STUDYING THE STATUS, FEEDING ECOLOGY, AND HABITAT OF THE MUSK DEER AND COMMUNITY-DRIVEN CONSERVATION INITIATIVE IN KANCHANJUNGHA CONSERVATION AREA (KCA)

A project report submitted to the Rufford Foundation

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Anita Dandekhya
Team Leader

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Acronyms

DBH	**Diameter at Breast Height**
KCA	**Kanchanjungha Conservation Area**
KCAMC	**Kanchanjungha Conservation Area Management Council**
CITIES	**Convention on International Trade in Endangered Species of Wild Fauna and Flora**
HMD	**Himalayan Musk deer**
IV	**Ivlev's Index**
IVI	**Important Vegetation Index**

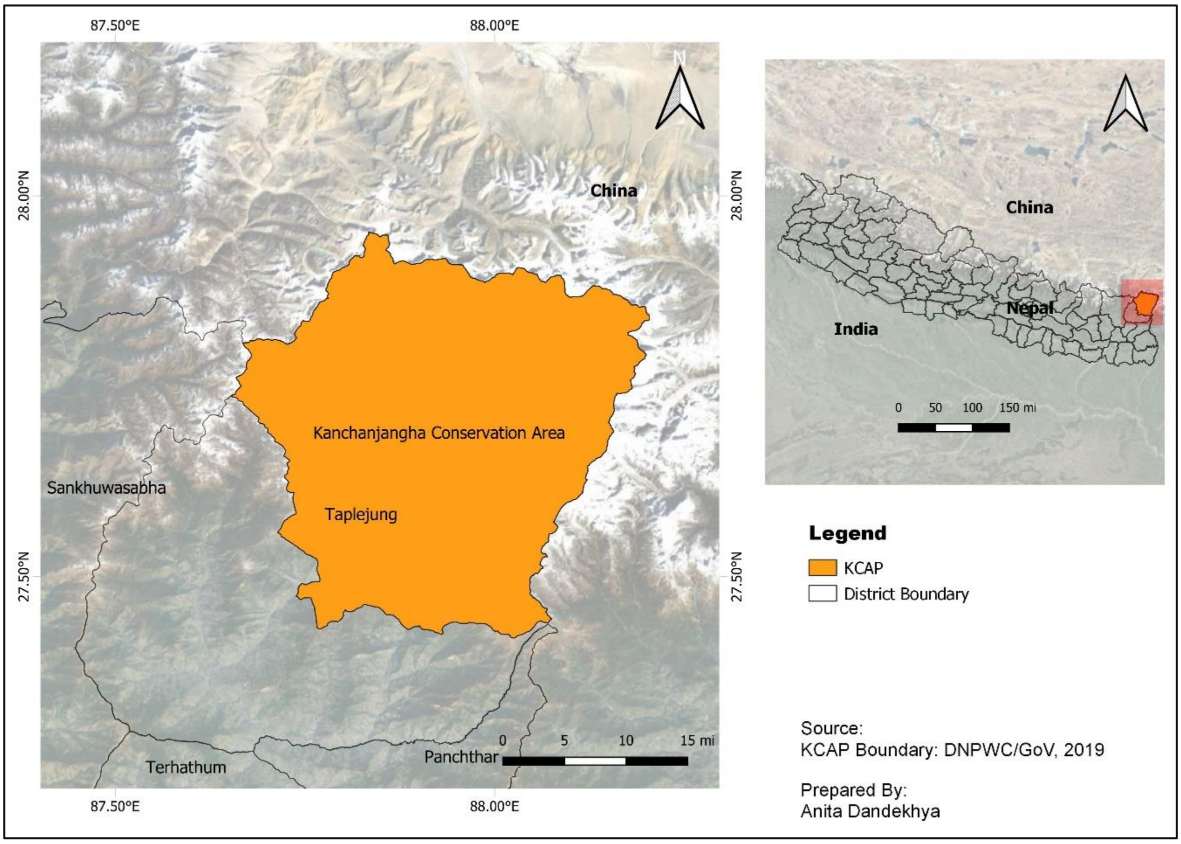
Introduction

The inspiration for this project arose from a transformative trekking experience in the Kanchanjungha Conservation Area (KCA) in 2019. Interactions with local herders during the journey revealed a pressing need for Musk deer conservation initiatives. Upon further investigation, absence of adequate research and specific conservation projects in the region became apparent which gave motivation to take action. On one hand, the main aim of this project is to collect a comprehensive database of Musk deer habitat and feeding behavior which enable to determine the distribution, habitat preference, habitat overlap and feeding ecology of the Musk deer and output will be beneficial to the fellow researcher as well as to local authority during conservation planning and decision making. On the other hand, during this project year, local community, students and herders are sensitized regarding the conservation importance of the Musk deer via different awareness program. Also, the project is successful in coordinating and cooperating with the local anti-poaching unit.

