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Turtle Hunting by the Tharu Tribes: An Ethnozoological Case Study

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Abstract The Tharus are a prominent group of tribes who have lived in the Tarai belt of Nepal and India for centuries, relying on the forest for their survival. This ethnozoological study focuses on turtle collection and consumption by the Tharu community in the Rupandehi district of Nepal, discussing the distribution and abundance of turtle species and this community's unique spearing method of turtle hunting. In this study, Tharu turtle hunters were hired to collect living specimens using the spearing method from nine locations, and interviews were conducted with local community members. Twenty-three living turtle specimens from three species were recorded, and an additional 81 shells were recovered from Tharu households. The Indian flapshell turtle (*Lissemys punctata andersoni*; Tharu: *Gauriya Kachhuwa*) was the most abundantly distributed species in the district. The survey of shells in households revealed that all specimens were Indian flapshell, while the two other specimens were Indian peacock softshell turtle (*Nilssonia hurrum*; Tharu: *Supahawa kachhuwa*) and Indian roofed turtle (*Pangshura tecta*; Tharu: *Khapadahawa kachhuwa*). During interviews all interlocutors described eating *Gauriya kachhuwa* and avoiding other land turtles for consumption. Spearing is used to hunt turtles, and it is utilized in marshes, ponds, and lakes. These reptiles are killed for their meat and for medicinal uses, and the community reports that a decline in the turtle populations has been observed near Tharu settlements. Therefore, we argue that an escalation of public awareness and policy advocacy is essential, particularly in rural areas where Tharu communities live, to ensure the survival of these reptiles in the face of mounting anthropogenic challenges.

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Introduction

Turtles are an ancient group of reptiles with significant ecological importance. They belong to the order Testudines, which are defined by the presence of bony or cartilaginous shells. All turtles possess a shell that comprises most of the backbone and encases the trunk, but it opens to accommodate the head and neck, forelimbs, hind limbs, and tail. The shell is composed of a dorsal carapace and a ventral plastron, both consisting of interconnected bony plates called scutes, which are typically made up of keratin (Schoch and Sues 2019).

Turtles inhabit a wide range of diverse habitats, including forests, deserts, islands, oceans, rivers, and other freshwater bodies, spanning from tropical regions to the Arctic Circle. The order Testudines currently consists of 356 species (Burke 2021). In Nepal, the diversity of turtles is relatively rich considering the country's small geographical area. Turtles are primarily distributed across the lowland Tarai region and the river systems of the mid-hills (Shah and Tiwari 2004). There are 18 species of turtles in Nepal, belonging to three families and 11 genera (Rhodin et al. 2021). Given their extended lifespan and the time required to attain sexual maturity, tortoises are particularly susceptible to human pressure (Gracia et al. 2020). They are among the taxa with the poorest conservation status, over half of their species facing extinction. Globally, the primary threats to turtle populations include habitat destruction, illegal wildlife trade, climate change, pollution, and unsustainable harvesting for food, traditional medicine, and the pet trade. The global illegal trade in turtles and tortoises, both for domestic consumption and international markets, further exacerbates their decline (Stanford et al. 2020). The

degradation of terrestrial nesting habitats is a major threat to freshwater turtles (Santoro et al. 2024).

These animals are of remarkable ecological and cultural significance (Patel et al. 2022). In Hindu mythology, turtles represent spiritual development, creation, and preservation. The connection between the divine and earthly is symbolized by the Kurma (tortoise) (Patyal 1995), an incarnation of the god Vishnu (Oki 2022). The turtle, particularly as Kurma, symbolizes stability and support for the universe. Its association with Vishnu highlights the maintenance of cosmic balance during significant mythological events, such as the churning of the ocean (Desai 2009). Ecologically, turtles play significant roles in the bioturbation of soils, infaunal mining of sea floors, seed dispersal and germination, and nutrient recycling. Due to their extensive migratory patterns and feeding habits, sea turtles are regarded as keystone species and ecosystem engineers (Lovich et al. 2018).

