of Pangolins inside of the CNP and the PNP!

The moment I decided I would go through this specific animal for my research title, I knew what I was getting into. Even the bare minimum amount of people around me in Kathmandu who had heard of pangolins was scarce. Or either, another half of the people had never heard of the creature "Pangolin".

Baishak 1st of 2080, on the day of the Nepali New Year, I first headed out to the two villages close to each other, namely Baschhauli and Jankauli in the Sauraha buffer zone area to carry out my research interview, I asked the local respondents if they knew anything about Pangolins using the Nepali word "Salak" for the animal in the hope that they might at least have heard a little bit of something on the Pangolins. But, not much to my surprise, they were rather confused about what I was interrogating them with this "Salak" thing. So then, I had a Google image of a Pangolin ready beforehand to show them just in case for this very reason. As soon as I showed them the image, I tried to find out if they would now know anything about the pangolins. I was waiting patiently for their answer, just to see a few of them getting intrigued by looking at the image of a pangolin I was holding onto my cell phone while also seeing the other half of the locals confidently bringing up a completely different name for the Pangolin. "Fish" (माछा), "crocodile" (गोही), "porcupine", and "snake" (सर्प) were the names locals came up with, for the Pangolins from which I was able to gain a varied insight on how the locals view Pangolins not only differently but with utter misconception.

Case 1:
Tharu male (39 years old), Jankauli Village, Sauraha

Out of the 14 local respondents from Sauraha, one of the Tharu male respondents from the Jankauli Village who's currently said to be around his late thirties shared his part of an old-time story of spotting a "Salak" back in like 25 years ago when he bunked classes to wander around the forest area with his friends. It was during that time of his adolescence life

that he was able to witness a live Pangolin. I asked if the thing he saw was an actual "Salak" or if it was something else that he mistook as a "Salak" but then he replied with a firm "Yes, it was a Salak". To this day he is a farmer but stated he was never able to see another Pangolin in his life after those 25 years, even when he often goes foraging in the woods of CNP.

Case 2:
A former guide, now a Museum Watchman (late 70s), Wildlife Display and Information Centre, CNP, Sauraha

The now museum watchman at the Wildlife Display and Information Centre at CNP, who used to be a former guide said that he's seen rescuers bringing pangolins to the National Park from potential traffickers. He mentioned that Pangolins are harmless and not dangerous with the size similar to domestic cats. And also stated that the Pangolins are not native to the terai and that they were brought down to the protected area from the hills, mostly from Hetauda, Megauli, etc

Wildlife Display and Information Centre, CNP, Sauraha, Chitwan

Case 3:
SEE male student graduate, tour assistant in one of the tour/travel offices in Sauraha

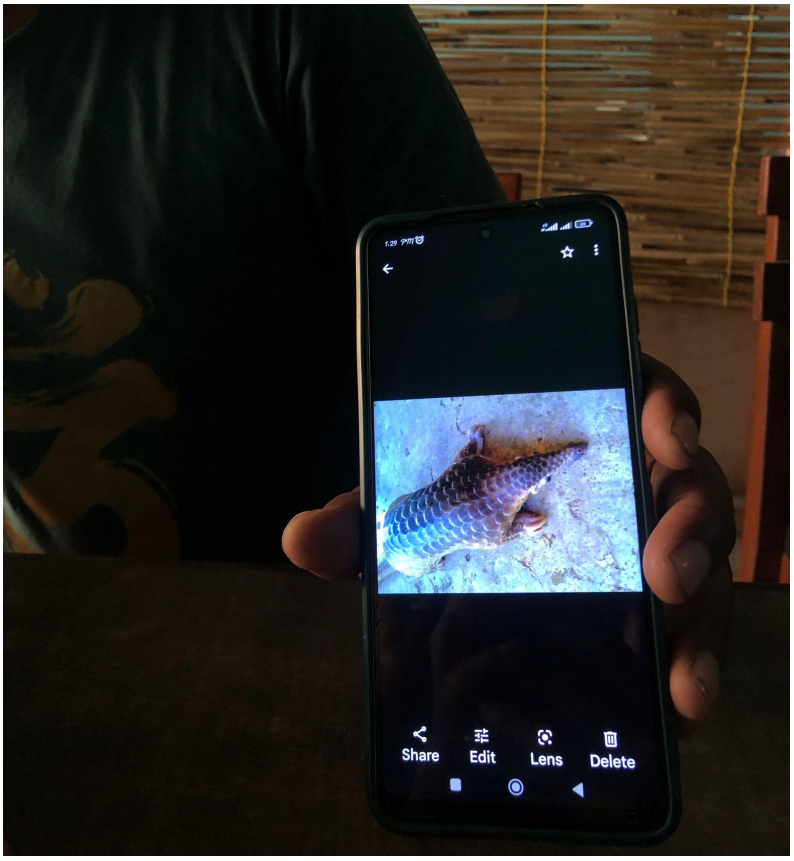
I wasn't really planning to interview him in the first place but as I was there in his relative's tour office asking about the Pangolins to the owner of the tour office, which was basically his relative, the student, in turn, replied stating about the two species (Indian and the Chinese) of Pangolins found in Nepal. He said that they were never taught about the existence, let alone the concept of conservation of the Pangolins at school because of the fact that it wasn't included anywhere inside their course book, and only got to know about these creatures when he started looking into the list of endangered animals while working as an assistant at the tour office on his current off days.