By involving local communities, the project aim to enhance Musk deer conservation in collaboration with stakeholders. This project seeks not only to addresses the threats faced by Musk deer but also emphasizes the importance of community involvement and awareness in safeguarding the balance of the ecosystem in KCA.

Project Site

Kanchanjungha Conservation Area (27°42′56″N 87°55′42″E) is the site of this project. It is located in the far north-eastern part of Nepal. It shares a border with India in the east and with China in the north. It encompasses the mighty Mount Kanchanjungha range. Designated as a conservation area in 1997, Kanchanjungha Conservation Area is one of the country's largest protected areas, covering an extensive area of about 2,035 square kilometers. In the north, it adjoins the Qomolangma National Nature Reserve in Tibet, and in the east the Khangchenzonga National Park in Sikkim. The climate ranges from sub-tropical to alpine due to an extreme altitude gradient of over seven thousand meters within less than 10 km. The conservation area has documented more than 30 mammal species, 158 bird species, 10 reptile species, and over 800 flowering plant species (WWF, 2018). The main ethnic groups in the area are Sherpa/Bhote, Limbu, and Rai. The KCA comprises approximately 1,257 households, each reflecting a rich diversity of ethnic backgrounds. These households engage in a wide range of livelihood activities such as agriculture, pastoralism, forestry, and trade, contributing to the vibrant cultural mosaic of the community (WWF, 2018).



Objectives

1. To determine the status and distribution of the Musk deer in KCA
2. To perform diet analysis
3. To assess the habitat overlap and determine habitat ecology
4. To discover the habitat preferences of Musk deer
5. To identify the threats
6. To conduct the various awareness programs on Musk deer conservation

Part 1

STATUS, FEEDING ECOLOGY, AND HABITAT OF THE MUSK DEER

Background

Since 2008, the Himalayan Musk deer (HMD) has been classified as endangered by the IUCN, listed under Appendix I of CITES, and is safeguarded by the Government of Nepal through the National Park and Wildlife Conservation Act of 1973. Musk deer primarily inhabits the alpine forest habitat of the Himalayas, residing at elevations ranging from 2200 to 4300 (Lamsal et al., 2018). The Musk deer, native to Nepal, India, Bhutan, and China, has also been observed in Afghanistan, Pakistan, and Myanmar (Green, 1986). In Nepal, its distribution spans the entire mountainous region, covering 30177.19 square kilometers, with 5815.08 square kilometers of potential habitat located within protected areas (Aryal and Subedi, 2011). Known for its solitary and territorial behavior, the Musk deer is a discerning feeder capable of adjusting to less nourishing diets during periods of food scarcity (Green, 1986).

The current population size of the Himalayan Musk deer (HMD) in Nepal and its native regions is not known. Nevertheless, there has been a consistent decline in the population over the last few decades, mainly attributed to human activities such as illegal hunting for musk glands and the fragmentation of their habitat (Aryal et al., 2010; Aryal and Subedi, 2011). Nepal is facing a significant challenge due to the illegal wildlife trade, acting as both a source and transit point (Li et al., 2000). Government reports and statements from security personnel indicate that the open borders between India and Nepal play a major role in facilitating illegal wildlife trade within Nepal (Uprety et al., 2021). n mountainous regions where infrastructure is lacking, and the terrain is harsh, winter patrolling becomes nearly impossible, and checkpoints are limited to districts (Uprety et al., 2021), This situation increases the risk of unlawful hunting. The majority of illegally traded wildlife, including Musk deer, is primarily exported to China, with the main purposes being traditional medicine and luxury goods (Chow et al., 2014; Gao et al., 2016; Katuwal et al., 2016; Li et al., 2000).

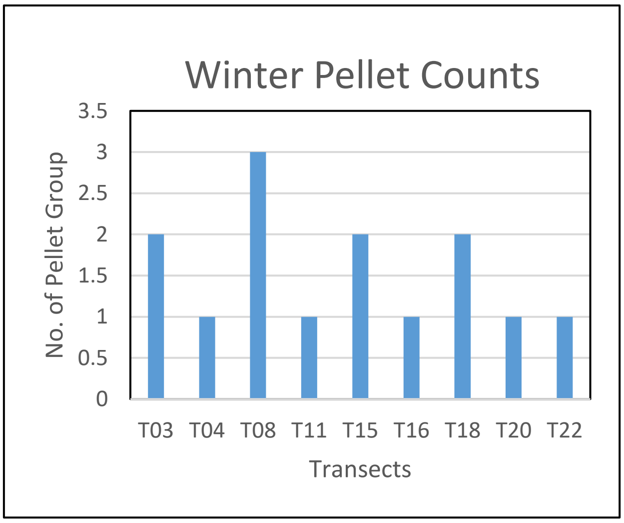
Furthermore, the problem of habitat overlap with domestic livestock poses difficulties. It is widely acknowledged that the feeding habits of wild animals can be impacted by the shared existence of their habitats with livestock (Aryal et al., 2010). Numerous studies concentrating on Himalayan ungulates have illustrated that the grazing behavior of livestock has an effect on pastoral habitats, as well as the presence and quantity of wild animals (Mishra et al., 2001). Given its endangered status, diminishing population, and rising threats, comprehensive research is imperative, alongside the essential tasks of increasing awareness and promoting community engagement.

