

Final Evaluation Report

Your Details	
Full Name	Kishor Prasad Bhatta
Project Title	Safeguarding Mountain Biodiversity: Investigating and promoting sustainable conservation of endangered tree line species of Nepalese Mountain.
Application ID	43095-1
Date of this Report	7 July 2025

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Assessment of endangered tree line species and forest composition				A detailed field inventory was carried out across 45 circular plots using advanced ground-based LiDAR scanning, a novel method in Nepal's tree line research. The team assessed species composition, tree height, diameter, crown metrics, and canopy cover. <i>Rhododendron campanulatum</i> was the dominant species of the region. Other recorded species are broad-leaved species namely <i>Betula utilis</i> , <i>Sorbus</i> spp., <i>Daphne bholua</i> , <i>Sapium insigne</i> , <i>Lyonia ovalifolia</i> and <i>Acotinum</i> spp. <i>Rhododendron</i> and <i>Betula utilis</i> were found to be the most frequently degraded species. Over 130 instances of tree cutting were documented, particularly in areas close to trekking trails and hotels, indicating tourism-related degradation.
Understanding the human impacts on mountain forests				Human impacts were thoroughly analysed using spatial proximity analysis, community interviews, and direct field observation. Key findings revealed that unregulated hotel construction, seasonal herding, and fuelwood collection were major drivers of forest degradation. Further, community level discussions revealed that herding practices in the region follow a semi-open

				and rotational grazing system. Local communities showed a partial but decreasing dependency on forests, primarily for fuelwood and fodder, with increasing adoption of alternative energy sources such as LPG and biogas. However, we found the growing concern of local communities about the drying of water sources, which they attribute changing climate patterns.
Promoting community based and sustainable practices for mountain forest conservation				The project successfully mobilized local communities through four key informant interviews, one collaborative conservation planning workshop with 15 participants, two focus group discussions involving 28 community members, and two school based awareness campaigns that reached 80 students. These activities elevated awareness of endangered species and climate change impacts, especially in areas where community knowledge was previously limited. The conservation workshop generated actionable strategies, including better grazing management, sustainable tourism practices, and forest patrolling mechanisms. Furthermore, a radio jingle and printed pamphlets were widely distributed, and the project's work received national media attention as well.

2. Describe the three most important outcomes of your project.

a). The project produced the first detailed forest assessment using LiDAR in Nepal's tree line areas (Fig.1), identifying heavily impacted species like *Rhododendron*

campanulatum and *Betula utilis*. Over 130 tree cuttings were recorded, especially near trekking routes in the study region.

b). Community level discussion identified that unregulated tourism, herding, and fuelwood collection are key drivers of forest degradation in the region. Another major concern raised by locals was the drying up of water sources, which they believe is linked to deforestation and changing climate patterns. However, positive shifts were noted in some region, such as increased use of LPG and regulated grazing practices.

c). Community engagement through awareness programs and a conservation planning workshop resulted in a locally supported conservation plan and future work directions for tree line conservation. These efforts strengthened community ownership, shared responsibility among stakeholders with clear action plan, and understanding of forest conservation.