Nepal, a nation rich in ethnic diversity, is home to more than 123 castes and ethnic groups, each with its own unique cultural practices and beliefs (Lamsal et al. 2022). Among these, the Tharu people form a prominent Indigenous community. Tharu cultural heritage includes unique customs, foodways, and traditional attire (Chaudhary 2019). Additionally, they are recognized as Scheduled Tribes in the neighboring Indian states of Uttar Pradesh and Uttarakhand (Chaubey et al. 2014), although the majority of their population resides in Nepal. The Tharu are the second -largest Indigenous tribe in Nepal after the Magars (Chaudhary et al. 2021) and live in all 22 districts of the Tarai region (Kharel 2019). This Indigenous group primarily resides along the southern foothills of the Himalayas and comprises several distinct endogamous subgroups (Fornario et al. 2009). According to the 2021 national population census, the Tharu make up 6.2% of the national population, while 5.9% speak Tharu as their mother tongue and 6.1% are heritage speakers (National Population and Housing Census 2021).

Hunting is one of the oldest human activities, reflecting the interaction between human societies and wildlife (Alves 2012). The Tharu people use a variety of hunting techniques, most often using traps to secure food and safeguard crops. These trapping methods are rooted in their local Indigenous knowledge of wildlife and the landscape (The Wonder Nepal 2025). This includes knowledge of the behavior of wild animals and the identification of tracks, scat, and vocalizations. Many Tharu communities make their living by hunting and fishing, rearing herds of cows and buffalo, and keeping pigs, fowl, and goats (Crooke 1907). After the possession of firearms was outlawed in 1954, they have reconstructed their hunting technique to take advantage of use traps, spears, slingshots, resin glue, and other methods for catching and killing wild animals (Muller-Boker 1999). This study aims to identify different species of turtles in the Rupandehi district, Nepal, observe the spearing technique used by Tharu hunters to catch turtles, and describe the association between the Tharu population and the distribution of turtle populations in the district.

Method

Study Area

This study was conducted in the Rupandehi District of the Lumbini Province, Nepal. The elevation of the district ranges from 100 m to 1229 m above sea level, with 16.1% of the area located in the Churia range and the remainder in the Tarai region. Eighty-nine percent of the area lies in a lower tropical zone (below 300 m), 10.5% in an upper tropical zone (300–1000 m), and the remaining 0.2% is situated in a subtropical zone (1000–2000 m). The total area of the district is 1,360 km^2, and in 2020, it comprised the following land cover: agricultural land, 946.6 sq. km.; built-up area, 71.15 sq. km.; barren land, 0.65 sq. km.; water bodies, 23.79 sq. km.; and forest cover, 263.31 sq. km. Rupandehi is bordered to the east by the West Nawalparasi district, to the north by Palpa, to the west by Kapilbastu, and to the south by Uttar Pradesh, India (KC et al. 2021).

The district is rich in wetlands and rivers. It has four principal rivers: Tinau, Rohini, Kanchan, and Dano, as well as many smaller rivers. The wetlands include 51 lakes and ponds, providing habitats for wildlife and regions for hunting and fishing (Division Forest Office Rupandehi 2022). The total population of the district was approximately 1.12 million in 2021, and the Tharu comprise 8.2% of the diverse ethnic groups in the district (National Population and Housing Census 2021).

Agriculture provides the main livelihood for this Tharu community. People living in these villages depend on globalized markets for only a limited number of articles. The forest plays a vital role in enhancing their economy through the ethnobotanical use of medicinal, edible, and timber plants, as well as non-timber forest products (Singh and Singh 2015).