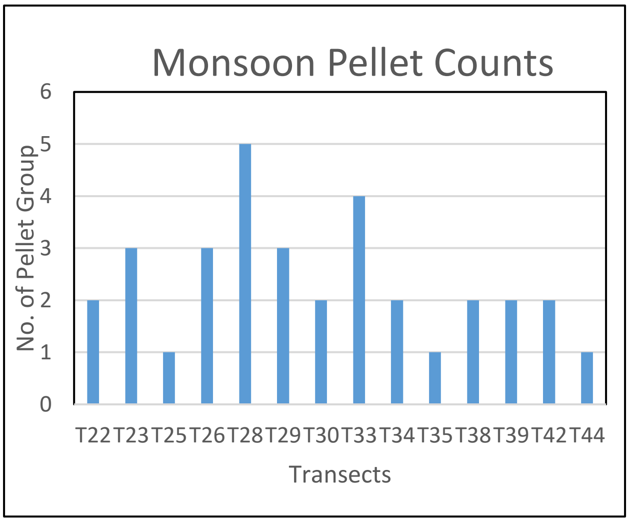
Status and Distribution

Methodology

Transect line measured 500 meters in length and 20 meters in width. Upon encountering Musk deer signs, a circular plot with a dimension as mentioned in the methodology of habitat preference section was established and data on trees, herbs and shrubs were recorded. Additionally, data on topographical and geographical variables such as GPS coordinates, altitude, slope, aspect, and distance to the water source were recorded. Population density estimation relied on counting Musk deer pellet groups.

Result





Due to harsh winter conditions, snowfall, and floods and landslides during the monsoon season in the study area, only 31 out of the 44 transect lines were surveyed. In total 51 pellets were encountered. Out of 31 transect line surveyed, only 23 transect lines consisted the pellets between the elevations of 3000m and 4100m. 19 transect line were laid in Ghunsa region and 12 transect line were laid in Tseram area based on guidance from local experts. Of the 51 pellets, 35 were observed in Ghunsa and 16 in Tseram. Additionally, Musk deer hair (n=10) and Musk deer footprints (n=6) were also encountered in different areas from the pellet-containing areas.

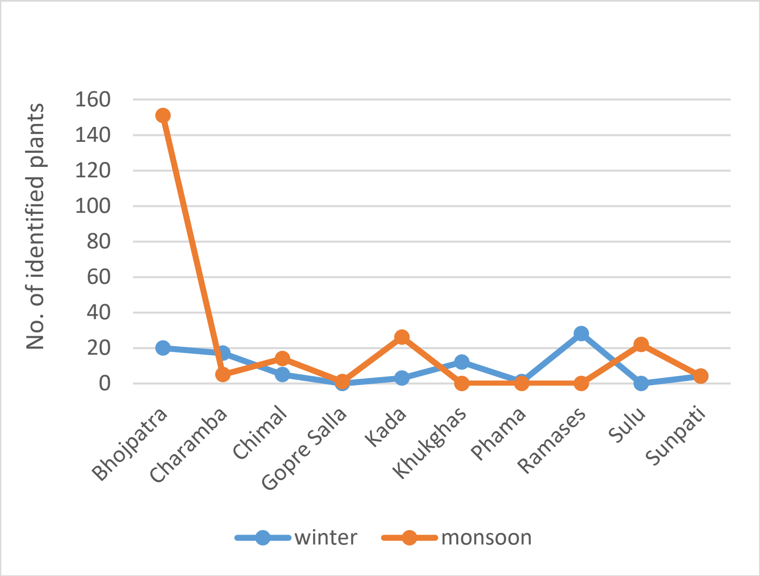
The mean pellet encounter density was calculated as $164.5 km^{-2}$. The highest pellet count occurred in T28, with the highest encounter rate of 12, situated in the Ghunsa region (N27°39.372', E087°56.438'). The pellet encounter rate was higher in forested areas (60%) compared to scrublands (40%). Furthermore, the pellet encounter rate differed between winter and monsoon seasons. During winter fieldwork, only 14 pellet groups were recorded, while a total of 37 pellets were encountered in monsoon. This variation was also observed across regions, with approximately 70% of total encounters recorded in Ghunsa region during both seasons.