Case 4:
Guide 1. Local Gurung, CNP Guide, Sauraha

This Gurung guide I was with during my 30-minute canoeing trip was another respondent I came across who had his own story to tell about the pangolin. Six to seven years ago, he said that he was able to catch sight of a Chinese pangolin being rescued by the CNP authorities nearby Hetauda, in Manahari, a rural municipality in the Makwanpur district. He added on saying it was initially found by a local person of the Manahari village while he was foraging and decided to contact the National Park, called them over, and then handed it over to the park staff which I think was a very smart and thoughtful act as a fellow human who genuinely cared for the wellbeing of an endangered species.
I cannot be very sure or be so upright on this matter but the fact that he went through all these procedures of contacting, waiting and handing over the Kalo Salak (Chinese Pangolin) to a protected area conveys his established idea of conservation of the Pangolins being essential.

Case 5:
Guide 2. Local Tharu, CNP Guide, Sauraha

It started 10-15 years back when Guide 2, went inside the forest (Mirgakunja Buffer zone) in search of wild vegetables and, that was when he found 3-4 Pango pups (Pangolin babies). He told me about how all the pangolins ran away except for one who curled up and turned into a ball-like shape which, he then picked up, put inside a bag and took it home in order to show to his father, who back then also worked as a guide. Guide 2's father let him know that it was quoted as "illegal" to bring animals from the wild into homes and asked him to return the animal back to its rightful place. But before that, he made sure to click the picture of the Pangolin he brought home from the forest. When asked about which species of the two it belonged to, he replied with the "Chinese Pangolin".



Guide 2 holding out the photo he took 10-15 years ago of the Chinese Pangolin, he brought home from the forest. 17 April 2023, Sauraha

Case 6:
Married woman, Village-Kulekhani, Current residence-Amlekhgunj, Parsa

I showed her the same Google image of the Pangolin I had saved on my phone and she replied that in her village, they call the Pangolins 'fish' which translates to 'Macha' in the Nepali language. She also stated that Pangolins are profoundly found in the Kulekhani area which also falls under the Makwanpur district. She said that the people in the Kulekhani area would throw away the scales and eat the rest of the meat of the Pangolins.

Case 7:
Male respondent, Amlekhgunj, Parsa

This male respondent insisted on Pangolins being found only in the southern-west part of Nepal, Nepalgunj, and not in the Central-south of Nepal. And then he also went on about how Pangolin comes in second place after the Rhino, in being the most smuggled animal.

Fried pangolin scales for sale in Asia © Dan Challender [10]

[10] (Challender, Waterman, and Baillie 2014)

Disclosing the Status of the Pangolins? The Simple Way?

A signboard with information about the Pangolins is the closest and simplest way to let the general public know and understand the current status of these species.
Although I was never able to see any posters which had to do anything regarding the Pangolins in Chitwan or either in Parsa, there definitely needs to be more awareness signboards like the one down below in all areas surrounding forests and village communities.

[11]

This signboard in the Nepali Language translates to "Let's save the vulnerable/endangered Salak (Pangolin)".
Additionally, the signboard also has a warning written in black letters at the bottom in case of trafficking or involvement in the trafficking or smuggling of the Pangolin to be imprisoned for 10 years within bars.

[11] (Ambika Khatiwada 2014)

WHAT NOW? And Why?

A recent 2 days district-level workshop was conducted by Campaign for Change Nepal (CCN) under their umbrella organisation, Federation of Community Forestry Users Nepal (FECOFUN) in two eastern districts-Jhapa and Morang of Nepal. The workshop titled "District level Workshop Planning for Pangolins" main objective is to detect Pangolin burrows along with providing training to forest guards in learning to set up camera trap systems in order to monitor the Pangolins. My key informant[12] then also mentioned that all the Pangolins they captured on the cameras so far have been Chinese Pangolins only.