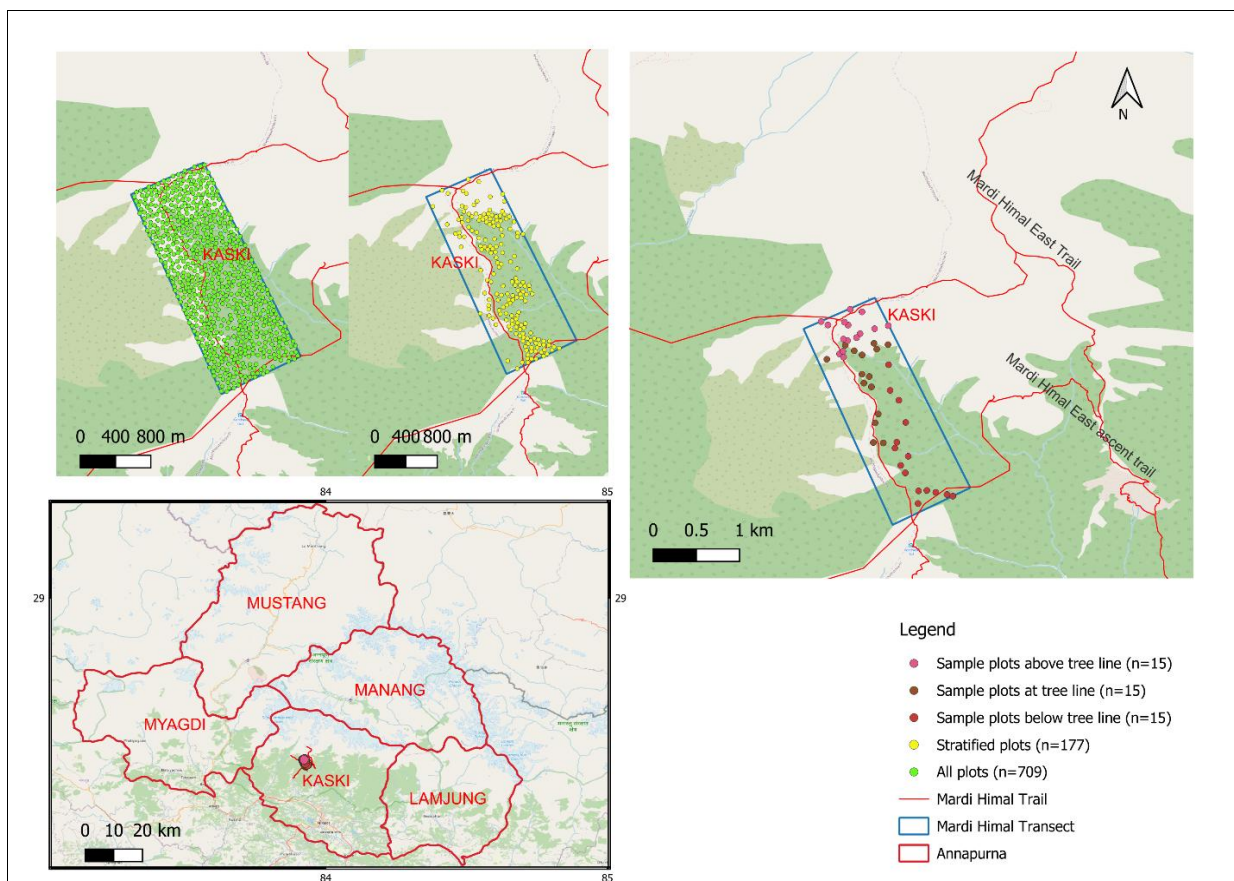


Fig 1: Study area of the project.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

We faced two main challenges during the project. The first was collecting the field data about tree line species, composition and its structure in high mountain areas. The fieldwork was significantly impacted by extreme and unpredictable weather conditions, including persistent rainfall and occasional snowfall. These adverse conditions not only limited accessibility and visibility but also posed risks to field personnel and equipment. On several occasions, field activities had to be suspended to ensure safety. To address these challenges, we incorporated flexible scheduling into our field plan, utilized weather forecasts for planning daily operations, and ensured field teams were equipped with appropriate high-altitude gear and safety protocols.

Next, getting honest information about forest degradation from local people and hotel owners was a challenge, as it was a sensitive topic, and some were understandably cautious about what they shared. We are grateful to the support of the Conservation Area Management Committee (CAMC) and ACAP, we were able to create a safe and mutually respectful space for good conversations, which helped us gather the insights we needed without any conflict among us.

4. Describe the involvement of local communities and how they have benefitted from the project.

Local communities played a central role throughout the project and were actively involved at different stages of project implementation. We conducted key informant interviews (KIs), focus group discussions (FGDs), and community-level workshops in study areas like Lwang and Ghachok of Kaski district. Participants included women's groups, farmer groups, homestay operators, youth clubs, and members of forest user groups. This communal discussion gave us better understanding of local forest use, conservation practices, seasonal herding, and energy consumption patterns in high mountain areas.

We also found that cultural values play an important role in forest conservation, especially in the tree line areas. Sacred sites in the Lwang region such as Mardi Baraha, Ekle Deurali, and Bagale Deurali encourage local people to protect and preserve the surrounding forests, helping to keep these areas intact. Local people shared knowledge on rotational grazing systems, forest patrolling, and regulated fuelwood collection. Importantly, many expressed a growing awareness of environmental changes, especially climate change, and a willingness to adopt sustainable practices.

Further, we organized school-level awareness campaigns with quiz competitions, distributed conservation pamphlets, and aired a local radio jingle promoting tree line species conservation. The collaborative conservation planning workshop brought together local stakeholders from homestay associations to conservation officials to develop the practical strategies for tree line protection.

During community discussions, local people also expressed concern over the gradual drying up of water sources, which they linked to forest degradation and shifting weather patterns. This signifies the increasing vulnerability of mountain communities and the importance of conserving forests not just for biodiversity, but also for sustaining essential ecosystem services like water supply.

As a result, the community not only gained ecological knowledge but also felt ownership being included in decision-making processes, boosting their responsibility toward forest conservation. Overall, our project strengthened the foundation for ongoing, community-led efforts for sustainable resource conservation in the region.