Diet Analysis

Methodology

The basis of this study involved microscopically identifying indigestible plant fragments, primarily focusing on the distinctive epidermal features associated with various plant groups. Fresh pellets and plant references were collected from the field during the habitat survey. Plant specimens and the pellets were dehydrated in an oven at 50°C, typically for 24 hours, and subsequently pulverized using a mortar and pestle. The resulting homogenate underwent filtration through 500 µm and 150 µm sieves to eliminate excessively large or small particles, with the material retained on the 150 µm sieve being preserved. For the plant particle, 0.02 g of the retained sample was combined with 5 ml of 5% NaOH for plants particle and 10 ml of 10% NaOH in case of pellets particle in a test tube, and subjected to incubation in a water bath (Faithful Digital Water Bath, China) at 100°C for 5 minutes. NaOH supernatant produced after incubation was carefully removed without disrupting the sample. This entire procedure was reiterated twice more, amounting to a total of three sequential digests with NaOH in case of the pellets as a single digestion did not provide a clear view of the histology. Subsequently, 10 ml of 5% NaOH was introduced into the same test tube and underwent a 10-minute incubation in a water 6bath, following which the supernatant was once again discarded. The residual pellet underwent washing with 5 ml of distilled water and was subsequently passed through a sequence of alcohol solutions at concentrations of 30%, 60%, 80%, and 99% for drying. The desiccated samples were then affixed with DPX mounting media and covered with a coverslip. Three slides were generated per sample, and the histological structures were scrutinized and captured under magnifications of 100X and 400X (OMAX).

Result



Laboratory analysis of the dietary composition of the Musk deer was conducted separately for winter and monsoon season. 3 plant species were found common for both seasons: Bhojpatra *(Betula utilis)*, Chimal (*Rhododendron campanulatum)*, Charamba (scientific name not identified) and Sunpati *(Rhododendron anthopogan)*. Bhojpatra alone consisted the 55.11% of Musk deer diet in monsoon which is followed by Kanda (*Berberis Spp*) 26 %, and Sulu 8.03 %, Chimal (*Rhododendron campanulatum)* 5.11%. However, Charamba and Sunpati consisted only small fraction: 1.82% and 1.46% respectively. Likewise, winter diet was dominated by the Ramases 28%, Bhojpatra 20%, Charamba 17%, Khuk 12%. Chimal, Sunpati and Kanda were 5%, 4%, and 3% respectively.

During the analysis, some pellet samples consisted the plant cell with the distinct character but plant reference was not available are called *unidentified.* And those sample which could not identify at all are categorized as N/A. Altogether 3 different type of *unidentified* plant cell (unidentified 1, unidentified 2, and unidentified 3) were found which consisted the 6% of the overall pellets sample data. Pellets samples which could not be identified at all (N/A) are 18%.

Assessment of Habitat Overlap

Methodology

The assessment of spatial habitat overlap employed methodologies developed by Real (1999) and Real and Vargas (1996). Along the transect line, three plots, each measuring 20m x 20m, were randomly placed. Within each plot, observations of Musk deer and livestock signs were documented, and the spatial habitat overlap between these two species was evaluated using the Jaccard's similarity index (J) (Real, 1999; Real & Vargas, 1996), expressed as:

$$c = \frac{C}{(A+B-C)}$$

Where,

A is the number of plots used by Musk deer

B is the number of plots used by livestock

C is the number of plots used by both Musk deer and livestock

Result

A total of 93 plots were established. Out of the total plots, 31 were exclusively identified with Musk deer presence, 40 plots exclusively featured livestock presence, and 22 plots exhibited the presence of both species. The Jaccard's Index was calculated as 0.45, indicating a noteworthy habitat overlap between Musk deer and livestock. This suggests that 45% of the habitat characteristics are shared between both Musk deer and Livestock.

Habitat Preferences

Methodologies

For the vegetation analysis quadrate size was selected as suggested by Schemnitz (1980). Plots of size 10 m×10 m for the tree layer (plants above 3 m height and 5 cm DBH), 4 m × 4m for the shrub layer (woody plants below 3m height), and 1 m × 1m plots for herbs (plants up to 1 m height) was established in the site where Musk deer pellets were encountered . The data on trees, shrubs and herbs were recorded. Collected data were used to calculate species richness, density, relative density, frequency, and relative frequency of the trees and shrubs in the study area by using the following relations:

$$Density\ of\ the\ Species = \frac{Total\ number\ of\ individuals\ of\ species\ A}{Total\ number\ of\ areas\ surveyed * Area\ of\ plot}$$

$$Relative\ Density\ of\ the\ species = \frac{Total\ number\ of\ individual\ of\ species\ A}{Total\ number\ of\ individuals\ of\ all\ species}$$

$$Frequencies\ of\ Species = \frac{Number\ of\ plots\ in\ which\ species\ A\ occurs\ *\ 100}{Total\ number\ of\ plot\ samples}$$

$$Relative\ frequencies\ of\ the\ species = \frac{Frequency\ value\ of\ species\ A\ *\ 100}{Total\ frequency\ value\ of\ all\ species}$$

$$Relative\ dominance\ of\ the\ species = \frac{Total\ basal\ area\ of\ species\ A\ *\ 100}{Total\ basal\ area\ of\ all\ species}$$

Importance value index (IVI) = Relative density + relative frequency + relative dominance.