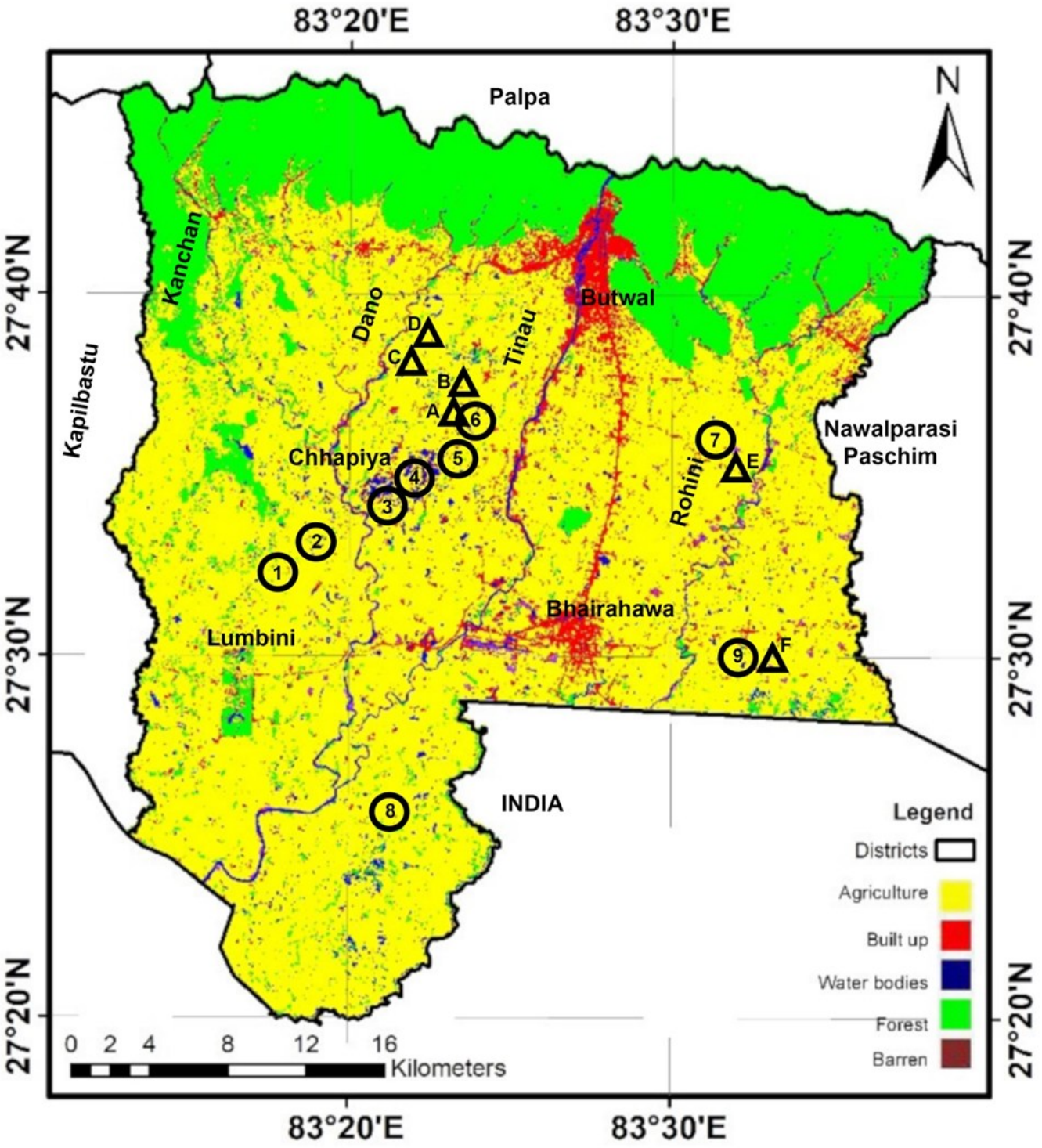

Figure 1 Rupandehi district, with land cover, major rivers, and sampling sites. Two major cities, Butwal and Bhairahawa, along with Lumbini, a UNESCO World Heritage site, and Chhapiya, a famous center for fish farming, are labelled. Circles 1–9 show living turtle collection sites (site numbers correspond to those in Table 1), and triangles A–F denote turtle shell collection sites. Basemap is from KC et al. 2021:Figure 6d.

Dominant sociopolitical communities living on Nepal's plains held a prejudice in which they feared Tharu communities as skilled in witchcraft and sorcery (Crooke 1907). Anthropological studies have offered a multidisciplinary approach that offers insights into the culture, linguistics, literature, demography, history, arts and crafts, and ethnography of Tharu life (Kharel 2019). However, the literature lacks a wealth of information on the hunting methods of the Tharu, and articles on turtle hunting, capture, or consumption are even scarcer.

Sampling Method

We selected nine locations in the Rupandehi district to sample living specimens, including two sites more than 10 km away from the Tharu villages, five sites 1–9 km, and the remaining two less than 1 km away. All these locations were selected with the help of the turtle hunters who often visit and successfully collect turtles from them. While selecting the sites, we focused on including all possible habitat types and locations representing all possible ethnicities in the district. These locations included two lakes, three ponds, three marshlands, and a river (Figure 1). Sampling of living specimens was conducted in December 2024 and June 2025. Five local Tharu turtle hunters, all males, were hired as experts in electrofishing and spearing techniques to catch turtles, while we closely observed their hunting method. The team spent a total of seven days in the field, with one day allocated to sites 5–9, and one day allocated for sites 1–2 and sites 3–4. To sample shells, we visited 27 Tharu households from six villages for interviews around hunting and shell collection. There were no distinct social variations among these families except their ethnic sub-groups. All collected samples were identified using field guides and literature (Aryal et al. 2010a; Rai 2023; Rhodin et al. 2021).