5. Are there any plans to continue this work?

Yes, we plan to continue this work. In the next phase, we want to focus more on practical conservation efforts, especially dealing with how tree line degradation is affecting water availability in Himalayas and increasing region's vulnerability under climate change. We aim to work closely with local communities to protect tree line where key species are being lost, prepare species specific plans, support sustainable land use, and raise awareness about how mountain ecosystems, often known as water towers, are essential for both biodiversity and water security.

6. How do you plan to share the results of your work with others?

We aim to use multiple channels to share our results with all stakeholders concerned. At the local level, our findings were presented to community members, CAMCs, and local government bodies through follow-up meetings. The key findings and summary of the outcomes along with recommendations were prepared in Nepali and published in local newspaper (shared as different attachment). Internationally, we are preparing manuscripts for submission to peer-reviewed journals which will be shared through platforms like ResearchGate and Google Scholar to ensure open access for other researchers and stakeholders.

7. Looking ahead, what do you feel are the important next steps?

The next important steps are to protect endangered tree line species and restore forest through community-based restoration which are impacted by unmanaged tourism, herding practices and unsustainable forest use approach. It's also essential to integrate forest conservation with the protection of vital water sources in mountain communities. Community-based awareness programs and forest monitoring activities are essential for the conservation of the mountain ecosystem and enhance the climate resilience of this ecologically fragile region.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

We used The Rufford Foundation logo on several materials, including banners for the programmes, certificates, brochures, and presentation slides. The Foundation received significant publicity throughout our activities. During the school-level programmes, both teachers and students showed interest and asked about the Foundation. Similarly, in our Key Informant Interviews (KII) and Focus Group Discussions (FGD), participants inquired about its role. We responded by sharing a

brief overview, explaining that The Rufford Foundation is a UK-based charity that supports nature conservation projects in developing countries.

9. Provide a full list of all the members of your team and their role in the project.

Kishor Prasad Bhatta: He served as the principal investigator for the study, who played vital role in preparing the methodology for the data collection, acquisition of field data, data analysis and writing the reports/results.

Anisha Aryal: A researcher at the Leibniz Centre for Agricultural Landscape Research (ZALF), Germany. She supported the project voluntarily as a GIS expert, assisting with spatial data analysis and the creation of maps and figures.

Santosh Kumar Ayer: A forestry graduate from Agriculture and Forestry University, Nepal. He contributed to the project as a data enumerator and analyst, working on both qualitative and quantitative datasets.

Bimal Kumar Yadav: A forestry undergraduate from Tribhuvan University, played a key role in supporting field data collection and data analysis throughout the project, contributing to both technical and community-based aspects.

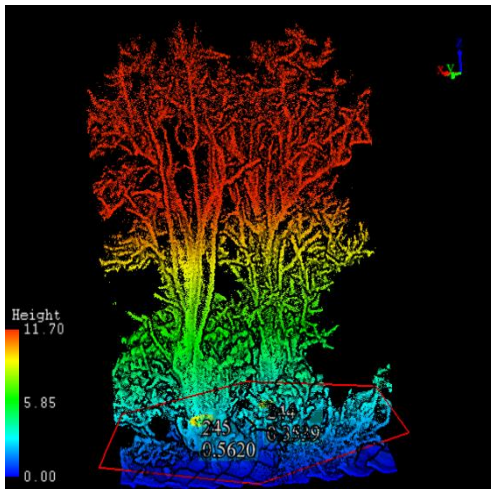
Tanka Prasad Bastola: A local tree finder from ACAP, assisted us in the field to accurately recognize and record species during the forest inventory. Additionally, he helped project by facilitating the local discussion.

10. Any other comments?

I would like to express my heartfelt gratitude to The Rufford Foundation for providing the financial support that made this important study in Nepal's mountain ecosystems possible. This helped us to assess endangered tree line species and raise awareness among mountain communities. I am sincerely thankful to the Department of National Parks and Wildlife Conservation (DNPWC) for providing the research permit, and to the University of Göttingen for providing technical instruments and field support. I am also grateful to the Annapurna Conservation Area Project (ACAP) for their continuous assistance throughout the fieldwork. My special thanks go to Khaptad Development Pvt. Ltd. for fund management, and to Pramod Raj Regmi, Lekhnath Gautam, and Durga Nanda Yadav from ACAP for their essential role in project implementation. I would also like to thank Angel Kattel for brochure development, the International Forestry Student Association (IFSA), Pokhara for event management, and Keshab Sawad for helping publicize our work through media outreach. Finally, I have provided some photos which shows different stages of project implementation (Photos: Bimal Kumar Yadav and Kishor Prasad Bhatta).



Field data collecting using ground-based LiDAR



Recorded species at tree line from
LiDAR (representative image)



Field team and the tree line of the study area



School level awareness program



Community Level focus group discussion



Published news about the project in NagariK daily



Prize distribution to School level Quiz winners



Key informant interview (Homestay)

ANNEX – Financial Report
[Intentionally deleted]