Ivelv's electivity index (IV) was used to determine habitat preferences (Ivelv, 1961). The value of which ranges from -1.0 to +1.0. Positive values indicate habitat preference, a negative value is avoidance, and 0 indicates random use.

$$IV = \frac{(r-u)}{(r+u)}$$

where
r, is the proportion of resources (occurrences of the species) at the sample point in the habitat of interest.
u, is the proportion of resources at the sample point in the entire study area.

Result

Vegetation Preferences

Tree Species	Ivelv's Index	IVI	Status
Rhododendron campanulatum	0.4	24.2	Prefer
Betula utilis	0.3	21.9	Prefer
Taxus wallichiana	0.1	20.8	Prefer
Cryptomeria japonica	0.0	21.8	Randomly used
Taxus baccata	0.0	2.9	Randomly used
Abies sepctabilis	0.3	17.6	Prefer
Rhododendron arboreum	0.3	16.8	Prefer

Total seven tree species was recorded, 4 shrubs species and 3 herbs species were recorded in 93 plots. Musk deer showed a preference for 5 tree species including *Rhododendron campanulatum* (IV = 0.4, IVI = 24.21), *Betula utilis* (IV = 0.3, IVI = 21.91), *Abies spectabilis* (IV = 0.3, IVI = 17.64), *Rhododendron arboretum* (IV = 0.3, IVI = 16.84), *Taxus wallichiana* (IV = 0.1, IVI = 20.77) and it randomly used the two tree species *Cryptomeria japonica* (IV = 0.0, IVI = 21.78), *Taxus baccata* (IV = 0.0, IVI, 2.92). However, it did not avoid any of the recorded tree species.

In case of the shrubs, all the recorded plant species were preferred by Musk deer. Among them *Rhododendron campanulatum (IV = 0.6)* was highly preferred. It was followed by the *Berberis spp*. (IV = 0.5), *Juniper spp.* (IV =0.5) and *Rhododendron anthopogan* (IV = 0.4). *Rhododendron campanulatum* was considered as the shrubs when its height is less than 3m.

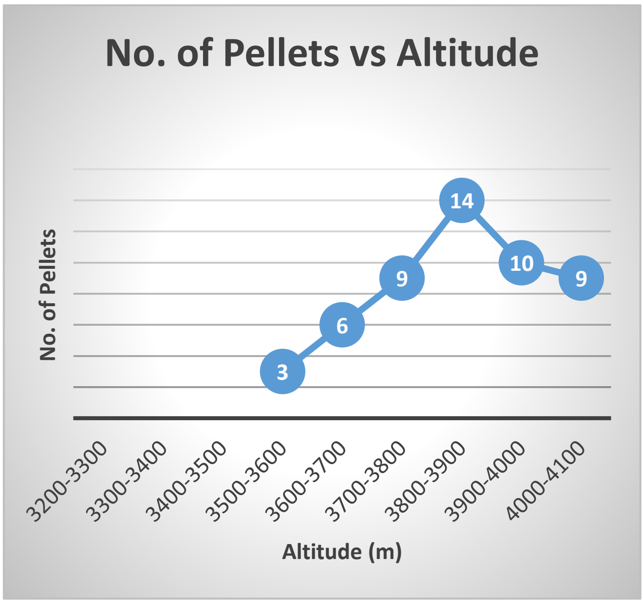
Herbs consisted 3 species. One species which is called Buki grass is very common in the Musk deer habitat. Its Ivelv's index is calculated as 0.4 followed by the Usnea spp (IV = 0.3) however Musk deer use Moss (IV=0.0) randomly.

Shrubs			
Shrub Species	**Ivlev's Index**	**IVI**	**Status**
Rhododendron anthopogan	0.4		Prefer
Juniper sp	0.5		Prefer
Berberis sp	0.5		Prefer
Rhododendron campanulatum	0.6		Prefer
Herbs			
Usnea Sp	0.3		Prefer
Buki Grass*	0.4		Prefer
Moss*	0.0		Randomly used

*Note: * = scientific name not identified*

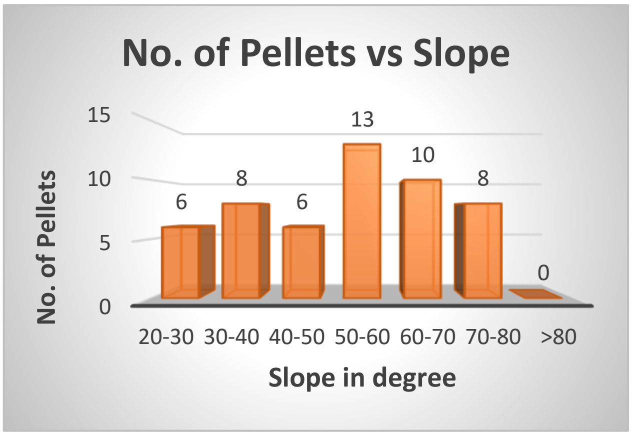
Altitude preferences

Altitudinal range from 3200-4100 m was considered. It was divided into the 9 altitudinal categories each having a difference of 100 m for the analysis. Musk deer mostly used the altitudinal range of 3800-3900 m (IV = 0.27). It avoided the altitudinal ranges 3500-3600 m (IV = -0.48) and 3600-3700m (IV = -0.17). Such avoidance of these altitudinal range might be due to the presence of the human settlement. In case of the Ghunsa, human settlement exist at the altitude of 3430m.