Result

Turtle Species in Rupandehi District

Twenty-three living specimens of three different turtle species were found across the nine sampling locations (Table 1). The living specimens included 20 Indian flapshell turtle (*Lissemys punctata andersoni*), two Indian peacock softshell turtle (*Nilssonia hurrum*), and one

Table 1 Living turtle specimens caught from nine sampling sites by spearing and electrofishing methods. Site locations can be seen in Figure 1.

Site Number	Site Name	Ethnic Communities Living at the Site	Vegetation (as Habitat of Turtle)	Method of Hunting	Number of Turtle Specimens	Species
1	Gobhadauri taal	Muslims, Bhar, Yadav	Mango	Spearing	4	*L. punctata andersoni*
2	Lodhpurawa pokhari	Mallah, Kewat, muslims	Duckweed	Spearing	4	*L. punctata andersoni*
3	Dhamsar taal	Brahmins (hill), Chettri	Cattail, *Ipomoea carnea subsp fistulosa*	Spearing	2	*L. punctata andersoni*
4	Chhapiya katarahani	Brahmins (hill), Chettri	Cattail	Spearing	2	*L. punctata andersoni*
5	Laxmipur pokhari	Muslim, Yadav, Pal, Teli	Water hyacinth	Spearing	2	*L. punctata andersoni*
6	Harnahiya Badki Pokhari	Tharu, Kohar, Mallah, Harijan	Bamboo, Water hyacinth, *Pistia*	Spearing	0	
7	Rohini river	Tharu, Brahmins (hill)	*Mallotus nudiflorus, Shorea robusta*	Electrofishing	3	*N. hurrum* *P. tecta*
8	Betkuiyan taal	Muslim, Yadav Shukla, Kewat, Pasi, Harijan, Mallah	Water hyacinth Duckweed, Mango	Spearing	5	*L. punctata andersoni*
9	Parasijhunga pokhari	Tharu, Muslim, Yadav	Water hyacinth	Spearing	1	*L. punctata andersoni*

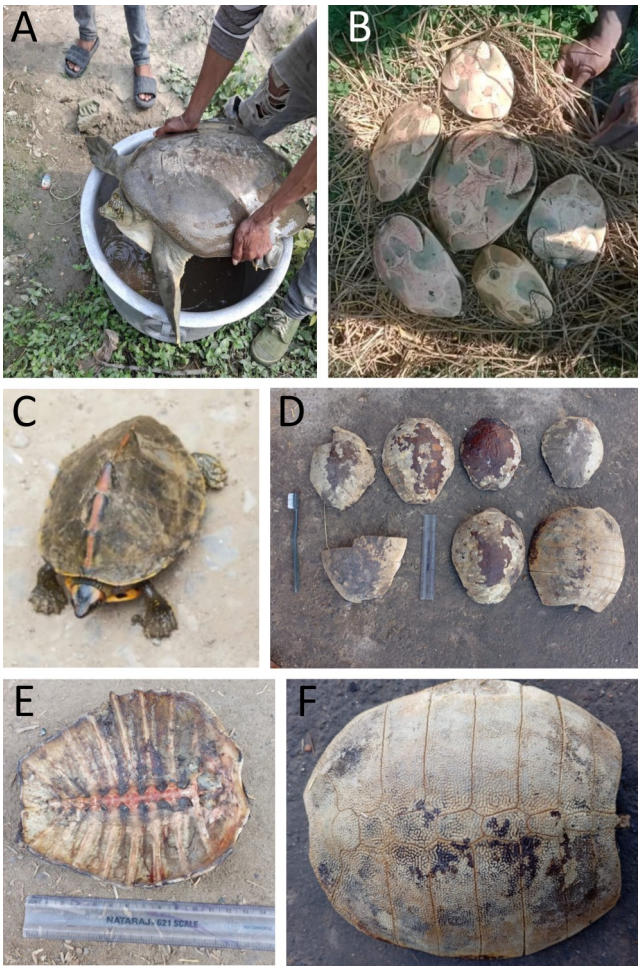

Figure 2 Photographs of various turtle specimens found during the study. **A** Indian peacock softshell turtle, **B** Indian flapshell turtles, **C** Indian roofed turtle, **D** shells of Indian flapshell turtle, **E** inner view of a carapace of Indian flapshell turtle, and **F** outer/dorsal view of a carapace of Indian flapshell turtle. Photographs by Kiran Tharu.