When asked if any kind of awareness program had ever reached within the four walls of the classrooms at schools in Chitwan and Parsa, he replied saying "not yet" but there would be conservation awareness on the Pangolins in the eastern region schools but will only be starting within the next year.

He also stated that Nepal has taken several initiatives to protect pangolins and combat the illegal wildlife trade. The country has implemented laws and regulations to prohibit the hunting, trading, and trafficking of pangolins and their parts. These measures are primarily enforced by the Department of National Parks and Wildlife Conservation (DNPWC) and other law enforcement agencies.

Also in addition to legal measures, various organizations and conservationists in Nepal have been actively involved in pangolin conservation. They work towards raising awareness, conducting research, implementing conservation programs, and supporting local communities in protecting pangolin habitats. Some organizations involved in pangolin conservation in Nepal include the National Trust for Nature Conservation (NTNC), Wildlife Conservation Nepal (WCN), and World Wildlife Fund (WWF) Nepal.

I went to revisit the Google website to find out more about past or ongoing projects regarding Pangolin conservation and

[12] Chairperson of the Tharu Cultural Museum and Research Centre

came across this another big project which is the "Pangolin Conservation Action Plan[13] (2018-2022)" led by the Government of Nepal under the Department of National Parks and Wildlife Conservation, Ministry of Forests and Environment. This project seems to be one of the biggest budget projects carried out in achieving these proposed goals to protect and conserve the remaining population of the two Pangolin species.

Objectives	Indicative Budget (NPR)	% Weight
Objective 1: Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin	24,500,000.0	21.94
Objective 2: Curb poaching and control illegal trade of pangolin	42,900000.0	38.42
Objective 3: Identify and manage priority sites to improve habitat quality for pangolin conservation	23,000,000.0	20.60
Objective 4: Develop local stewardship for conservation of pangolin	21,250,000.0	19.04
TOTAL	111,650,000.0	100

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A total indicative budget of NPR 111,650,000 was proposed to implement this action plan over the next 5 years. About 38.42 % of the budget was estimated for poaching and illegal trade control, followed by 21.94 % of the budget estimated for research and studies to fill the existing knowledge gap for the species, 20.60 % for habitat management, and 19.04 % of the total budget allocated for enhancing community stewardship in conservation through awareness, eco-tourism, and livelihood support.
The government's annual budget to DNPWC and DoF was a major source of funding with support from various conservation partners like the National Trust for Nature Conservation (NTNC), World Wildlife Fund Nepal (WWF), Zoological Society of London Nepal (ZSL) and other relevant conservation partners.

These kinds of projects will help the remaining pangolins thrive better in the wild. The sheer lack of knowledge and misinformation regarding the scales of the Pangolins and Pangolins, in general, seem to be the biggest obstacle in managing the overall population of the species. Raising awareness of pangolins through various social media outlets

[13] ("Pangolin Conservation" 2018), Government of Nepal
[14] ("Pangolin Conservation" 2018), Government of Nepal

and campaigns and facilitating greater collaboration and communication between conservation organizations, government, and NGOs could possibly be able to fund a wide range of effective pangolin conservation efforts.

There is also an indication that the rarer it gets to manifest or witness Pangolins to humans, more importantly, people that spend more time in the woods like a conservationist, an ecologist, a researcher, or be it just a local farmer who goes to the woods to collect fodder, the closer it might suggest the disappearance of these trafficked mammals in the future. Hence to avoid being devoid of ecology without the Pangolins, immediate actions should be taken by the conservation committee or the responsible parties to minimize bringing further damage to the Pangolins and ecology in general.

Limitations of the Study

The biggest limitation of my research would probably be the fact that I was not able to meet up with one of the Assistant Wardian of the CNP I was supposed to meet through an army Colonel's recommendation. I rang him up on the phone but he never answered so I had to leave text messages which didn't help either. However, I was able to talk to a technician from the CNP about Chinese Pangolins recently being trapped in the camera in the Amrit Dhara Community Forest but couldn't get a hold of the pictures simply because the Forest authorities were not willing to share the pictures.

Also, I have scarce information from the Parsa National Park site area and haven't been able to interview any of the Park staff or authorities despite visiting the Park office and waiting to get in touch with one of the higher-level authorities. Hence the information regarding the study site-Parsa, involves only the responses from the locals and is also less in comparison to the data I collected from the Chitwan site.

Scope for Future Study

There is a need for a lot more research to be done on this particular Pangolin species in the future so as to better understand and be familiar with it along with helping the locals familiarize themselves with the species by conducting Focused Group Discussions and if possible, small-scale awareness programs in different village areas where Pangolins are profoundly found.

Annex

An Indian Pangolin on display inside the Chitwan Museum.

Interview with the WatchGuard of the museum.

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