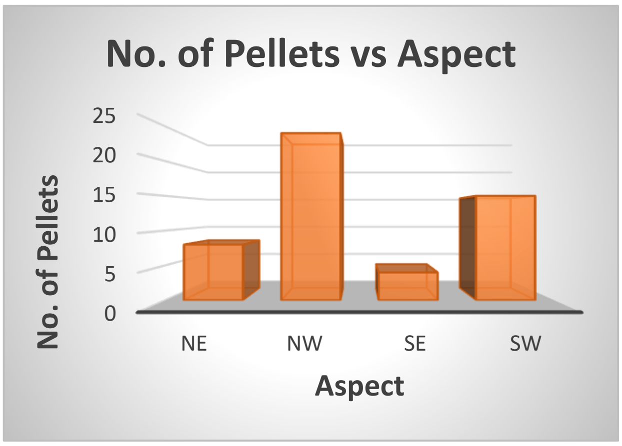
Slope Preference

Slope was divided into seven categories of interval 10° starting from 20° to > 80°. Musk deer mostly preferred 50°-60° slope (IV=0.28). Data showed that slope > 80° was strongly avoided (IV= -1.00). Musk deer also avoided the slope of 20°-30° (IV = -0.19) and 70°-80° (IV = -0.19).



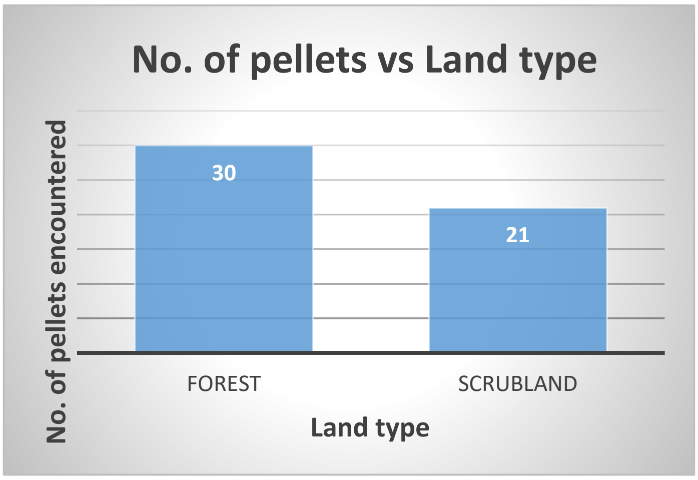
Aspect

Musk deer preferred the North West (NW) facing aspect. Ivelv's index (IV) for the NW aspect was 0.30. It also preferred the South West (SW) aspect (IV=0.08) but it avoided the North East (NE) aspect (IV=-0.23) and South East (SE) aspect (IV=-0.52).



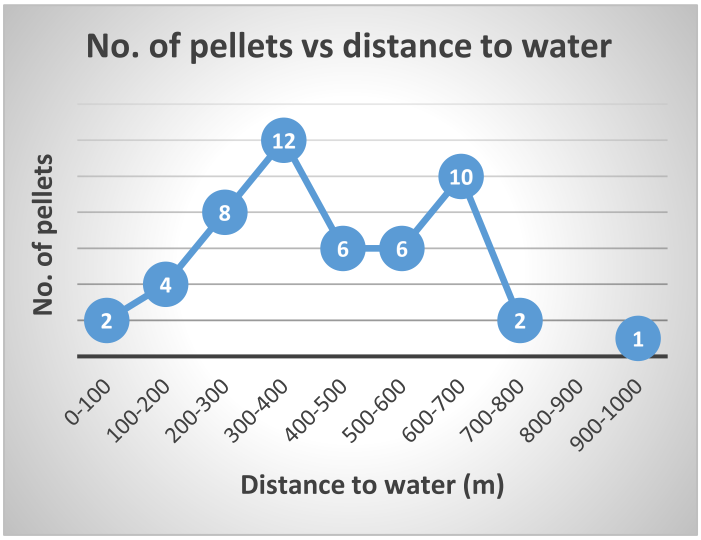
Land Feature Type

Land feature was divided into two types: forest and scrubland. Most of the pellets were recorded in the forest. Approximately, 57.7% of Musk deer encounters occurred in the forest, suggesting a preference for forested areas over scrubland.



Vicinity to the water resources

On the basis of the distance between the sign of the Musk deer encountered and the water resources, nearest distance to the water resources was categorized into the 10 categories from 0-1000 m with the interval of 100 m. It was recorded that maximum number of the sign encountered was 300-400 m away from the water source. Analysis of the data showed that 58% of the signs were recorded within 500 m distance from the water sources.