Indian roofed turtle (*Pangshura tecta*) (Figure 2). All Indian flapshell turtles were found on marshlands, ponds, and lakes. In contrast, the specimen of the Indian peacock softshell turtle and both specimens of the Indian roofed turtle were caught in the deep water of the Rohini River.

Lissemys punctata andersoni was the most common species observed in this study. Pun et al. (2023) successfully collected 36 specimens of 9 different species of turtles from the Chitwan district of Nepal. They encountered *Melanochelys tricarinata*, *Melanochelys trijuga indopeninsularis*, *Pangshura tecta*, *Pangshura tentoria*, *Indotestudo elongata*, *Nilssonia gangetica*, *Nilssonia hurum*, *Lissemys punctata andersoni*, and *Trachemys scripta elegans*, where *N. hurum* was the most often observed species. Similarly, among the total 18 species found in Nepal, Aryal et al. (2010) recovered 16 from the Tarai belt. Bhatta et al. (2020) collected 21 specimens of Testudines from 5 different species in Shuklaphata National Park, Nepal. As in this study, *Lissemys punctata andersoni* was the most frequently encountered species in the two studies mentioned here.

We documented 81 turtle shell specimens during visits to Tharu households. Almost every household had at least one specimen, with one family bearing 34 shells in their collection. All shells comprised the carapace (Figure 2), while plastrons were consumed. During interviews, interlocutors reported that all Tharu, regardless of caste, eat turtles. Even non-Tharus, such as Mallah and Kohar communities living in the Tharu villages, were found to eat turtles. Interlocutors disclosed that the carapace, flaps of the plastron, and gallbladder are of medicinal value and are used by both Tharu and non-Tharu communities. For example, the fresh gall bladder is swallowed raw for the treatment of asthma while flaps are used as an amulet to protect cattle against the evil eye. A few respondents claimed that the ash from the carapace, when mixed with mustard oil, is used to cure chronic wounds and even skin cancer. All Tharu interviewees were found to consume *Gauriya kachhuwa*. Respondents reported that they preferred this species because of its easy availability, while other species are rare in the area and are not encountered. The three specimens of *Khapadahawa kachhuwa* and *Supahawa kachhuwa* were released in their original habitat. Turtles are killed humanely by cutting off their head. All the body parts are cooked and eaten except the carapace, claws, and head. The meat is cooked dry with no gravy and requires a large amount of hot spices, including chili pepper and black pepper.

Unique Spearing Technique of Turtle Hunting by the Tharu

No turtles or collectors were injured during the study. Tharu hunters use the spearing technique to hunt turtles, targeting natural ponds, lakes, and marshes where the chances of encountering *Gauriya Kachhuwa* are high. These hunters have 4-5-foot-long metallic spears, usually made from either a spring coil of a bicycle seat or rebar. The hunting is usually done in winter. Hunters form a group of 2–5 men, as women do not participate in hunting. On cold days, turtles undergo hibernation and hide in the mud, creating an opportunity for the hunters. Hunters make parallel transect lines in a marshland and circular lines around

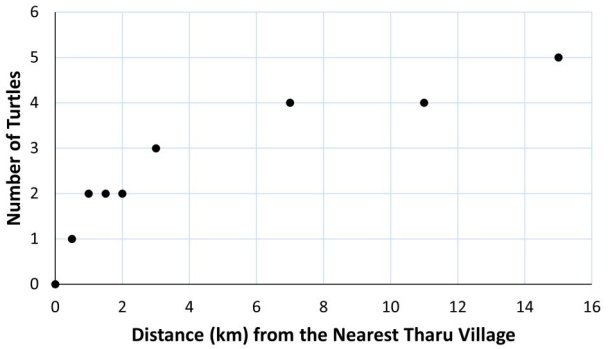

Figure 3 Relationship between Tharu villages and the distribution of the turtle population in the Rupandehi district, Nepal. The y-axis displays the number of specimens collected from various sites, and the x-axis displays the distance (km) of the site from the nearest Tharu settlement.

a pond or lake, driving spears continuously into the mud as they walk forward. Turtles, if hit by the spear, are immediately dug out. People do not typically use safety gear like gum boots or gloves during the hunt. The collected specimens are kept in a sack, taken home, and then divided alive or after butchering to be cooked and consumed. This technique is taught by elder hunters to more junior hunters, especially methods of differentiating rocks from turtles in the mud and ways to select the appropriate location for hunting.