Threat identification

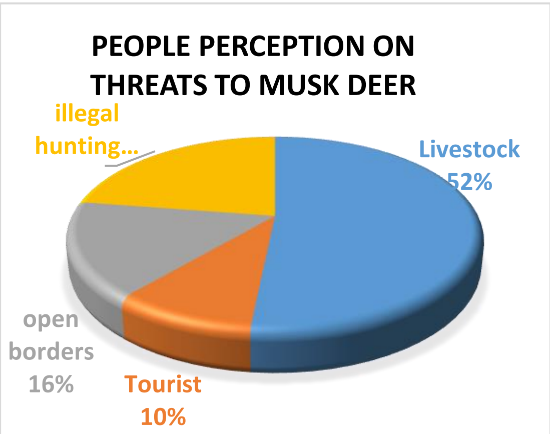
Methodology

Threat identification was based on the response of the questionnaire survey. Local people, herders, traders, conservation officers and other stakeholders were interviewed. Field observation was also done to evaluate the livestock grazing pressure on the potential habitat of the Musk deer.

Result

In the survey, 155 individuals from 101 households in Yamphudin, Ghunsa, Tapethok, and Lelep were interviewed. All participants were familiar with Musk deer, and 90% of them were aware of the issue of illegal killing of Musk deer. When interviewed about the reasons for Musk deer killings, 75% mentioned musk pods, 20% were uncertain, and interestingly, 5% identified skin and teeth as contributing factors. A significant number of respondents, 55%, refrained from assigning blame, stating they didn't know who set the snares. Many suggested that individuals from outside the community might be responsible, but none implicated local residents as culprits.

Regarding awareness of the illegality of killing Musk deer, 88% of respondents were well-informed, but 78% were ignorant about the associated legal penalties; only 22% believed that culprits would be sent to jail. The Kanchanjungha Conservation Area Management Council (KCAMC) demonstrated effective outreach, with 55% of respondents learnt about the illegality of Musk deer killings through the KCAMC sector office. Other sources of awareness included interpersonal communication (20%) and information passed down from children learning about it in school (15%).



Emphasizing the importance of discussing conservation in daily life, respondents identified nomadic herders and livestock (52%) as the primary threat to Musk deer, followed by illegal hunting (22%), while 16% considered the open border with India and China as a potential threat.

When asked about conservation strategies, 60% suggested regular monitoring of Musk deer habitats, 25% advocated for harsh punishments for culprits, and 15% emphasized the key role of awareness.

60%

Respondents Think

Regular Monitoring of the Habitat

is the best conservation strategy

Part 2

AWARENESS AND COMMUNITY-DRIVEN CONSERVATION INITIATIVE

School Teaching Program

The school teaching programs were conducted in 4 schools of the study area: Shree Kanchanjungha Secondary School (Yamphudin), Tapethok Secondary School, Saraswoti Chyaribuk Secondary School and Ghunsa Primary School. Teaching programs were conducted in two phases. In the initial phase, students were educated about Musk deer and necessity of conserving it. In second phase along with the teaching, the understandings of the students were evaluated by quiz and drawings competition. Around 350 students have been part of this specific program. They have participated in various programs: school teaching, conservation rallies, quiz and drawing competitions.

Fig: School teaching program at Shree Kanchanjungha Secondary School

Fig: School teachin program at Ghunsa Primary School

Fig: School teaching program at Saraswoti Secondary School, Tapethok

Fig: School Teaching Program at Saraswoti Chyaribuk Secondary School, Lelep

Community Teaching

Community teaching and social data collection were done simultaneously. First of all, a questionnaire survey was conducted for the purpose of research. It not only gave the required data on threats identification but also the idea about the knowledge and understanding of the Musk deer and the necessity to conserve it. After that, conservation materials were distributed and Musk deer conservation teaching was done accordingly. The latter part was more engaging. Community people were very interactive. They not only received our message but also contributed their knowledge and ideas about the Musk deer.

Fig: Formal and Informal interaction with local community

Local people have acquired conservation education through both formal and informal means. Formal methods involved pre-scheduled meetings where individuals were informed to gather at specific venues, while informal approaches included engaging in conversations about Musk deer conservation when groups of people were encountered. Community people were very interactive. They not only received our message but also contributed their knowledge and ideas about Musk deer. Sensitization efforts also took place during household surveys, reaching 155 individuals from 114 households. In total, over 250 people were formally and informally benefited from the program.

Fig: Distribution of Musk deer conservation materials after community teachung

Hoarding board installment

Hoarding board consisted the clear image and message regarding the Musk deer and its conservation. It consisted the brief introduction of Musk deer, reasons why it is endangered, legal status in the country and national and international conservation status. Four hoarding boards were installed in different locations where there is regular flow of people.

Fig: Installation of Hoarding Board

Fig: Installation of Hoarding in the premises of KCAP sector office

Radio awareness program

A radio message regarding the Musk deer and its conservation was aired in a local radio station called Radio Taplejung. "Musk deer Radio Message" was aired daily three times for 5 months. After a discussion with colleagues, radio technicians, and conservation officers, it was concluded that short but repeated radio messages were more effective than long radio talk shows. The radio message as played three times daily (7:00 am, 2:00 pm, and 7:00 pm) which were considered as the peak hours for the audience. People were asked during the community teaching and school teaching programs whether they had ever heard about the Musk deer or not, and many of them responded they heard about it by radio. One of the good advantage of the radio awareness program was that it has delivered the uniform information to the large range of people at a time and it was beneficial to those people who are not able to attend the community teaching and herders' education program. Around 5000 people of the whole Kanchanjungha Conservation Area (KCA) and region around it was supposed to be benefited by radio awareness program. The audio clip that we aired via Radio Taplejung can be listened in the following youtube link https://youtu.be/tCo3sEy3Xqc?si=4U8Vilz8vqXFUVZd .

Fig: Recording of radio message on Musk deer

Herders Education program

The herder's educational program was conducted in Ghunsa and it was highly interactive, with herders sharing their experiences and receiving messages on Musk deer conservation. While not all of them had personally encountered Musk deer, they possessed knowledge about it. They were aware that hunting Musk deer is against the law and would result in punishment, though they lacked precise information on the legal consequences.

Herders have displayed a positive attitude towards Musk deer and other animals, such as the Snow Leopard, emphasizing the importance of their conservation. The herders acknowledged the challenge of controlling a large number of livestock during the daytime, leading them to allow the animals to graze freely in the forest. They have shared that they only gathered their livestock in the evening. This practice was identified as a contributing factor to the habitat degradation of Musk deer.

Co-operation with anti-poaching committee

The establishment of an anti-poaching unit was a significant objective outlined in our project proposal. However, there was already formed but inactive anti-poaching committee in KCA. Besides, only the Department of National Parks and Wildlife Conservation (DNPWC) has the authority to form anti-poaching committee. This information was not known during the proposal's development. Fortunately, successful collaboration was achieved with the dormant local anti-poaching unit in Yamphudin, which was operated under the Kanchanjungha Conservation Area Management Council (KCAMC).

Numerous meetings were conducted with the local anti-poaching unit in the presence of the KCAMC local sector in-charge. Discussions included past experiences, monitoring methodologies, and a review of the committee's constitution. We assured them of ongoing technical support even after the completion of the project. To aid their efforts, we handed over our field equipment, such as GPS devices, binoculars, compasses, and cameras, to the local sector office in Yamphudin, allowing the anti-poaching unit to utilize the equipment as needed.

Fig: Meeting with local anti-poaching unit

Quiz and drawing competition

Quiz competition were organized in all 4 schools. 80 students have participated in the competition. During the competition, students were asked the question about the basic information of Musk deer regarding its morphology, behavior, habitat, threats, conservation status and legal status. 30 questions were asked in each competition. Drawing competition took place in Kanchanjungha Higher Secondary School. 17 student participated in the competition

Fig: Drawing competition

Fig: Drawing and quiz competition

Lesson Learned

1. Large is not always impressive

With the limited budget and time, implementing the project in spatially large area is very challenging. In comparison to the scale of budget, study area of this project is large. As the settlements are sparsely distributed throughout the KCA and are not connected with the roads, conducting various awareness programs with the higher participation of the local community within the proposed timeframe was very difficult and costly. We had to split our team and assign each to the different places which saved our time and travel cost as well.

2. Planning for the worst is ensuring the best

We did not expect heavy rainfall followed by the flood and landslide, which have damaged and blocked the roads. Even local people were hesitated to go to the forests because of the several events of landslide. We were stuck in village which delayed our field work. In retrospect, better planning could have allowed us to schedule fieldwork outside the mid-monsoon period.

3. Multi-tasking undermines the effectiveness

Establishing numerous objectives for a single project can be challenging, leading to a dispersion of concentration and effort. This particular project initially encompassed six objectives, which appeared manageable at the outset. However, during implementation, there was a strong temptation to abandon some of them. Fortunately, our well-structured team allowed us to allocate tasks based on each member's capabilities.

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More Photos

Fig: First phase field data collection

Fig: snowfall during winter data collection at Ghunsa

Fig: Second phase field data collection

Fig: Snares encounter and local resource person dismantling the snares

Fig: Laboratory analysis of Musk deer diet

Fig: Rally on Musk deer conservation and World Environment Day 2023

Fig: Glimpse of school teaching programs

Fig: Community interaction

Fig: Dissemination of Musk deer conservation education to the students

Fig: Distribution of extension materials to the local people after informal meeting

Fig: Dissemination of Musk deer conservation education to the local children

Fig: Meeting with the security personnel at Ghunsa