Association between the Tharu Population and the Distribution of the Turtle Population Distribution

The results showed an association between the distance of wetlands from nearby Tharu settlements and the turtle population. The number of turtles increased as we moved away from the Tharu villages (Figure 3). The same five hunters were hired in all sampling sessions, and so the impact of the number of collectors or their ethnicities upon the yield could not be studied. We found a total of six living specimens in the summer sampling from two locations, and 17 specimens in the winter sampling from seven locations.

Discussion

This study is limited by the number of sampling sites. Additionally, the study could have been run throughout the year to maximize the chances of encountering turtle species in the district. Similarly, Tharu livelihoods, their ethnozoological practices related to this reptile, cultural and traditional association with the wetlands where turtles live, and the geography of caste and ethnicity distributed around each sampling site could not be studied in detail. More emphasis was given to the turtles than to other species, narrowing the scope of this ethnobiological study. Nevertheless, this study can provide an inventory of a traditional hunting technique by this tribe and establish an interrelationship between the Tharu population and the distribution of the turtle population.

Turtles are captured and eaten in many parts of the world. People consume these reptiles for both meat and medicinal purposes, including the use of reptiles and amphibians for healing through the magical transfer of disease (Hand 1980). In West Africa, the fat obtained from the leatherback turtle is used against convulsions, malaria, liver problems, and tetanus. Its oil is used as a balm during massage to cure sprains and fractures. Powdered bones and carapaces are used to treat headaches, cardiac problems, and asthma. Fretey et al. (2007) describe West African cases in which turtle meat is said to cure malaria, as well as another case in which leprosy was reportedly cured by a fifteenth century French explorer who consumed turtle meat and applied its blood to the affected area (Fretey 2001). Similarly, Martins et al. (2015) conducted interviews with communities living on the Cape Verde Archipelago and found that the sea turtle's penis is used for aphrodisiacal purposes, while the gallbladder and liver are used to cure hepatitis, swelling, and anemia. There has been little experimental research to support the clinical effectiveness of animal products for such medical purposes (Still 2003).

Nepal also contributes to the exploitation of turtles. In 1995 and 1997, 120 and 190 live turtles, respectively, were seized from Bhaktapur, Nepal, while they were *en route* to be sold in medicinal and food markets in China. In addition, curio stores in Kathmandu sell masks made from turtle shells and include species not reported from Nepal (Aryal et al. 2010b). These incidents are part of an international turtle trade. Bhatta et al. (2020) surveyed conservation challenges in Shuklaphanta National Park, Nepal, and as in this study, they found that all Tharu people interviewed discussed consuming turtles. Although they do not regularly go to catch turtles, Tharu respondents reported eating whichever turtles are found, whenever they find them.

Conclusion and Recommendation

The Tharu are expert hunters and trappers of wild animals, including turtles, in part because this community has been residing in the Tarai for a long time and retains a deep set of ecological knowledge (The Wonder Nepal 2025). Tharu hunters catch and consume *Gauriya Kachhuwa* by using the spearing technique. They primarily kill turtles to eat their meat and for medicinal purposes. In this cross-sectional case study, all Tharu respondents reported that they eat turtles, which are hunted by some expert male individuals within the community. Turtle hunting is facultative, meaning Tharu communities are not dependent on these reptiles for food. Although this practice holds a cultural and medicinal value, only a few individuals of the community were found to participate. The population of this reptile is correlated to its proximity to Tharu settlements, and the number of turtles declines with proximity to Tharu settlements. However, a more comprehensive study on the distribution pattern and comparative population densities of turtles, especially the *Gauriya kachhuwa*, should be conducted in Tharu-dominant and non-dominant regions to verify this result further. Meanwhile, public awareness and policy advocacy can be enhanced, particularly in rural areas inhabited by the Tharu. Strengthening conservation actions through research, community engagement, and policy reforms is imperative to ensure the survival of these remarkable reptiles in the face of mounting anthropogenic challenges.

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Declarations

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Conflicts of Interest: None declared.

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